BEFORE THE POLLUTION CONTROL BOARD OF THE STATE OF ILLINOIS

KB SULLIVAN INC.,)	
Petitioner,	j	
)	
V.)	PCB 2021-078
)	(LUST Appeal)
ILLINOIS ENVIRONMENTAL)	
PROTECTION AGENCY,)	
Respondent.)	

NOTICE

Don Brown, Clerk Illinois Pollution Control Board James R. Thompson Center 100 West Randolph, Suite 11-500 Chicago, IL 60601 don.brown@illinois.gov Carol Webb, Hearing Officer Illinois Pollution Control Board 1021 North Grand Avenue East P.O. Box 19274 Springfield, IL 62794-9274 carol.webb@illinois.gov

Patrick D. Shaw Law Office of Patrick D. Shaw 80 Bellerive Road Springfield, IL 62704 pdshaw1law@gmail.com

PLEASE TAKE NOTICE that I have today filed with the office of the Clerk of the Pollution Control Board an **APPEARANCE**, the **ADMINISTRATIVE RECORD** and a **CERTIFICATE OF RECORD ON APPEAL**, copies of which are herewith served upon you.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,

Respondent

Melanie A. Jarvis

Melanist

Assistant Counsel Division of Legal Counsel

1021 North Grand Avenue, East

P.O. Box 19276

Springfield, Illinois 62794-9276

217/782-5544

866/273-5488 (TDD) Dated: March 18, 2022

BEFORE THE POLLUTION CONTROL BOARD OF THE STATE OF ILLINOIS

KB SULLIVAN INC.,)	
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	j	(LUST Appeal)
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PROTECTION AGENCY,	j	
Respondent.	ĺ	

APPEARANCE

The undersigned, as one of its attorneys, hereby enters her Appearance on behalf of the Respondent, the Illinois Environmental Protection Agency.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, Respondent

Melanie A. Jarvis

Assistant Counsel

Special Assistant Attorney General

Division of Legal Counsel

1021 North Grand Avenue, East

P.O. Box 19276

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Respondent.		

CERTIFICATE OF RECORD ON APPEAL

Pursuant to 35 Ill. Adm. Code 105.116(b) and 105.410, the following constitutes an index of documents comprising the record:

PAGES	DOCUMENT(S)	DATE		
R0001-R0140	Corrective Action Plan and Budget	February 17, 2012		
R0141-R0221	TACO Calculations	April 6, 2012		
R0222-R0263	Revised TACO Calculations	April 27, 2012		
R0264-R0266	IEPA Reviewer Notes	May 9, 2012		
R0267-R0271	IEPA Decision Letter	May 16, 2012		
R0272-R0289	CWM Letter to IEPA	June 12, 2012		
R0290-R0293	IEPA Claim Reviewer Notes	November 19, 2020		
R0294-R0342	Reimbursement Claim	October 20, 2020		
R0343-R0346	IEPA Decision Letter	February 5, 2021		

I, Brian Bauer, certify on information and belief that the entire record of the Respondent's decision, as defined in 35 Ill. Adm. Code 105.410(b), is hereby enclosed.

Brian Bauer

Leaking Underground Storage Tank Section Illinois Environmental Protection Agency

Date:_March 18, 2022

This filing submitted on recycled paper.

CERTIFICATE OF SERVICE

I, the undersigned attorney at law, hereby certify that on March 18, 2022, I served true and correct copies of an APPEARANCE, the ADMINISTRATIVE RECORD and a CERTIFICATE OF RECORD ON APPEAL, via the Board's COOL system and email, upon the following named persons:

Don Brown, Clerk Illinois Pollution Control Board James R. Thompson Center 100 West Randolph, Suite 11-500 Chicago, IL 60601 don.brown@illinois.gov

Patrick D. Shaw Law Office of Patrick D. Shaw 80 Bellerive Road Springfield, IL 62704 pdshaw1law@gmail.com Carol Webb, Hearing Officer Illinois Pollution Control Board 1021 North Grand Avenue East P.O. Box 19274 Springfield, IL 62794-9274 carol.webb@illinois.gov

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, Respondent

Melanie A. Jarvis Assistant Counsel

Melanie

Division of Legal Counsel

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P.O. Box 19276

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Environmental Consulting Services

Phone: (217) 522-8001 Fax: (217) 522-8009

February 17, 2012

Mr. Brad Dilbaitis, Project Manager

LUST Section, Bureau of Land Illinois Environmental Protection Agency 1021 North Grand Avenue East Springfield, Illinois 62794-9276

RE:

LPC #1390305014—Moultrie County

KB Food & Gas/Sullivan

111 West Jackson Street (Rt. 121 & 32) Incident Number: 90-0146/2004-0969

LUST Technical Reports-Corrective Action Plan and Budget

Dear Mr. Dilbaitis:

On behalf of Mr. Kamlesh Patel, owner of KB Food & Gas in Sullivan, Illinois, we are submitting the attached Corrective Action Plan and Budget for the above referenced site.

If you have any questions or require additional information, please contact Maying EIVED Smith or me at (217) 522-8001.

FEB 17 2012

Sincerely

IEPA/BOL

Carol L. Rowe, P.G.

Senior Environmental Geologist

xc:

Mr. Kamlesh Patel, KB Food & Gas

Mr. William T. Sinnott, CWM Company, Inc.

IEPA - DIMICICIA DE RECORDOS MANAGERICANT RELEASAE E

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CORRECTIVE ACTION PLAN AND BUDGET

KB FOOD & GAS

Sullivan, Illinois LPC#1390305014- Moultrie County Incident Numbers 90-0146/2004-0969

RECEIVED

FEB 17 2012

Submitted to:

IEPA/BOL

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

Leaking Underground Storage Tank Section, Bureau Of Land 1021 North Grand Avenue East Springfield, Illinois 62794-9276

Prepared by: CW³M COMPANY, INC.

701 South Grand Avenue West Springfield, Illinois (217) 522-8001 400 West Jackson, Suite C Marion, Illinois (618) 997-2238

FEBRUARY 2012

CW⁸M Company, Inc. Corrective Action Plan and Budget KB Food & Gas/Sullivan

LPC #1390305014 - Incident Numbers: 90-0146/2004-0969

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ACRONYMS AND ABBREVIATIONS

ADLs	Acceptable Detection Limits
BETX	Benzene, ethylbenzene, toluene, total xylenes
CAP	Corrective Action Plan
CACR	Corrective Action Completion Report
CES	Consolidated Environmental Services
ELUC	Environmental Land Use Control
HAAs	Highway Authority Agreements
IDOT	Illinois Department of Transportation
Ill. Adm. Code	Illinois Administrative Code
IEMA	Illinois Emergency Management Agency
IEPA	Illinois Environmental Protection Agency
ISGS	Illinois State Geological Survey
ISWS	Illinois State Water Survey
LUST	Leaking Underground Storage Tank
MTBE	Methyl tert-butyl ether
OSFM	Illinois Office of the State Fire Marshal
PNAs	Polynuclear aromatic hydrocarbons
PVC	Polyvinyl chloride
ROWs	Right of Ways
SICR	Site Investigation Completion Report
TACO	Tiered Approach to Corrective Action Objectives
USTs	Underground Storage Tank

CWM Company, Inc.

Corrective Action Plan and Budget

KB Food & Gas/Sullivan

LDC #1200205014 Incident Numbers

LPC #1390305014 - Incident Numbers: 90-0146/2004-0969

1. SITE HISTORY/EXECUTIVE SUMMARY

1.1 GENERAL

Mr. Kamlesh Patel, owner of the underground storage tanks (USTs) at KB Food & Gas, purchased the subject site located at 111 West Jackson Street in Sullivan, Illinois, from Convenience and Petroleum Marketing, LLC, on August 2, 2007 (CES, 2007). With the purchase, Mr. Patel acquired responsibility for leaking UST Incident Numbers 2004-0969 and 90-0146. Incident Number 2004-0969 was assigned on July 9, 2004, by the Illinois Emergency Management Agency (IEMA) after a removal of the UST's was requested by the Illinois Department of Transportation (IDOT) and presided over by the Illinois Office of the State Fire Marshal (OSFM). Based on soil staining and visual signs of contamination, the OSFM required that a confirmed release be reported to the IEMA. Site investigation and remedial proceedings were originally performed by Consolidated Environmental Services (CES). Based on the investigation by CES, Incident #2004-0969 was a commingling release with the former release Incident #90-0146. Once the purchase of the property was finalized, Mr. Patel then requested CW3M Company, Inc. to proceed with the reporting and site investigation requirements in accordance with the requirements of 35 Illinois Administrative Code (Ill Adm. Code) 734. An Election to proceed as owner was filed by Mr. Patel on February 18, 2010, and approved by the Agency on March 4, 2010.

The 20-Day Certification was submitted to the Illinois Environmental Protection Agency (IEPA) on July 23, 2004 (CES, 2004). The 45-Day Report was submitted November 9, 2004 (CES, 2004a). A Site Classification Work Plan and Budget was submitted on November 9, 2004 (CES, 2004b) and was denied by the Agency on February 15, 2005 (IEPA, 2005). On September 8, 2004, the Agency approved the 45-Day Report (IEPA, 2004). A Stage 2 Site Investigation Plan (SIP) and Budget was submitted on October 14, 2005 (CES, 2005) and was approved, with modifications to the budget, by the IEPA on January 20, 2006 (IEPA, 2006). A Stage 2 SIP Budget was submitted on July, 1, 2010 (CW³M, 2010) and was approved with modifications on August 26, 2010 (IEPA, 2010). A Stage 3 SIP and Budget was submitted to the IEPA on August 20, 2010 (CW³M, 2010a) and was approved by IEPA on October 13, 2010 (IEPA, 2010a). An amended Stage 3 SIP and Budget was submitted on September 6, 2011 (CW³M, 2011) and was denied in a letter by the IEPA on October 4, 2011 (IEPA, 2011). The Agency has made the determination that soil and groundwater has been defined to Tier 1 residential clean up objectives and no further investigation is needed. A Site Investigation Completion Report (SICR) was submitted on November 10, 2011 (CW³M, 2011a) and was approved, with modifications to the Stage 3 Site Investigation Actual Costs, by the IEPA on January 11, 2012 (IEPA, 2012).

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This Corrective Action Plan (CAP) and Budget has been prepared in accordance with the requirements of Ill. Adm. Code 734. The CAP Certification form, which has been prescribed and provided by the IEPA has been included in Appendix A. This report is certified by an Illinois Licensed Professional Engineer.

1.2 SITE LOCATION

KB Food & Gas is located at 111 West Jackson Street, Sullivan, Moultrie County, Illinois. The site is located in the NE ¼ of the NW ¼ of the SE ¼ of Section 2, Township 13 North of the Centralia Baseline and Range 5 East of the Third Principle Meridian.

1.3 UNDERGROUND STORAGE TANK INFORMATION

CES personnel were on site July 15th and 16th, 2004, to oversee tank removal activities and collect soil samples. The tanks were ventilated and the tanks, product piping and the vent risers removed. A narrative of the tank removals and other early action activities was provided in the 45-Day Report (CES, 2004a).

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KB Food & Gas/Sullivan

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Table 1-1. Underground Storage Tank Summary

Tank Number	Tank Volume (gallons)	Tank Contents	Incident Number	Release Information	Current Status
1	10,000	Gasoline	90-0146 2004-0969	Spills & Overfills	Removed 7/8/2004
2	8,000	Gasoline	2004-0969	Spills & Overfills	Removed 7/8/2004
3	8,000	Gasoline	2004-0969	Spills & Overfills	Removed 7/8/2004
4	5,000	Diesel	2004-0969	Spills & Overfills	Removed 7/8/2004
5	5,000	Gasoline	2004-0969	Spills & Overfills	Removed 7/8/2004
6	2,000	Kerosene	2004-0969	Spills & Overfills	Removed 7/8/2004
7	10,000	Gasoline	None	None	Installed 8/5/2004
8	10,000	Gasoline	None	None	Installed 8/5/2004
9	8,000	Diesel	None	None	Installed 8/5/2004
10	5,000	Kerosene	None	None	Installed 8/5/2004
11	5,000	Gasoline	None	None	Installed 8/5/2004

1.4 EARLY ACTION SUMMARY

During and following completion of the tank removal activities, transportation and disposal of contaminated backfill materials was initiated. CES collected six soil samples from the product dispenser islands, as well as a groundwater sample collected from standing water in the UST removal area. Additionally, groundwater samples were collected from the old monitoring wells installed by Shaffer, Kramer, Silver & Associates, in response to Incident #90-0146. CES personnel returned to the site on July 30, 2004, and again on August 16th and 17th, 2004, to oversee additional soil removal from the UST excavation.

Approximately 1,698.37 tons (1,132.24 cubic yards) of contaminated backfill material was removed from the UST excavation site and disposed of at Environmental Recycling Centers

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Coles County Landfill in Charleston, Illinois. Upon completion of the backfill removal, 8 samples were collected along the walls of the excavation, and 7 samples were collected from the excavation floor.

The indicator contaminants for gasoline are benzene, ethylbenzene, toluene, and total xylenes (BETX) and methyl tert-butyl ether (MTBE), while the indicator contaminants for diesel fuel and kerosene are BETX, MTBE, and polynuclear aromatic hydrocarbons (PNAs). Soil samples were collected and analyzed for BETX, MTBE, and PNAs due to diesel fuel and kerosene involved in the release. The clean-up objectives were set, and the results were submitted to the IEPA in the 45-Day Report (CES, 2004a). The Stage 2 SIP proposed that BETX and MTBE remain the only indicator contaminants that should be tested for because PNA contamination was not found, and it was approved by the IEPA on January 20, 2006 (IEPA, 2006). Acceptable Detection Limits (ADLs) were in accordance with SW 8260B analysis methods.

The analytical results for the USTs excavation were submitted in the Stage 2 Site Investigation Plan (CES, 2005).

Maps showing the former tank locations, early action excavation area, and early action sample locations have been incorporated into our maps as accurately as possible.

1.5 SITE INVESTIGATION SUMMARY

Based upon the results of the initial on-site sampling, it was determined that off-site access was going to be required on the six surrounding properties. All but one property (News Progress, south of the subject property) has denied access or access has been considered denied. Off-site access correspondence was included in the SICR (CW³M, 2011a) and will be provided again in the Corrective Action Completion Report (CACR). In addition, all soil and groundwater analytical results were provided in the SICR (CW³M, 2011a). Soil analytical results indicate that the Tiered Approach to Corrective Action Objectives (TACO) Tier 1 Residential Clean-up Objectives have been exceeded at the northern, northwestern, western, southern, and southeastern property boundaries with the majority of the release emanating from the pump islands. Indicator contaminants that have exceeded the objectives include BETX and MTBE. Based on on-site and off-site investigations from the limited amount of off-site access granted, the soil plume has been defined.

Groundwater analytical results indicate that the groundwater quality has exceeded the Class I Groundwater Objectives at all of the property boundaries. Indicator contaminants that have exceeded the objectives include BETX and MTBE. Based on on-site and off-site investigations from the limited amount of off-site access granted, the groundwater plume has been defined. An Amended Stage 3 Plan and Budget was submitted to further

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investigate off-site, but the Agency determined that the contamination found at MW-13 was likely not part of the KB Food & Gas release, and denied the additional investigation.

1.6 CORRECTIVE ACTION SUMMARY

The results from the site investigation activities indicate that soil contamination above Tier 1 Clean-up Objectives is present on-site. Upon the determination of TACO Tier 2 Clean-up Objectives, it is apparent that levels of contamination defined from site investigations activities have met Tier 2 Clean-up Objectives. The establishment of the TACO Tier 2 Clean-up Objectives will allow all soil on-site to meet industrial/commercial and construction worker land use clean-up objectives.

Soil analytical results indicate that TACO Tier 1 Residential Clean-up Objectives have been exceeded on-site at the property boundary bordering News Progress, located south of the subject property. Due to the limited area, close proximity to utility lines, and News Progress's building foundation, the removal of potential off-site contaminated soil is not a viable option. CW³M proposes to use an Environmental Land Use Control (ELUC) restricting the News Progress property to industrial/commercial usage by accepting the Tier 2 Clean-up Objectives for the KB Food & Gas site. If the property owner is objectionable to entering into an ELUC for the property, a Corrective Action Plan and Budget Amendment will be submitted to address off-site contamination at the News Progress property.

Soil analytical results indicate that the TACO Tier 1 Residential Clean-up Objectives have been exceeded at KB Food & Gas property boundary lines bordering Hamilton Street (Illinois Route 32), Jackson Street (Illinois Route 121), and Van Buren Street. Highway Authority Agreements (HAAs) with the City of Sullivan and IDOT will be required to address potential soil contamination under these Right of Ways (ROWs).

Groundwater modeling indicates that the extent of groundwater contamination exceeding the most stringent Tier 1 remediation objectives reaches off-site properties. Therefore, it will be proposed that the City of Sullivan adopt either a citywide or limited groundwater ordinance effectively prohibiting the installation of potable water supply wells within a specified area of Sullivan, Illinois.

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2. REMEDIATION OBJECTIVES

2.1 DETERMINATION OF CLEAN-UP OBJECTIVES

In accordance with 35 III. Adm. Code 734.410, remediation objectives for the site have been determined in accordance with 35 III. Adm. Code 742. Therefore during site investigation activities, the following site-specific parameters were determined:

Hydraulic Conductivity (K): 1.38 x 10⁻⁵ cm/sec

Soil bulk density (ρ_b): 1.846 g/cm³ Soil particle density (ρ_s): 2.652 g/cm³

Moisture content (w): 0.142

Organic carbon content (foc): 0.721

In order to determine the hydraulic conductivity, a slug test was performed during Stage 1 site investigation activities. The test was performed by lowering a "slug" constructed of polyvinyl chloride (PVC) into a monitoring well. When the slug is lowered into the well, the groundwater is displaced by the volume of the slug. As the water within the well equilibrates, water depth changes are recorded in relation to the time interval that has passed since the test was initiated.

The hydraulic conductivity calculations are based on the total well depth, screen length and radius, initial water depth and the water depth change over time. The depth-to-water changes over time have been plotted on a semi-logarithmic graph and the curve has been evaluated. The slope of the straight-line portion of the curve, along with the other slug test data, was used to calculate the hydraulic conductivity.

Velocity was calculated using the hydraulic conductivity results determined at the site, as well as the hydraulic gradient. The hydraulic gradient was found by calculating the change in gradient between the most up-gradient well (MW-12, 95.33 feet) and the down-gradient well in the direction of flow (MW-8, 94.13 feet), then dividing this answer by the distance in feet between the two wells (116 feet). Formula R24, $(U_{gw} = K \cdot i)$ of 35 III. Adm. Code § 742 Appendix C, Table C. The resulting velocity is 1.42 x 10^{-7} cm/sec.

The remaining four parameters were determined by laboratory analysis of a soil sample, which was collected during drilling activities. Samples were collected in accordance with 35 Ill. Adm. Code 742.

Using these site-specific parameters, equation S1 through S10 was used to calculate the Tier 2 objectives for soil at the site. All variables utilized were provided by TACO objectives. Refer to Appendix D for TACO input variables and equations used.

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2.2 SOIL AND GROUNDWATER OBJECTIVES

The soil and groundwater objectives are listed for the site below in tabular format. Tier 2 values are listed with a groundwater usage restriction and an industrial/commercial property use restriction for the property itself. Additionally, the groundwater at this site continues to be considered Class 1 unless demonstrated otherwise pursuant to 35 Ill. Adm. Code 620.210.

Table 2-1 Remediation Objectives

Parameter	TACO Industrial/Commercial Tier 2 Soil Clean-up Objective (mg/kg)	TACO Class 1 Groundwater Clean- up Objective (mg/L)	
Benzene	55.1	0.005	
Ethylbenzene	400	0.7	
Toluene	650	1.0	
Total Xylenes	320	10.0	
MTBE	3,694	0.07	

Tables comparing all soil samples to the most stringent Tier 1 Clean-up Objectives and all groundwater samples to TACO Class 1 Groundwater Clean-up Objectives have been included in Appendix E. Tables comparing all soil samples to the TACO Industrial/Commercial Tier 2 Clean-up Objectives have also been included in Appendix E. No sample locations exceed the TACO Tier 2 objectives.

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3. CORRECTIVE ACTION PLAN

The goal of remediation is to bring the contaminant levels of the soil and groundwater at KB Food & Gas in Sullivan below clean-up objectives and reduce the chance of exposure to contaminated groundwater. A number of remediation technologies are available for Leaking Underground Storage Tank (LUST) sites. The selection of a clean-up technology involves a choice of the option best suited to meet the clean-up objectives for the site within a reasonable timeframe in a cost conscious manner. This decision has been made for KB Food & Gas by the process of identifying possible technology options, screening the options according to threshold requirements, and then selecting the best of the remaining options.

The following CAP and Budget has been prepared by CW³M Company, Inc., as their recommendation for the most appropriate approach to the remediation of the contamination for the KB Food & Gas property in Sullivan, Illinois. CW³M proposes to use an industrial/commercial land use restriction on-site and at the News Progress property. This plan proposes no soil remediation, since there is no contamination on-site above TACO Tier 2 Industrial/Commercial Clean-up Objectives. However, soil analytical results indicate that TACO Tier 1 Residential Clean-up Objectives have been exceeded at the property boundary bordering News Progress, located south of the subject property. Due to the limited area, close proximity to utilities, and News Progress's building foundation, the removal of potential contaminated soil off-site is not a viable option. CW³M proposes to use an ELUC restricting the News Progress property to industrial/commercial uses by accepting the Tier 2 Clean-up Objectives for the KB Food & Gas site. If the property owner does not wish to obtain an industrial land use restriction for the property, a Corrective Action Plan and Budget Amendment will be submitted to address off-site contamination at the News Progress property.

In addition, soil analytical results indicate that the TACO Tier 1 Residential Clean-up Objectives have been exceeded at the KB Food & Gas property boundary lines bordering Hamilton Street (Illinois Route 32), Jackson Street (Illinois Route 121), and Van Buren Street. CW³M proposes to use HAAs with the City of Sullivan and IDOT to address potential soil contamination under these ROWs to limit the exposure to any potential contamination above Tier 1 Clean-up Objectives.

Groundwater analytical results indicate that the groundwater quality has exceeded the Class 1 Groundwater Clean-up Objectives at all of the property boundaries. Indicator contaminants that have exceeded the objectives include BETX and MTBE. Based on onsite and off-site investigations from the limited amount of off-site access granted, the groundwater plume has been defined. Groundwater modeling indicates that the extent of groundwater contamination exceeding the most stringent Tier 1 remediation objectives

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reaches off-site properties. Groundwater flow is in the general northeast direction. Modeling of the soil and groundwater contamination below Tier 1 Clean-up Objectives indicates contaminant migration to the north and northeast moving off-site to the Yoder House and the northeast residence. Therefore, it will be proposed that the City of Sullivan adopt a citywide or limited groundwater ordinance effectively prohibiting the installation of potable water supply wells within a specified area of Sullivan, Illinois. The adoption of a groundwater ordinance by the City of Sullivan will be used to reduce any chance of exposure to contaminated groundwater caused by the incident. Lastly, after all institutional controls and agreements are approved and in place, all wells on- and off-site will be properly abandoned.

3.1 CURRENT AND PROJECTED USES OF THE SITE

The site is currently an active gas station and will continue to remain as so. The site is surrounded by residential and commercial properties.

3.2 INSTITUTIONAL CONTROLS PROPOSED

This CAP proposes an industrial/commercial land use restriction on site and at the News Progress property south of the subject site. CW³M proposes to use an ELUC restricting the News Progress property to industrial/commercial uses by accepting the Tier 2 Clean-up Objectives for the KB Food & Gas site. HAAs will be used limit access to potential soil contamination under the ROWs of Hamilton Street (Illinois Route 32), Jackson Street (Illinois Route 121), and Van Buren Street that are contaminated above TACO Tier 1 Clean-up Objectives. Finally, the adoption of a citywide or limited groundwater ordinance by the City of Sullivan will be used to reduce any chance of exposure to contaminated groundwater caused by the incident.

3.3 WATER SUPPLY WELL SURVEY

A survey of water supply wells for the purpose of identifying and locating all community water supply wells within 2,500 feet of the UST systems and all potable water supply wells within 200 feet of the UST systems has been completed. The Illinois State Water Survey (ISWS), the Illinois State Geological Survey (ISGS) and the IEPA Division of Public Water Supplies were contacted via Source Water Assessment Program online.

The ISGS, ISWS, and IEPA Division of Public Water Supplies were accessed online on June 7, 2010 (EPA.STATE.IL.US, 2010). The response indicated that one well was located within 2,500 feet of the site and no wells are within the designated set back zone.

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Also, the response stated that there are no community water supply wells located within 2,500 feet of the site or groundwater ordinance in place for the City of Sullivan.

Table 3-1. Water Supply Well Information

Well ID	Туре	Depth of Well (feet)	Distance From USTs (feet)	Setback Zone (feet)
20790	ISGS	150	2,270	200

3.4 CLOSURE

Analytical results indicate that TACO Tier 2 Industrial/Commercial Clean-up Objectives have been met for the site. Once the HAAs, Groundwater Ordinance, and off-site industrial/commercial land use controls are approved and in place, a CACR will be submitted to the IEPA requesting a No Further Remediation letter. The closure report will be accompanied by a certification from an Illinois Registered Professional Engineer.

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4. REFERENCES

CES, 2004. Consolidated Environmental Services, Inc., 20-Day Certification, CPM Store No. 108, Sullivan, Illinois, July 23, 2004.

CES, 2004a. Consolidated Environmental Services, Inc., 45-Day Report, CPM Store No. 108, Sullivan, Illinois, November 9, 2004.

CES, 2004b. Consolidated Environmental Services, Inc., Site Classification Work Plan and Budget, CPM Store No. 108, Sullivan, Illinois, November 9, 2004.

CES, 2005. Consolidated Environmental Services, Inc., Stage 2 Site Investigation Plan and Budget, CPM Store No. 108, Sullivan, Illinois, October 14, 2005.

CES, 2007. Consolidated Environmental Services, Inc., Subject Site Ownership Correspondence, KB Food & Gas, Sullivan, Illinois, August 2, 2007.

EPA.STATE.IL.US, 2010. Source Water Assessment Program, Water Well Survey Map www.maps.epa.state.il.us, accessed June 7, 2010.

IEPA, 2004. Illinois Environmental Protection Agency, 45-Day Report Correspondence, CPM Store No. 108, Sullivan, Illinois, September 8, 2004.

IEPA, 2005. Illinois Environmental Protection Agency, Site Classification Work Plan and Budget Correspondence, CPM Store No. 108, Sullivan, Illinois, February 15, 2005.

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IEPA, 2010. Illinois Environmental Protection Agency, Stage 2 Site Investigation Plan Budget Correspondence, KB Food & Gas, Sullivan, Illinois, August 26, 2010.

IEPA, 2010a. Illinois Environmental Protection Agency, Stage 3 Site Investigation Plan and Budge Correspondence, KB Food & Gas, Sullivan, Illinois, October 13, 2010.

IEPA, 2011. Illinois Environmental Protection Agency, Amended Stage 3 Site Investigation Plan and Budget Correspondence, KB Food & Gas, Sullivan, Illinois, October 4, 2011.

IEPA, 2012. Illinois Environmental Protection Agency, Site Investigation Completion Report Correspondence, KB Food & Gas, Sullivan, Illinois, January 11, 2012.

CWM Company, Inc.

Corrective Action Plan and Budget

KB Food & Gas/Sullivan

LPC #1390305014 - Incident Numbers: 90-0146/2004-0969

CW³M, 2010. CW³M Company, Inc., Stage 2 Site Investigation Plan Budget, KB Food & Gas, Sullivan, Illinois, July 1, 2010.

CW³M, 2010a. CW³M Company, Inc., Stage 3 Site Investigation Plan and Budget, KB Food & Gas, Sullivan, Illinois, August 20, 2010.

CW³M, 2011. CW³M Company, Inc., Amended Stage 3 Site Investigation Plan and Budget, KB Food & Gas, Sullivan, Illinois, September 6, 2011.

CW³M, 2011a. CW³M Company, Inc., Site Investigation Completion Report, KB Food & Gas, Sullivan, Illinois, November 10, 2011.

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IEPA/BOL

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APPENDIX A

CORRECTIVE ACTION PLAN FORM

KB FOOD & GAS SULLIVAN, ILLINOIS



Illinois Environmental Protection Agency

Bureau of Land • 1021 N. Grand Avenue E. • P.O. Box 19276 • Springfield • Illinois • 62794-9276

The Agency is authorized to require this information under Section 4 and Title XVI of the Environmental Protection Act (415 ILCS 5/4, 5/57 – 57.17). Failure to disclose this information may result in a civil penalty of not to exceed \$50,000.00 for the violation and an additional civil penalty of not to exceed \$10,000.00 for each day during which the violation continues (415 ILCS 5/42). Any person who knowingly makes a false material statement or representation, orally or in writing, in any label, manifest, record, report, permit, or license, or other document filed, maintained or used for the purpose of compliance with Title XVI commits a Class 4 felony. Any second or subsequent offense after conviction hereunder is a Class 3 felony (415 ILCS 5/44 and 57.17). This form has been approved by the Forms Management Center.

Leaking Underground Storage Tank Program Corrective Action Plan

A. Site Identification				
	IEMA Incident # (6- or 8-digit): 04-096	59	IEPA LPC# (10-digit): 139	0305014
	Site Name: KB Food & Gas			
	Site Address (Not a P.O. Box): 111 V		· · · · · · · · · · · · · · · · · · ·	
	City: Sullivan	County: Moultrie	ZIP Code: <u>61</u>	951
В.	Site Information			
	1. Will the owner or operator seek re	eimbursement from the Unde	erground Storage Tank Fund?	✓ Yes □ No
	2. If yes, is the budget attached?	✓ Yes 🗌 No	F	RECEIVET
	3. Is this an amended plan?	Yes No		FEB 17 2012
	4. Identify the material(s) released:	Gasoline, Diesel, Kerosen	ne	
	5. This Corrective Action Plan is sub	omitted pursuant to:		IEPA/BOL
	a. 35 III. Adm. Code 731,166			
	The material released was	s:		
	-petroleum			
	-hazardous substan Protection Act S	nce (see Environmental Section 3.215)		
	b. 35 III. Adm. Code 732.404			
	c. 35 III. Adm. Code 734.335		7	
С.	Proposed Methods of Remedia	ation		
	1. Soil Tier 2 Industrial/Commercial	Clean-up Objectives, ELUC	C, Highway Authority Agreements	s
	2. Groundwater Groundwater Ordin	nance		
Ο.	Soil and Groundwater Investig		sified using Method One or Two, if n	ot previously provided)
	•			, , , , , , , , , , , , , , , , , , , ,
	Provide the following: 1. Description of investigation activit	ties performed to define the	extents of soil and/or groundwat	er contamination:
	Analytical results, chain-of-custod			a. a
\	Tables comparing analytical result			
_	o	·		

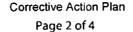
Corrective Action Plan Page 1 of 4

- 4. Boring logs;
- 5. Monitoring well logs; and
- 6. Site maps meeting the requirements of 35 III. Adm. Code 732.110(a) or 734.440 and showing:
 - a. Soil sample locations;
 - b. Monitoring well locations; and
 - c. Plumes of soil and groundwater contamination.

E. Technical Information - Corrective Action Plan

Provide the following:

- Executive summary identifying the objectives of the corrective action plan and the technical approach to be utilized to meet such objectives;
 - a. The major components (e.g., treatment, containment, removal) of the corrective action plan;
 - The scope of the problems to be addressed by the proposed corrective action; and
 - c. A schedule for implementation and completion of the plan;
- Identification of the remediation objectives proposed for the site;
- 3. A description of the remedial technologies selected:
 - a. The feasibility of implementing the remedial technologies;
 - b. Whether the remedial technologies will perform satisfactorily and reliably until the remediation objectives are achieved; and
 - c. A schedule of when the technologies are expected to achieve the applicable remediation objectives;
- 4. A confirmation sampling plan that describes how the effectiveness of the corrective action activities will be monitored during their implementation and after their completion;
- A description of the current and projected future uses of the site;
- 6. A description of engineered barriers or institutional controls that will be relied upon to achieve remediation objectives:
 - a. an assessment of their long-term reliability;
 - b. operating and maintenance plans; and
 - c. maps showing area covered by barriers and institutional controls;
- 7. The water supply well survey:
 - Map(s) showing locations of community water supply wells and other potable wells and the setback zone for each well;
 - b. Map(s) showing regulated recharge areas and wellhead protection areas;
 - c. Map(s) showing the current extent of groundwater contamination exceeding the most stringent Tier 1 remediation objectives;
 - d. Map(s) showing the modeled extent of groundwater contamination exceeding the most stringent Tier 1 remediation objectives;
 - e. Tables listing the setback zone for each community water supply well and other potable water supply wells;
 - f. A narrative identifying each entity contacted to identify potable water supply wells, the name and title of each person contacted, and any field observations associated with any wells identified; and
 - g. A certification from a Licensed Professional Engineer or Licensed Professional Geologist that the survey was conducted in accordance with the requirements and that documentation submitted includes information obtained as a result of the survey (certification of this plan satisfies this requirement);



- 8. Appendices:
 - a. References and data sources report that are organized; and
 - Field logs, well logs, and reports of laboratory analyses;
- 9. Site map(s) meeting the requirements of 35 III. Adm. Code 732.110(a) or 734.440;
- 10. Engineering design specifications, diagrams, schematics, calculations, manufacturer's specifications, etc.;
- 11. A description of bench/pilot studies;
- 12. Cost comparison between proposed method of remediation and other methods of remediation;
- 13. For the proposed Tier 2 or 3 remediation objectives, provide the following:
 - a. The equations used;
 - b. A discussion of how input variables were determined;
 - c. Map(s) depicting distances used in equations; and
 - d. Calculations: and
- 14. Provide documentation to demonstrate the following for alternative technologies:
 - The proposed alternative technology has a substantial likelihood of successfully achieving compliance with all applicable regulations and remediation objectives;
 - The proposed alternative technology will not adversely affect human health and safety or the environment;
 - c. The owner or operator will obtain all Illinois EPA permits necessary to legally authorize use of the alternative technology;
 - d. The owner or operator will implement a program to monitor whether the requirements of subsection (14)(a) have been met;
 - e. Within one year from the date of Illinois EPA approval, the owner or operator will provide to the Illinois EPA monitoring program results establishing whether the proposed alternative technology will successfully achieve compliance with the requirements of subsection (14)(a); and
 - f. Demonstration that the cost of alternative technology will not exceed the cost of conventional technology and is not substantially higher than at least two other alternative technologies, if available and technically feasible.

F. Exposure Pathway Exclusion

Provide the following:

- A description of the tests to be performed in determining whether the following requirements will be met:
 - a. Attenuation capacity of the soil will not be exceeded for any of the organic contaminants;
 - b. Soil saturation limit will not be exceeded for any of the organic contaminants;
 - c. Contaminated soils do not exhibit any of the reactivity characteristics of hazardous waste per 35 III. Adm. Code 721.123;
 - d. Contaminated soils do not exhibit a pH \leq 2.0 or \geq 12.5; and
 - e. Contaminated soils which contain arsenic, barium, cadmium, chromium, lead, mercury, or selenium (or their associated salts) do not exhibit any of the toxicity characteristics of hazardous waste per 35 Ill. Adm. Code 721.124.
- 2. A discussion of how any exposure pathways are to be excluded.

G. Signatures

All plans, budgets, and reports must be signed by the owner or operator and list the owner's or operator's full name, address, and telephone number.

UST Owner or Operator	Consultant	
Name KB Sullivan, Inc.	Company CWM Company, Inc.	
Contact Kamlesh Patel	Contact Carol Rowe	
Address 140 Hearthstone	Address 701 South Grand Avenue West	
City Bartlett	City Springfield	
State Illinois	State Illinois	
Zip Code 60103	Zip Code 62704	
Phone (630) 730 - 4450	Phone (217),522,8001	
Signature Brater	Signature	
Date	Date	

I certify under penalty of law that all activities that are the subject of this plan were conducted under my supervision or were conducted under the supervision of another Licensed Professional Engineer or Licensed Professional Geologist and reviewed by me; that this plan and all attachments were prepared under my supervision; that, to the best of my knowledge and belief, the work described in this plan has been completed in accordance with the Environmental Protection Act [415 ILCS 5], 35 III. Adm. Code 731, 732 or 734, and generally accepted standards and practices of my profession; and that the information presented is accurate and complete. I am aware there are significant penalties for submitting false statements or representations to the Illinois EPA, including but not limited to fines, imprisonment, or both as provided in Sections 44 and 57.17 of the Environmental Protection Act [415 ILCS 5/44 and 57.17].

Licensed Professional Engineer or Geologist

Name Vince E. Smith

Company CW M Company, Inc.

Address 701 South Grand Avenue West

City Springfield

State Illinois

Zip Code 62704

Phone (217) 522 - 8001

Ill. Registration No. 62-46118

License Expiration Date ///30//3

Signature Date 2//6//2

L.P.E. or L.P.G. Seal

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APPENDIX B

SITE MAPS AND ILLUSTRATIONS

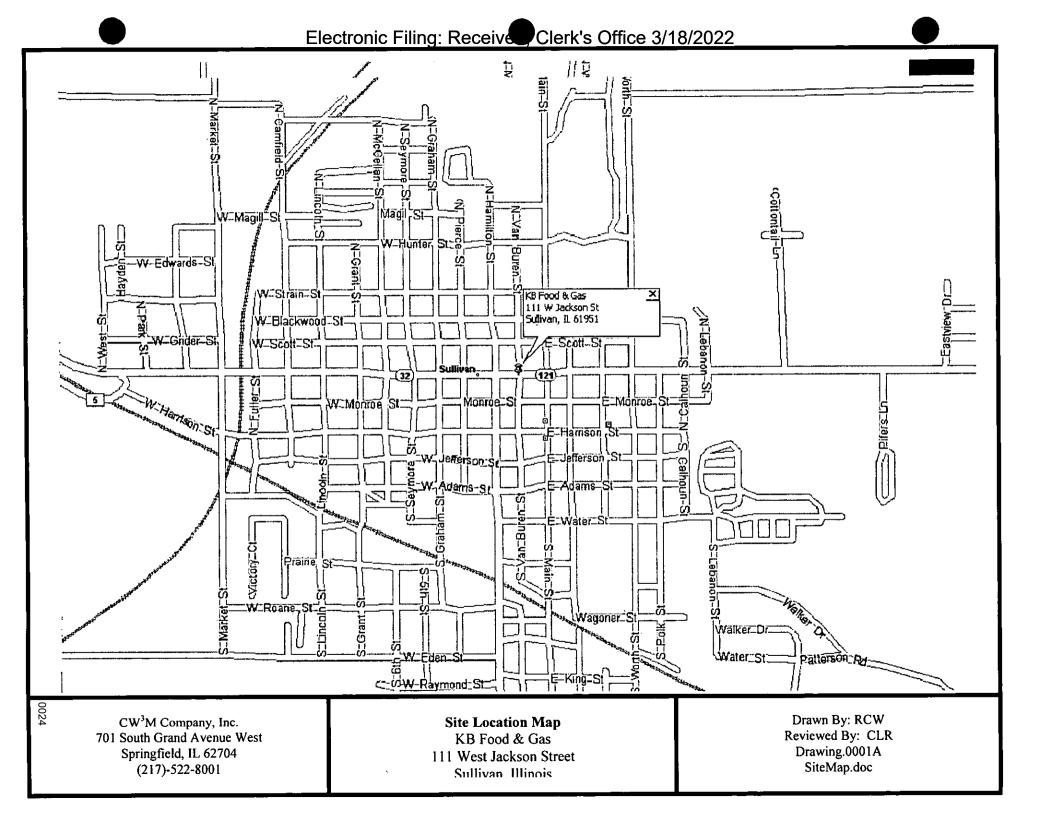
KB FOOD & GAS SULLIVAN, ILLINOIS Electronic Filing: Received, Clerk's Office 3/18/2022 Corrective Action Plan and Budget

KB Food & Gas/Sullivan

LPC #1390305014 - Incident Numbers: 90-0146/2004-0969

INDEX OF DRAWINGS

Drawing	Description	File Name
Number		
0001A	Site Location Map	SiteMap.doc
0001B	Facility Location Map (Topographic)	TopoMap.doc
0002	Site Map	Site1.dwg
0003	Soil Boring Location Map	sbloc1.dwg
0004	Monitoring Well Location Map	mwloc1.dwg
0005	Monitoring Well Elevation Map	mwelev1.dwg
0008	Groundwater Elevation Map (March 2010)	gwelev.dwg
0008A	Groundwater Elevation Map (May 2010)	gw0510.dwg
0008B	Groundwater Elevation Map (October 2010)	gw1010.dwg
0009A	Soil Contamination Values Map (0-5 feet)	sval0-5A.dwg
0009B	Soil Contamination Values Map (5-10 feet)	sval5-10A.dwg
0010	Groundwater Contamination Values Map	gwvalA.dwg
0011A	Tier 1 Soil Contamination Plume Map (0-5 feet)	splumeA.dwg
0011B	Tier 1 Soil Contamination Plume Map (5-10 feet)	splumeB.dwg
0012	Groundwater Contamination Plume Map	gwplumeA.dwg
0013	Groundwater Contaminant Transport Modeling Map	Modeling2.dwg
0014	Highway Authority Agreement Location Map	HAA.dwg
0015	TACO Information Map	TACO.dwg



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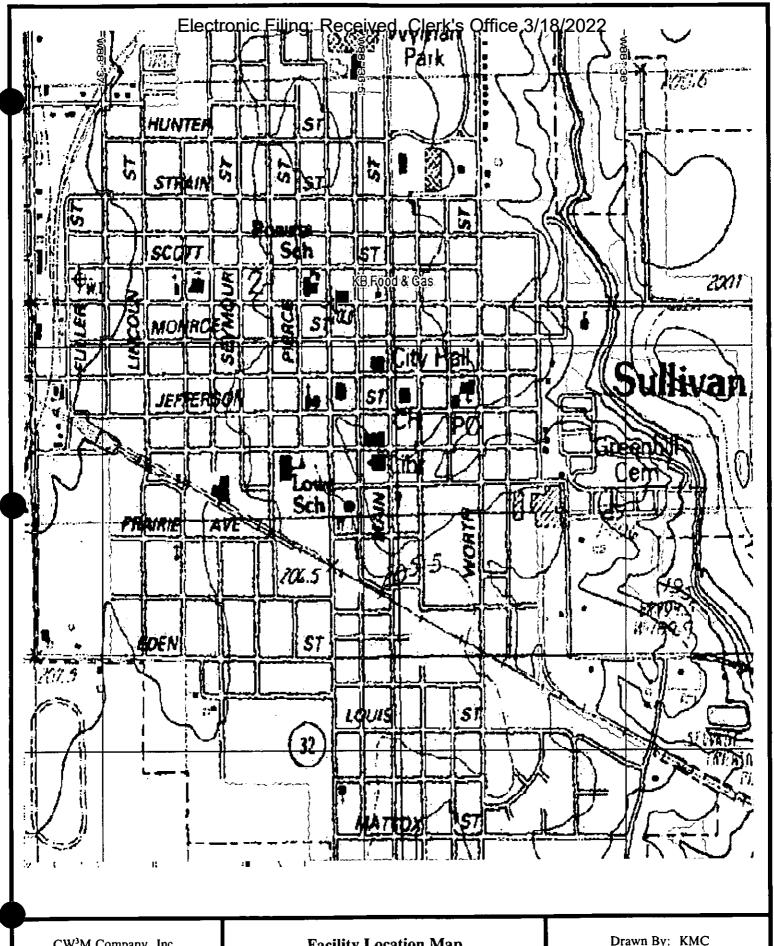
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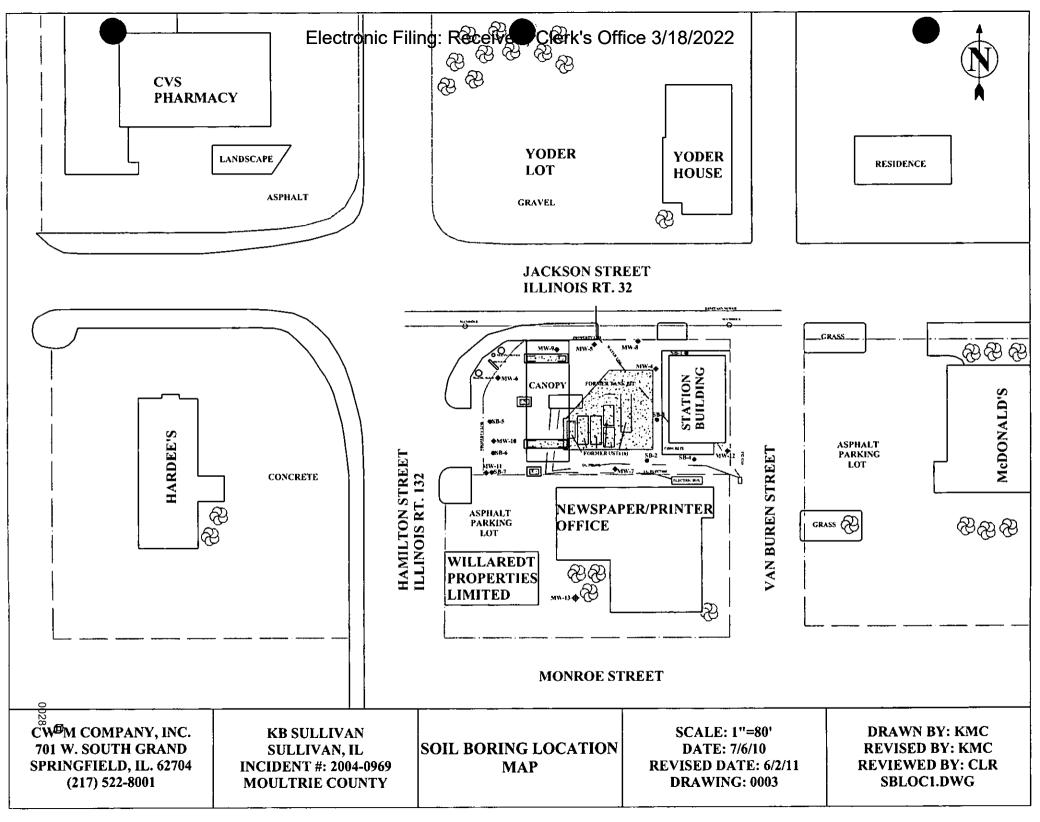
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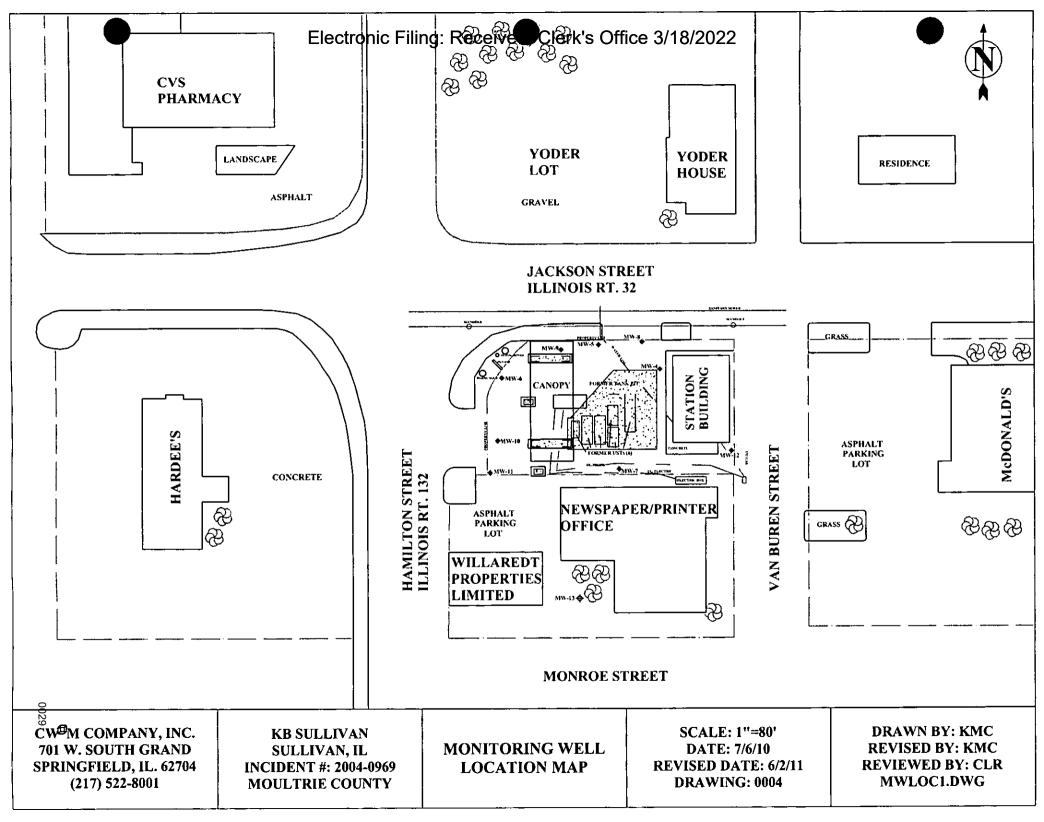
Com Microfilm Company (217) 525-5860

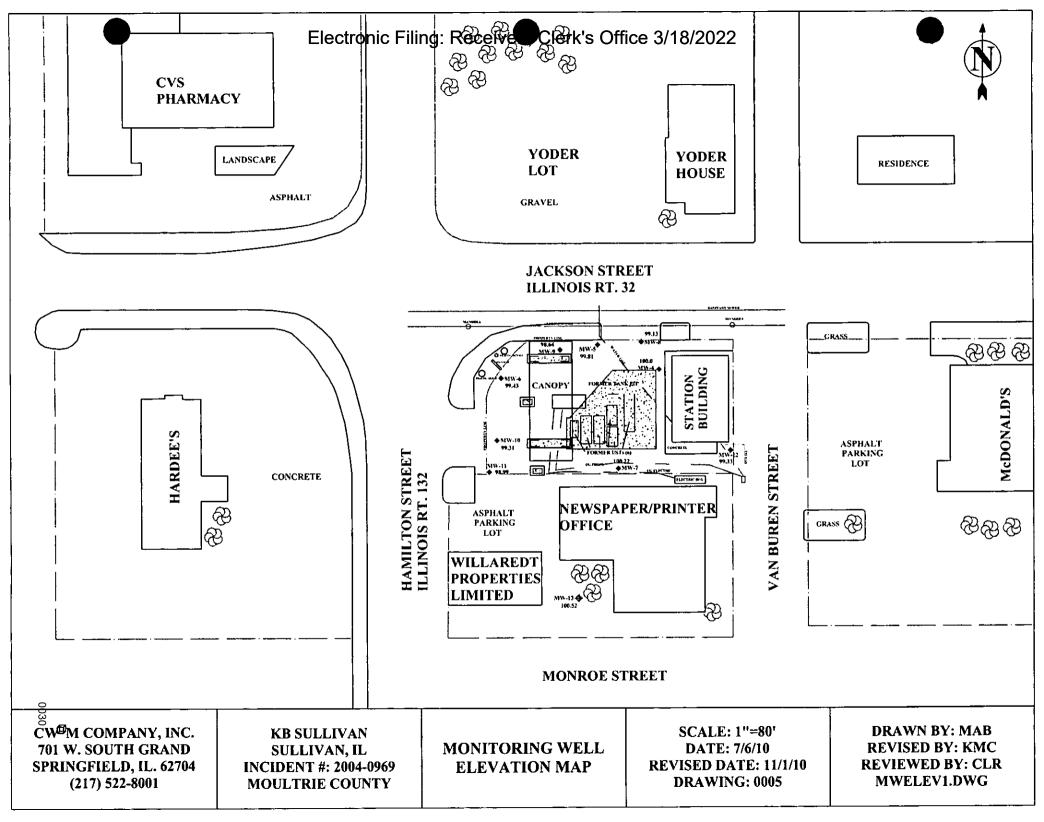


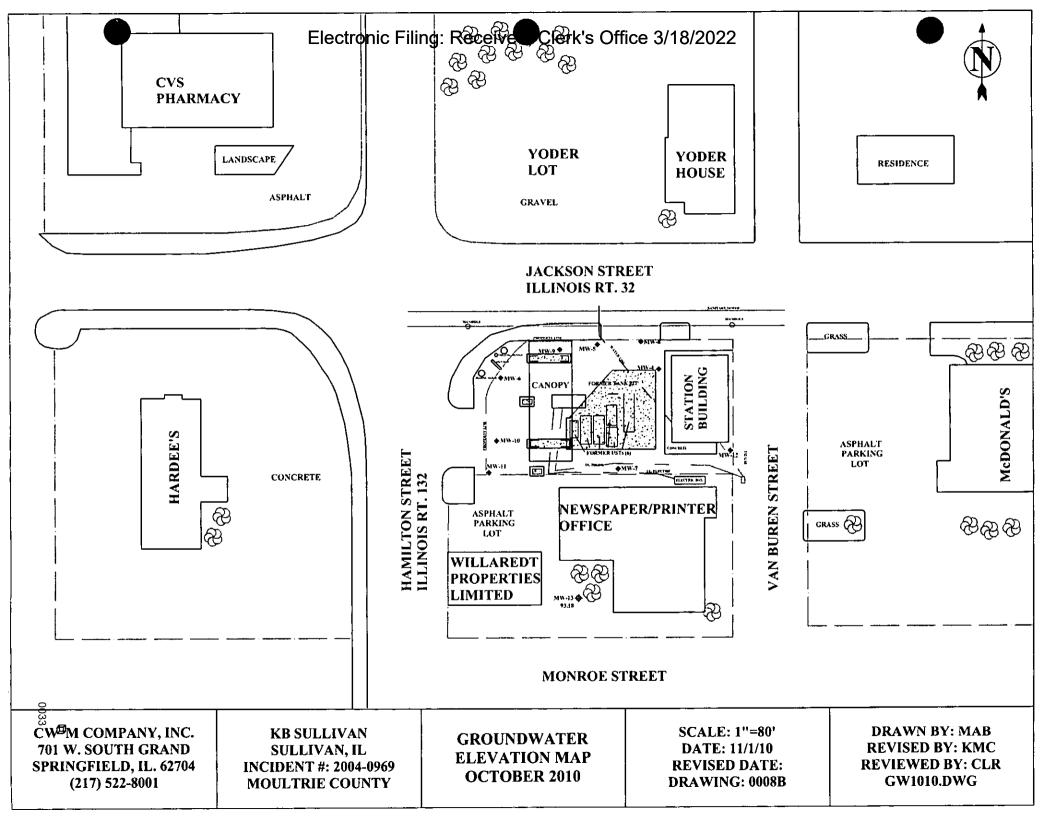
CW³M Company, Inc. 701 W. South Grand Ave. Springfield, IL 62704 (217) 522-8001 Facility Location Map
111 WEST JACKSON STREET
SULLIVAN, ILLINOIS

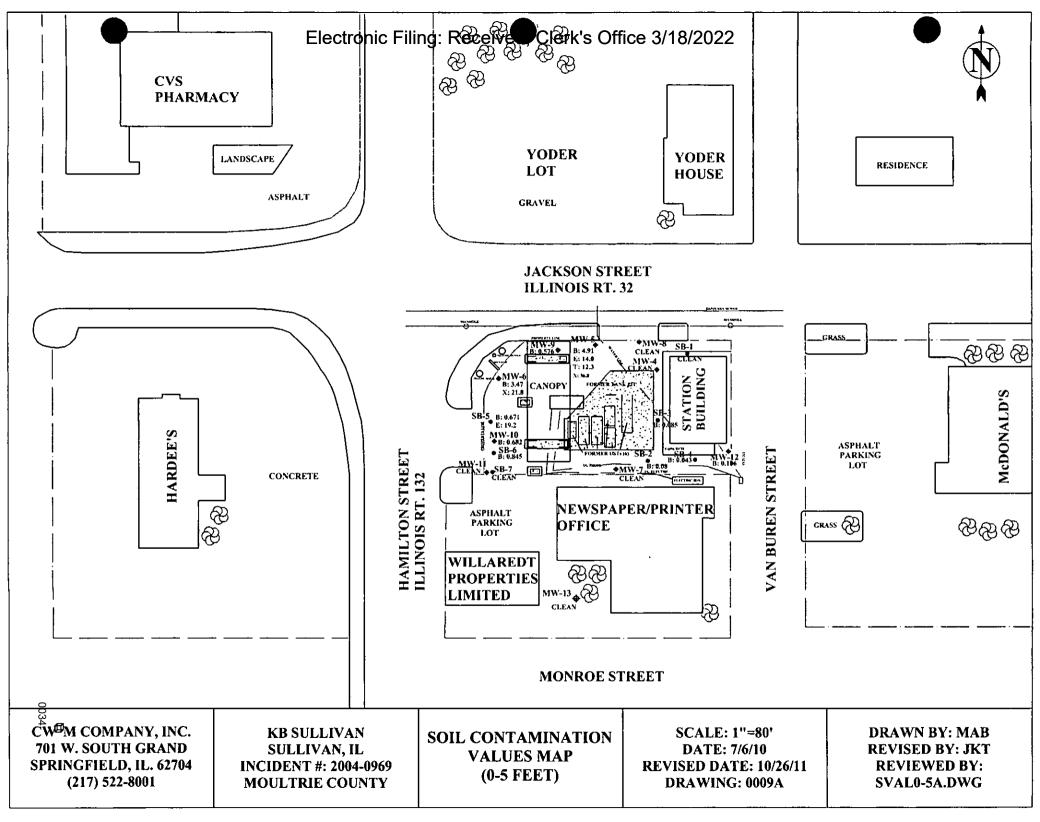
Drawn By: KMC Reviewed By: Drawing 0001B TopoMap.dm26

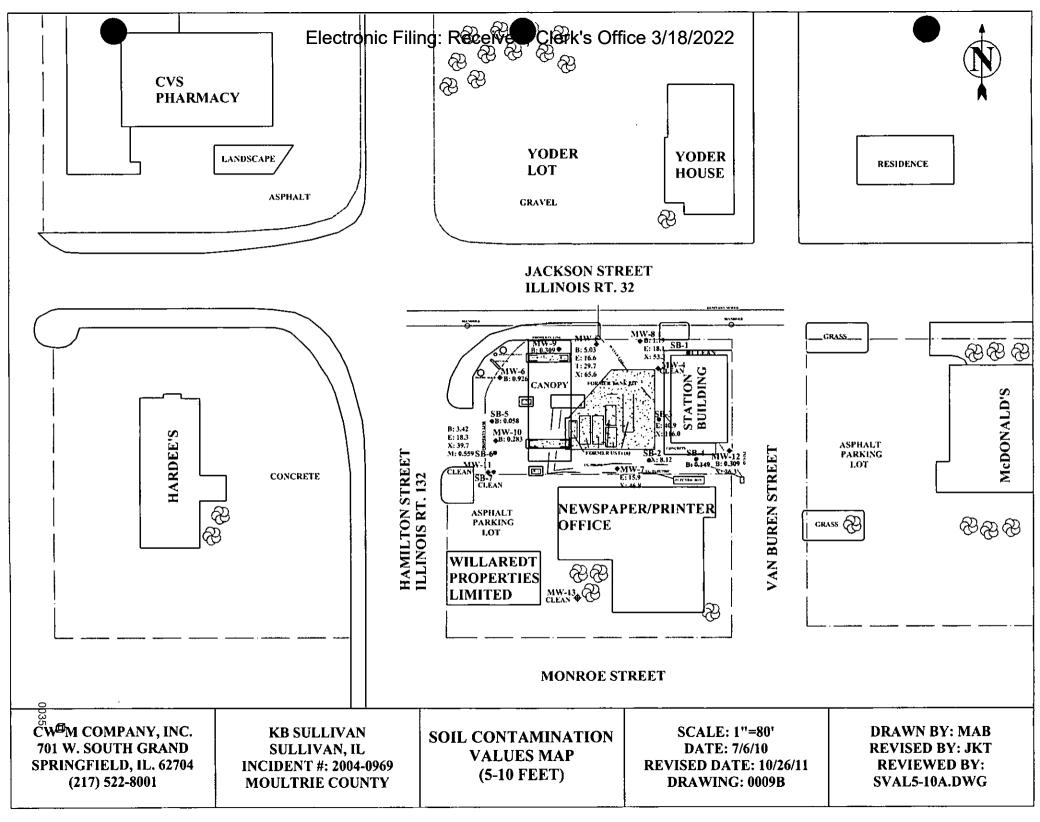


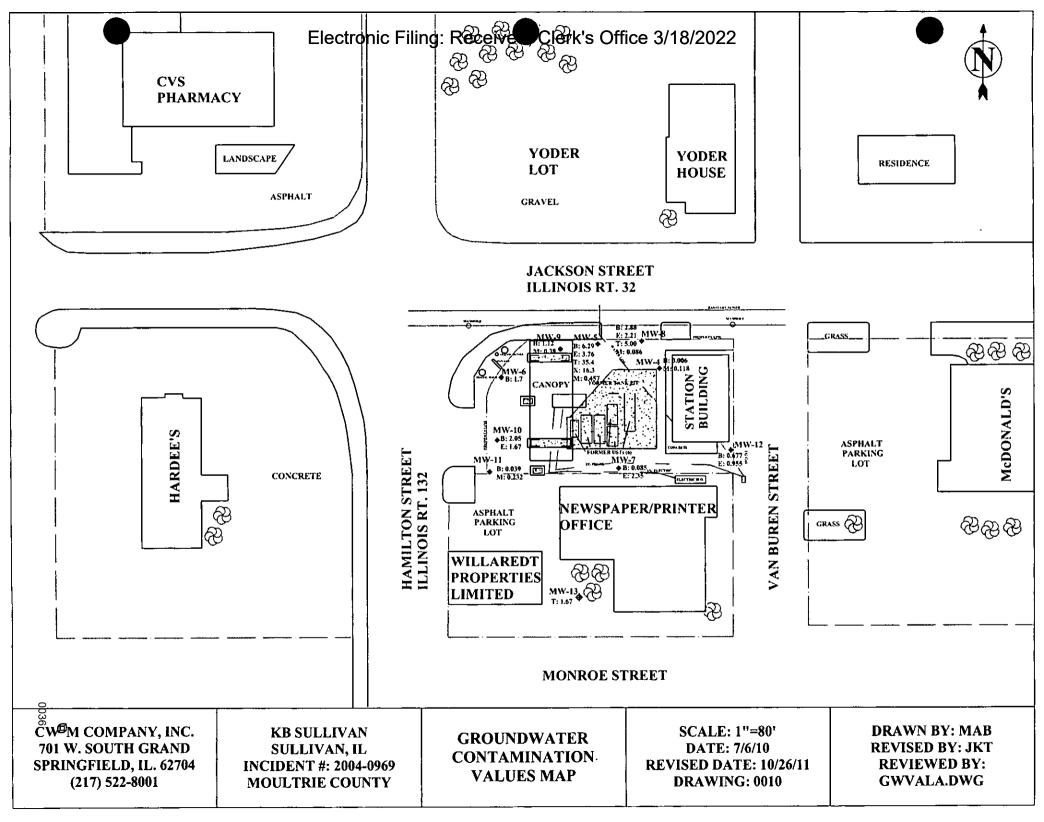


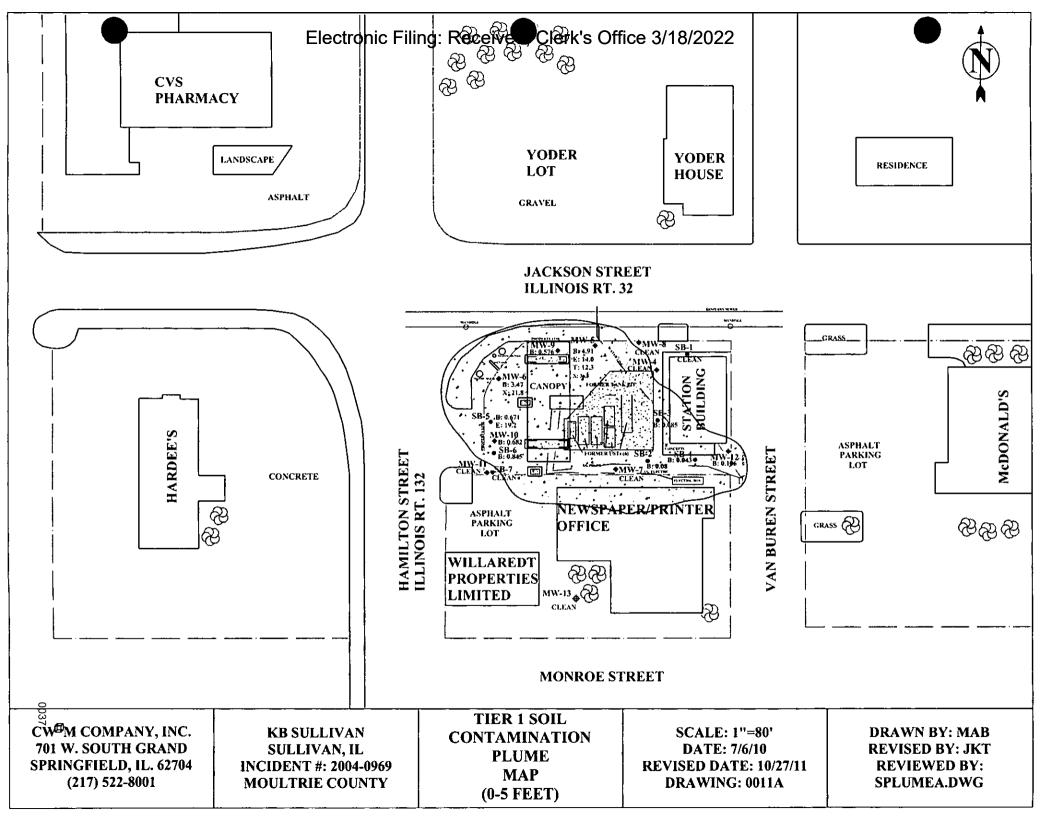


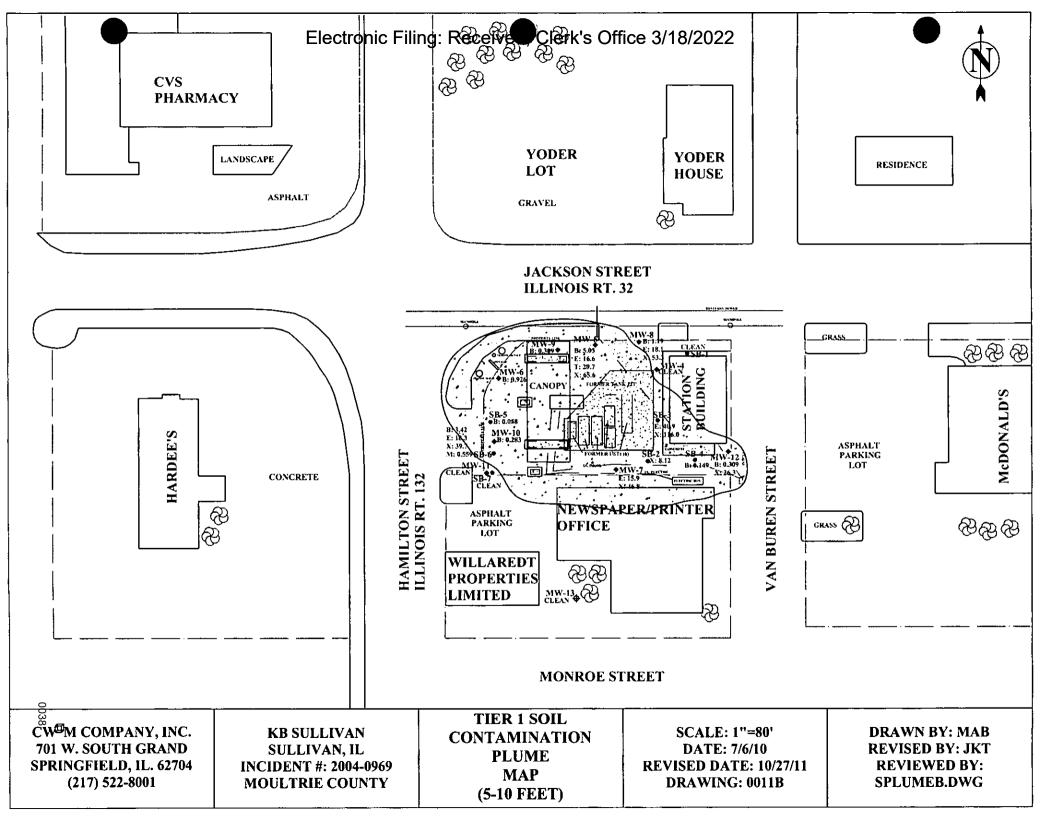


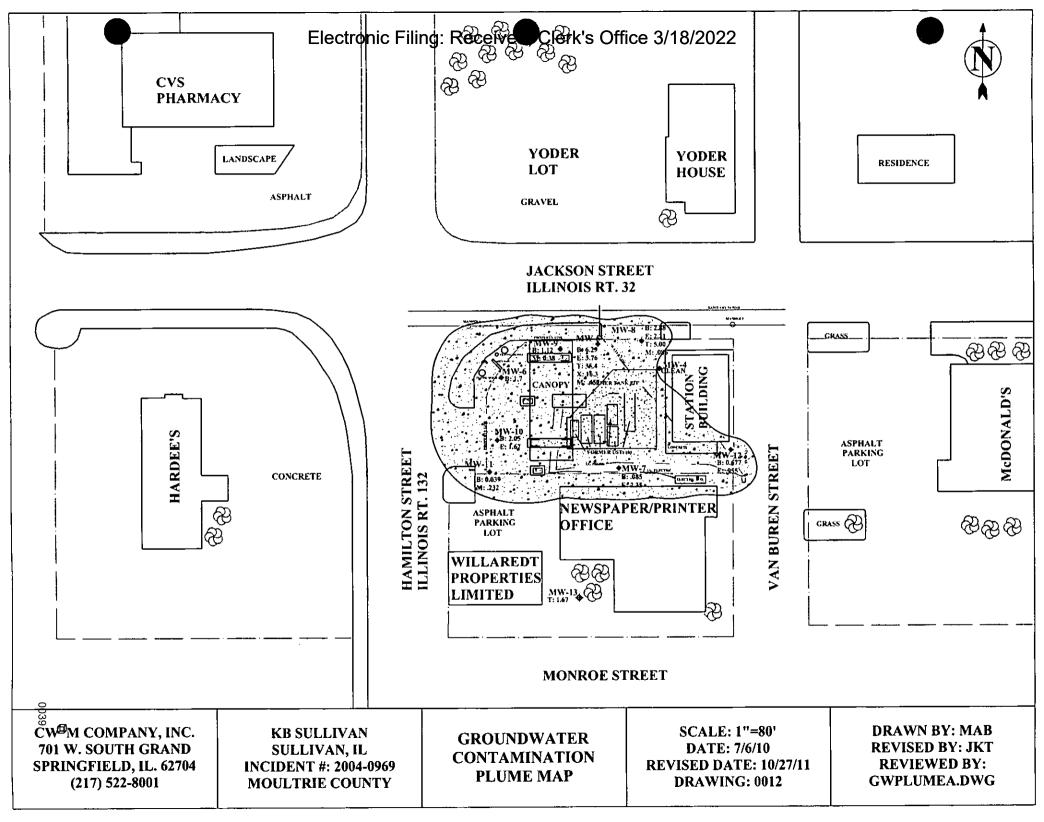


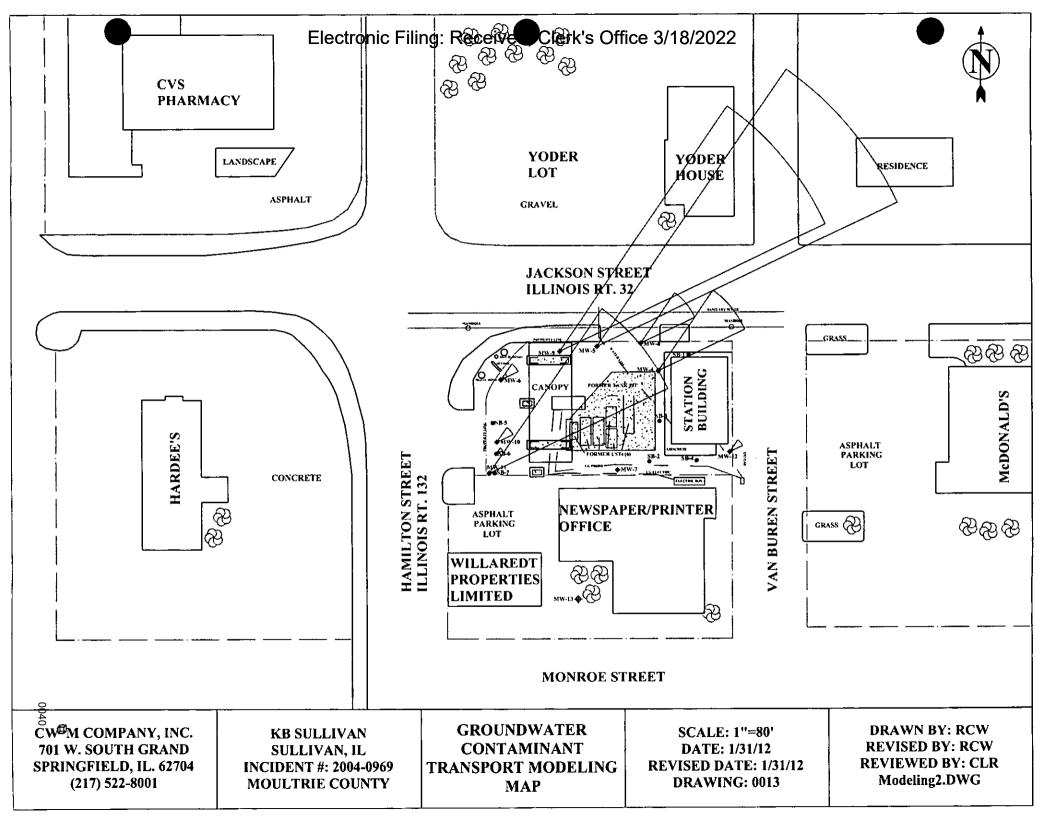


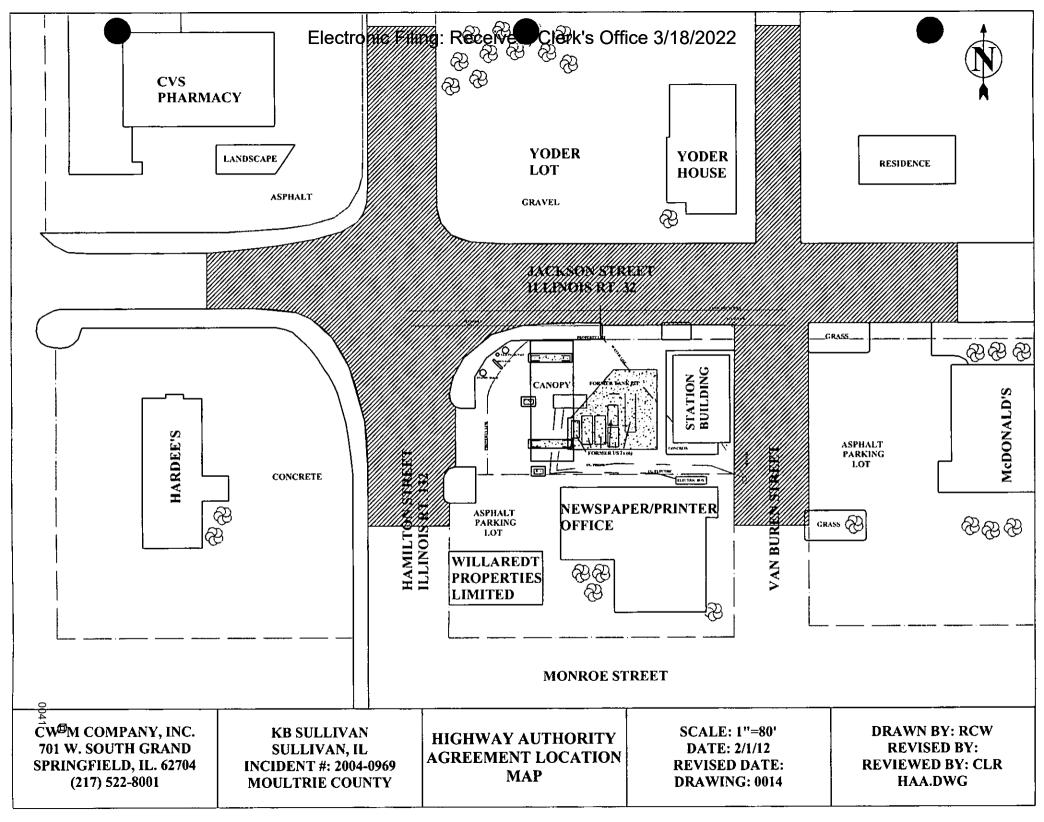


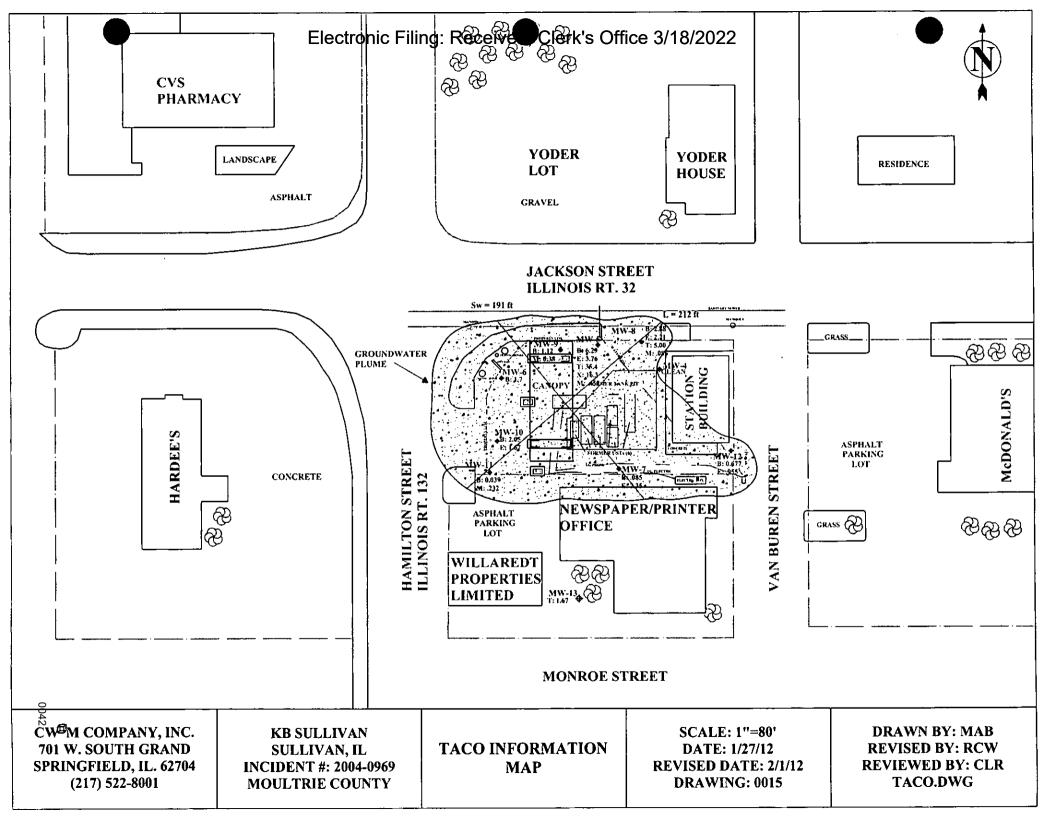












APPENDIX C

OSFM ELIGIBILITY DETERMINATION

KB FOOD & GAS SULLIVAN, ILLINOIS

Electronic Filing: Received of Wenkins Office 3/18/2022

State Fire Marshal

"Partnering With the Fire Service to Protect Illinois"

CERTIFIED MAIL - RECEIPT REQUESTED #7011 0110 0001 4649 3316

October 17, 2011

KB Sullivan, Inc. c/o CW3M Company P.O. Box 571 Carlinville, IL 62626

In Re:

Facility No. 4-013187 IEMA Incident No. 90-0146 KB Sullivan, Inc.

105 West Jackson

Sullivan, Moultrie Co., IL

Dear Applicant:

The Reimbursement Eligibility and Deductible Application received on August 26, 2011 for the above referenced occurrence has been reviewed. The following determinations have been made based upon this review.

You have filed an "Election to Proceed as Owner" and have received acceptance from the Illinois Environmental Protection Agency. It has been determined, therefore, that you are eligible to seek payment of costs in excess of \$10,000. The costs must be in response to the occurrence referenced above and associated with the following tanks:

Eligible Tanks

Tank 1 10,000 gallon Gasoline

You must contact the Illinois Environmental Protection Agency to receive a packet of Agency billing forms for submitting your request for payment.

An owner or operator is eligible to access the Underground Storage Tank Fund if the eligibility requirements are satisfied:

- 1. Neither the owner nor the operator is the United States Government,
- 2. The tank does not contain fuel which is exempt from the Motor Fuel Tax Law.
- 3. The costs were incurred as a result of a confirmed release of any of the following substances:

"Fuel", as defined in Section 1.19 of the Motor Fuel Tax Law

Aviation fuel

Heating oil

Electronic Filing: Received, Clerk's Office 3/18/2022

Kerosene

Used oil, which has been refined from crude oil used in a motor vehicle, as defined in Section 1.3 of the Motor Fuel Tax Law.

- 4. The owner or operator registered the tank and paid all fees in accordance with the statutory and regulatory requirements of the Gasoline Storage Act.
- 5. The owner or operator notified the Illinois Emergency Management Agency of a confirmed release, the costs were incurred after the notification and the costs were a result of a release of a substance listed in this Section. Costs of corrective action or indemnification incurred before providing that notification shall not be eligible for payment.
- 6. The costs have not already been paid to the owner or operator under a private insurance policy, other written agreement, or court order.
- 7. The costs were associated with "corrective action".

This constitutes the final decision as it relates to your eligibility and deductibility. We reserve the right to change the deductible determination should additional information that would change the determination become available. An underground storage tank owner or operator may appeal the decision to the Illinois Pollution Control Board (Board), pursuant to Section 57.9 (c) (2). An owner or operator who seeks to appeal the decision shall file a petition for a hearing before the Board within 35 days of the date of mailing of the final decision, (35 Illinois Administrative Code 105.504(b)).

For information regarding the filing of an appeal, please contact:

Clerk Illinois Pollution Control Board State of Illinois Center 100 West Randolph, Suite 11-500 Chicago, Illinois 60601 (312) 814-3620

The following tanks are also listed for this site:

Tank 2 8,000 gallon Gasoline
Tank 3 8,000 gallon Gasoline
Tank 4 5,000 gallon Diesel Fuel
Tank 5 5,000 gallon Gasoline
Tank 6 2,000 gallon Kerosene
Tank 7 10,000 gallon Gasoline
Tank 8 10,000 gallon Gasoline
Tank 8 8,000 gallon Diesel Fuel
Tank 10 5,000 gallon Kerosene
Tank 11 5,000 gallon Gasoline

Your application indicates that there has not been a release from these tanks under this incident number. You may be eligible to seek payment of corrective action costs associated with these tanks if it is determined that there has been a release from one or more of these tanks. Once it is determined that there has been a release from one or more of these tanks you may submit a separate application for an eligibility determination to seek corrective action costs associated with this/these tanks.

Electronic Filing: Received, Clerk's Office 3/18/2022 If you have any questions, please contact our office at (217) 785-5878.

Sincerely,

Administrative Assistant

Division of Petroleum and Chemical Safety

cc:

IEPA

Facility File

APPENDIX D TACO VARIABLES AND EQUATIONS

KB FOOD & GAS SULLIVAN, ILLINOIS

KB Food & Gas IEMA Incident #90-0146/2004-0969

Land use: Industrial/ Commercial & Construction worker

	Site-Specific i	arameters		
As Detern	nined in Field (Needed for A	All Uses)
Name	Symbol	Value	Units	Site Sp. / Default
Hydraulic Conductivity	K	1.38E-05	cm/s	Site Specific
Soil Particle Density	ρ_{s}	2.65	g/cm³	Site Specific
Moisture Content	w	0.142		Site Specific
Soil Bulk Density	ρ_{b}	1.846	g/cm ³	Site Specific
Fractional Organic C	f _{oc}	0.721		Site Specific
USDA Soil Classification	4	7 70	o)st*	
MW-12 GW Elevation		95.33	ft st	Site Specific
MW-8 GW Elevation		94.13	ft st	Site Specific
Distance	х	116	feet	Site Specific
001 =		DE	10 A F	-4: (CM/ Madal

Distan	ce		X	116	Site	Specific	
S	SL Equati	ons (Soil)		RBCA Eq	uations	(GW Modelii	ng)
Name	Symb.	Value	Units / EQ.	Name	Symb.	Value	Units / EQ.
Porosity	η	0.30	S24	Hydraulic Gradient	i	0.0103	
For Soil to Groui	ndwater Ing	gestion Route	- S17/S28	Plume Width (Horz)	S_w	191	ft
Hydraulic Cond.	K	4.35E+00	m/yr	Plume Width (Vert)	S_d	6.56	ft
Hydraulic Gradient	i	0.01034483		Hydraulic Cond.	K	1.19E+00	cm/d
Dilution Factor	DF	20.00	S22	For Soil to G	roundwa	ter Modeling	- R14
Mixing Zone Depth	d	16.84	S25	Hydraulic Cond.	K	4.35E+02	cm/yr
Source Length	L	212	ft	Total Porosity	θ_T	0.30	
Aquifer Thickness	$d_{\mathbf{a}}$	10	m	Water Filled Por.	$\theta_{ extsf{ws}}$	0.26	R22
For Mass L	imit Equati	ons - S26, S27	7, S28	Air Filled Porosity	θ_{as}	0.04	R21
Thickness of Soil	ds	10	ft	Plume Width (Par)	W	212	ft
For Inhalation E	q Only v	vith USCS Cla	ssification	GW Darcy Velocity	Ugw	4.50	ft
Sat Hyd. Cond.	K _s	60	(m/yr)				
Exponential	1/(2b+3)	0.073					
For Inhalation Ed	q Use D	efault if Prev S	ection N/A				
Water Filled Por.	$\theta_{\mathbf{w}}$	0.21	S20				

S21

Air Filled Porosity

 θ_a

0.10

		od & Gas						
	IEMA Incident #	90-0146/2004-	0969					
GI	ROUNDWATER CI	LEAN-UP OBJ	ECTIVES					
(mg/L)								
	Most Stringent	Class I	Class II	ADLs				
Parameter	CUO	GW	GW	(U)				
Benzene	0.005	0.005	0.025	<0.002				
Ethylbenzene	0.7	0.7	1	<0.002				
MTBE	0.07	0.07	0.07	<0.005				
Toluene	1.0	1.0	2.5	<0.002				
Total Xylenes	10.0	10.0	10.0	<0.005				
Acenaphthene	0.42	0.42	2.1	<0.018				
Acenaphthylene^	0.21	0.21	1.05	<0.010				
Anthracene	2.1	2.1	10.5	<0.0066				
Benzo(a)anthracene	0.00013	0.00013	0.00065	<0.00013				
Benzo(a)pyrene	0.0002	0.0002	0.002	<0.0002				
Benzo(b)fluoranthene	0.00018	0.00018	0.0009	<0.00018				
Benzo(g,h,i)perylene^	0.21	0.21	1.05	<0.00076				
Benzo(k)fluoranthene	0.00017	0.00017	0.00085	<0.00017				
Chrysene	0.0015	0.0015	0.0075	<0.0015				
Dibenz(a,h)anthracene	0.0003	0.0003	0.0015	<0.0003				
Fluoranthene	0.28	0.28	1.4	<0.0021				
Fluorene	0.28	0.28	1.4	<0.0021				
Indeno(1,2,3-cd)pyrene	0.00043	0.00043	0.00215	<0.00043				
Naphthalene	0.14	0.14	0.22	< 0.010				
Phenanthrene [^]	0.21	0.21	1.05	<0.0064				
Pyrene	0.21	0.21	1.05	<0.0027				
^Temporary Objectives f	rom additional table	es 10/1/04						
Updated 12/20/04								

		KB Fo	ood & Gas				
	SC	IL CLEAN	UP OBJEC	TIVES			
		(n	ng/kg)				
	Most Stringent	1/C	I/C	I/C	1/C	C _{sat}	ADLs
Parameter	CUO	I/C Ing	I/C Inh.	CW Ing.	CW Inh.		(U)
Benzene	55.1	104.1	55.1	2300	77.5	870	<0.002
Ethylbenzene	400	204,400	346,849	20,405	2,244	400	<0.002
MTBE	3694	40,880	571,019	20,405	3,694	8800	<0.005
Toluene	650	410,000	1,242,434	410,000	8,038	650	<0.002
Total Xylenes	320	1,000,000	34,017	410,000	880.2	320	<0.005
Acenaphthene	120000	120000		120000			<1.200
Acenaphthylene [^]	61000	61000		61000			<0.660
Anthracene	610000	610000		610000			<0.660
Benzo(a)anthracene	8.0	8		170			<0.009
Benzo(a)pyrene	0.80	8.0		17			<0.015
Benzo(b)fluoranthene	8.0	8		170			<0.011
Benzo(g,h,i)perylene^	61000.0	61000		61000			<0.051
Benzo(k)fluoranthene	78.4	78.4		17000			<0.011
Chrysene	784.0	784		17014			<0.100
Dibenz(a,h)anthracene	0.80	0.8		17			<0.020
Fluoranthene	82000	82000		82000			<0.660
Fluorene	82000	82000		82000			<0.140
Indeno(1,2,3-cd)pyrene	8.0	8		170			<0.029
Naphthalene	6.0	41000	270	40,809	6.0		<0.660
Phenanthrene^	61000	61000		61000			<0.660
Pyrene	61000	61000		61000			<0.180

	KB	Food & Ga	ıs		
			/2004-0969		
Tier	1 SOIL C		OBJECTIVE	ES	
		(mg/kg)			
	I/C	I/C	I/C	I/C	Csat
Parameter	I/C Ing	I/C Inh.	CW Ing.	CW Inh.	
Benzene	100	1.6	2300	2.2	870
Ethylbenzene	200000	400	20000	58	400
MTBE	20000	8800	2000	140	8800
Toluene	410000	650	410000	42	650
Total Xylenes	1000000	320_	410000	5.6	320
Acenaphthene	120000		120000		
Acenaphthylene [^]	61000		61000		
Anthracene	610000		610000		
Benzo(a)anthracene	8		170		
Benzo(a)pyrene	0.8		17		-
Benzo(b)fluoranthene	8		170		
Benzo(g,h,i)perylene^	61000		61000		
Benzo(k)fluoranthene	78		17000		
Chrysene	780		17000		
Dibenz(a,h)anthracene	0.8		17		
Fluoranthene	82000		82000		
Fluorene	82000		82000		
Indeno(1,2,3-cd)pyrene	8		170		
Naphthalene	41000	270	4100	1.8	
Phenanthrene [^]	61000		61000		
Pyrene	61000		61000		

KB Food & Gas										
		-0146/2004								
Tier 2 S		N-UP OBJE	CTIVES							
	(mg/									
	I/C_	I/C	I/C	I/C						
Parameter	I/C Ing	I/C Inh.	CW Ing.	CW Inh.						
Benzene	104.1	55.1	2258.2	77.5						
Ethylbenzene	204,400	346,849	20,405	2,244						
MTBE	40,880	571,019	20,405_	3,694						
Toluene	163,520	1,242,434	163,236	8,038						
Total Xylenes	408,800	34,017	204,045	880						
Acenaphthene										
Acenaphthylene [^]		 		_						
Anthracene										
Benzo(a)anthracene	7.84		170.14							
Benzo(a)pyrene	0.78		17.01							
Benzo(b)fluoranthene	7.84	1	170.14							
Benzo(g,h,i)perylene^										
Benzo(k)fluoranthene	78.40		1701.39							
Chrysene	784.00		17013.89							
Dibenz(a,h)anthracene	0.78		17.01							
Fluoranthene										
Fluorene										
Indeno(1,2,3-cd)pyrene	7.84		170.14							
Naphthalene	40,880	63	40,809	6.0						
Phenanthrene [^]										
Pyrene										
^Temporary Objectives f	rom additio	nal tables	10/1/04							
Updated 12/20/04	-									

	d & Gas	
RBCA - LF	Equation	S
Parameter	LF _w	k _s
(Default)		
Equation	R13	R20
Benzene	0.023	42.467
Ethylbenzene	0.004	261.723
MTBE	0.118	8.292_
Toluene	0.008	131.222
Total Xylenes	0.005	187.460
Acenaphthene	0.000	5104.680
Acenaphthylene	7.010	0.000
Anthracene	0.000	21269.500
Benzo(a)anthracene	0.000	286958.000
Benzo(a)pyrene	0.000	735420.000
Benzo(b)fluoranthene	0.000	886830.000
Benzo(g,h,i)perylene	7.010	0.000
Benzo(k)fluoranthene	0.000	886830.000
Chrysene	0.000	286958.000
Dibenz(a,h)anthracene	0.000	2739800.000
Fluoranthene	0.000	77147.000
Fluorene	0.000	9949.800
Indeno(1,2,3-cd)pyrene	0.000	2501870.000
Naphthalene	0.001	1442.000
Phenanthrene	7.010	0.000
Pyrene	0.000	75705.000

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	-			KB Food	1 Gae						1	ī			i		Τ
				SSL Equ													
	Res	M L Res.	Res.	Res.	VC	VC	I VC	VC	l VC	VC	VF	VF	VF	D _A	K ₄	ML	ML
Parameter	Ingestion	Inhai.	GWCI	GW C II	VC Ing	VC Inh.	CW Ing.	CW lph.	GW C I	GW C II	VC	CW	CW		-	GW C I	GW C II
Equation	S1 / S2	S4/S6	S17	S17	S1/S3	S4/S6	S1/S3	S5 / S7	S17	S17	S8	S8	S9	S10	S19	\$28	528
Benzene	11.64	3,605	4,259	21.295	104.06	55.121	2258.21	77.5	4,259	21.295	1.05E+05	7.10E+03	7.10E+02	1.191E-06	42.467	0.224	1,120
Ethylbenzene	7,821	60,260	3665.923	5237.033	204,400	346,849	20,405	2,244	3665,923	5237.033	2.38E+05	1.60E+04	1.60E+03	2.335E-07	261.723	31,351	44,787
MTBE	1.564	180.781	11.766	11,766	40,880	571,019	20,405	3,694	11.766	11,766				7.754E-07	8.292	3.135	3.135
Toluene	6,257	301,302	2626.959	6567.399	163,520	1,242,434	163,236	8,038	2626.959	6567.399	1.70E+05	1.15E+04	1.15E+03	4.55E-07	131.222	44.787	111.968
Total Xylenes	15,643	6.026	37516.963	37516.963	408,800	34,017	204,045	880	37516.963	37516,963	2.33E+05	1.57E+04	1.57E+03	2.428E-07	187.460	447.872	447.872
Acenaphthene	4,693		42880.253	214401.263	122,640		122,427		42880.253	214401.263	8.61E+06	5.81E+05	5.81E+04	1.779E-10	5104,680	18,811	94.053
Acenaphthylene*			0.469	2.344					0.469	2.344		T -	i			9,405	47.027
Anthracene	23,464			4466618.473	613,200		612,135		893323.695	4466618.473	2.48E+07	1.68E+06	1.68E+05	2.136E-11	21269.500	94.053	470.266
Benzo(a)anthracene	0.88		746.091	3730.455	7.84		170.139		746.091	3730.455	1.14E+08	7.67E+06	7.67E+05	1.02E-12	286958.000	0.006	0.029
Benzo(a)pyrene	0.09		2941,680	29416.804	0.78		17.014		2941.680	29416.804	1.86E+08	1.26E+07	1.26E+06	3,811E-13	735420.000	0.009	0,090
Benzo(b)fluoranthene	0.88		3192.588	15962.942	7.84		170,139	i	3192,588	15962.942	1.65E+08	1.11E+07	1.11E+06	4.833E-13	886830.000	0,008	0.040
Benzo(g,h,i)perylene*			0.469	2.344			Γ		0.469	2,344						9.405	47,027
Benzo(k)fluoranthene	8.77		3015.222	15076.112	78.40		1701.389		3015.222	15076.112						0.008	0.038
Chrysene	87.72		8608.743	43043,717	784.00		17013.889		8608,743	43043.717	9.36E+07	6.32E+06	6.32E+05		286958.000	0.067	0.336
Dibenz(a,h)anthracene	0.09		16438.801	82194.003	0.78	, <u>-</u> -	17.014		16438.801	82194.003	4.77E+08	3.22E+07	3.22E+06	5.783E-14	2739800.000	0.013	0.067
Fluoranthene	3,129		432023.825	2160119.127	81,760		81,618		432023.825	2160119.127						12,540	62.702
Fluorene	3,129		55719.506	278597.530	81,760		81,618		55719.506						9949.800	12.540	62.702
Indeno(1,2,3-cd)pyrene	0.88		21516.083	107580.415	7.84		170.139		21516.083	107580.415					2501870.000	0.019	0.096
Naphthalene	1,564	181	4037.916	6345.296	40,880	63	40,809	6.05	4037.916	6345.296	2.45E+06	1.65E+05	1.65E+04	2.196E-09	1442.000_	6.270	9.853
Phenanthrene*			0,469	2.344			i		0,469	2.344			L			9,405	47.027
Pyrene	2,346		317961.469	1589807,345	61,320		61,214		317961.469	1589807.345	6.29E+07	4.25E+06	4.25E+05	3.332E-12	75705.000	9.405	47,027
	i ···	j		1			-			[i	l	1	l			<u> </u>
	T	Carc./Gen	Res	I/C	C/W				<u> </u>		<u> </u>	L				·	<u> </u>
SSL Standard Inputs	AT Ing		- 6	25	0.115		•		<u>!</u>		<u> </u>	<u> </u>	ļ				
	AT Inh		30	25	0.115	<u> </u>			<u> </u>		ļ			<u> </u>	<u> </u>		. !
	ATc_	70		<u> </u>				<u> </u>			<u> </u>	L					
	BW	70	15	70	70				!			ļ	<u> </u>	!			ļ.——
	ED	30	6	25	1	<u> </u>	ļ		<u> </u>		<u> </u>	<u> </u>					
	ED m-l	70							 			<u> </u>		<u> </u>			
	EF		350	250	30		ļ <u>-</u>		<u> </u>			ļ <u></u>	ļ				
	F(x)	0.194	<u></u> .	ļ		ļ	<u></u>	ļ	ļ		ļ	<u> </u>	<u> </u>	ļ <u> </u>			
	<u> </u>	0.3					ļ		ļ	<u> </u>	-		 	-			
	ImH	0.18		ļ			<u> </u>	ļ	<u> </u>		ļ		 	 			
	IF s-adj	114							ļ. ——	ļ	ļ- 	ļ	<u> </u>		-		
	IR soil		200	50	480	<u> </u>		 	ļ		 			ļ			
	IRw		2	1	4045.55	ļ	ļ . 		 	ļ	ļ. — —		 	ļ			
	PEF	ļ		1240000000		<u> </u>	 		 		1	-			 		
	Q/C VF		68.81	85.81	85.81		ļ	ļ	 		ļ <u>.</u>	ļ	<u> </u>				
	Q/C PEF	ļ	90.8	85.81	85.81			 	 	ļ	 	 	 				
	T		950000000	790000000	3.60E+06		<u> </u>	ļ	 	ļ	 	 	1	 -	ļ. 		
	Tm⊢	30		ļ	<u> </u>	ļ	<u> </u>	ļ · -	ļ		 		-	 			
- 	THQ	1		ļ		ļ	ļ — —	ļ	-	<u> </u>	ļ	-	 	 			
- <u>-</u>	TR_	1.0E-06					ļ		 	<u> </u>	1		 				
	Um_	4.69			ļ			<u> </u>	<u> </u>	1			ł	 		-	+
	V	0.5	<u> </u>	1		ļ	ļ	ļ. 	 	 		 	 	<u> </u>			
<u> </u>	tho w	1	44550 7755	4444 8004	4444	<u> </u>	 -		1	ļ	1	 	 	 	 		+
S26	SÌ VFm-I	<u> </u>	11556.7763	14411.9601	14411,96	i	!	<u> </u>	<u> </u>	<u> </u>	ı.	1		!	1		'

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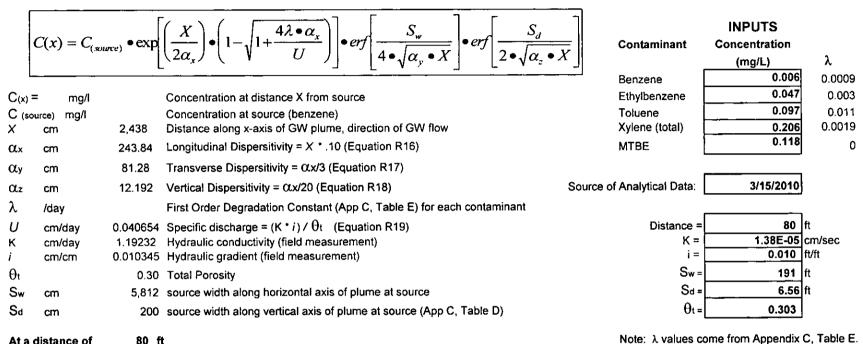
				 -	KB Food &	Gas						
				SOIL	CLEAN-UP O	BJECTIVES						
	s	Di	Đ _w	Н'	K _{oc}	λ	SF.	URF _	RfC	RfCs	RfD	RfDs
Parameter	ter (mg/L) (cm²/s) (cm²/s) (25°C) (L/kg)		(L/kg)	(d ⁻¹)	(mg/kg-d) ⁻¹	(ug/m³) ⁻¹	(mg/m³)	(mg/m³)		(mg/kg-d)		
Benzene	1750	0.088	9.80E-06	0.228	58.9	0.0009	0.055	7.8E-06	0.03	0.08	0.004	0.012
Ethylbenzene	169	0.075	7.80E-06	0.323	363	0.003			11	1	0.1	0.1
MTBE	51000	0.102	1.10E-05	0.0241	11.5	0			3	3	0.02	0.1
Toluene	526	0.087	8.60E-06	0.272	182	0.011_			5_	5	0.08	0.8
Total Xylenes	186	0.072	9.34E-06	0.25	260	0.0019			0.1	0.4	0.2	1_
Acenaphthene	4.24	0.0421	7.69E-06	0.00636	7080	0.0034					0.06	0.6
Acenaphthylene*												Į
Anthracene	0.0434	0.0324	7.74E-06	0.00267	29500	0.00075					0.3	3
Benzo(a)anthracene	0.0094	0.051	9.00E-06	0.000137	398000	0.00051	0.73	1.1E-04		_	,	ļ
Benzo(a)pyrene	0.00162	0.043	9.00E-06	0.0000463	1020000	0.00065	7.3	1.1E-03				
Benzo(b)fluoranthene	0.0015	0.0226	5.56E-06	0.00455	1230000	0.00057	0.73	1.1E-04			<u> </u>	<u> </u>
Benzo(g,h,i)perylene*							<u> </u>					ļ
Benzo(k)fluoranthene	0.0008	0.0226	5.56E-06	0.000034	1230000	0.00016	0.073	1.1E-04				
Chrysene	0.0016	0.0248	6.21E-06	0.00388	398000	0.00035	0.0073	1.1E-05				ļ
Dibenz(a,h)anthracene	0.00249	0.0202	5.18E-06	0.000000603	3800000	0.00037	7.3	1.2E-03	<u> </u>			
Fluoranthene	0.206	0.0302	6.35E-06	0.00066	107000	0.00019		· <u>-</u> -		<u></u>	0.04	0.4
Fluorene	1.98	0.0363	7.88E-06	0.00261	13800	0.000691			ļ		0.04	0.4
Indeno(1,2,3-cd)pyrene	0.000022	0.019	5.66E-06	0.0000656	3470000	0.00047	0.73	1.1E-04	ļ. <u></u>			
Naphthalene	31	0.059	7.50E-06	0.0198	2000	0.0027	<u> </u>		0.003	0.003	0.02	0.2_
Phenanthrene [^]							ļ.,		ļ			
Pyrene	0.135	0.0272	7.24E-06	0.000451	105000	0.00018	1		1		0.03	0.3

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APPENDIX C TABLE K									
Soil Texture	Sat. Hyd.	1/(2b+3)							
	Cond., K _s								
Sand	1830	0.090							
Loamy Sand	540	0.085							
Sandy Loam	230	0.080							
Silt Loam	120	0.074							
Loam	60	0.073							
Sandy Clay Loam	40	0.058							
Silt Clay Loam	13	0.054							
Clay Loam	20	0.050							
Sandy Clay	10	0.042							
Silt Clay	8	0.042							
Clay	5	0.039							



TACO R26 EQUATION Groundwater Modeling MW-4

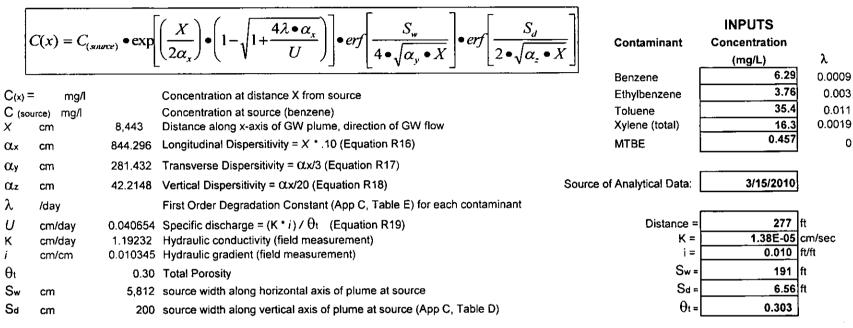


At a distance of 80 ft

C(x) =0.00000 ma/L = 0,0000 ug/l = ppb Benzene 0.0000 ug/l = ppb Ethylbenzene 0.00000 ma/L 0.00000 mg/L 0.0000 ug/l = ppb Toluene 0.00000 ma/L 0.0000 ug/l = ppb Xylene (total) 0.06936 mg/L 69.3582 ug/l = ppb MTBE



TACO R26 EQUATION Groundwater Modeling MW-5



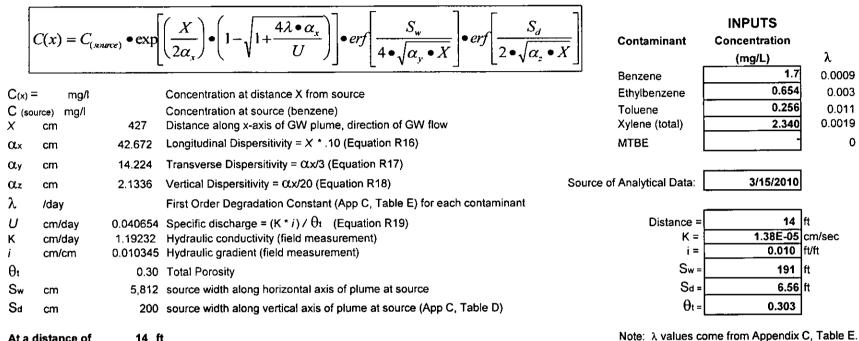
At a distance of 277 ft

C(x) = 0.00000 mg/L = 0.0000 ug/l = ppb Benzene 0.00000 mg/L = 0.0000 ug/l = ppb Ethylbenzene 0.00000 mg/L = 0.0000 ug/l = ppb Toluene 0.00000 mg/L = 0.0000 ug/l = ppb Xylene (total) 0.06994 mg/L = 69.9355 ug/l = ppb MTBE

Note: λ values come from Appendix C, Table E.



TACO R26 EQUATION Groundwater Modeling MW-6

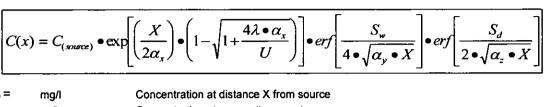


At a distance of 14 ft

C(x) =0.00452 ma/L 4.5190 ug/l = ppb Benzene 0.00000 mg/L 0.0010 ug/l = ppb Ethylbenzene 0.00000 mg/L 0.0000 ug/l = ppb Toluene 0.00011 mg/L 0.1083 ug/l = ppb Xylene (total) uq/l = ppb MTBEmg/L



TACO R26 EQUATION Groundwater Modeling MW-7



$C_{(x)} =$	mg/l		Concentration at distance X from source
C (sou	rce) mg/l		Concentration at source (benzene)
X	cm	30	Distance along x-axis of GW plume, direction of GW flow
α_{x}	cm	3.048	Longitudinal Dispersitivity = X * .10 (Equation R16)
α_{y}	cm	1.016	Transverse Dispersitivity = $\alpha x/3$ (Equation R17)
αz	cm	0.1524	Vertical Dispersitivity = αx/20 (Equation R18)
λ	/day		First Order Degradation Constant (App C, Table E) for each contaminant
U	cm/day	0.040654	Specific discharge = $(K^*i) / \theta_t$ (Equation R19)
K	cm/day	1.19232	Hydraulic conductivity (field measurement)
i	cm/cm	0.010345	Hydraulic gradient (field measurement)
θ_t		0.30	Total Porosity
Sw	cm	5,812	source width along horizontal axis of plume at source
Sd	cm	200	source width along vertical axis of plume at source (App C, Table D)

At a distance of			1	Ħ				
C(x) =	0.04507	mg/L		=	45.0669	ug/l = ppb	Benzene	
	0.35450	mg/L		=	354.5035	ug/l = ppb	Ethylbenzene	
	0.00112	mg/L		=	1.1159	ug/l = ppb	Toluene	
	1.91156	mg/L		=	1,911.5560	ug/l = ppb	Xylene (total)	
	_	ma/l		=	_	ua/l = pph	MTRE	

	INPUTS	
Contaminant	Concentration	
	(mg/L)	λ
Benzene	0.085	0.0009
Ethylbenzene	2.35	0.003
Totuene	0.239	0.011
Xylene (total)	6.77	0.0019
MTBE	1	C

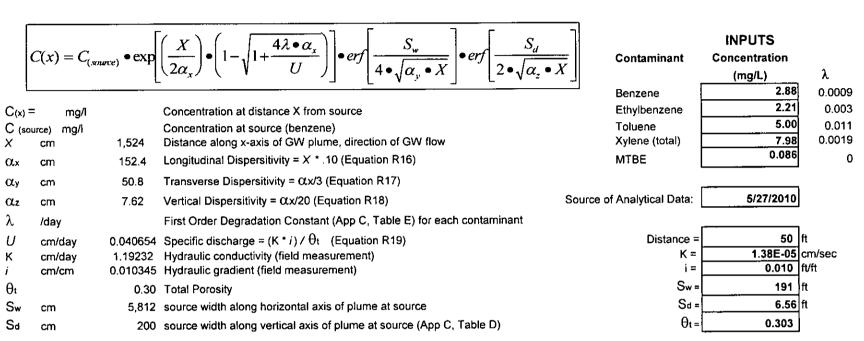
Source of Analytical Data:	3/15/2010
Course of Allalytical Data.	0, 10, 20 10

Distance =	1	ft
K =	1.38E-05	
i =	0.010	ft/ft
Sw=		ft
Sd=	6.56	ft
Ot=	0.303	

Note: λ values come from Appendix C, Table E.



TACO R26 EQUATION Groundwater Modeling MW-8



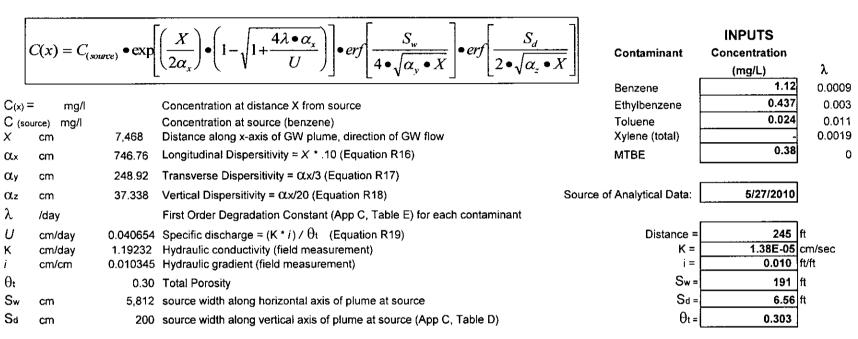
Δ+	a die	stance	a of	 50	fŧ

C(x) = 0.00000 mg/L = 0.0019 ug/l = ppb Benzene 0.00000 mg/L = 0.0000 ug/l = ppb Ethylbenzene 0.00000 mg/L = 0.0000 ug/l = ppb Toluene 0.00000 mg/L = 0.0000 ug/l = ppb Xylene (total) 0.06970 mg/L = 69.7013 ug/l = ppb MTBE

Note: λ values come from Appendix C, Table E.



TACO R26 EQUATION Groundwater Modeling MW-9



At a distance of 245 ft

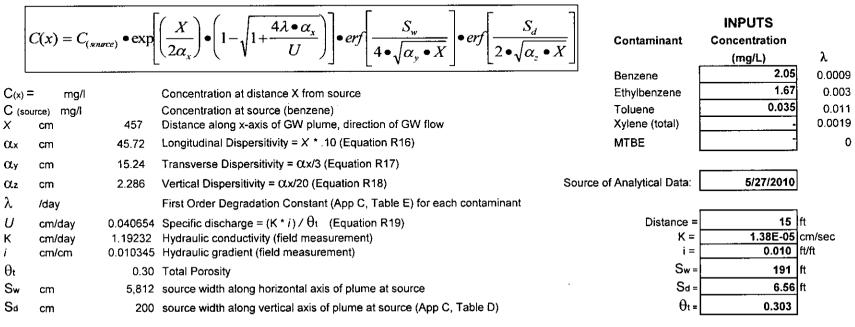
C(x) = 0.00000 mg/L = 0.0000 ug/l = ppb Benzene

0.00000 mg/L = 0.0000 ug/l = ppb Ethylbenzene **0.00000** mg/L = 0.0000 ug/l = ppb Toluene

- mg/L = - ug/l = ppb Xylene (total) 0.06965 mg/L = 69.6494 ug/l = ppb MTBE



TACO R26 EQUATION Groundwater Modeling MW-10



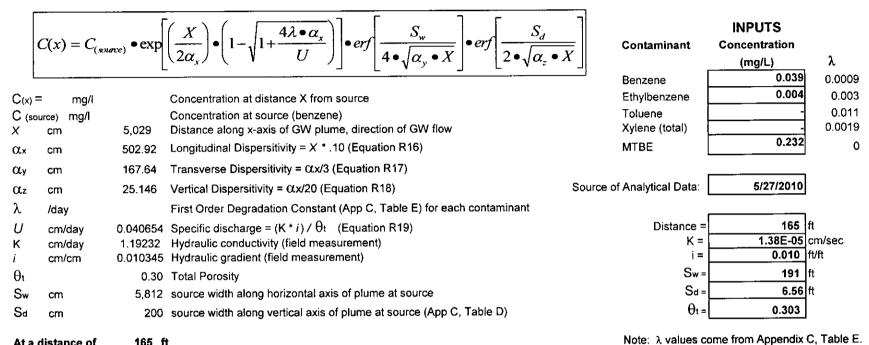
At a distance of 15 ft

C(x) = 0.00402 mg/L = 4.0191 ug/l = ppb Benzene 0.00000 mg/L = 0.0013 ug/l = ppb Ethylbenzene 0.00000 mg/L = 0.0000 ug/l = ppb Toluene - mg/L = - ug/l = ppb MTBE

Note: λ values come from Appendix C, Table E.



TACO R26 EQUATION Groundwater Modeling MW-11

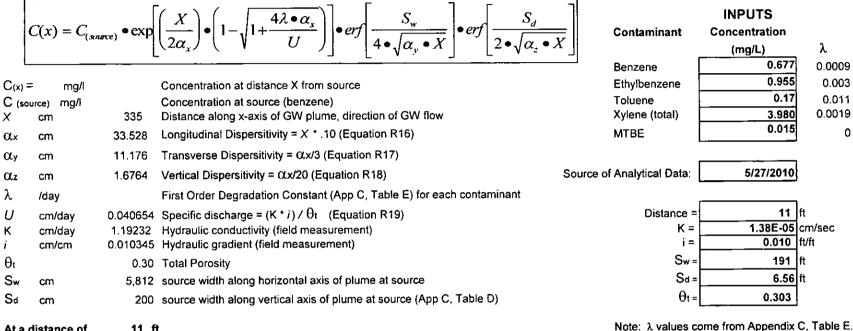


At a distance of 165 ft

C(x) =0.00000 mg/L 0.0000 ug/l = ppb Benzene 0.0000 ug/l = ppb Ethylbenzene 0.00000 mg/L ug/l = ppb Toluene mg/L ug/l = ppb Xylene (total) mg/L 0.06989 mg/L 69.8916 ug/l = ppb MTBE



TACO R26 EQUATION Groundwater Modeling MW-12



At a distance of 11 ft

C(x) =4.7424 ug/l = ppb Benzene 0.00474 mg/L 0.00001 mg/L 0.0096 ug/l = ppb Ethylbenzene 0.00000 mg/L 0.0000 ug/l = ppb Toluene 0.8266 ug/l = ppb Xylene (total) 0.00083 mg/L 15,0000 ug/l = ppb MTBE 0.01500 mg/L

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TACO R26 EQUATION Soil to Groundwater Modeling Soil MW-5 2.5ft

$$C(x) = C_{(source)} \cdot \exp\left[\left(\frac{X}{2\alpha_x}\right) \cdot \left(1 - \sqrt{1 + \frac{4\lambda \cdot \alpha_x}{U}}\right)\right] \cdot erf\left[\frac{S_w}{4 \cdot \sqrt{\alpha_y \cdot X}}\right] \cdot erf\left[\frac{S_d}{2 \cdot \sqrt{\alpha_z \cdot X}}\right]$$

$C_{(x)} =$	mg/l		Concentration at distance X from source				
C (sou	rce) mg/l		Concentration at source (benzene)				
X	cm	213	Distance along x-axis of GW plume, direction of GW flow		INPUTS		
αx	cm	21.336	Longitudinal Dispersitivity = $X * .10$ (Equation R16)	Contaminant	Concentration		
α_{y}	cm	7.112	Transverse Dispersitivity = 0x/3 (Equation R17)		(mg/kg)	(mg/L)	λ
αz	cm	1.0668	Vertical Dispersitivity = 0x/20 (Equation R18)	Benzene	4.91	0.11	0.0009
λ	/day		First Order Degradation Constant (App C, Table E) for each contaminant	Ethylbenzene	14	0.05	0.003
U	cm/day	0.040654	Specific discharge = $(K * i) / \theta_1$ (Equation R19)	Toluene	12.3	0.09	0.011
K	cm/day	1.19232	Hydraulic conductivity (field measurement)	Xylene (total)	36.8	0.20	0.0019
i	cm/cm	0.010345	Hydraulic gradient (field measurement)	MTBE			0
Θ_t		0.30	Total Porosity				
Sw	cm	5,812	source width along horizontal axis of plume at source	Source of Analytical Data:	2/24/2010		
Sa	cm	200	source width along vertical axis of plume at source (App C, Table D)				
				Distance =			
At a d	fistance of	7 1		K =	1.38E-05	cm/sec	
C(x) =	0.00347	mg/L =	3.4666 ug/l = ppb Benzene	j = 1	0.010	ft/ft	
	0.00001	mg/L :	0.0107 ug/l = ppb Ethylbenzene	Sw =	191	ft	
	0.00000	mg/L :	0.0000 ug/l = ppb Toluene	Sa=	6.56	ft	
	0.00041	mg/L :	0.4093 ug/l = ppb Xylene (total)	θt =	0.303		
	-	mg/L :	- ug/l = ppb MTBE				

TACO R26 EQUATION Soil to Groundwater Modeling Soil MW-5 7.5ft

$$C(x) = C_{(source)} \cdot \exp\left[\left(\frac{X}{2\alpha_x}\right) \cdot \left(1 - \sqrt{1 + \frac{4\lambda \cdot \alpha_x}{U}}\right)\right] \cdot erf\left[\frac{S_w}{4 \cdot \sqrt{\alpha_y \cdot X}}\right] \cdot erf\left[\frac{S_d}{2 \cdot \sqrt{\alpha_z \cdot X}}\right]$$

C(x) =	mg/l		Concentration at distance X from source				
C (sou	ırce) mg/l		Concentration at source (benzene)				
X	cm	213	Distance along x-axis of GW plume, direction of GW flow		INPUTS		
αx	cm	21.336	Longitudinal Dispersitivity = $X * .10$ (Equation R16)	Contaminant	Concentration		
α_{y}	cm	7.112	Transverse Dispersitivity = $\alpha x/3$ (Equation R17)		(mg/kg)	(mg/L)	λ
αz	cm	1.0668	Vertical Dispersitivity = $\alpha x/20$ (Equation R18)	Benzene	5.03	0.12	0.0009
λ	/day		First Order Degradation Constant (App C, Table E) for each contaminant	Ethylbenzene	16.6	0.06	0.003
U	cm/day	0.040654	Specific discharge = $(K * i) / \theta_t$ (Equation R19)	Toluene	29.7	0.23	0.011
ĸ	cm/day	1.19232	Hydraulic conductivity (field measurement)	Xylene (total)	65.6	0.35	0.0019
i	cm/cm	0.010345	Hydraulic gradient (field measurement)	MTBE [0
Θ_{t}		0.30	Total Porosity	_			
S_w	cm	5,812	source width along horizontal axis of plume at source	Source of Analytical Data:	2/24/2010		
Sd	cm	200	source width along vertical axis of plume at source (App C, Table D)	_			
				Distance =	7	· -	
Atac	listance of	7 f		K =	1.38E-05	cm/sec	
C(x) =	0.00355	mg/L =	3.5514 ug/l = ppb Benzene	i =	0.010	ft/ft	
	0.00001	mg/L =	0.0127 ug/l = ppb Ethylbenzene	Sw =	191	ft	
	0.00000	mg/L =	0.0000 ug/l = ppb Toluene	Sd =	6.56	ft	
	0.00073	mg/L =	annual and a part of the second second	0 1 =	0.303		
	-	mg/L =	- ug/l = ppb MTBE				

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TACO R26 EQUATION Soil to Groundwater Modeling Soil MW-6 2.5ft

$$C(x) = C_{(source)} \cdot \exp\left[\left(\frac{X}{2\alpha_x}\right) \cdot \left(1 - \sqrt{1 + \frac{4\lambda \cdot \alpha_x}{U}}\right)\right] \cdot erf\left[\frac{S_w}{4 \cdot \sqrt{\alpha_y \cdot X}}\right] \cdot erf\left[\frac{S_d}{2 \cdot \sqrt{\alpha_z \cdot X}}\right]$$

C(x) =	mg/l		Concentration at distance X from source				
C (sou	C (source) mg/l Concentration at source (benzene)						
X	cm	183	Distance along x-axis of GW plume, direction of GW flow		INPUTS		
α_x	cm	18.288	Longitudinal Dispersitivity = $X * .10$ (Equation R16)	Contaminant	Concentration		
α_{y}	cm	6.096	Transverse Dispersitivity = 0x/3 (Equation R17)	,	(mg/kg)	(mg/L)	λ
OLz	cm	0.9144	Vertical Dispersitivity = $\alpha x/20$ (Equation R18)	Benzene	3.47	0.08	0.0009
λ	/day		First Order Degradation Constant (App C, Table E) for each contaminant	Ethylbenzene	10.4	0.04	0.003
U	cm/day	0.040654	Specific discharge = $(K * i) / \theta_t$ (Equation R19)	Toluene	0.42	0.00	0.011
ĸ	cm/day	1.19232	Hydraulic conductivity (field measurement)	Xylene (total)	21.8	0.12	0.0019
i	cm/cm	0.010345	Hydraulic gradient (field measurement)	MTBE [0
Θ_t		0.30	Total Porosity				
S_w	cm	5,812	source width along horizontal axis of plume at source	Source of Analytical Data:	2/24/2010]	
Sa	cm	200	source width along vertical axis of plume at source (App C, Table D)				
				Distance =	6	4	
Atao	listance of	6 1	t end of the control	K =	1.38E-05	cm/sec	
C(x) =	0.00368	mg/L =	3.6794 ug/l = ppb Benzene	i = [0.010	n∕n	
	0.00002	mg/L =	0.0189 ug/l = ppb Ethylbenzene	Sw =	191	∱ft	
	0.00000	mg/L :	0.0000 ug/l = ppb Toluene	Sd = (6.56	ft	
	0.00047	mg/L :	0.4678 ug/l = ppb Xylene (total)	θι=	0.303		
	-	mg/L :	- ug/l = ppb MTBE				

TACO R26 EQUATION Soil to Groundwater Modeling Soil MW-6 7.5ft

$$C(x) = C_{(source)} \bullet \exp\left[\left(\frac{X}{2\alpha_x}\right) \bullet \left(1 - \sqrt{1 + \frac{4\lambda \bullet \alpha_x}{U}}\right)\right] \bullet erf\left[\frac{S_w}{4 \bullet \sqrt{\alpha_y \bullet X}}\right] \bullet erf\left[\frac{S_d}{2 \bullet \sqrt{\alpha_z \bullet X}}\right]$$

C(x) =	mg/l		Concentration at distance X from source				
C (sai	rce) mg/l		Concentration at source (benzene)				
X	cm	91	Distance along x-axis of GW plume, direction of GW flow		INPUTS		
Œx	cm	9.144	Longitudinal Dispersitivity = $X * .10$ (Equation R16)	Contaminant	Concentration		
α_{y}	cm	3.048	Transverse Dispersitivity = $\alpha x/3$ (Equation R17)	•	(mg/kg)	(mg/L)	λ
αz	cm	0.4572	Vertical Dispersitivity = 0x/20 (Equation R18)	Benzene	0.926	0.02	0.0009
λ	/day		First Order Degradation Constant (App C, Table E) for each contaminant	Ethylbenzene	0.844	0.00	0.003
U	cm/day	0.040654	Specific discharge = $(K * i) / \theta_1$ (Equation R19)	Toluene	-		0.011
ĸ	cm/day	1.19232	Hydraulic conductivity (field measurement)	Xylene (total)	•		0.0019
i	cm/cm	0.010345	Hydraulic gradient (field measurement)	MTBE			0
θ_t		0.30	Total Porosity				
Sw	cm	5,812	source width along horizontal axis of plume at source	Source of Analytical Data:	2/24/2010		
S_d	cm	200	source width along vertical axis of plume at source (App C, Table D)				
				Distance =			
At a d	listance of	3 1	, •	K =	1.38E-05 c		
C(x) =	0.00385	mg/L =	3.8488 ug/l = ppb Benzene	i =	0.010 ft	/ft	
	0.00003	mg/L :	0.0317 ug/l = ppb Ethylbenzene	Sw =	191 ft		
	-	mg/L =	- ug/l = ppb Toluene	Sd =	6.56 ft		
	•	mg/L :	- ug/l = ppb Xylene (total)	θι=	0.303		
	-	ma/l =	- ug/l = ppb_MTBE				

TACO R26 EQUATION Soil to Groundwater Modeling Soil MW-7 7.5ft

$$C(x) = C_{(source)} \bullet \exp\left[\left(\frac{X}{2\alpha_x}\right) \bullet \left(1 - \sqrt{1 + \frac{4\lambda \bullet \alpha_x}{U}}\right)\right] \bullet erf\left[\frac{S_w}{4 \bullet \sqrt{\alpha_y \bullet X}}\right] \bullet erf\left[\frac{S_d}{2 \bullet \sqrt{\alpha_z \bullet X}}\right]$$

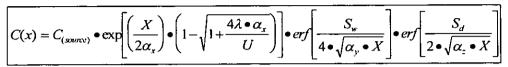
C(x) =	mg/l		Concentration	on at distant	ce X from source				
C (sou	rce) mg/l		Concentration	on at source	(benzene)				
X	cm	30	Distance alo	ng x-axis o	f GW plume, direction of GW flow		INPUTS		
αx	cm	3.048	Longitudinal	Dispersitivi	ty = X * .10 (Equation R16)	Contaminan	t Concentration		
α_{y}	cm	1.016	Transverse	Dispersitivit	y = 0xx/3 (Equation R17)		(mg/kg)	(mg/L)	λ
αz	cm	0.1524	Vertical Disp	persitivity =	Cx/20 (Equation R18)	Benzene		•	0.0009
λ	/day		First Order I	Degradation	Constant (App C, Table E) for each contaminant	Ethylbenzene	15.9	0.06	0.003
U	cm/day	0.040654	Specific disc	charge = (K	*i) / θt (Equation R19)	Toluene	0.09	9 0.00	0.011
ĸ	cm/day	1.19232	-		field measurement)	Xylene (total)	46.	8 0.25	0.0019
i	cm/cm	0.010345	Hydraulic gr	adient (field	measurement)	MTBE		<u>- </u>	0
θ_t		0.30	Total Porosi	ity				_	
Sw	cm	5,812	source width	n along hori:	zontal axis of plume at source	Source of Analytical Da	ta: 2/24/201	0	
Sd	cm	200	source width	h along vert	ical axis of plume at source (App C, Table D)			_	
				_		Distanc	`	1 ft	
At a c	distance of	1 1	ft			I		5 cm/sec	
C(x) =	-	mg/L =	.	ug/i = ppb	Benzene		i = 0.010	<u>o {n/n</u>	
	0.00912	mg/L :	= 9.1169	ug/l = ppb	Ethylbenzene	\$	Sw = 19 ⁴	<u>1</u> ft	
	0.00000	mg/L =	= 0.0035	ug/l = ppb	Toluene	5	Sa = 6.5	66 ft	
	0.07011	mg/L :	= 70.1102	ug/l = ppb	Xylene (total)		θι = 0.303	3	
	•	mg/L	-	ug/l = ppb	MTBE				

TACO R26 EQUATION Soil to Groundwater Modeling Soil SB-3 7.5ft

$$C(x) = C_{(snurv)} \cdot \exp\left[\left(\frac{X}{2\alpha_x}\right) \cdot \left(1 - \sqrt{1 + \frac{4\lambda \cdot \alpha_x}{U}}\right)\right] \cdot erf\left[\frac{S_w}{4 \cdot \sqrt{\alpha_y \cdot X}}\right] \cdot erf\left[\frac{S_d}{2 \cdot \sqrt{\alpha_z \cdot X}}\right]$$

C(x) =	mg/l		Concentration at distance X from source				
C (so	(source) mg/l Concentration at source (benzene)						
X	cm	30	Distance along x-axis of GW plume, direction of GW flow		INPUTS		
α_{x}	cm	3.048	Longitudinal Dispersitivity = X * .10 (Equation R16)	Contaminant	Concentration		
α_{y}	cm	1.016	Transverse Dispersitivity = 0x/3 (Equation R17)	,	(mg/kg)	(mg/L)	λ
αz	cm	0.1524	Vertical Dispersitivity = αx/20 (Equation R18)	Benzene	-	-	0.0009
λ	/day		First Order Degradation Constant (App C, Table E) for each contaminant	Ethylbenzene	40.9	0.16	0.003
U	cm/day	0.040654	Specific discharge = $(K * i) / \theta_t$ (Equation R19)	Toluene	-		0.011
ĸ	cm/day	1.19232	Hydraulic conductivity (field measurement)	Xylene (total)	116	0.62	0.0019
i	cm/cm	0.010345	Hydraulic gradient (field measurement)	MTBE	- 1		0
θ_{t}		0.30	Total Porosity				
Sw	cm	5,812	source width along horizontal axis of plume at source	Source of Analytical Data:	2/24/2010		
S₫	cm	200	source width along vertical axis of plume at source (App C, Table D)				
				Distance =	1_	ft	
At a	distance of	1 1		K = (1.38É-05	cm/sec	
C(x) =	• •	mg/L =	- ug/l = ppb Benzene	i = {	0.010	ft/ft	
	0.02345	mg/L =	23.4517 ug/l = ppb Ethylbenzene	Sw =	191	ft	
	-	mg/L =	- ug/l = ppb Toluene	Sd=	6.56	ft	
	0.17378	mg/L =	173.7774 ug/l = ppb Xylene (total)	Ot=	0.303		
	-	mg/L :	- ug/l = ppb MTBE				

TACO R26 EQUATION Soil to Groundwater Modeling Soil SB-5 2.5ft



$C_{(x)} =$	mg/l		Concentration at distance X from source				
C (sou	rce) mg/l		Concentration at source (benzene)				
X	cm	61	Distance along x-axis of GW plume, direction of GW flow		INPUTS		
α_{x}	cm	6.096	Longitudinal Dispersitivity = X * .10 (Equation R16)	Contaminant	Concentration		
α_{y}	cm	2.032	Transverse Dispersitivity = $\alpha x/3$ (Equation R17)		(mg/kg)	(mg/L)	λ
αz	cm	0.3048	Vertical Dispersitivity = $\alpha x/20$ (Equation R18)	Benzene	0.671	0.016	0.0009
λ	/day		First Order Degradation Constant (App C, Table E) for each contaminant	Ethylbenzene	19.2	0.07	0.003
U	cm/day	0.040654	Specific discharge = $(K^*i) / \theta_i$ (Equation R19)	Toluene	-		0.011
ĸ	cm/day		Hydraulic conductivity (field measurement)	Xylene (total)	0.663	0.00	0.0019
i	cm/cm	0.010345	Hydraulic gradient (field measurement)	MTBÉ			0
Θ_t		0.30	Total Porosity			_	
Sw	cm	5,812	source width along horizontal axis of plume at source	Source of Analytical Data:	2/24/2010		
Sa	cm	200	source width along vertical axis of plume at source (App C, Table D)			_	
				Distance =	2	1 '	
Atac	listance of	2 1	!	K =	1.38E-05	cm/sec	
C(x) =	0.00470	mg/L :	4.6997 ug/l = ppb Benzene	i =	0.010	ft/ft	
	0.00252	mg/L =	2.5207 ug/l = ppb Ethylbenzene	Sw=	191	ft	
	•	mg/L =	ug/l = ppb Toluene	Sd =	6.56	ft	
	0.00035	-		θt =	0.303	j	
	•	mg/L :	ug/l = ppb MTBE				

TACO R26 EQUATION Soil to Groundwater Modeling Soil SB-6 2.5ft

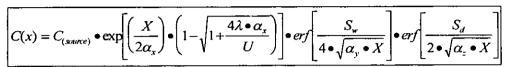
$$C(x) = C_{(source)} \bullet \exp\left[\left(\frac{X}{2\alpha_x}\right) \bullet \left(1 - \sqrt{1 + \frac{4\lambda \bullet \alpha_x}{U}}\right)\right] \bullet erf\left[\frac{S_w}{4 \bullet \sqrt{\alpha_y \bullet X}}\right] \bullet erf\left[\frac{S_d}{2 \bullet \sqrt{\alpha_z \bullet X}}\right]$$

ug/l = ppb MTBE

C(x) =Concentration at distance X from source mg/l C (source) mg/l Concentration at source (benzene) **INPUTS** Distance along x-axis of GW plume, direction of GW flow 91 cm Concentration Longitudinal Dispersitivity = X * .10 (Equation R16) Contaminant cm 9.144 α_x (mg/L) λ (mg/kg) 3.048 Transverse Dispersitivity = $\alpha x/3$ (Equation R17) cm α_y 0.020 0.845 Benzene 0.0009 0.4572 Vertical Dispersitivity = 0tx/20 (Equation R18) α_z cm 0.00 1.01 0.003 λ First Order Degradation Constant (App C, Table E) for each contaminant Ethylbenzene /day 0.00 0.015 0.011 Toluene U 0.040654 Specific discharge = $(K * i) / \theta_t$ (Equation R19) cm/day 0.0019 1.19232 Hydraulic conductivity (field measurement) Xylene (total) 2.01 0.01 Κ cm/day 0 MTBE 0.010345 Hydraulic gradient (field measurement) cm/cm θ_t 0.30 Total Porosity Source of Analytical Data: 2/24/2010 Sw 5,812 source width along horizontal axis of plume at source cm 200 source width along vertical axis of plume at source (App C, Table D) Sd cm Distance = 3 ft 1.38E-05 cm/sec K = At a distance of 3 ft j = 0.010 ft/ft 0.00351 mg/L 3.5122 ug/l = ppb Benzene Sw: 191 Ift 0.00004 mg/L 0.0380 ug/l = ppb Ethylbenzene Sd: 6.56 ft 0.00000 mg/L 0.0000 ug/l = ppb Toluene Ot: 0.303 0.00042 mg/L 0.4218 ug/l = ppb Xylene (total)

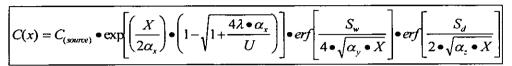
mg/L

TACO R26 EQUATION Soil to Groundwater Modeling Soil SB-6 7.5ft



$C_{(x)} =$	mg/l		Concentration at distance X from source				
C (sou	ırce) mg/l		Concentration at source (benzene)				
X	cm	30	Distance along x-axis of GW plume, direction of GW flow		INPUTS		
αx	cm	3.048	Longitudinal Dispersitivity = $X * .10$ (Equation R16)	Contaminant	Concentration		
α_{y}	cm	1.016	Transverse Dispersitivity = $\alpha x/3$ (Equation R17)	•	(mg/kg)	(mg/L)	λ
αz	cm	0.1524	Vertical Dispersitivity = 0x/20 (Equation R18)	Benzene	3.42	0.080	0.0009
λ	/day		First Order Degradation Constant (App C, Table E) for each contaminant	Ethylbenzene	18.3	0.07	0.003
U	cm/day	0.040654	Specific discharge = $(K * i) / \theta_1$ (Equation R19)	Toluene	-	-	0.011
ĸ	cm/day	1.19232		Xylene (total)	39.7	0.21	0.0019
i	cm/cm	0.010345	Hydraulic gradient (field measurement)	MTBE	0.559	0.066	0
θι		0.30	Total Porosity				
Sw	cm	5,812	source width along horizontal axis of plume at source	Source of Analytical Data:	2/24/2010		
Sd	cm	200	source width along vertical axis of plume at source (App C, Table D)				
_	-		·	Distance =	1		
Atac	distance of	1 1	t	K =	1.38E-05	cm/sec	
C(x) =	0.04235	mg/L :	42.3545 ug/l = ppb Benzene	i = :	0.010	ft/ft	
	0.01049	mg/L =	10.4931 ug/l = ppb Ethylbenzene	Sw =	191	ft	
	-	mg/L	- ug/l = ppb Toluene	Sd =	6.56	ft	
	0.05947	mg/L	59.4738 ug/l = ppb Xylene (total)	Ot ≃	0.303		
	0.06597	mg/L	: 65.9726 ug/l = ppb MTBE				

TACO R26 EQUATION Soil to Groundwater Modeling Soil MW-8 7.5ft



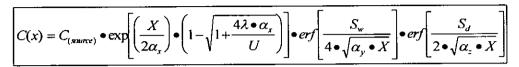
$C_{(x)} =$	mg/l		Concentration at distance X from source				
C (sou	rce) mg/l		Concentration at source (benzene)				
X	cm	91	Distance along x-axis of GW plume, direction of GW flow		INPUTS		
αx	cm	9.144	Longitudinal Dispersitivity = $X * .10$ (Equation R16)	Contaminant	Concentration		
α_y	cm	3.048	Transverse Dispersitivity = 0x/3 (Equation R17)		(mg/kg)	(mg/L)	λ
αz	cm	0.4572	Vertical Dispersitivity = 0x/20 (Equation R18)	Веплеле	1.19	0.028	0.0009
λ	/day		First Order Degradation Constant (App C, Table E) for each contaminant	Ethylbenzene	18.1	0.07	0.003
U	cm/day	0.040654	Specific discharge = $(K * i) / \theta_1$ (Equation R19)	Toluene	0.313	0.00	0.011
K	cm/day	1.19232	Hydraulic conductivity (field measurement)	Xylene (total)	53.3	0.28	0.0019
i	cm/cm	0.010345	Hydraulic gradient (field measurement)	MTBE			0
θ_t		0.30	Total Porosity		_		
Sw	cm	5,812	source width along horizontal axis of plume at source	Source of Analytical Data:	5/19/2010		
Sd	cm	200	source width along vertical axis of plume at source (App C, Table D)				
				Distance =	3	ft	
At a d	listance of	3 1	i e e e e e e e e e e e e e e e e e e e	K =	1.38E-05	cm/sec	
$C_{(x)} =$	0.00495	mg/L :	4.9461 ug/l = ppb Benzene	i =	0.010	ft/ft	
	0.00068	mg/L =	0.6803 ug/l = ppb Ethylbenzene	Sw=	191	fit	
	0.00000	mg/L :	0.0000 ug/l = ppb Toluene	Sd =	6.56	ft	
	0.01119	mg/L =	11.1850 ug/l = ppb Xylene (total)	θι =	0.303		
	•	mg/L :	ug/i = ppb MTBE				

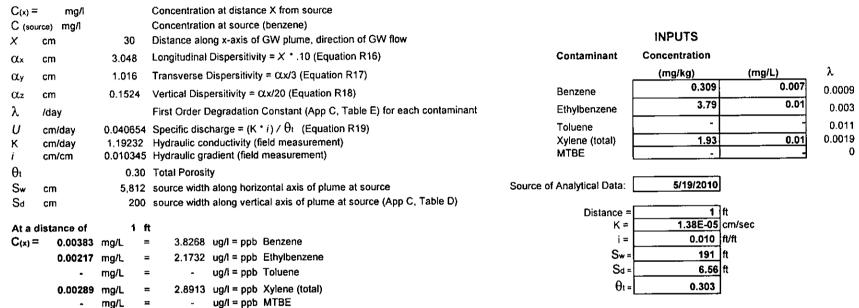
TACO R26 EQUATION Soil to Groundwater Modeling Soil MW-9 2.5ft

$$C(x) = C_{(xn)rcc)} \cdot \exp\left[\left(\frac{X}{2\alpha_x}\right) \cdot \left(1 - \sqrt{1 + \frac{4\lambda \cdot \alpha_x}{U}}\right)\right] \cdot erf\left[\frac{S_w}{4 \cdot \sqrt{\alpha_y \cdot X}}\right] \cdot erf\left[\frac{S_d}{2 \cdot \sqrt{\alpha_z \cdot X}}\right]$$

C(x) =	_		Concentration at distance X from source				
C (sou	urce) mg/l		Concentration at source (benzene)				
X	cm	61	Distance along x-axis of GW plume, direction of GW flow		INPUTS		
α_{x}	cm	6.096	Longitudinal Dispersitivity = X * .10 (Equation R16)	Contaminant	Concentration		
α_y	cm	2.032	Transverse Dispersitivity = $\alpha x/3$ (Equation R17)		(mg/kg)	(mg/L)	λ
αz	cm	0.3048	Vertical Dispersitivity = $\alpha x/20$ (Equation R18)	Benzene	0.576	0.013	0.0009
λ	/day		First Order Degradation Constant (App C, Table E) for each contaminant	Ethylbenzene	4.51	0.02	0.003
U	cm/day	0.040654	Specific discharge = $(K * i) / \theta_1$ (Equation R19)	Toluene	0.018	0.00	0.011
ĸ	cm/day		Hydraulic conductivity (field measurement)	Xylene (total)	1.11	0.01	0.0019
i	cm/cm	-	Hydraulic gradient (field measurement)	MTBE	0.06	0.01	0
Θ_t		0.30	Total Porosity	,	 -		
Sw	cm	5,812	source width along horizontal axis of plume at source	Source of Analytical Data:	5/19/2010		
Sd	cm	200	source width along vertical axis of plume at source (App C, Table D)				
-	•		, , , , , , , , , , , , , , , , , , ,	Distance =	2	ft	
Atac	distance of	2 1		K =	1.38E-05	cm/sec	
C(x) =	0.00403	mg/L =	4.0343 ug/l = ppb Benzene	i =	0.010	ft/ft	
	0.00059	mg/L =	0.5921 ug/l = ppb Ethylbenzene	Sw=	191	ft	
	0.00000	mg/L =	0.0000 ug/l = ppb Toluene	Sd =	6.56	ft	
	0.00058	mg/L :	0.5824 ug/i = ppb Xylene (total)	$\Theta_t =$	0.303		
	0.00720	-					

TACO R26 EQUATION Soil to Groundwater Modeling Soil MW-9 7.5ft





TACO R26 EQUATION Soil to Groundwater Modeling Soil MW-10 2.5ft

$$C(x) = C_{(xxurce)} \cdot \exp\left[\left(\frac{X}{2\alpha_x}\right) \cdot \left(1 - \sqrt{1 + \frac{4\lambda \cdot \alpha_x}{U}}\right)\right] \cdot erf\left[\frac{S_w}{4 \cdot \sqrt{\alpha_y \cdot X}}\right] \cdot erf\left[\frac{S_d}{2 \cdot \sqrt{\alpha_z \cdot X}}\right]$$

C(x) =	mg/l		Concentration at distance X from source				
C (so	urce) mg/l		Concentration at source (benzene)				
X	cm	61	Distance along x-axis of GW plume, direction of GW flow		INPUTS		
αх	cm	6.096	Longitudinal Dispersitivity = X * .10 (Equation R16)	Contaminant	Concentration		
α_{y}	cm	2.032	Transverse Dispersitivity = 0x/3 (Equation R17)		(mg/kg)	(mg/L)	λ
αz	cm	0.3048	Vertical Dispersitivity = αx/20 (Equation R18)	Benzene	0.682	0.016	0.0009
λ	/day		First Order Degradation Constant (App C, Table E) for each contaminant	Ethylbenzene	2.45	0.01	0.003
U	cm/day	0.040654	Specific discharge = $(K * i) / \theta_t$ (Equation R19)	Toluene	0.015	0.00	0.011
ĸ	cm/day		Hydraulic conductivity (field measurement)	Xylene (total)	0.23	0.00	0.0019
i	cm/cm		Hydraulic gradient (field measurement)	MTBE	0.098	0.01	0
θ_t		0.30	Total Porosity				
Sw	cm	5,812	source width along horizontal axis of plume at source	Source of Analytical Data:	5/19/2010		
Sd	cm	200	source width along vertical axis of plume at source (App C, Table D)	Distance =	2 ft		

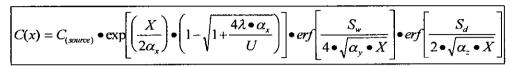
At a distance of 2	Ħ	
--------------------	---	--

$C_{(x)} =$	0.00478	mg/L	=	4.7767	ug/l = ppb	Benzene
	0.00032	mg/L	=	0.3216	ug/l = ppb	Ethylbenzene
	0.00000	mg/L	=	0.0000	ug/l = ppb	Toluene
	0.00012	mg/L	=	0.1207	ug/l = ppb	Xylene (total
	0.01157	ma/l	=	11 5659	ua/l = nab	MTRE

(mg/kg)	(mg/L)	λ
0.682	0.016	0.0009
2.45	0.01	0.003
0.015	0.00	0.011
0.23	0.00	0.0019
0.098	0.01	0

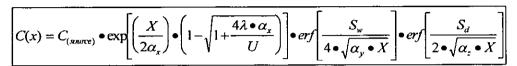
stance =	2	
K =	1.38E-05	cm/sec
i =	0.010	ft/ft
Sw=	191	ft
Sd=	6.56	ft
Sw = Sd = θt =	0.303	

TACO R26 EQUATION Soil to Groundwater Modeling Soil MW-10 7.5ft



$C_{(x)} =$	mg/l		Concentration at distance X from source				
C (so	urce) mg/l		Concentration at source (benzene)				
X	cm	30	Distance along x-axis of GW plume, direction of GW flow		INPUTS		
α_{x}	cm	3.048	Longitudinal Dispersitivity = $X * .10$ (Equation R16)	Contaminant	Concentration		
α_{y}	cm	1.016	Transverse Dispersitivity = $\alpha x/3$ (Equation R17)		(mg/kg)	(mg/L)	λ
αz	cm	0.1524	Vertical Dispersitivity = $\alpha x/20$ (Equation R18)	Benzene	0.283	0.007	0.0009
λ	/day		First Order Degradation Constant (App C, Table E) for each contaminant	Ethylbenzene	0.494	0.00	0.003
U	cm/day	0.040654	Specific discharge = $(K * i) / \theta_t$ (Equation R19)	Toluene	0.01	0.00	0.011
K	cm/day	1.19232	•	Xylene (total)	0.233	0.00	0.0019
i	cm/cm	0.010345	Hydraulic gradient (field measurement)	MTBE [0.069	0.01	0
Θ_t		0.30	Total Porosity				
S_w	cm	5,812	source width along horizontal axis of plume at source	Source of Analytical Data:	5/19/2010		
S_d	cm	200	source width along vertical axis of plume at source (App C, Table D)				
				Distance =		ft	
Ata	listance of	1 f	t	K =	1.38E-05	cm/sec	
C(x) =	0.00350	mg/L =	3.5048 ug/l = ppb Benzene	i =	0.010	ft/ft	
	0.00028	mg/L =	0.2833 ug/l = ppb Ethylbenzene	Sw =	191	ft	
	0.00000	mg/L =	0.0004 ug/l = ppb Toluene	Sd =	6.56	ft	
	0.00035	mg/L =	0.3491 ug/i = ppb Xylene (total)	Ot=	0.303		
	0.00814	mg/L =	8.1433 ug/l = ppb MTBE				

TACO R26 EQUATION Soil to Groundwater Modeling Soil MW-12 7.5ft



C(x) =	: mg/l		Concentration at distance X from source				
C (sou	rce) mg/l		Concentration at source (benzene)				
X	cm	30	Distance along x-axis of GW plume, direction of GW flow		INPUTS		
α_{x}	cm	3.048	Longitudinal Dispersitivity = $X * .10$ (Equation R16)	Contaminant	Concentration		
α_{y}	cm	1.016	Transverse Dispersitivity = $\alpha x/3$ (Equation R17)	ı	(mg/kg)	(mg/L)	λ
αz	cm	0.1524	Vertical Dispersitivity = 0x/20 (Equation R18)	Benzene	0.309	0.007	0.0009
λ	/day		First Order Degradation Constant (App C, Table E) for each contaminant	Ethylbenzene	9.47	0.04	0.003
U	cm/day	0.040654	Specific discharge = $(K * i) / \theta_t$ (Equation R19)	Toluene	0.279	0.00	0.011
K	cm/day	1.19232	Hydraulic conductivity (field measurement)	Xylene (total)	26.3	0.14	0.0019
i	cm/cm	0.010345	Hydraulic gradient (field measurement)	MTBE		-	0
θ_t		0.30	Total Porosity			_	
Sw	cm	5,812	source width along horizontal axis of plume at source	Source of Analytical Data:	5/19/2010		
Sa	cm	200	source width along vertical axis of plume at source (App C, Table D)			_	
			-	Distance =		1	
At a c	distance of	1 f		K =	1.38E-05	1	
$C_{(x)} =$	0.00383	mg/L =	3.8268 ug/l = ppb Benzene	j =	0.010	ft/ft	
	0.00543	mg/L =	5.4300 ug/l = ppb Ethylbenzene	Sw=	191	ft	
	0.00001	mg/L =	0.0099 ug/l = ppb Toluene	Sd=	6.56	ft	
	0.03940	mg/L =	39.3995 ug/l = ppb Xylene (total)	$\theta_t =$	0.303		
	•	mg/L =	- ug/i = ppb MTBÉ				

APPENDIX E

ANALYTICAL RESULTS

KB FOOD & GAS SULLIVAN, ILLINOIS

COMPARISON TO TIER 1 OBJECTIVES

	Location	MW-4	MW-4	MW-5	MW-5	MW-6	MW-6	MW-7	MW-7	SB-1	SB-1
 -	DEPTH	2.5'	7.5'	2.5'	7.5'	2.5'	7.5'	2.5'	7.5'	2.5'	7.5'
Parameter	Class I CUO		ĺ								
Benzene	0.03	<0.002	<0.002	4.91	5.03	3.47	0.926	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	13.0	<0.002	<0.002	14.	16.6	10.4	0.844	1.44	15.9	<0.002	<0.002
Toluene	12.0	0.003	<0.002	12.3	29.7	0.42	<0.002	<0.002	0.099	<0.002	<0.002
Total Xylenes	5.6	<0.005	<0.005	36.8	65.6	21.8	<0.005	0.992	46.8	<0.005	<0.005
MTBE	0.32	0.03	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

	Location	SB-2	SB-2	SB-3
	DEPTH	2.5'	7.5'	2.5'
Parameter	Class I CUO	Ì	İ	
Benzene	0.03	0.08	<0.002	0.085
Ethylbenzene	13.0	1.91	4.65	1.09
Toluene	12.0	<0.002	<0.002	<0.002
Total Xylenes	5.6	0.503	8.12	0.055
MTBE	0.32	<0.005	<0.005	<0.005

	Location	SB-3	SB-4	\$B-4	SB-5	SB-5	SB-6	\$B-6
	DEPTH	7.5'	2.5'	7.5'	2.5*	7.5'	2.5'	7.5'
Parameter	Class I CUO					_		
Benzene	0.03	<0.002	0.043	0.149	0.671	0.058	0.845	3.42
Ethylbenzene	13.0	40.9	0.069	0.052	19.2	0.027	1.01	18.3
Toluene	12.0	<0.002	<0.002	0.006	<0.002	<0.002	0.015	<0.002
Total Xylenes	5.6	116.	0.027	0.022	0.663	<0.005	2.01	39.7
MTBE	0.32	<0.005	<0.005	<0.005	<0.005	0.041	<0.005	0.559

SOIL 5-19-10

	Location	MW-8	MW-8	MW-9	MW-9	MW-10	MW-10	MW-11	MW-11	MW-12	MW-12
	DEPTH	2.5'	7.5'	2.5'	7.5'	2.5'	7.5'	2.5'	7.5	2.5'	7.5'
Parameter	Class I CUO	<u> </u>	1						<u> </u>		<u> </u>
Benzene	0.03	0.003	1.19	0.576	0.309	0.682	0.283	0.004	0.023	0.106	0.309
Ethylbenzene	13.0	0.008	18.1	4.51	3.79	2.45	0.494	0.004	0.002	0.091	9.47
Toluene	12.0	0.002	0.313	0.018	<0.002	0.015	0.01	0.007	0.005	0.004	0.279
Total Xylenes	5.6	0.034	53.3	1.11	1.93	0.23	0.233	<0.005	<0.005	0.076	26.3
MTBE	0.32	0.028	<0.005	0.061	<0.005	0.098	0.069	<0.005	0.069	<0.005	<0.005

SOIL 9-22-10

	Location	MW-13	MW-13
	DEPTH	2.5'	7.5'
Parameter	Class I CUO		
Benzene	0.03	<0.002	<0.002
Ethylbenzene	13.0	<0.002	<0.002
Toluene	12.0	<0.002	0.005
Total Xylenes	5.6	<0.005	<0.005
MTBE	0.32	<0.005	<0.005

GW 3-15-10

	Location	MW-4	MW-5	MW-6	MW-7
Parameter	Class I CUO	<u> </u>			
Benzene	0.005	0.006	6.29	1.7	0.085
Ethylbenzene	0.7	0.047	3.76	0.654	2.35
Toluene	1.0	0.097	35.4	0.256	0.239
Total Xylenes	10.0	0.206	16.3	2.34	6.77
MTBE	0.07	0.118	0.457	<0.005	<0.005

Site Assessment Data

GW 5-27-10

	Location	MW-8	MW-9	MW-10	MW-11	MW-12
Parameter	Class I CUO	1	ĺ			
Benzene	0.005	2.88	1.12	2.05	0.039	0.677
Ethylbenzene	0.7	2.21	0.437	1.67	0.004	0.955
Toluene	1.0	5.	0.024	0.035	<0.002	0.17
Total Xylenes	10.0	7.98	<0.005	<0.005	<0.005	3.98
MTBE	0.07	0.086	0.38	<0.005	0.232	0.015

GW 10-1-10

	Location	MW-13
Parameter	Class I CUO	ĺ
Benzene	0.005	<0.002
Ethylbenzene	0.7	0.041
Toluene	1.0	1.67
Total Xylenes	10.0	0.285
MTBE	0.07	<0.005

COMPARISON TO TIER 2 OBJECTIVES

	Location	MW-4	MW-4	MW-5	MW-5	MW-6	MW-6	MW-7	MW-7	SB-1	SB-1
	DEPTH	2.5'	7.5'	2.5'	7.5'	2.5'	7.5'	2.5'	7.5'	2.5'	7.5'
Parameter	Tier 2 CUO										
Benzene	55.1	<0.002	<0.002	4.91	5.03	3.47	0.926	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	400	<0.002	<0.002	14.	16.6	10.4	0.844	1.44	15.9	<0.002_	<0.002
Toluene	650	0.003	<0.002	12.3	29.7	0.42	<0.002	<0.002	0.099	<0.002	<0.002
Total Xylenes	320	<0.005	< 0.005	36.8	65.6	21.8	<0.005	0.992	46.8	<0.005	<0.005
MTBE	3694	0.03	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

	Location	SB-2	SB-2	SB-3
	DEPTH	2.5'	7.5'	2.5'
Parameter	Tier 2 CUO			
Benzene	55.1	0.08	<0.002	0.085
Ethylbenzene	400	1.91	4.65	1.09
Toluene	650	<0.002	<0.002	<0.002
Total Xylenes	320	0.503	8.12	0.055
MTBE	3694	<0.005	<0.005	<0.005

	Location	SB-3	SB-4	SB-4	SB-5	SB-5	SB-6	SB-6
	DEPTH	7.5'	2.5'	7.5'	2.5'	7.5'	2.5'	7.5'
Parameter	Tier 2 CUO		. <u> </u>					
Benzene	55.1	< 0.002	0.043	0.149	0.671	0.058	0.845	3.42
Ethylbenzene	400	40.9	0.069	0.052	19.2	0.027	1.01	18.3
Toluene	650	<0.002	<0.002	0.006	<0.002	<0.002	0.015	<0.002
Total Xylenes	320	116.	0.027	0.022	0.663	<0.005	2.01	39.7
MTBE	3694	<0.005	<0.005	<0.005	<0.005	0.041	<0.005	0.559



SOIL 5-19-10

	Location	MW-8	MW-8	MW-9	MW-9	MW-10	MW-10	MW-11	MW-11	MW-12	MW-12
	DEPTH	2.5'	7.5'	2.5'	7.5'	2.5'	7.5'	2.5'	7.5'	2.5'	7.5'
Parameter	Tier 2 CUO		[<u></u>
Benzene	55.1	0.003	1.19	0.576	0.309	0.682	0.283	0.004	0.023	0.106	0.309
Ethylbenzene	400	0.008	18.1	4.51	3.79	2.45	0.494	0.004	0.002	0.091	9.47
Toluene	650	0.002	0.313	0.018	<0.002	0.015	0.01	0.007	0.005	0.004	0.279
Total Xylenes	320	0.034	53.3	1.11	1.93	0.23	0.233	<0.005	<0.005	0.076	26.3
MTBE	3694	0.028	<0.005	0.061	<0.005	0.098	0.069	<0.005	0.069	<0.005	<0.005

Site Assessment Data

SOIL 9-22-10

	Location	MW-13	MW-13
	DEPTH	2.5'	7.5'
Parameter	Tier 2 CUO		_
Benzene	55.1	<0.002	<0.002
Ethylbenzene	400	<0.002	<0.002
Toluene	650	<0.002	0.005
Total Xylenes	320	<0.005	<0.005
MTBE	3694	<0.005	<0.005

APPENDIX F

BORING LOGS & WELL COMPLETION REPORTS

KB FOOD & GAS SULLIVAN, ILLINOIS

Page 1 of 1	
TTE ADDRESS: 111 West Jackson St. Sullivan, IL ATE-TIME STARTED: 2724/10 9:30 AM ATE-TIME STARTED: 2724/10 9:30 AM DRILLING/SAMPLE METHOD: Hollow Stem Augers/S*C ATE-TIME FINISHED: 2724/10 9:50 AM BACKFILL: Grout BACKFILL: Grout BACKFILL: Grout CLASS Recovery (ppm) Type NUMBER Moisture, Penetro CCASS Recovery (ppm) Type NUMBER Moisture, Penetro Concrete/gravel subbase CCASS Recovery (ppm) Type NUMBER Moisture, Penetro O Concrete/gravel subbase CCASS Recovery (ppm) Type NUMBER Moisture, Penetro No odor or discussion of the control of the contr	
Sullivan, IL ATE/TIME STARTED: 2724/10 9:30 AM ATE/TIME STARTED: 2724/10 9:30 AM ATE/TIME FINISTED: 2724/10 9:50 AM BACKFILL: Grout BACKFILL: Grout BACKFILL: Grout BACKFILL: Grout BACKFILL: Grout CLASS Recovery (ppm) Type NUMBER Moisture, Penetro O Concrete/gravel subbase 1 Concrete/gravel subbase 1 Grey/brown silty clay, very stiff CL Some sand 1 100% O Grab SB-1-2.5' BETX, MTBE 100% Too wet to PID Too wet to PID Too wet to PID	g
TRETTIME STARTED: 2724/10 9:30 AM TRETTIME FINISHED: 2724/10 9:30 AM STEPTIME FINISHED: 2724/10 9:30 AM BACKFILL: Grout FEPTH SOIL AND ROCK EET) DESCRIPTION CLASS COncrete/gravel subbase Concrete/gravel subbase Concrete/gravel subbase Black silt loam OM S5% CLASS CLASS CONCRETE/Gravel subbase Concrete/gravel subbase Concrete/gravel subbase CLASS CONCRETE/Gravel subbase CLASS CONCRETE/Gravel subbase CLASS CONCRETE/Gravel subbase No odor or discrete/Gravel subbase No odor or discrete/Gravel subbase No odor or discrete/Gravel subbase CONCRETE/Gravel subbase No odor or discrete/Gravel subbase 1	
NECTEME FINISHED: 2/24/10 9:50 AM BACKFILL: Grout SEPTH SOIL AND ROCK USCS Sample PID Sample SAMPLE REMARKS: (Od Recovery Oppm) Type NUMBER Moisture. Penetro Class Recovery Oppm) Type NUMBER Moisture. Penetro Concrete/gravel subbase Grey/brown silty clay, very stiff CL Some sand Trace gravel Trace gravel Brown medium to coarse sand SW 100% SB-1-7.5' BETX, MTBE Too wet to PID	
EPTH DESCRIPTION CLASS Recovery (ppm) Type NUMBER Moisture, Penetro Concrete/gravel subbase Concrete/gravel subbase Grey/brown silty clay, very stiff some sand Trace gravel Trace gravel Brown medium to coarse sand SW 100% INC Sample (ppm) Type NUMBER Moisture, Penetro No odor or discount of the population of	ont. Sampler
EET) DESCRIPTION CLASS Recovery (ppm) Type NUMBER Moisture. Penetro Concrete/gravel subbase Concrete/gravel subbase Grey/brown silty clay, very stiff CL SS% Grab SB-1-2.5' BETX, MTBE 100% Grab SB-1-7.5' BETX, MTBE Too wet to PID	r. Color.
Concrete/gravel subbase Concrete/gravel subbase	
Black silt loam OM Grey/brown silty clay, very stiff Some sand Trace gravel Too wet to PID Black silt loam OM 85% O.0 Grab SB-1-2.5' BETX, MTBE OO OO Grab SB-1-7.5' BETX, MTBE	
Grey/brown silty clay, very stiff Some sand Grey/brown silty clay, very stiff Some sand CL 85% CL 85% O.O Grab SB-1-2.5' BETX, MTBE 100% O.O Grab SB-1-7.5' BETX, MTBE SW 100% Too wet to PID	loration throughout
Grey/brown silty clay, very stiff Some sand CL SSW O.O Grab SSB-1-2.5' BETX, MTBE 100% O.O Grab SSB-1-7.5' BETX, MTBE 100% Too wet to PID	
some sand trace gravel trace gravel 100% 0.0 Grab SB-1-7.5' BETX, MTBE Brown medium to coarse sand SW 100% Too wet to PID	
some sand trace gravel 100% 0.0 Grab SB-1-7.5' BETX, MTBE 100% SB-1-7.5' BETX, MTBE SW 100% Too wet to PID	
trace gravel Too wet to PID	
trace gravel 7	
trace gravel 7	
100% 0.0 Grab SB-1-7.5' BETX, MTBE 9	
100% 0.0 Grab SB-1-7.5' BETX, MTBE 9	
8 _ 100% 0.0 Grab SB-1-7.5' BETX, MTBE 9 _ 1 _ 1 _ 2 _ Brown medium to coarse sand SW 100% Too wet to PID	
8 _	
8 _	
Brown medium to coarse sand SW 100% Too wet to PID	
Brown medium to coarse sand SW 100% Too wet to PID	
Brown medium to coarse sand SW 100% Too wet to PID	
Brown medium to coarse sand SW 100% Too wet to PID	
Brown medium to coarse sand SW 100% Too wet to PID	
Brown medium to coarse sand SW 100% Too wet to PID	
2 Brown medium to coarse sand SW 100%	
2 Brown medium to coarse sand SW 100%	
Brown medium to coarse sand SW 100%	
Brown medium to coarse sand SW 100%	
3	
4 -	
4	
5	
Stratification lines are approximate, in-situ transition between soil types may be gradual. OTES: Sampled at center of each 5 foot section per regulations	
Manway / Surface Elevation:	

	Illinois Environmental Protection Agend		CW [□] M COMPANY, INC.				
			DRILLING BOREHOLE LOG				
			To o o o o o o o o o o o o o o o o o o	T > 77 79	DED CD		Page 1 of 1
	NCIDENT #: 2004-0969		BOREHOL				SW corner of building
	AME: KB Sullivan DDRESS: 111 West Jackson St.		JBOKING I	OCATI	.014. 21	W GC 10 5 61	ov come, or bunding
Sile A	Sullivan, IL		RIG TYPE	<u>.</u> :	Longyear	Truck-Moun	ıt
DATE/T	FIME STARTED: 2/24/10 2:10 PM				LE METI	HOD: Hollov	v Stem Augers/5' Cont. Sampler
	TIME FINISHED: 2/24/10 2:25 PM		BACKFIL		Grout		
DEPTH	i I	USCS	Sample	PID	Sample		REMARKS: (Odor, Color,
(FEET)	DESCRIPTION	CLASS	Recovery	(ppm)	Type	NUMBER	Moisture, Penetrometer, etc.)
0			<u> </u>	<u> </u>			
	Concrete/gravel subbase						Strong odor & discoloration
1							
_	1						
2 -	Black silt loam	ML	Ì			<u> </u>	
~—	-				!		
3 -	Grey/brown clayey silt, soft	ML	90%	9.8	Grab	SB-2-2.5'	ветх, мтве
' —	-i	IVIL	70,0]	0.40	02 2 2.5	
-	some sand				ĺ		
4_							
<u> </u>				1]	
5							
							very strong odor
]_	trace gravel						
	-						
	-						
l ⁷ —	4			Ì			
ļ _							
8_	stiffens slightly, more clay		100%	13.1	Grab	SB-2-7.5	BETX, MTBE
	larger gravel						
9	7					}	
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10						-	
10-	Endocharing	1		1			
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15_		1		aradical		<u> </u>	1
Nome	Stratification lines are approximate, in-situ transition bet			graduai.			
INOLE	S: Sampled at center of each 5 foot section per	eguiati	OIIS				
	Manway / Surface Elevation:						
7	7	N/A	Auger D	enth:	10'	Driller:	CW ³ M
-	Groundwater Depth While Drilling: 7 Groundwater Depth After Drilling:	14/74	Rotary I			Geologist	
	z		INDIAL Y L	/ UPILLI.			

	Illinois Environmental Protection Age	псу					COMPANY, INC. NG BOREHOLE LOG
1						i	Page 1 of 1
ST IN	CIDENT #: 2004-0969		BOREHOI	E NUM	BER: SE	3-3	
	ME: KB Sullivan		BORING I	OCATI	ON: 13' V	N & 21' N of	f SW comer of building
	DRESS: 111 West Jackson St.						
	Sullivan, IL		RIG TYPE);	Longyear	Truck-Moun	it
	IME STARTED: 2/24/10 2:25 PM					HOD: Hollov	v Stem Augers/5' Cont. Sampler
_	IME FINISHED: 2/24/10 2:45 PM	TIGGG	BACKFIL	L: PID	Grout Sample	SAMDIE	REMARKS: (Odor, Color,
EPTH		USCS CLASS	_	l	Туре		Moisture, Penetrometer, etc.)
EET)	DESCRIPTION	CEASS	Recovery	(ppin)	TJPC	110222	
0		-					
	Concrete/gravel subbase						
1		Ì	}				
2	Black silt loam	ОМ					
	1						
3 -	Grey/brown clayey silt	⊢ _{ML}	90%	0.8	Grab	SB-3-2.5'	BETX, MTBE
<i>'</i> —							
_	some sand			1			
4	1						
_				1			
5		ļ		_			
	Trace gravel	-		1			strong odor
_ ح							İ
) —	4	İ		Ì	ľ		
	4		Î				
⁷ —	4		1				
_			100%	47.7	C	CD 2 7 5'	BETX, MTBE
8	Stiffens slightly, more clay content		100%	47.3	Grab	35-1.5	BETA, WIDE
_	Larger gravel						
9							
10	1	ļ		Ì			
^~	End of boring						
	TENG OF GOTTING						
11	4				1		
_	_{		ļ		}		
12_	_						
_					1		
13							
	_						1
_14	1	1					
· · · <u>- · ·</u>	i	1				,	\
15	\dashv						
15_	Stratification lines are approximate, in-situ transition	herween soi	types may be	gradual.			
JOTE	S: Sampled at the center of each 5 foot section	on per reg	ulations	···			
	o. Jumpied at the conter of each 5 foot beath	2	•				
	Manway / Surface Elevation:				. <u> </u>		
V	Groundwater Depth While Drilling:	N/A	Auger I	epth:	10'	Driller:	CW ³ M
	7 Groundwater Depth After Drilling:		Rotary	_		Geologist	t: CLR/KMC

	Illinois Environmental Protection Age	ncy		·		CW [□] M	COMPANY, INC.
	5	·					NG BOREHOLE LOG
							Page 1 of 1
LUST IN	ICIDENT #: 2004-0969		BOREHOI	LE NUM	IBER: SI	B-4	1-25
	ME: KB Sullivan		BORING I	LOCATI	ION: 10'	S & 18' E of	SW corner of building
SITE AD	DRESS: 111 West Jackson St.						
	Sullivan, IL		RIG TYPE			Truck-Moun	
	IME STARTED: 2/24/10 2:45 PM					HOD: Hollov	w Stem Augers/5' Cont. Sampler
DEPTH	IME FINISHED: 2/24/10 3:05 PM SOIL AND ROCK	USCS	BACKFIL: Sample	L.: PID	Grout Sample	CANCDIE	REMARKS: (Odor, Color,
(FEET)	DESCRIPTION		Recovery	(ppm)			Moisture, Penetrometer, etc.)
0	200101 (1011	10000	ricco (cr.)	(ррш)	2762	1.O.I.BBIC	Troisial of Total Committee (1987)
~ <u> </u>	Concrete/gravel subbase	 					Slight odor & discoloration
, –	Concrete/graver sabbase	-		1		ŀ	1 -
1							throughout
	75. 1. 11. 1	┦					
2	Black silt loam	ОМ		ļ			
_		_]	
3	Grey/brown clayey silt	ML	85%	0.1	Grab	SB-4-2.5'	BETX, MTBE
	some sand						
4						1	
5				•			
Ĭ –		-		1			
—	trace gravel	1					
-	luace graver				!		
7							
		1					
8	stiffens slightly	1	100%	0.0	Grab	SB-4-7.5'	BETX, MTBE
			:				
9 —		,			!		
· -					1		
10	larger gravel				!		
10		-			:		
	End of boring			ł	1		
11				1			
				}			
12							
]]		
13				1			
14							
' <u></u>	-	1	_				1
	}						
15	Stratification lines are connections to aim security by		umac morrher :	readina!	!	1	<u> </u>
NOTES	Stratification lines are approximate, in-situ transition be : Sampled at the center of each 5 foot section			gradual.			
	Manway / Surface Elevation:						
7	Groundwater Depth While Drilling:	N/A	Auger De	oth:	10'	Driller:	CW ³ M
$\overline{\nabla}$	Groundwater Depth After Drilling:	14/1	Rotary D			Geologist:	CLR/KMC
	Groundwater Depth After Drining.		Rotary D	·Prii.		Georogist.	CLIGRING

	Illinois Environmental Protection Agen	cy				CW [□] M	COMPANY	, INC.			
	3		DRILLING BOREHOLE LOG								
3)							Page 1 of 1	-			
LUST IN	CIDENT #: 2004-0969		BOREHOI	BOREHOLE NUMBER: SB-5							
	ME: KB Sullivan		BORING I	OCATI	ION: 134'	W & 20' N	of SW corner of b	uilding			
SITE AD	DRESS: 111 West Jackson St.					<u>-</u>					
<u> </u>	Sullivan, IL		RIG TYPE			Truck-Moun					
	ME STARTED: 2/24/10 3:05 PM		BACKFIL		Grout	HOD: Hollov	v Stem Augers/5'	Cont. Sampler			
DEPTH	IME FINISHED: 2/24/10 3:25 PM SOIL AND ROCK	USCS		PID	Sample	SAMPLE	REMARKS: (Oc	lor, Color,			
(FEET)	DESCRIPTION	CLASS	1 -		_		Moisture, Penetro				
0								···			
	Concrete/gravel subbase					•	Strong odor				
-							_	ecreases w/ depth			
^								•			
	Black silt loam	OM					Strongest Odor				
'	Diddi din routi) OM	ļ				i di di gest odor				
] `	Grey/brown clayey silt, stiff	1 1/7	000	17 7	Grah	CD 5 2 51	BETX, MTBE				
_	•	ML	90%	47.3	Grab	30-3-2.3	DEIA, MIBE	1			
	some sand/backfill sand						!				
4											
1 _		ļ									
5 _		1					į ·	\downarrow			
			1								
5	trace gravel										
			ĺ								
7	Backfill sand	sw									
Ĭ ['] ─┤							1				
8 -	•		100%	2.4	Grab	SB-5-7 5'	BETX, MTBE				
	Fire and fails	sw	10070	2.7	0.20	00 5 7.5					
	Fine sand/silt stiffens	3W									
9—	stitiens					}					
10		4		<u> </u>	İ		Ì				
	End of boring						1				
11					!		İ				
						1					
12						1					
						1					
13											
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14	1					ļ					
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15	Consideration than the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of		nmes may be	nradual	<u>. </u>	.L	<u> </u>	<u> </u>			
	Stratification lines are approximate, in-situ transition bet : Sampled at the center of each 5 foot section			gradual.							
	Manway / Surface Elevation:										
	C	N/A	Augan Da	nth:	10'	Driller:		CW ³ M			
1	Groundwater Depth While Drilling:	TALLY.	Auger De	pui,	10	Dimer.					

I 🐼	Illinois Environmental Protection Ager	ıcy				CW [□] M	COMPANY, INC.
7	_					DRILLE	NG BOREHOLE LOG
		•					Page 1 of 1
UST INC	CIDENT #: 2004-0969		BOREHOL				
	ME: KB Sullivan		BORING I	OCATI	ON: 124'	W & 3' S of	SW corner of building
TE ADI	DRESS: 111 West Jackson St.					m 1 1 6	
· # # # # # # # # # # # # # # # # # # #	Sullivan, IL		RIG TYPE			Truck-Moun	v Stem Augers/5' Cont. Sampler
	ME STARTED: 2/24/10 3:25 PM ME FINISHED: 2/24/10 3:50 PM		BACKFIL		Grout	HOD. Hones	- Great Mageriary Cont. Dampior
EPTH	SOIL AND ROCK	USCS	-	PID	Sample	SAMPLE	REMARKS: (Odor, Color,
FEET)	DESCRIPTION	CLASS		(ppm)	Type		Moisture, Penetrometer, etc.)
0							
- 	Concrete/gravel subbase						Slight discoloration
, 		İ		•			
¹ —							
<u>,</u> +	Black silt loam	ОМ					
2	Diagn Sit Iodii	O IVI		1		1	
	Constitution of accountification	- ,,,	000	000	Careta	CD 6 2 51	BETX, MTBE
	Grey/brown clayey silt, stiff	ML	90%	0.0	Grab	30-0-2.3	DETA, WILDE
_ s	some sand	1		1			
4)			
							↓
5		1	_				Very strong odor & discoloration
							1
_ ,	trace gravel				Ì		
7		┥				1	
	Brown medium & coarse sand with	SW			. .	00 655	DEMY MEDE
8	gravel	ļ	100%	28.7	Grab	SB-6-7.5	BETX, MTBE
		1			ļ		
9)					
10		1	}		,		wet
	End of boring	7					<u> </u>
11	Zing or cormig						
11-		1			1	ļ	
		1					
12		İ		1			
13							
.14] .	ļ		
\dashv							
15							
	Stratification lines are approximate, in-situ transition be	tween soil	types may be	gradual.	_1		
	: Sampled at the center of each 5 foot section			-			
	Manway / Surface Elevation:						
	Man way / Barrace Sievanom						
	Groundwater Depth While Drilling:	~9'	Auger D	epth:	10'	Driller:	CW ³ M

	Illinois Environmental Protection Agen	c y				CW [□] M	COMPANY, INC.
			DRILLING BOREHOLE LOG				
							Page 1 of 1
LUST I	NCIDENT #: 2004-0969		BOREHOL			SB-7	
	AME: KB Sullivan		BORING L	OCATI	ON: 150'	W and 24' S	of SW corner of building
SITE A	DDRESS: 111 West Jackson St.						
	Sullivan, IL		RIG TYPE			Truck-Moun	v Stem Augers/5' Cont. Sampler
	TIME STARTED: 5/19/10 12:30 PM TIME FINISHED: 5/19/10 12:55 PM		BACKFILI		Grout	TOD. Honow	Stell Augers/S Com. Sample.
DEPTI		USCS	Sample	PID	Sample	SAMPLE	REMARKS: (Odor, Color,
(FEET			Recovery	(ppm)	Type	NUMBER	Moisture, Penetrometer, etc.)
0			-				
-	Asphalt/ gravel subbase						No odor or discoloration
1 1					'		throughout
\ ^-	┥						_
ੵ .	Balck silt loam	ОМ	80%				
2	Batek sik toam	Own	3076		}		
	Grey brown silty clay, stiff, some sand	ļ]			
3_	Grey brown silty clay, stiff, some said	CL					
			ļ				
4_		ļ					
		İ					
5							
	trace of gravel			0.0]	
6	7						į
-	-				TACO	SB-7 6-8'	Tier 2 parameters
7	╡						'
'-	Brown fine to medium sand and some silt	sw					
	Brown time to inequality said and some sin	3 **	100%			l .	·
8_		∤	100%				
	Brown silt	ML			ĺ		
9_		1					
	Brown clayey silt with sand	ML					
10	moist				1		
_	End of boring						
11						}	i
-						Ì	
12	-						
`-	-						
13	-						
13-	-	1					
	_						
14 -	<u> - </u>						
	_				1		
15_		<u> </u>		1	<u> </u>	<u> </u>	
	Stratification lines are approximate, in-situ transition be	ween soil	types may be	gradual.	or com=1-	collection	
INOTE	ES: Adjacent to MW-11. Appeared to be clean l	ocation	tor Her 2 p	jai ainet	er sampte	concenton.	
	Manway / Surface Elevation:						
Ψ,	7	<u> </u>	0 Ances D	anth:	10'	Driller:	CW ³ M
-	Groundwater Depth While Drilling:	~ y-1	O Auger D		10	Geologist	
1 \	Groundwater Depth After Drilling:		Rotary I	շբա.		G COLUZIST.	CDIVINIO

	Illinois Environmental Protection A	gency				CW⊒M	COMPANY, INC.	
		-				DRILLING BOREHOLE LOG		
1							Page 1 of 1	
DEOST IN	CIDENT #: 04-0969		BOREHOL	E NUMB	ER:	MW-4	1. 450 1 01 1	
	ME: KB Sullivan	·····	BORING L			11'5 & 11'	W of NW corner of building	
SITE AD	DRESS: 111 West Jackson St.							
	Sullivan, IL		RIG TYPE			Truck-Moun		
	IME STARTED: 2/24/10 9:50 AM		BACKFILI				Stem Augers/5' Cont. Sampler	
DATE/TI DEPTH	ME FINISHED: 2/24/10 11:15 AM SOIL AND ROCK	USCS	Sample	PID	N/A Set v		REMARKS: (Odor, Color,	
(FEET)	DESCRIPTION	CLASS	1	(ppm)_	Type		Moisture, Penetrometer, etc.)	
0	225011111			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				
-	Concrete/gravel subbase							
	Concrete graver sacrouse							
			!					
	Black silt loam	OM	İ					
2		OM	<u> </u>				Olimba a dan 8. dinantansi	
	some gravel						Slight odor & discoloration	
3	Grey/brown silty clay, very stiff	CL	90%	0.0	Grab	MW4-2.5'	BETX, MTBE	
1 4	some sand							
4		ļ						
5								
		l						
6	traces of gravel							
—		•						
'					<u> </u>			
8 -			100%	0.0	Grab	 M33/4-7-5!	BETX, MTBE	
°—	·	:	100%	0.0	Giao	101 104-7.5	BETA, MIBE	
9		Ì						
						1		
10							<u> </u>	
_								
11				Ī				
							Slight odor & discoloration	
12						İ		
	Brown medium to coarse gravel	sw	1				Too wet to PID	
13 -	very wet		100%					
''-	-							
	1].	
14	_				_		Ψ	
<u> </u>	-]				
15		<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
NOTTE	Stratification lines are approximate, in-situ transitior: Sampled at the center of each 5 foot section			pe gradual.				
MOTES	. Sampled at the center of each 3 tool section	on her re	Paterion9					
	Manway / Surface Elevation:	100'						
	Groundwater Depth While Drilling:	~10-11'	Auger De	pth:	15'	Driller:	CW ³ M	
17							· · · · · · · · · · · · · · · · · · ·	
\	Groundwater Depth After Drilling:		Rotary D	epth:		Geologist:	: CLR/KMC	

	Illinois Environmental Protection A	gency				CW₽M	COMPANY, INC.
						DRILLI	NG BOREHOLE LOG
							Page 1 of 1
ST IN	CIDENT #: 04-0969		BOREHOI	E NUME	BER:	MW-5	1
	ME: KB Sullivan		BORING L				N of NW corner of building
SITE AD	DRESS: 111 West Jackson St.		1				
	Sullivan, IL		RIG TYPE	:	Longyear	Truck-Моил	t
	IME STARTED: 2/24/10 11:15 AM		DRILLING	G/SAMPL	E METH	OD: Hollow	Stem Augers/5' Cont. Sampler
	IME FINISHED: 2/24/10 12:00 PM		BACKFIL		N/A Set v		
DEPTH		USCS	Sample	PID	Sample		REMARKS: (Odor, Color,
(FEET)	DESCRIPTION	CLASS	Recovery	(ppm)	Type	NUMBER	Moisture, Penetrometer, etc.)
0			<u> </u>				
	Concrete/gravel subbase						Odor throughout
1							
						•	
_	Black silt loam	, , ,				İ	
2	Black Silt Ioalii	OM					
]					
3	Grey/brown silty clay, very stiff	CL	90%	38.4	Grab	MW5-2.5'	ветх, мтве
	some sand						
4							
· —]				
			1				
5 _							
			•				
6	traces of gravel						
-		<u> </u>					
l ′—					j		
_					i		
8			100%	48.2	Grab	MW5-7.5'	ВЕТХ, МТВЕ
				'			
9						İ	
		}					
10 -							
10		[ŀ		
			•				
11		į				ļ	
			,				
12							
·~	Provin modium to occurs amount	CW					To a seed to DID
	Brown medium to coarse gravel	sw					Too wet to PID
13	very wet, soft		95%				
14							
15		-					
13	Consideration to the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se	1	<u> </u>		<u> </u>		
አነርሳፕሮፍ-	Stratification lines are approximate, in-situ transition			oe gradual,			
NOTES:	Sampled at center of each 5 foot section p	oci reguli	2110115				
	Manway / Surface Elevation:	99.81'					
							2.
	Groundwater Depth While Drilling:	~10-11'	Auger De	pth:	15'	Driller:	CW ³ M
∇	Groundwater Depth After Drilling:		Rotary De	epth:		Geologist:	CLR/KMC
	<u> </u>						

STINCIDENT #: 04-0969 STIENAME: KB Sullivan BORIFICIDENT #: 04-0969 STIENAME: KB Sullivan BORIFICIDENT #: 04-0969 STIENAME: KB Sullivan BORIFICIDENT #: 04-0969 SULLING SAMPLE: METHOD: 142 W & 18' S of NW corner of building SULLANG MAPPLE METHOD: DESCRIPTION PM DIRELLING SAMPLE METHOD Hollow Steen Augent/S Cont. Sampler BACKFILL: N/A Sat well ABCKFILL: N/A Sat well SOIL-AND ROCK USCS Sample PID Sample SAMPLE REMARKS: (Odor, Color, Cleas) Concrete/gravel subbase Concrete/gravel subbase Concrete/gravel subbase Concrete/gravel subbase Concrete/gravel subbase 1 Concrete/gravel subbase 1 Concrete/gravel subbase 1 Concrete/gravel subbase 1 Bown medium to coarse sand SW 100% 28.8 Grab MW6-2.5 BETX, MTBE Too wet to PID Too wet to PID Too wet to PID Too wet to PID Too wet to PID Too wet to PID Sample at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43'		Illinois Environmental Protection A	gency				CW M	COMPANY, INC.
STE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan SITE NAME: R 8 Sullivan Site Name: R 9 Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan Sullivan S							DRILLI	NG BOREHOLE LOG
BOREHOLE NUMBER: MM-6 STE ADDRESS: 111 West Jackson St. STE NAME: KB sellivon SITE ADDRESS: 111 West Jackson St. Sellivan, L. DATE/TIME STARTED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHED: 2524/0 1200 PM DATE/TIME FINSHE								
SITE ADDRESS: 111 West Jackson St. Sullivan, IL DATE/TIME STARTED: 2724/10 12:60 PM DATE/TIME STARTED: 2724/10 12:60 PM DATE/TIME STARTED: 2724/10 115 PM DATE/TIME STARTED: 2724/10 115 PM DEPTII SOIL AND ROCK USCS Sample PM DESCRIPTION CLASS Recovery (ppm) Type SWAPLE REMARKS; (Odor, Color, Class) Recovery (ppm) Type SWAPLER, PM, Moisture, Penetrometer, etc.) Concreté/gravel subbase Concreté/gravel subbase Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, Discription CLASS Recovery (ppm) Type SWAPLER, DISCRIPTION CLASS Recovery (ppm) Type SWAPLER, DISCRIPTION CLASS Recovery (ppm) Type SWAPLER, DISCRIPTION CLASS Recovery (ppm) Type SWAPLER, DISCRIPTION CLASS Recovery (ppm) Type SWAPLER, DISCRIPTION CLASS Recovery (ppm) Type SWAPLER, DISCRIPTION CLASS Recovery (ppm) Type SWAPLER, DISCRIPTION CLASS RECOVERY (ppm) T	ST IN	CIDENT #: 04-0969		BOREHOLE NUMBER:				
SITE ADDRESS: 111 West facksow St. Sullivan, II. DATECTINE STARTED: 2754/10 12:00 PM DATECTINE FINSHED: 2754/10 115 PM DATECTINE FINSHED: 2754/10 115 PM DATECTINE FINSHED: 2754/10 115 PM DATECTINE FINSHED: 2754/10 12:00 PM DATECTINE FINSHED: 2754/10 12:00 PM DESCRIPTION CLASS Recovery (ppm) Type Sample SAMPLE REMARKS: (Odor, Color, Class) Recovery (ppm) Type NUMBER Motisture, Penetrometer, etc.) Concrete/gravel subbase 1 2 Black silt loam OM Grey/brown silty clay, very stiff Some sand Traces of gravel 1 100% 28.8 Grab MW6-2.5 BETX, MTBE 100 11 11 12 12 Brown medium to coarse sand SW 100% Stratification lines are approximate, in-stata transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway/Surface Elevation: 99,43								3' S of NW corner of building
DATE/TIME STARTED: 224:10 12:00 PM DATE/TIME FINSHED: 224:10 12:00 PM DATE/TIME FINSHED: 224:10 11:5 PM DEPTH SOIL AND ROCK USCS Sample PID Sample SAMPLE REMARKS: (Odor, Color, CELASS Recovery (ppm)) O Concrete/gravel subbase 1								
DATE/INSEPINSHED: 224/10:1:5PM BACKFILL: W/A Set well DEFTH SOIL AND ROCK USCS Sample PID Type O Concrete/gravel subbase 1								
DEFTH SOIL AND ROCK (FEET) DESCRIPTION CLASS Recovery (ppm) Concrete/gravel subbase Concrete/gravel subbase Description Concrete/gravel subbase Description Concrete/gravel subbase Description Concrete/gravel subbase Description Concrete/gravel subbase Description Concrete/gravel subbase Description Cut Some sand Cut Some sand Cut Some sand Cut Some sand Cut Some sand MW6-2.5 BETX, MTBE Description MW6-2.5 BETX, MTBE Description Too wet to PID Too wet to PID Stratification lines are approximate, in-situ transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43				<u> </u>				Stem Augers/5' Cont. Sampler
### DESCRIPTION CLASS Recovery (ppm) Type NUMBER Noisture, Proctrometer, cit.) Concrete/gravel subbase Concrete/gravel subbase CL Strong odor & discoloration throughout			110.00	`				DENIADIS, (Odor Color
Concrete/gravel subbase Description Concrete/gravel subbase Concrete/gravel subbase Strong odor & discoloration throughout) 1							· ·
Concrete/gravel subbase Concrete/gravel subbase		DESCRIPTION	CLASS	Recovery	(իիու)	туре	NUMBER	Mosture, 1 chedometer, etc.)
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Black silt loam Grey/brown silty clay, very stiff Some sand CL 80% 61.6 Grab MW6-2.5 BETX, MTBE 100% 28.8 Grab MW6-7.5 BETX, MTBE 100% 11 12 Brown medium to coarse sand SW 100% 13 14 15 Stratification lines are approximate, in-situ transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43	, ⊢							3
Grey/brown sitty clay, very stiff some sand Sw Grab MW6-2.5' BETX, MTBE 100% 28.8 Grab MW6-7.5' BETX, MTBE 110	'		!					
Grey/brown sitty clay, very stiff some sand Sw Grab MW6-2.5' BETX, MTBE 100% 28.8 Grab MW6-7.5' BETX, MTBE 110	_	Disab sile la sus]				
some sand 80% 61.6 Grab MW6-2.5 BETX, MTBE traces of gravel 100% 28.8 Grab MW6-7.5 BETX, MTBE Brown medium to coarse sand SW 100% 100% Swarface Elevation: 99.43'			ł]		
traces of gravel traces of gravel 100% 28.8 Grab MW6-7.5' BETX, MTBE Brown medium to coarse sand SW 100% 10	. —	· · · · · · · · · · · · · · · · · · ·	CL			1		
traces of gravel traces of gravel 100% 28.8 Grab MW6-7.5 BETX, MTBE Brown medium to coarse sand SW 100% 100% Too wet to PID Stratification lines are approximate, in-situ transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43'	3_	some sand		80%	61.6	Grab	MW6-2.5'	BETX, MTBE
traces of gravel traces of gravel 100% 28.8 Grab MW6-7.5 BETX, MTBE Brown medium to coarse sand SW 100% 100% Too wet to PID Stratification lines are approximate, in-situ transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43'	1							
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traces of gravel 100% 28.8 Grab MW6-7.5 BETX, MTBE								
traces of gravel 100% 28.8 Grab MW6-7.5 BETX, MTBE	-							
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9	8	·		100%	28.8	Grab	MW6-7.5	BETX, MTBE
Brown medium to coarse sand SW 100% Too wet to PID Stratification lines are approximate, in-situ transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43'	-							
Brown medium to coarse sand SW 100% Too wet to PID Stratification lines are approximate, in-situ transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43'								
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Brown medium to coarse sand SW 100% Stratification lines are approximate, in-situ transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43'	11							
Brown medium to coarse sand SW 100% Stratification lines are approximate, in-situ transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43']			
Brown medium to coarse sand SW 100% Stratification lines are approximate, in-situ transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43'	12]			
13 14 15 Stratification lines are approximate, in-situ transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43'	1	Brown medium to coarse sand	sw					Too wet to PID
Stratification lines are approximate, in-situ transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43'	-	Diowii mediani to coase sand	3 **	100%				
Stratification lines are approximate, in-situ transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43'	13—			10070				
Stratification lines are approximate, in-situ transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43'	_	-			[
Stratification lines are approximate, in-situ transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43'	14							_
Stratification lines are approximate, in-situ transition between soil types may be gradual. NOTES: Sampled at the center of each 5 foot section per regulations Manway / Surface Elevation: 99.43'								
Manway / Surface Elevation: 99.43'	15					<u> </u>	<u> </u>	
Manway / Surface Elevation: 99.43'					be gradual.			
	NOTES	: Sampled at the center of each 5 foot secti	on per re	gulations				
		Manuar / Surface Flores	00.421					
▼ Groundwater Depth While Drilling: ~10-11' Auger Depth: 15' Driller: CW ³ M		manway / Surface Elevation:	77.43	-	_			
Groundwater Depth Wille Drinning. 10-11 Auger Depth. 13 British		Groundwater Depth While Drilling:	~10-11	Auger De	pth:	15'	Driller:	CW ³ M
Groundwater Depth After Drilling: Rotary Depth: Geologist: CLR/KMC		Groundwater Depth After Drilling:		Rotary D	epth:		Geologist	CLR/KMC

Electronic Filing: Received, Clerk's Office 3/18/2022

CW M COMPANY, INC. Illinois Environmental Protection Agency

						DRILLI	NG BOREHOLE LOG
							Page 1 of 1
T IN	CIDENT #: 04-0969		BOREHOL	E NUMI	BER:	MW-7	
	ME: KB Sullivan		BORING L			45' W & 91'	S of NW corner of building
ITE AD	DRESS: 111 West Jackson St.						
	Sullivan, IL		RIG TYPE		Longyear	Truck-Moun	
ATE/T	IME STARTED: 2/24/10 1:15 PM	_					Stem Augers/5' Cont. Sampler
ATE/T	IME FINISHED: 2/24/10 2:10 PM		BACKFILI		N/A Set v		
DEPTH	SOIL AND ROCK	USCS	Sample	PID	Sample		REMARKS: (Odor, Color,
(FEET)	DESCRIPTION	CLASS	Recovery	(ppm)	Type	NUMBER	Moisture, Penetrometer, etc.)
0			<u> </u>				
	Concrete/gravel subbase						Strong odor & discoloration throughout
			}		1		Strong odor & discoloration throughout
1							
		1			İ		
2 _	Black silt loam	ОМ					
					[
3	Grey/brown silty clay, very stiff	CL	85%	7.9	Grab	MW7-2.5'	ветх, мтве
'—			0570	,.,			
_	some sand						
4							
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5				!			
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6	traces of gravel						
<u> </u>	traces of graver						1
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7							
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8	1 ·		90%	64.4	Grab	MW-7-7.5	ВЕТХ, МТВЕ
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12	D	- 031/					
_	Brown medium to coarse sand	sw	1000/				
13]		100%				1
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15	┪						
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MOTES	Stratification lines are approximate, in-situ transitions: Sampled at the center of each 5 foot sections.			oc graciua			
INUIES	5. Sampled at the center of each 5 1000 sec	tion per i	v _S arations				

	Manway / Surface Elevation:	100.22'			
	Groundwater Depth While Drilling:	~10-11' Auger Depth:	15'	Driller:	CW ³ M
$\overline{\nabla}$	Groundwater Depth After Drilling:	Rotary Depth:		Geologist:	CLR/KMC
					0108

	Illinois Environmental Protection A	gency				CW□M	COMPANY, INC.	
						DRILLING BOREHOLE LOG		
,							Page 1 of 1	
I ST IN	CIDENT #: 04-0969	·	BOREHOL	E NUMB	ER:	MW-8	rage i or i	
	ME: KB Sullivan		BORING LOCATION:				2' N of NW corner of station building	
	DRESS: 111 West Jackson St.						<u></u>	
	Sullivan, IL		RIG TYPE	:		Truck-Moun		
	IME STARTED: 5/19/10 8:30 AM						Stem Augers/5' Cont. Sampler	
	IME FINISHED: 5/19/10 9:20 AM		BACKFILI		N/A Set v		DENIA DIVE: (Oden Celen	
DEPTH	SOIL AND ROCK	USCS	Sample	PID	Sample		REMARKS: (Odor, Color, Moisture, Penetrometer, etc.)	
(FEET)	DESCRIPTION	CLASS	Recovery	(ppm)	Type	NUMBER	Moisture, reflectoriferer, etc.,	
0						<u> </u>	CU: ha dissalamatas	
_	Concrete / gravel subbase						Slight discoloration	
1								
		<u> </u>						
2	Black silt loam	ОМ						
			85%	0.1	Grab	MW8-2.5'	ВЕТХ, МТВЕ	
3	Grey/ brown silty clay,	CL						
	very stiff, some sand					j		
1 , -	very still, some said							
4								
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5								
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6	trace gravel					}	Odor begins	
						!		
7 -]		
			100%	46.3	Grab	MW8-7.5'	ВЕТХ, МТВЕ	
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10				<u> </u> `				
	wet/ moist]						
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12 -			-			•		
12.	Brown medium to coarse sand	sw	100%					
	Brown medium to coarse sand	3 W	10076]				
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14								
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15		1						
-	Stratification lines are approximate, in-situ transition	n between s	oil types may	be gradual.				
NOTES	Determine Eastern extent of Contamination							
	Sampled at the center of each 5 foot section	on per re	gulations					
	10.0 5.0	00.131						
	Manway / Surface Elevation:	99.13'						
	Groundwater Depth While Drilling:	~10'	Auger De	pth:	15'	Driller:	CW ³ M	
	Groundwater Depth After Drilling:		Rotary D	epth:		Geologist	CLR/KMC	
I	and a second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second sec							

	Illinois Environmental Protection Ag	ency				CW□M	COMPANY, INC.	
	Initions David Chambers and Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of th	, ,				DRILLING BOREHOLE LOG		
							Page 1 of 1	
THE COT IN	CIDENT #: 04-0969		BOREHOL	E NUMB	ER:	MW-9		
	ME: KB Sullivan					107' W and 5' N of NW corner of building		
	DRESS: 111 West Jackson St.			_				
	Sullivan, IL		RIG TYPE	<u> </u>	Longyear	Truck-Moun	t	
	ME STARTED: 5/19/10 9:20 AM						Stem Augers/5' Cont. Sampler	
	ME FINISHED: 5/19/10 10:00 AM	***	BACKFILI	_	N/A Set v	Vell	REMARKS: (Odor, Color,	
DEPTH		USCS CLASS	Sample Recovery	PID (ppm)	Туре	NUMBER	Moisture, Penetrometer, etc.)	
(FEET)	DESCRIPTION	CLASS	Recovery	(ppin)	1,00	HUMBER		
0							Strong odor and discoloration	
\ _	Concrete / gravel subbase						throughout	
1							linoughout	
		İ			ļ		1	
2	Black silt loam	ОМ					ì	
		İ	90%	5.6	Grab	MW9-2.5'	BETX, MTBE	
3	Grey/ brown silty clay,	CL						
	very stiff, some sand	<u> </u>						
4 -						j		
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5		İ		1				
_							1	
6	Trace gravel				1			
							1	
7				1				
_			100%	36.4	Grab	MW9-7.5	BETX, MTBE	
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11								
_								
12	1				Į			
-	Brown medium to coarse sand	sw	100%					
13	1			j				
"-	-			1				
., -	1							
14	- .			ļ		ļ		
-	-					1		
15					<u> </u>	<u> </u>		
1	Stratification lines are approximate, in-situ transitio	n between	soil types may	be gradua J-6 and N	1. 1W-5			
NOTES	S: Determine contamination levels at propo Sampled at the center of each 5 foot secti	ity iisie 0 ion ner re	ecween ivi v	, -o and t				
1	Sampled at the center of each 5 foot secti						•	
	Manway / Surface Elevation:	98.64	r					
	Groundwater Depth While Drilling:	~0.10	' Auger D	epth:	15'	Driller:	CW ³ M	
 	,	J-10					t: CLR/KMC	
\perp	Groundwater Depth After Drilling:		Rotary I	epth:		Geologis	t. CLIONIVIC	

	Illinois Environmental Protection Ag	ency				CW□M	COMPANY, INC.		
	Immois Environmental Froteetion 11g	,,				DRILLING BOREHOLE LOG			
<u></u>							Page 1 of 1		
) - ST IN	CIDENT #: 04-0969		BOREHOL	E NUMB	ER:	MW-10			
	ME: KB Sullivan		BORING LOCATION:				'N of SW corner of building		
	DRESS: 111 West Jackson St.					<u> </u>			
	Sullivan, IL		RIG TYPE	<u>. </u>	Longyear	Truck-Mount			
	IME STARTED: 5/19/10 10:00 AM						tem Augers/5' Cont. Sampler		
	IME FINISHED: 5/19/10 10:50 AM	Hece	BACKFIL	_: PID	N/A Set v	SAMPLE	REMARKS: (Odor, Color,		
DEPTH	SOIL AND ROCK DESCRIPTION	USCS CLASS	Sample Recovery	(ppm)	Туре		Moisture, Penetrometer, etc.)		
(FEET)	DESCRIPTION	CDASS	Recovery	(Pp)			, , , , , , , , , , , , , , , , , , , ,		
	Concrete / gravel subbase		-	\			Strong odor and discoloration		
, –	Concrete / graver subbase						throughout		
\							in oughout		
l _									
2	Black silt loam	OM		_					
l _			90%	1.7	Grab	MW10-2.5	BETX, MTBE		
3	Grey/ brown silty clay,	CL							
_	very stiff, some sand	:							
4									
5				ļ	l				
-)					
6	trace gravel								
				,	ļ				
-					1	-			
\ '—	D. Casta wallian	sw	100%	7.0	Grab	MW10-7 5	BETX, MTBE		
	Brown fine to medium	3"	10078	/.0	Ciau	101 10 10-7.5			
8 —	poorly sorted sand		İ		1				
] _	Brown silt	ML		ļ					
9_		1							
_	Brown clayey silt with sand moist	ML							
10				1					
11					ĺ	İ			
-	wet			1					
12	1				ŀ				
	1	1	100%						
13	Brown medium to coarse sand	sw							
''-	1	- "							
]	-]				
14	4	.							
-	4								
15		<u> </u>		<u></u>	1	<u> </u>			
Lower	Stratification lines are approximate, in-situ transition. Determine extent of contamination along	n between west pro	soil types may	oe gradual darv	•				
NOTES	Sampled at the center of each 5 foot section	west pro on ner re	egulations	y					
	Sampled at the center of each 5 foot seets	p	- J						
	Manway / Surface Elevation:	99.31	1						
	Groundwater Depth While Drilling:	~9-10	' Auger D	epth:	15'	Driller:	CW ³ M		
	7					.,-	: CLR/KMC		
\perp	Groundwater Depth After Drilling:		Rotary I	reptn:		Geologist	. CUNTING		

	Illinois Environmental Protection A	gency		COMPANY, INC.					
						DRILLI	NG BOREHOLE LOG		
							Page 1 of 1		
LOST IN	CIDENT #: 04-0969		BOREHOL	E NUMB	ER:	MW-11			
SITE NA	ME: KB Sullivan		BORING LOCATION:			151' W and 2	24' N of SW corner of building		
SITE AD	DRESS: 111 West Jackson St.								
	Sullivan, IL		RIG TYPE						
	IME STARTED: 5/19/10 10:50 AM		-				Stem Augers/5' Cont. Sampler		
	IME FINISHED: 5/19/10 11:40 AM	T	BACKFILI		N/A Set v		Innitiation (a)		
DEPTH		USCS	Sample	PID	Sample		REMARKS: (Odor, Color,		
(FEET)	DESCRIPTION	CLASS	Recovery	(ppm)	Type	NUMBER	Moisture, Penetrometer, etc.)		
0_									
_	Asphalt / gravel subbase]	No odor and discoloration		
1		<u> </u>					throughout		
2 -	Black silt loam	ОМ							
			75%	0.0	Grab	MW11-2 5'	ветх, мтве		
3 -	Grey/ brown silty clay,	CL	/ / / /	0.0	Giao	1010011-2.5	00174, 1411 00		
) —		ÇL				:			
_	very stiff, some sand	t I							
4		•							
		ļ							
5									
. –		[
6	trace gravel]							
		1							
		ĺ							
 									
_	Brown fine to medium	SW	100%	0.0	Grab	MW11-7.5'	BETX, MTBE		
8	poorly sorted sand		'						
l	Brown silt	ML				İ			
9									
	Brown Clayey silt with sand moist	ML							
10									
					ļ				
11 -									
``									
l –	wet		!						
12]							
l _			100%						
13	Brown medium to coarse sand	sw							
_									
14						-			
			- ,				1		
15									
'	Stratification lines are approximate, in-situ transition	between s	oil types may h	be gradual	·				
NOTES:	Determine contamination levels at west pr								
	Sampled at the center of each 5 foot section								
	·								
	Manway / Surface Elevation:	98.99'							
	Groundwater Depth While Drilling:	~9-10'	Auger De	pth:	15'	Driller:	CW ³ M		
∇						Geologist:	CLR/KMC		
1 ·	Groundwater Depth After Drilling:		Rotary De	·Ptu.		Georgist.	CDIVINIO		

	Illinois Environmental Protection A	gency				CW™M	COMPANY, INC.
		. ,				DRILLI	NG BOREHOLE LOG
							Page 1 of 1
ST IN	CIDENT #: 04-0969		BOREHOI			MW-12	
	ME: KB Sullivan		BORING I	OCATIO	N:	1' E and 7'S	of SE comer of building
TE AD	DRESS: 111 West Jackson St. Sullivan, IL		RIG TYPE	•	Longvear	Truck-Moun	t
ATE/TI	ME STARTED: 5/19/10 11:40 AM						Stem Augers/5' Cont. Sampler
	ME FINISHED: 5/19/10 12:30 PM		BACKFILI	L;	N/A Set v	well	
EPTH	SOIL AND ROCK	USCS	Sample	PID	Sample	j.	REMARKS: (Odor, Color,
FEET)	DESCRIPTION	CLASS	Recovery	(ppm)	Type	NUMBER	Moisture, Penetrometer, etc.)
	Concrete / gravel subbase	 		<u> </u>			
	Concrete / graver substate						
1—		1					
2	Black silt loam	ОМ					1
⁻	Diaok site touri	Olvi	95%	0.9	Grab	MW12-2 5	BETX, MTBE
3	Grey/ brown silty clay,	CL	33/0	0.7	Jiau	1,11,412-2.3	
	very stiff, some sand						
4	very stiff, some sand]			
5							
´ ⊢	•		 	1			
6	trace gravel						İ
d	nace graver						
7 -							
′—			100%	36.2	Grab	NAW12 7 5	BETX, MTBE
8			100%	30.2	Giao	IVI W 12-7.J	BETA, WITE
$^{\circ}$ \dashv	·				}		}
\downarrow							
9							
., -]			
10			<u> </u>	ł			
., ⊢							
¹¹ —				i	1		
_	moist	ļ					
12			100%				
13	Brown medium to coarse sand	sw	10076				
	Brown medium to course sund	3 **	ļ				
14						1	
` <u> </u>							
, -							
15	Stratification lines are approximate, in-situ transition	n between	oil types may	l be gradual	<u></u>		<u>. L </u>
	Sampled at the center of each 5 foot sect			_ <u>_</u>			
		•					
	Manuay / Surface Flevetion	99.33'					
T	Manway / Surface Elevation:				1.51	Dutta	CW ³ M
*	Groundwater Depth While Drilling:	~9-10'	Auger De	epta:	15'	Driller:	
\vee	Groundwater Depth After Drilling:		Rotary D	epth:		Geologist:	CLR/KMC 0113

	Illinois Environmental Protection A	gency				CW [□] M	COMPANY, INC.		
	-	5 - ,		DRILLING BOREHOLE LOG					
							Page 1 of 1		
ST IN	VCIDENT #: 04-0969		BOREHOI	LE NUME	BER:	MW-13	1.450 1.01 1.		
	ME: KB Sullivan			BORING LOCATION: 101' S & 4' W of MW-7.					
SITE AD	DRESS: 111 West Jackson St.		<u> </u>						
	Sullivan, IL		RIG TYPE			Truck-Mount			
	IME STARTED: 9/22/10 2:15 pm		 				Stem Augers/5' Cont. Sampler		
DEPTH	IME FINISHED: 9/22/10 2:50 pm SOIL AND ROCK	USCS	BACKFILI Sample	U: PID	N/A Set v		REMARKS: (Odor, Color,		
(FEET)	DESCRIPTION	CLASS		(ppm)	Type	1	Moisture, Penetrometer, etc.)		
0				(1 t)	- 1		,		
	Grass/topsoil						Slight odor throughout		
1 1									
· —									
	Black silt loam	0.4							
2	Black Sile Ioani	ОМ							
i –	D 11 100		95%	0.9	Grab	MW 13-2.5'	ВЕТХ, МТВЕ		
3	Brown silty clay, very stiff	CL							
l _									
4									
5									
i -	Brown mottled grey silty clay w/trace	CL) 						
6	pebbles								
	,								
-									
<i>'</i> —			1000/	26.2					
			100%	36.2	Grab	MW 13-7.5	ВЕТХ, МТВЕ		
8	·				ļ	<u> </u>			
				1	•				
9									
					j				
10	moist				Į				
11									
12									
			100%						
13	Brown medium to coarse sand	sw							
'') ,,	Ì						
14									
					i				
15		<u></u> _	<u></u>	L	L	L	<u> </u>		
NOTES.	Stratification lines are approximate, in-situ transition Sampled at the center of each 5 foot section			oe graduai.					
NOTES:	. Sampled at the center of each 3 foot section	vi her ic	5414410113						
	Manway / Surface Elevation:	100.52'							
	Groundwater Depth While Drilling:	~9-10'	Auger De	oth:	15'	Driller:	CW ³ M		
\triangle	Groundwater Depth After Drilling:	v	Rotary De			Geologist:	MAB/MKC		

Electronic Filing: Received, Clerk's Office 3/18/2022 Illinois Environmental Protection Agency **LUST Well Completion Report** 90-0146 & 2004-0969 Incident No. Well No. MW-4 Site Name KB Sullivan Date Drilled 2/24/2010 CW³M Drilling Contractor 2/24/2010 Date Completed CW³M Driller Geologist CLR/KMC Drilling Method Hollow Stem Auger N/A **Drilling Fluids** Annular Space Details Type of Surface Seal Concrete Type of Annular Sealant Bentonite Type of Bentonite High-Yield Top of Protective Type of Sand Pack Coarse 20-20 100.00 ft. Casing 99.75 ft. Top of riser pipe Ground surface 100.00 ft. Top of Annular Sealant 99.50 Casing Stickup Well Construction Materials N/A PVC Stainless Other Steel Specify Specify Туре Турс Type Riser Coupling Joint Riser Pipe Above Sched.-40 99.50 ft. Top of Seal Riser Pipe Below w.t. Screen ft. Total Seal interval Sched.-40 3.00 Coupling Joint Sched.-40 Screen to Riser 96.50 ft. Top of Sand Protective Casing Steel 95.50 ft. Top of Screen <u>Measurements</u> Riser Pipe Length 4.25 ft. Screen Length 0.01 ſt. Screen Slot Size 10-slot Protective Casing Length N/A Depth to Water ~10-11 ft. while drilling Total Screen Depth to Water 94.00 ft. static 10.0 ft. Interval Free Product Thickness N/A Gallons removed (develop) Approximately 3 gallons Gallons removed (purge) Approximately 3 gallons Other Battom of Completed by: 85.50 ft. Screen **KMC** Bottom of ft. Borehole 85.00

Flectronic Filing: Received, Clerk's Office 3/18/2022 Illinois Environmental Protection Agency **LUST Well Completion Report** MW-5 90-0146 & 2004-0969 Well No. Incident No. 2/24/2010 KB Sullivan **Date Drilled** Site Name CW³M Date Completed 2/24/2010 **Drilling Contractor** CLR/KMC CW3M Geologist Driller Hollow Stem Auger **Drilling Fluids** N/A Drilling Method Annular Space Details Concrete Type of Surface Seal Bentonite Type of Annular Sealant High-Yield Type of Bentonite Top of Protective Coarse 20-20 Type of Sand Pack ft. Casing 99.81 ft. Top of riser pipe 99.56 ft. Ground surface 99.81 Top of Annular Sealant 99.31 Casing Stickup N/A Well Construction Materials Stainless PVC Other Specify Specify Steel Type Туре Турс Riser Coupling Joint Riser Pipe Above Sched.-40 ft. Top of Seal 99.31 Riser Pipe Below w.t. ft. Total Seal interval Sched.-40 3.00 Screen Coupling Joint Sched.-40 96.31 ft. Top of Sand Screen to Riser Protective Casing Steel 95.31 ft. Top of Screen Measurements 4 1 Riser Pipe Length 4.25 ft. Screen Length 10.0 ft. Screen Slot Size 10-slot Protective Casing Length N/A Total Screen Depth to Water ~10-11 ft. while drilling ft. Interval Depth to Water 10.0 96.51 ft. static Free Product Thickness N/A Gallons removed (develop) Approximately 3 gallons Gallons removed (purge) Approximately 3 gallons Other Bottom of ft. Screen 85.31 Completed by: **KMC** Bottom of ft. Borehole 84.81

Electronic Filing: Received, Clerk's Office 3/18/2022 Illinois Environmental Protection Agency **LUST Well Completion Report** 90-0146 & 2004-0969 MW-6 Incident No. Well No. KB Sullivan Date Drilled 2/24/2010 Site Name CW³M 2/24/2010 **Drilling Contractor Date Completed** CW³M CLR/KMC Driller Geologist Hollow Stem Auger **Drilling Method Drilling Fluids** N/A Annular Space Details Type of Surface Seal Concrete Bentonite Type of Annular Sealant High-Yield Type of Bentonite Top of Protective Coarse 20-20 Type of Sand Pack 99.43 ft. Casing ft. Top of riser pipe 99.18 Ground surface 99.43 ft. Top of Annular 98.93 Sealant Casing Stickup N/A Well Construction Materials PVC Stainless Other Steel Specify Specify Турс Туре Type Riser Coupling Joint Riser Pipe Above Sched.-40 ft. Top of Seal 98.93 Riser Pipe Below w.t. ft. Total Seal interval Screen Sched.-40 3.00 Coupling Joint Sched.-40 95.93 ft. Top of Sand Screen to Riser Protective Casing Steel 94.93 ft. Top of Screen Measurements Riser Pipe Length 4.25 ft. Screen Length 10.0 ft. Screen Slot Size 10-slot Protective Casing Length N/A ~10-11 ft. while drilling Depth to Water Total Screen Depth to Water 10.0 ft. Interval 95.57 ft. static Free Product Thickness N/A Gallons removed (develop) Approximately 3 gallons Gallons removed (purge) Approximately 3 gallons Other Bottom of ft. Screen Completed by: 84.93 **KMC** Bottom of 84.43 ft. Borehole 0117

Electronic Filing: Received, Clerk's Office 3/18/2022 Illinois Environmental Protection Agency **LUST Well Completion Report** 90-0146 & 2004-0969 Incident No. Well No. MW-7 Site Name KB Sullivan 2/24/2010 **Date Drilled** CW³M **Drilling Contractor** Date Completed 2/24/2010 CW³M CLR/KMC Geologist **Drilling Method** Hollow Stem Auger **Drilling Fluids** N/A Annular Space Details Type of Surface Seal Concrete Type of Annular Sealant Bentonite Type of Bentonite High-Yield Type of Sand Pack Coarse 20-20 Top of Protective 100.22 ft. Casing ft. Top of riser pipe 99.97 100.22 ft. Ground surface Top of Annular Sealant 99.72 Casing Stickup N/A Well Construction Materials Stainless PVC Other Steel Specify Specify Туре Type Type Riser Coupling Joint Riser Pipe Above Sched.-40 99.72 ft. Top of Seal Riser Pipe Below w.t. Screen ft. Total Seal interval Sched.-40 3.00 Coupling Joint Sched.-40 Screen to Riser 96.72 ft. Top of Sand Protective Casing Steel 95.72 ft. Top of Screen

Measurements

Driller

Riser Pipe Length	4.25 ft.
Screen Length	10.0 ft.
Screen Slot Size	10-slot
Protective Casing Length	N/A
Depth to Water	~10-11 ft, while drilling
Depth to Water	96.22 ft. static
Free Product Thickness	N/A
Gallons removed (develop)	Approximately 3 gallons
Gallons removed (purge)	Approximately 3 gallons
Other	

Completed by:

KMC



Total Screen 10.0 ft. Interval

Bottom of 85.72 ft. Screen Bottom of 85.22 ft. Borehole

0118

Electronic Filing: Received. Clerk's Office 3/18/2022 **LUST Well Completion Report** Illinois Environmental Protection Agency 90-0146 & 2004-0969 Well No. MW-8 Incident No. Date Drilled KB Sullivan 5/19/2010 Site Name 5/19/2010 CW^3M Date Completed **Drilling Contractor** CLR/KMC CW³M Geologist Driller N/A Drilling Method Hollow Stem Auger **Drilling Fluids** Annular Space Details Type of Surface Seal Concrete Bentonite Type of Annular Sealant High-Yield Type of Bentonite Top of Protective Type of Sand Pack Coarse 20-20 ft. Casing 99.13 ft. Top of riser pipe 98.88 Ground surface 99.13 ft. Top of Annular 98.63 ft. Sealant Casing Stickup N/A Well Construction Materials Stainless PVC Other Steel Specify Specify Type Type Type Riser Coupling Joint Riser Pipe Above Sched.-40 98.63 ft. Top of Seal Riser Pipe Below w.t. ft. Total Seal interval Screen Sched.-40 3.00 Coupling Joint Sched.-40 95.63 ft. Top of Sand Screen to Riser Protective Casing Steel 94.63 ft. Top of Screen **Measurements** Riser Pipe Length 4.25 ft. Screen Length 10.0 ft. Screen Slot Size 10-slot Protective Casing Length N/A Total Screen Depth to Water ~10 ft. while drilling ft. Interval 10.0 Depth to Water 94.13 ft. static Free Product Thickness N/A Gallons removed (develop) Approximately 3 gallons Gallons removed (purge) Approximately 3 gallons Other Bottom of 84.63 ft. Screen Completed by: **KMC** Bottom of 84.13 ft. Borehole 0119

inois Environmenta	Protection A	Agency	LUS	T Well Completion Repo	rt
cident No.	90-014	6 & 2004-0969		Well No.	MW-9
te Name	KB Su			Date Drilled	5/19/2010
rilling Contractor	CW ³ M			Date Completed	5/19/2010
riller	CW ³ M		· · · · · · · · · · · · · · · · · · ·	Geologist	CLR/KMC
rilling Method	Hollow	v Stem Auger		Drilling Fluids _	N/A
nnular Space De	<u>tails</u>	<u>-</u>			
Type of Surface Se	al	Concrete			
Type of Annular S		Bentonite	_		
Type of Bentonite		High-Yield	_		
Type of Sand Pack	:	Coarse 20-20	_		Top of Protectiv
• •			_		98.64 ft. Casing
					98.39 ft. Top of riser pipe
					98.64 ft. Ground surface
					Top of Annular
					98.14 ft. Sealant
ell Construction	Materials				N/A Casing Stickup
	Stainless	PVC	Other		
	Steel	Specify	Specify		
	Type	Туре	Туре		
	1"	''	" 		
Riser Coupling Joint					
Riser Pipe Above		 	1		
w,t.		Sched40	1	XX XX	98.14 ft. Top of Seal
Riser Pipe Below w.t.	+	-	1	XXX XXX	70.11 III F
Screen	1	Sched,-40	 	XX XX	3.00 ft. Total Seal interv
Coupling Joint			1	₩ ₩	
Screen to Riser		Sched40		XX XX	95.14 ft. Top of Sand
	1		Steel		
Protective Casing	r .	ı	5,001		94.14 ft. Top of Screen
Protective Casing		•		[2/32] [33387]	94 14 11 10001001001
Protective Casing					<u> </u>
Protective Casing Leasurements					<u>94.14 II.</u> 10p 0. Sates.
leasurements Riser Pipe Length		4.25 ft.			94.14 II. 10p 0. Sates
<u>leasurements</u>		4.25 ft. 10.0 ft.			<u>94.14 II.</u> 10p of Sattern
Riser Pipe Length Screen Length Screen Slot Size					94.14 It. 10p 0. Sates
Riser Pipe Length Screen Length Screen Slot Size Protective Casing Length	11	10.0 ft.			
Riser Pipe Length Screen Length Screen Slot Size Protective Casing Length Depth to Water	1	10.0 ft. 10-slot	lrilling		Total Screen
Riser Pipe Length Screen Length Screen Slot Size Protective Casing Length Depth to Water Depth to Water	1	10.0 ft. 10-slot N/A	Irilling		
Riser Pipe Length Screen Length Screen Slot Size Protective Casing Length Depth to Water Depth to Water Free Product Thickness		10.0 ft. 10-slot N/A ~9-10 ft. while d 94.19 ft. static N/A			Total Screen
Riser Pipe Length Screen Length Screen Slot Size Protective Casing Length Depth to Water Depth to Water		10.0 ft. 10-slot N/A ~9-10 ft. while d 94.19 ft. static N/A			Total Screen
Riser Pipe Length Screen Length Screen Slot Size Protective Casing Length Depth to Water Depth to Water Free Product Thickness	op)	10.0 ft. 10-slot N/A ~9-10 ft. while d 94.19 ft. static	gallons		Total Screen
Riser Pipe Length Screen Length Screen Slot Size Protective Casing Length Depth to Water Depth to Water Free Product Thickness Gällons removed (develo	op)	10.0 ft. 10-slot N/A ~9-10 ft. while d 94.19 ft. static N/A Approximately 3	gallons		Total Screen
Riser Pipe Length Screen Length Screen Slot Size Protective Casing Length Depth to Water Depth to Water Free Product Thickness Gällons removed (develo	op)	10.0 ft. 10-slot N/A ~9-10 ft. while d 94.19 ft. static N/A Approximately 3	gallons		Total Screen
Riser Pipe Length Screen Length Screen Slot Size Protective Casing Length Depth to Water Depth to Water Free Product Thickness Gällons removed (develo	op)	10.0 ft. 10-slot N/A ~9-10 ft. while d 94.19 ft. static N/A Approximately 3	gallons		Total Screen 10.0 ft. Interval
Riser Pipe Length Screen Length Screen Slot Size Protective Casing Length Depth to Water Depth to Water Free Product Thickness Gällons removed (develor Gallons removed (purge) Other	(Ā.	10.0 ft. 10-slot N/A ~9-10 ft. while d 94.19 ft. static N/A Approximately 3	gallons		Total Screen 10.0 ft. Interval Bottom of
Riser Pipe Length Screen Length Screen Slot Size Protective Casing Length Depth to Water Depth to Water Free Product Thickness Gällons removed (develo	op)	10.0 ft. 10-slot N/A ~9-10 ft. while d 94.19 ft. static N/A Approximately 3	gallons		Total Screen 10.0 ft. Interval Bottom of 84.14 ft. Screen
Riser Pipe Length Screen Length Screen Slot Size Protective Casing Length Depth to Water Depth to Water Free Product Thickness Gällons removed (develor Gallons removed (purge) Other	(Ā.	10.0 ft. 10-slot N/A ~9-10 ft. while d 94.19 ft. static N/A Approximately 3	gallons		Total Screen 10.0 ft. Interval Bottom of

Flectronic Filing: Received, Clerk's Office 3/18/2022 Illinois Environmental Protection Agency **LUST Well Completion Report** Incident No. 90-0146 & 2004-0969 Well No. MW-10 KB Sullivan 5/19/2010 Site Name Date Drilled CW³M 5/19/2010 **Drilling Contractor** Date Completed CW³M Driller Geologist CLR/KMC Drilling Method Hollow Stem Auger N/A **Drilling Fluids** Annular Space Details Type of Surface Seal Concrete Type of Annular Sealant Bentonite High-Yield Type of Bentonite Top of Protective Type of Sand Pack Coarse 20-20 ft. Casing 99.31 99.06 ft. Top of riser pipe ft. Ground surface 99.31 Top of Annular Sealant 98.81 Casing Stickup Well Construction Materials N/A Stainless PVC Other Steel Specify Specify Type Type Type Riser Coupling Joint Riser Pipe Above Sched.-40 ft. Top of Seal 98.81 Riser Pipe Below w.t. ft. Total Seal interval Screen Sched.-40 3.00 Coupling Joint Sched.-40 Screen to Riser 95.81 ft. Top of Sand Protective Casing Steel 94.81 ft. Top of Screen Measurements Riser Pipe Length 4.25 ft. Screen Length 10.0 ft. Screen Slot Size 10-slot Protective Casing Length N/A Depth to Water Total Screen ~9-10 ft. while drilling Depth to Water 94.78 ft. static ft. Interval 10.0 Free Product Thickness N/A Gallons removed (develop) Approximately 3 gallons Gallons removed (purge) Approximately 3 gallons Other Bottom of 84.81 ft. Screen Completed by: **KMC** Bottom of ft. Borehole 84.31

Electronic Filing: Received, Clerk's Office 3/18/2022 Illinois Environmental Protection Agency **LUST Well Completion Report** Incident No. 90-0146 & 2004-0969 Well No. MW-11 KB Sullivan Site Name Date Drilled 5/19/2010 CW³M Drilling Contractor Date Completed 5/19/2010 CW³M CLR/KMC Driller Geologist Hollow Stem Auger Drilling Method **Drilling Fluids** N/A Annular Space Details Type of Surface Seal Concrete Type of Annular Sealant Bentonite Type of Bentonite High-Yield Top of Protective Coarse 20-20 Type of Sand Pack 98.99 ft. Casing ft. Top of riser pipe 98.74 Ground surface 98.99 ft. Top of Annular Sealant 98.49 N/A Casing Stickup Well Construction Materials PVC Stainless Other Steel Specify Specify Type Type Type Riser Coupling Joint Riser Pipe Above Sched.-40 98.49 ft. Top of Seal Riser Pipe Below w.t. ft. Total Seal interval Screen Sched.-40 3.00 Coupling Joint Sched.-40 95.49 ft. Top of Sand Screen to Riser Protective Casing Steel 94.49 ft. Top of Screen Measurements Riser Pipe Length 4.25 ft. Screen Length 10.0 ft. Screen Slot Size 10-slot Protective Casing Length N/A Depth to Water ~9-10 ft. while drilling Total Screen Depth to Water 10.0 ft. Interval 94.71 ft. static Free Product Thickness N/A Gallons removed (develop) Approximately 3 gallons Gallons removed (purge) Approximately 3 gallons Other Bottom of 84.49 ft. Screen Completed by: **KMC** Bottom of ft. Borehole 83.99

F	Electronic	Filing: Red	ceived	l, Clerk's Office 3/18	/2022
Illinois Environmental	Protection Ag	ency		LUST Well Completion Repo	ort
Incident No. Site Name Drilling Contractor	KB Sulliv CW ³ M	2004-0969 an		Well No. Date Drilled Date Completed	MW-12 5/19/2010 5/19/2010
Driller Drilling Method	CW ³ M Hollow St	em Auger		Geologist Drilling Fluids	CLR/KMC N/A
Annular Space Deta	ail <u>s</u>				
Type of Surface Sea Type of Annular Se Type of Bentonite Type of Sand Pack	alant Be	entonite gh-Yield parse 20-20	- - -		Top of Protective 99.33 ft. Casing 99.08 ft. Top of riser pipe 99.33 ft. Ground surface Top of Annular 98.83 ft. Sealant N/A Casing Stickup
Well Construction	Stainless Steel	PVC Specify	Other Specify		IV/A Casing Stockup
	Туре	Туре	Туре		
Riser Coupling Joint Riser Pipe Above w.t.		Sched40			98.83 ft. Top of Seal
Riser Pipe Below w.t. Screen Coupling Joint		Sched40			3.00 ft. Total Seal interval
Screen to Riser Protective Casing		Sched40	Stee		95.83 ft. Top of Sand
<u>Measurements</u>					94.83 ft. Top of Screen
Riser Pipe Length	4.2				
Screen Length Screen Slot Size Protective Casing Length Depth to Water Depth to Water Free Product Thickness Gallons removed (develop	N/ ~9 95 N/	-slot A -10 ft. while d .33 ft. static			Total Screen 10.0 ft. Interval
Gallons removed (purge) Other Completed by:		oproximately 3			Bottom of 84.83 ft. Screen
Completed by:	KIVIC		_		Bottom of 84.33 ft. Borehole

Electronic Filing: Received, Clerk's Office 3/18/2022 Illinois Environmental Protection Agency **LUST Well Completion Report** Incident No. 90-0146 & 2004-0969 Well No. MW-13 KB Food & Gas, Inc. Site Name Date Drilled 9/22/2010 Drilling Contractor CW³M 9/22/2010 **Date Completed** CW³M Driller Geologist MAB/MKC Drilling Method Hollow Stem Auger N/A **Drilling Fluids** Annular Space Details Type of Surface Seal Concrete Type of Annular Sealant Bentonite Type of Bentonite High-Yield Type of Sand Pack Coarse 20-20 Top of Protective 100.52 ft. Casing Top of riser pipe 100.27 ft. 100.52 ft. Ground surface Top of Annular Sealant 100.02 ft. Casing Stickup N/A Well Construction Materials Stainless PVC Other Steel Specify Specify Type Туре Type Riser Coupling Joint Riser Pipe Above Sched.-40 100.02 ft. Top of Seal Riser Pipe Below w.t. ft. Total Seal interval Screen Sched.-40 3.00 Coupling Joint Sched.-40 Screen to Riser 97.02 ft. Top of Sand Protective Casing Steel 96.02 ft. Top of Screen Measurements Riser Pipe Length 4.25 Ĥt. Screen Length 10.0 ft. Screen Slot Size 10-slot Protective Casing Length N/A Depth to Water Total Screen ~9-10 ft. while drilling Depth to Water 93.18 ft. static 10.0 ft. Interval Free Product Thickness N/A Gallons removed (develop) Approximately 3 gallons Gallons removed (purge) Approximately 3 gallons Other Bottom of 86.02 ft. Screen Completed by: MAB Bottom of 85.52 ft. Borehole 0124

APPENDIX G CORRECTIVE ACTION PLAN BUDGET

KB FOOD & GAS SULLIVAN, ILLINOIS

Owner/Operator and Licensed Professional Engineer/Geologist Budget **Certification Form**

I hereby certify that I intend to seek payment from the UST Fund for costs incurred while performing corrective action activities for Leaking UST incident 90-0146/2004-0969 . I further certify that the costs set forth in this budget are for necessary activities and are reasonable and accurate to the best of my knowledge and belief. I also certify that the costs included in this budget are not for corrective action in excess of the minimum requirements of 415 ILCS 5/57, no costs are included in this budget that are not described in the corrective action plan, and no costs exceed Subpart H: Maximum Payment Amounts, Appendix D Sample Handling and Analysis amounts, and Appendix E Personnel Titles and Rates of 35 Ill. Adm. Code 732 or 734. I further certify that costs ineligible for payment from the Fund pursuant to 35 III. Adm. Code 732.606 or 734.630 are not included in the budget proposal or amendment. Such ineligible costs include but are not limited to:

Costs associated with ineligible tanks.

Costs associated with site restoration (e.g., pump islands, canopies).

Costs associated with utility replacement (e.g., sewers, electrical, telephone, etc.).

Costs incurred prior to IEMA notification.

Costs associated with planned tank pulls.

(Notary Public)

Legal fees or costs.

Costs incurred prior to July 28, 1989.

Costs associated with installation of new USTs or the repair of existing USTs.

RECEIVED

Owner/Operator: KB Sullivan, Inc		FEB 17 2012
Authorized Representative: Kamlesh Patel	Title: Owner	IEPA/BOL
Signature: K.B. Patel	_	12
Subscribed and swoll to be of either the day of	······································	2011
OFFICIAL S CAROL E94	BEAL { ROWE }	
(Notary Public) NOTARY PUBLIC, STATE	E OF ILLINOIS }	
conducted under my supervision or were conducted under the superv or Licensed Professional Geologist and reviewed by me; that this plan prepared under my supervision; that, to the best of my knowledge and or report has been completed in accordance with the Environmental P 732 or 734, and generally accepted standards and practices of my professionate and complete. I am aware there are significant penalties for to the Illinois EPA, including but not limited to fines, imprisonment, or I Environmental Protection Act [415 ILCS 5/44 and 57.17].	n, budget, or report and d belief, the work descri Protection Act [415 ILCS ofession; and that the in submitting false statem	all attachments were bed in the plan, budget, 5 5], 35 III. Adm. Code iformation presented is tents or representations
L.P.E./L.P.G.: Vince E. Smith L.P.E./	'L.P.G. Seal:	43019 3
L.P.E./L.P.G. Signature: Subscribed and sworn to before me the 1.6 day of Jebrus	Date:	COP STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF
OFFICIAL CARO Sela (Notary Public) NOTARY PUBLIC, ST	SEAL	11 LIBOTS WAR

MY COMMISSION EXPIRES 2-26-2013

The Illinois EPA is authorized to require this information under 415 ILCS 5/1. Disclosure of this information is required. Failure to do so may result in the delay or denial of any budget or payment requested hereunder.

General Information for the Budget and Billing Forms

LPC #: 1	390305014	County:	Moultrie		
City: Sul	livan	Site Name:	KB Food & G	Sas	
Site Addre	ess: 111 West Jackson Street /	Routes 121 & 32			
IEMA Inci	dent No.: 90-0146	2004-0969			
IEMA Not	ification Date.: Jan 17, 1990	Jul 9, 2004			
Date this	form was prepared: Feb 1, 201	2			
This forn	n is being submitted as a (chec	ck one):			
\boxtimes	Budget Proposal				
	Budget Amendment (Budget am	endments must inclu	ude only the co	osts over the previo	us budget.)
	Billing Package				RECEIVE
	Please provide the name(s) and	d date(s) of report(s)	documenting t	the costs requested	I.
	Name(s):				FEB 17 2012
	Date(s):				IEPA/BO
This pac	kage is being submitted for the	e site activities indi	cated below :		
35 III. Ad	m. Code 734:				
	Early Action				
	Free Product Removal after Ear	ly Action			
	Site Investigation	Stage 1:	Stage 2:	Stage 3:	
X	Corrective Action				
35 III. Ad	m. Code 732:				
	Early Action				
	Free Product Removal after Ear	ly Action			
	Site Classification				
	Low Priority Corrective Action				
	High Priority Corrective Action				
35 III. Ad	m. Code 731:				
	Site Investigation				
	Corrective Action				

IL 532 -2825 LPC 630 Rev. 1/ 2007

General Information for the Budget and Billing For Office 3/18/2022

The following address will be used as the mailing address for checks and any final determination letters regarding payment from the Fund.

Pay to the order of: KB Food	& Gas				
Send in care of: CWM Compa	any, Inc.			***	
Address: P.O. Box 571					
City: Carlinville		State: IL		Zip: 62	2626
The payee is the: Own	er 🛛 Ope	erator 🔲	(Check o	ne or both.)	
K.D. Pato					a change of address,
Signature of the owner or opera	tor of the UST(s)	(required)		<u>click here</u> to	print off a W-9 Form.
Number of petroleum USTs in I parent or joint stock company or joint stock company of the or	of the owner or owner or owner or operator	perator; and			
Fewer than 101:	101 or	more: \sqcup			
Number of USTs at the site: 1	<u>1</u> (Nt	ımber of UST	s includes	USTs presently at	the site and USTs that
have been removed.)					
Number of incidents reported to	o IEMA for this s	site: 2			
Incident Numbers assigned to	the site due to re	eleases from	USTs: 90)-01416	2004-0969
Please list all tanks that have e	ver been locate	d at the site a	ind tanks th	at are presently loc	cated at the site.
Product Stored in UST	Size (gallons)	Did US a rele		Incident No.	Type of Release Tank Leak / Overfill / Piping Leak
Gasoline	10,000	Yes 🔀	No 🗌	90-0146 2004-0969	Spills & Overfills
Gasoline	8,000	Yes 🔀	Ио □	2004-0969	Spills & Overfills
Gasoline	8,000	Yes 🛚	№ □	2004-0969	Spills & Overfills
Diesel	5,000	Yes 🛚	No 🗍	2004-0969	& Spills & Overfills
Gasoline	5,000	Yes 🔀	No 🗌	2004-0969	& Spills & Overfills
Kerosene	2,000	Yes 🔀	No 🗌	2004-0969	Spills & Overfills.
Gasoline	10,000	Yes 🗌	No 🔀	None	None

No 🔀

No 🔀

None

None

Yes 🗌

Yes [

10,000

8,000

Gasoline

Diesel

None

None

Product ਬਾਵਿਟੀਜ਼ਿੰਨੀ Fili	ng: Rê cei\ (gallons)	ed, deles	K' S aOffice	e 31/18/2022	Type of Release Tank Leak / Overfill / Piping Leak
Kerosene	5,000	Yes 🗌	No ⊠	None	None
Gasoline	5,000	Yes 🗌	No ⊠	None	None
		Yes 🗌	No 🗌		
		Yes 🗌	No 🗌		
		Yes 🗌	No 🗌		
		Yes 🗌	No 🗌	•	
		Yes 🗌	No 🗌		
		Yes 🗌	No 🗌		
		Yes [No 🗌		





Budget Summary

Choose the applicable regulation: (a) 734 (C) 732

734	Free Product	Stage 1 Site Investigation	Stage 2 Site Investigation	Stage 3 Site Investigation	Corrective Action		
					Proposed		
Drilling and Monitoring Well Costs Form	\$	\$	\$	\$	\$		
Analytical Costs Form	\$	\$	\$	\$	\$		
Remediation and Disposal Costs Form	\$	\$	s	\$	\$		
UST Removal and Abandonment Costs Form	\$	\$	\$	\$	\$		
Paving, Demolition, and Well Abandonment Costs Form	\$	\$	\$	\$	\$ 1,719.00		
Consulting Personnel Costs Form	\$	\$	\$	\$	\$ 31,443.23		
Consultant's Materials Costs Form	\$	\$	\$	\$	\$ 734.30		
Handling Charges Form	the Illinois EPA.	andling charges will be determined at the time a billing package is submitted to ne Illinois EPA. The amount of allowable handling charges will be determined in accordance with the Handling Charges Form.					
Total	\$	\$	\$	\$	\$ 33,896.53		

Paving, Demolition, and Well Abandonment Costs Form

A. Concrete and Asphalt Placement/Replacement

Number of Square Feet	Asphalt or Concrete	Thickness (inches)	Cost (\$) per Square Foot	Replacement or Placement for an Engineered Barrier	Total Cost
					<u>-</u>

	Total Concrete and Asphalt	
l	Placement/Replacement Costs:	

B. Building Destruction or Dismantling and Canopy Removal

Item to Be Destroyed, Dismantled, or Removed	Unit Cost (\$)	Total Cost (\$)

Total Building Destruction or Dismantling and	
Canopy Removal Costs:	

Paving, Demolition, and Well Abandonment Costs Form

C. Well Abandonment

Monitoring Well ID #	Type of Well (HSA / PUSH / Recovery)	Depth of Well (feet)	Cost (\$) per Foot	Total Cost
MW-4	HSA	15.00	11.46	\$171.90
MW-5	HSA	15.00	11.46	\$171.90
MW-6	HSA	15.00	11.46	\$171.90
MW-7	HSA	15.00	11.46	\$171.90
MW-8	HSA	15.00	11.46	\$171.90
MW-9	HSA	15.00	11.46	\$171.90
MW-10	HSA	15.00	11.46	\$171.90
MW-11	HSA	15.00	11.46	\$171.90
MW-12	HSA	15.00	11.46	\$171.90
MW-13	HSA	15.00	11.46	\$171.90
	-	 		

Total Monitoring Well Abandonment Costs:	\$1,719.00

ſ		•	
	Total Paving, Demo	olition, and Well Abandonment Costs:	\$1,719.00

Consulting Personnel Costs Form

Employee Name)	Personnel Title	Hours	Rate* (\$)	Total Cost
Remediation Category		Tasi	•		
				<u> </u>	
		Senior Project Manager	4.00	114.59	\$458.36
CCAP-Budget	Budget Compla	ince / Techinical Oversight			
		Facional			
	<u></u>	Engineer I	16.00	85.94	\$1,375.04
CCAP-Budget	Budget Calculat	tions / Inputs			
		Senior Prof. Engineer			
CCAR Rudget			3.00	148.97	\$446.91
CCAP-Budget	Budget Review	& Certification			
, ·-					
		Senior Admin. Assistant	2.00	51.57	\$103.14
CCAP-Budget	Budget Compile	ation, Assembly, and Distribution			
	· - · · · · · · · · · · · · · · · · · ·	Senior Draftperson/CAD	12.00	68.75	\$825.00
CCA-Field	Plume / Analytic	cal / Modeling Map Development			
	<u> </u>	- I			
<u> </u>	<u> </u>	Engineer I	12.00	85.94	\$1,031.28
TACO 2 or 3	TACO Calculati	ons / Clean-up Objectives Develo	ppment		
		Senior Prof. Engineer			
TACO 2 or 3			2.00	148.97	\$297.94
TAGG 2 01 3	TACO Calculati	ons / Clean-up Objectives Oversi	ght and Review		
		Engineer III	12.00	114.59	\$1,375.08
CCA-Field	Groundwater C	ontaminant Transport Modeling			

Electronic Filing: Received, Clerk's Office 3/18/2022 Rate* (\$) **Total Cost Personnel Title** Hours **Employee Name** Task **Remediation Category** Senior Project Manager 6,00 114.59 \$687.54 **CCAP** Report Coordination / Technical Oversight / Compliance Senior Prof. Engineer 3.00 148.97 \$446.91 **CCAP** Report Review and Certification Engineer I 30.00 85.94 \$2,578.20 **CCAP** Corrective Action Design / Report Preparation Draftperson/CAD I \$366.72 45.84 8.00 **CCAP** Drafting and Editing Maps for the Report Senior Admin. Assistant 2.00 51.57 \$103.14 **CCAP** Report Compilation, Assembly, and Distribution Senior Project Manager 4.00 114.59 \$458.36 CCA-Field

Office Preparation, Scheduling, Arrangements for Well Abandonment Activities

CA Documentation / Compliance for Well Abondonment / Property Owner Correspondence

2.00

114.59

Senior Project Manager

CCA-Field

0134

\$229.18

Employee Name	1	Personnel Title	Hours	Rate* (\$)	Total Cost
Remediation Category		Task			
			1	T	
		·			
·		Senior Project Manager	6.00	114.59	\$687.5
НАА	HAA IDOT Ove	ersight / Technical Compliance			
					, , ,
		Engineer III	20.00	114.59	\$2,291.8
HAA	HAA IDOT De	velopment / Correspondence	20.00	114.59	Ψ2,291.0
			1		
		Senior Admin. Assistant	2.00	51.57	\$103.1
НАА	HAA IDOT Co	mpilation, Assembly, and Distribution	n		
		Engineer I	18.00	85.94	\$1,546.9
ELUC	City Groundwa	ater Ordinance Preparation			
		Senior Project Manager	4.00	114.59	\$458.3
ELUC	City Groundwa	ater Ordinance Review			
		Senior Prof. Engineer		4,007	
ELUC	City Groundwa	ater Ordinance Preparation / Design	and Correspond	148.97	\$1,787.6
	Totty Oroundwe	Telegration Design	and donoupon.		
		Senior Draftperson/CAD	6.00	68.75	\$412.
ELUC	Drafting of Ma	ps for City Groundwater Ordinance			

Employee Name		Personnel Title	Hours	Rate* (\$)	Total Cost
Remediation Category		Task			
			<u> </u>		
			···		
	Se	enior Project Manager	8.00	114.59	\$916.7
ELUC	Off-Site I/C Land U	se Restriction Coordination / (Oversight / Negoti	ation with Propert	y Owner
	Se	enior Prof. Engineer	2.00	148,97	\$297.9
ELUC	Off-Site I/C Land U	se Restriction Technical Com	pliance / Correspo	ondence	
	E	ngineer I	12.00	85.94	\$1,031.2
ELUC	Development and C	Coordination of Off-Site I/C La	nd Use Restriction	n / Recording	
	S	enior Project Manager	3.00	114.59	\$343.
CACR	NFR Recording / IE	PA Correspondence / Submit	tal		
	S	enior Admin. Assistant	2.00	51.57	\$103.
CACR	NFR Recording / C	ounty Deed Processing			
	S	enior Project Manager	6.00	114.59	\$687.
CACR	Report Coordinatio	n / Technical Oversight / Com	pliance		
	s	enior Prof. Engineer	3.00	148.97	\$446.
CACR	Report Review and	Certification			

Employee Name		Personnel Title	Hours	Rate* (\$)	Total Cost
Remediation Category		Task			
	<u> </u>	Engineer III	30.00	114.59	\$3,437.70
CACR	Report Preparat	ion / Development	·-		
		Draftperson/CAD IV	10.00	63.02	\$630.20
CACR	Drafting / Updat	ing and Completion of Maps			
	······································	Senior Admin. Assistant	2.00	51.57	\$103.14
CACR	Report Compilat	tion. Assembly, and Distribution		<u></u>	
		Senior Project Manager	3.00	114.59	\$343.77
CACR	Deed Restriction	n for Groundwater Ordinance			
			<u></u>		
		Senior Project Manager	16.00	114.59	\$1,833.44
CA-Pay	Reimbursement	Complaince / Technical Oversight /	Documentation	<u> </u>	
		Senior Prof. Engineer	6.00	148.97	\$893.82
CA-Pay	Reimbursement	Review and Certification			
		Senior Acct. Technician	30.00	63.02	\$1,890.60
CA-Pay	Reimbursement	Preparation			
	_	Senior Admin. Assistant	8.00	51.57	\$412.56
CA-Pay	Reimbursement	Compilation, Assembly, and Distrib	ution		

^{*}Refer to the applicable Maximum Payment Amounts document.

10tal of Consulting Fersonnel Costs \$31,443.23	Total of Consulting Personnel Costs	\$31,443.23
-------------------------------------------------	-------------------------------------	-------------

Consultant's Materials Costs Form

Materials, Equipment	, or Field Purchase	Time or Amount Used	Rate (\$)	Unit	Total Cost
Remediation Category		Description/	Justification		
Copies	 	600.00	.10	/each	\$60.00
CCAP	Copies of Plan and Re	port			
Postage		3.00	5.00	/each	\$15.00
CCAP	Report Distribution				
Copies		300.00	.10	/each	\$30.00
CCAP-Budget	Copies of Budget				
Postage	· · · · · · · · · · · · · · · · · · ·	3.00	5.00	/each	\$15.00
CCAP-Budget	Budget Distribution				
Copies		1,000.00	.10	/each	\$100.00
CACR	Copies of Completion I	Report and Attachment	s		
Postage		3.00	5.00	/each	\$15.00
CACR	Completion Report Dis	tribution			
Copies	***************************************	1,000.00	.10	/each	\$100.00
CA-Pay	Copies of Reimbursem	ent Claim			
Postage		3.00	5.00	/each	\$15.00
CA-Pay	Reimbursement Distrib	oution			
NFR Recording		1.00	68.00	/each	\$68.00
CACR	NFR Recording Fees				

Elec	tronic Filing: Rec	<u>eived, Clerk'ş</u>	Office 3/1	8/2022	
Materials, Equipment	, or Field Purchase	Time or Amount Used	Rate (\$)	Unit	Total Cost
Remediation Category		Description/	Justification		:
Postage		5.00	5.00	/each	\$25.00
CACR	NFR Recording / Corre	spondence			
Copies		100.00	.10	.each	\$10.00
CACR	NFR / Recording / Subr	nittal	•		
Copies		200.00	.10	/each	\$20.00
ELUC	Ordinance Developmen	at and Notification / Co	rrespondence		
Postage		6.00	5.00	/each	\$30.00
ELUC	Ordinance Developmen	at and Notification / Co	rrespondence	, ,	
Copies		300.00	.10	/copy	\$30.00
HAA	Copies of HAA	· · · · · · · · · · · · · · · · · · ·			
Postage		4.00	5.00	/each	\$20.00
НАА	Postage for HAA and H	AA Correspondence v	v/ IDOT and City	of Sullivan	
Copies		200.00	.10	/each	\$20.00
ELUC	Copies of off-site ELUC	/ Correspondence			
Postage		4.00	5.00	/each	\$20.00
ELUC	Postage for ELUC and				
Mileage		166.00	.55	/mile	\$91.30
CACR	2 RT from Springfield (*				 -

Electronic Filing: Received, Clerk's Office 3/18/2022 Total Materials, Equipment, or Field Purchase Rate (\$) Unit **Amount Used** Cost **Remediation Category Description/Justification** Recording Fees 1.00 50.00 /each \$50.00 ELUC Recording of ELUC

	·			
_		nt Materials Cost	_	\$734.30

Environmental Consulting Services

Phone: (217) 522-8001 Fax: (217) 522-8009

April 6, 2012

Mr. Brad Dilbaitis, Project Manager LUST Section, Bureau of Land Illinois Environmental Protection Agency 1021 North Grand Avenue East Springfield, Illinois 62794-9276

JEPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE

MAY 29 2012

REVIEWER MED

RE:

LPC #1390305014—Moultrie County

KB Food & Gas/Sullivan

111 West Jackson Street (Rt. 121 & 32) Incident Number: 90-0146/2004-0969

LUST Technical Reports—Corrective Action Plan and Budget - Revised

TACO Calculations

Dear Mr. Dilbaitis:

In response to your inquiry to us about the TACO Calculations contained within the February 17, 2012, Corrective Action Plan (CAP) and Budget for the above referenced site, we have re-done the calculations, and attached them. As outlined in our email to you on March 2, 2012, the calculations that were included in the CAP were done using a spreadsheet that has errors in the calculations. The attached calculations are a complete replacement for Appendix D of the document under review. Just to be thorough, we have included pages of calculations that we do not normally publish in a report, in case you have any additional questions as to how the numbers were arrived at.

RECEIVED

These revised calculations will change Table 2-1 on page 7 of the CAP to:

APR 1 0 2012

Table 2-1 Remediation Objectives

IEPA/BOL

Parameter	TACO Industrial/Commercial Tier 2 Soil Clean-up Objective (mg/kg)	TACO Class 1 Groundwater Clean-up Objective (mg/L)
Benzene	16.3	0.005
Ethylbenzene	204,045	0.7
Toluene	163,236	1.0
Total Xylenes	879.12	10.0
МТВЕ	3,691	0.07

While each of the Clean-up Objectives has changed, there is no substantive impact on the overall CAP. There is still no soil contamination above the Tier 2 Objectives. While some of the benzene modeling distances have been reduced slightly, the MTBE modeling, which controlled the overall required area requiring remediation, is unchanged.

We apologize for the error in the calculations, and have taken steps to try to prevent that from happening again on other projects. If you have any questions or require additional information, please contact Mr. Vince Smith or me at (217) 522-8001.

Sincerely,

Carol L. Rowe, P.G.

Senior Environmental Geologist

xc: Mr. Kamlesh Patel, KB Food & Gas

Mr. William T. Sinnott, CWM Company, Inc.

Z:\KB Sullivan\CAP\CAP Addl. Info Coverletter.doc

Summary of Tier 2 Calculations KB Food & Gas/Sullivan 90-0146 & 2004-0969 04/03/12

Table 3

					Tier 1 Obje	ctives							
			Benzene		Toluene		e	Total Xylene	nes Naphthale			MTBE_	
Residential	Ingestion	12	mg/kg	16,000	mg/kg	7,800	mg/kg	16,000	mg/kg	1,600	mg/kg	780	mg/kg
	Inhatation	0.8	mg/kg	650	mg/kg	400	mg/kg	320	mg/kg	170	mg/kg	8,800	mg/kg
l M	igration Class 1	0.03	mg/kg	12	mg/kg	13	mg/kg	150	mg/kg	12	mg/kg	0.32	mg/kg
M	igration Class 2	0.17	mg/kg	29	mg/kg	19	mg/kg	150	mg/kg	18	mg/kg	0.32	mg/kg
Industrial/Commercial	Ingestion	100	ma/kg	410,000	mg/kg	200,000	mg/kg	410,000	img/kg	41,000	mg/kg	20,000	mg/kg
	Inhalation	1.60	mg/kg	650	mg/kg	400	mg/kg	320	mg/kg	270	mg/kg	6,800	mg/kg
Construction Worker	Ingestion	2,300	mg/kg	410,000	mg/kg	20,000	mg/kg	41,000	mg/kg	4,100	mg/kg	2,000	mg/kg
	Inhalation	2.20	mg/kg	42	mg/kg	58	mg/kg	5.6	mg/kg	1.80	mg/kg	140	mg/kg
Soil Saturation		870	mg/kg	650	mg/kg	400	mg/kg	320	mg/kg	44,705.49	img/kg	8,800	mg/kg

			Tie	r 2 83L Ob	jectives							
	Benzene	Equation	Toluene	Equation	Ethylbenzene	Equation	Total Xylenes	Equation	Naphthalene	Equation	MTBE	
Residential Ingestic	n 11.64	S-2	1,251	S-1	1,564	S-1	3,129	S-1	313	8-1	158.4	S-1
Inhalatio	n 28.81	S-6	11444641	8-4	(13/22/19/1/	S-4	21,338.74	5-4	6,736.83	5-4	358,399.91	S-4
Migration Mass-Limit Class	1 0.22	S-28	44.79	S-28	31.35	S-28	447.87	5-28	6.27	S-28	3.14	S-28
Migration Class		S-17	2626.96	S-17	3,665.92	S-17	(11/6/11/1	S-17	4,037.92	S-17	11.77	S-17
Industrial-Commercial Ingestic	n 16.30	Ş -2	1,835,200	S-1	204,400	8-1	408,800	S-1	40,880	S-1	20,440	S-1
Inhalatio	n 55.05	S-6	MAKENY.	S-4	11/14/14/1/	5-4	33,973.08	S-4	10,725.60	S-4	125667371.	5-4
Migration Mass-Limit Class	1 0.22	S-28	44.79	S-28	31.35	S-28	447.87	S-28	6.27	S-28	3.14	S-28
Migration Class	1 4.259	S-17	2,626.96	S-17	3,665.92	S-17	([313/44/1.	S-17	4,037.92	8-17	11.77	S-17
Construction Worker Ingestic	n 2,258.21	S-3	163,236	S-1	204,045	S-1	204,045	<u>Ş-1</u>	40,809	S-1	20,405	S-1
Inhafatio	n 77.42	S-7	8,027.18	\$-5	2,240.93	S-5	879.12	\$-5	69.39	S-5	3,691,38	S-5
Soil Saturation	74,533.54	S-29	69,089.07	S-29	44,252.94	5-29	34,890.78	S-29	44,705.49	\$-29	428,622.97	S-29

ati values are in mg/kg

Version: 6/27/2008

R-26 Input/Summary Sheet

Version: 6/27/2008 IEMA Incident # (6 or 8 digit) 90-0146 & 2004-0969 1390305014 IEPA LPC # (10 digit) KB Food & Gas/Sullivan Site Name: Site Address: 111 West Jackson Street Sullivan City: Moultrie County: 61951 Zip Code: \$5,6,7,8,9,10,17,18,19,20,21,22,24 SSL Equations Used Example R-1, R-2, R3 **RBCA Equations Used** Contact Information for Individual who Performed Calcula CWM Company, Inc., Bob Woodruff Ind./Com. & Construction Worker Land Use: Objective from \$17 used in R26: No Groundwater: Class 1 Standard or Mass Limit Equations: Standard Equations If Mass Limit, then Specify Acres: Square Feet of Plume for Mass Limit Eq.: < use this # above 0,00 Date Data is Entered: April 3, 2012 Entry Description Holcomb Bulk Density (pcf), or Shelby Tube Location:

Dry Soil Bulk Density (g/cm² or kg/L): 1.5, or Gravel =2.0, Sand = 1.8, Silt = 1.6, Clay = 1.7, or site specific 1.846 Reference 2.652 ρs - Soil Particle Density 0.304 **Total Soil Porosity** 0.304 0.304 0.206 0.206 0.206 Water Filled Porosity 0.098 0.098 0.098 Air Filled Porosity 0.43 or; Gravel - 0.25; Sand = 0.32; Silt = 0.40; Clay = 0.36 0.430 θ_t - Total Soil Porosity (RBCA) w - Average Soil Moisture Content 0.1, or: Subsurface Soil (top 1m) = 0.1; Subsurface Soil (below 1 m) =0.2; or Site Specific 0.142 Entry Loam USDA Soil Classification (Pick from List) Organic Matter (%) Organic Matter (mg/kg) 0.72100 Fractional Organic Carbon (foc) in g/g 0.721 Total Organic Carbon (g/g): Well Name 1.38E-05 Average Hydraulic Conductivity (cm/sec) 1.38E-05 Falling Hydraulic Conductivity (cm/sec) MW-4 Rising Hydraulic Conductivity (cm/sec) Meters 0.01030 Hydraulic Gradient (0.02 for sites with no groundwater) 3.048 m da - Aquifer Thickness (ft) 10 3.048 m 10 ds - Depth of Source (ft) (Vertical Thickness of Contamination) X - Distance along the centerline of the groundwater plume emanating to setback zone or surface water from the source in the direction of 0 cm groundwater flow (ft) (RBCA) L - Source Length Parallel to Groundwater Flow (ft) 64,59053376 m 212 191 Sw: Source Width -horizontal plane (ft) (RBCA) 5821.68 cm Surface Water Circ - Concentration of Contaminant in groundwater at distance X from the source (mg/L) MTBE Benzene Toluene Ethylbenzene Total Xylenes Chemicals of Concern Benzene -**经现代的** Chrysene Toluene Lunda Art. De tra Benzo(k)fluoranthene Ethylbenzene E. NET 1997年 Indeno(1,2,3-cd)pyrene Total Xylenes MTBE

☐ Mace Limit Squations
☐ Inhalation Equations

SSL Equations Needed

- Csat Equations
- Fugitive Dust Equations

Text discussion for "i", L, d,, ds, S, S,

Hydraulic Gradient

elevations were determined and the depth to groundwater was noted in each well. This data was used to generate a potentiometric flow map with contour lines which show potentiometric head. A corresponding flow line, perpendicular to the contour lines, was determined between two known points of groundwater elevation (MW-2 = 89.64 feet and MW-7 = 95.56 feet). The length of this flow line was then determined to be 214 feet. The hydraulic gradient was determined by the difference in elevation divided by the length of flow between the points: (95.56-89.64)/214 = 0.02766 ft/ft or 0.02766 m/m or 0.02766 cm/cm.

Source Length

The Source Length Parallel to Groundwater Flow (L) was determined from the site map and analytical results. A value of 45.1104 m was used to encompass the length of contamination parallel to groundwater flow. This value is the distance between soil borings BH-1 and BH-2.

Aquifer Thickness

The Aquifer Thickness (d_a) is a site specific value determined by the length of the monitoring well screen. The Aquifer Thickness value used in the modeling equations was 3.048 meters.

Depth of Source

The **Depth of Source** (d₁) was determined from the analytical results and soil boring logs. A value of 3.048 m was used to encompass the vertical thickness of contamination based upon a clean soil sample at BH-1A, "hot" samples at BH-2B and BH-2C, and a clean soil sample at BH-2D. Thus the vertical thickness of soil contamination has been determined to be 3.048 m.

Source Width

The source width perpendicular to groundwater flow direction in the Horizontal Plane (S_w) was determined from the site map and analytical results. A value of 3566.16 cm was used to encompass the width of contamination in the horizontal plane. This value is the distance between clean wells MW-4 and and MW-6.

Source Depth

The source width perpendicular to groundwater flow direction in the Vertical Plane (S_d) was determined from the soil boring logs and analytical results. A value of 304.8 cm was used to encompass the width of contamination in the vertical plane based on the depths of contamination present and the PID readings from the bore logs.

Distance (X)

	· <u>-</u>	-	BENZ	ENE						
-,,	Soil Exceed	ances			Groundwater Exceedances					
	Soil	Х	Gw _{obj} (mg/L)	C(x)		Groundwater	Х	C(x)		
Location	Concentration (mg/kg)	(ft)	R26 Csource	(mg/L)	Location	Concentration (mg/L)	(ft)	(mg/L)		
MW-5	5.03	1	0.006	0.0024	MW-4	0.006	1	0.0025		
MW-6	0.926		0.001		MW-5	6.290	13	0.0045		
MW-8	1.19		0.001		MW-6	1.700	10	0.0042		
		•			MW-7	0.085	4	0.0044		
					8-WM	2.880	11	0.0046		
					MW-9	1.120	9	0.0043		
		·			MW-10	2,050	11	0.0033		
					MW-11	0.039	3	0.0038		
					MW-12	0.677	8	0.0042		
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Toluene

Soil Exceedances

Groundwater Exceedances

Soil	Х	Gw _{obj} (mg/L)	C(x)	1	Groundwater	X	C(x)
Concentration (mg/kg)	(ft)		(mg/L)	Location	Concentration (mg/L)	(ft)	(mg/L)
29.7				MW-5	35.400	1	0.0345
				MW-8	5.000	11	0.0049
				MW-13	1,670	1	0.0016
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	Soil Concentration (mg/kg) 29.7	Concentration (mg/kg) (ft)	Concentration (mg/kg) (ft) R26 Csource	Concentration (mg/kg) (ft) R26 Csource (mg/L)	Concentration (mg/kg) (ft) R26 Csource (mg/L) Location 29.7 0.0113 MW-5 MW-8 MW-8	Concentration (mg/kg) (ft) R26 Csource (mg/L) Location Concentration (mg/L) 29.7 0.0113 MW-5 35.400 MW-8 5.000	Concentration (mg/kg) (ft) R26 Csource (mg/L) Location Concentration (mg/L) (ft) 29.7 0.0113 MW-5 35.400 1 MW-8 5.000 1

	·		Ethylbe	nzene		*******		
	Soil Exceed	ances				Groundwater Exceed	ances	
- -	Soil	Х	Gw _{obj} (mg/L)	C(x)		Groundwater	Х	C(x)
Location	Concentration (mg/kg)	(ft)	R26 Csource	(mg/L)	Location	Concentration (mg/L)	(ft)	(mg/L)
MW-5	16.6		0.00316973		MW-5	3,760	11	0.2933
MW-7	15.9		0.003		MW-7	2.350	1	0,1833
SB-5	19.2		0.004		MW-8	2.210	1	0.1724
SB-6	18.3		0.003		MW-10	1.670	1	0.1303
MW-8	18.1		0.003		MW-12	0.955	1	0.0745
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			Total X	donos				
	Soil Exceed	ances	10tal A	rieries	T	Groundwater Exceeda	ances	
	Soil	Х	Gw _{obj} (mg/L)	C(x)		Groundwater	Х	C(x)
Location	Concentration (mg/kg)	(ft)	R26 Csource	(mg/L)	Location		(ft)	(mg/L)
MW-5	65.6		0.017485419		MW-5	16,300	1	2,8931
MW-7	46.8		0.012					1
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	Soil Exceed	ances				ances		
	Soil	Х	Gw _{obj} (mg/L)	C(x)		Groundwater	Х	C(x)
Location	Concentration (mg/kg)	(ft)	R26 Csource	(mg/L)	Location	Concentration (mg/L)	(ft)	(mg/L
-					MW-4	0.118	80	0.069
_					MW-5	0.457	278	0.069
					8-WM	0.086	50	0.069
					MW-9	0,380	245	0.069
					MW-11	0.232	165	0.069
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KB Food & Gas/Sullivan Site-Specific Parameters

As Deter	mined in Field	(Needed for	All Uses)			
Name	Symbol	Symbol Value Units					
Hydraulic Conductivity	K	1.38E-05	cm/s	Site Specific			
Soil Particle Density	$ ho_{s}$	2.65	g/cm ³	Site Specific			
Moisture Content	w	0.142		Site Specific			
Soil Bulk Density	$ ho_{b}$	ρ_{b} 1.846		Site Specific			
Fractional Organic C	f _{oc}	0.721		Site Specific			
MW-12 GW Elevation		95.33	ft st	Site Specific			
MW-8 GW Elevation		94.13	ft st	Site Specific			
Distance	x	116	feet	Site Specific			

Distanc	е		X	116	Site	Specific	
SS	L Equati	ons (Soil)		RBCA Eq	uations	(GW Modeli	ng)
Name	Symb.	Value	Units / EQ.	Name	Symb.	Value	Units / EQ.
Porosity	η	0.30	S24	Hydraulic Gradient	i	0.0103	
For Soil to Ground	dwater Ing	gestion Route	- S17/S28	Plume Width (Horz)	S_w	191	ft
Hydraulic Cond.	K	4.35E+00	m/yr	Plume Width (Vert)	S_d	6.56	ft
Hydraulic Gradient	i	0.01034483		Hydraulic Cond.	K	1.19E+00	cm/d
Dilution Factor	DF	20.00	S22	For Soil to G	roundwa	ter Modeling	- R14
Mixing Zone Depth	d	16.84	S25	Hydraulic Cond.	K	4.35E+02	cm/yr
Source Length	L	212	ft	Total Porosity	θ_T	0.30	
Aquifer Thickness	$d_{\mathbf{a}}$	10	m	Water Filled Por.	$\theta_{ extbf{ws}}$	0.21	R22
For Mass Lin	nit Equation	ons - S26, S27	7, S28	Air Filled Porosity	θ_{as}	0.10	R21
Thickness of Soil	ds	10	ft	Plume Width (Par)	W	212	ft
For Inhalation Eq.	Only v	vith USCS Cla	ssification	GW Darcy Velocity	U_gw	4.50	ft
Sat Hyd. Cond.	Ks	60	(m/yr)				
Exponential	I/(2b+3	0.073					
For Inhalation Eq.	Use D	efault if Prev S	Section N/A]			

S20

S21

Water Filled Por.

Air Filled Porosity

 $\theta_{\mathbf{w}}$

 $\theta_{\textbf{a}}$

0.21

0.10

Summary of Tier 2 Calculations KB Food & Gas/Sultivan 90-0146 & 2004-0969 04/03/12

Table 3

					Tier 1 Obje	Ctives							
		Benzene		Toluene		Ethylbenzen	Ethylbenzene		Total Xylenes		1	MTBE	
Residential	Ingestion	12	mg/kg	16,000	mg/kg	7,800	mg/kg	16,000	mg/kg	1,600	mg/kg	780	mg/kg
	Inhetation	0.8	mg/kg	650	mg/kg	400	rng/kg	320	mg/kg	170	mg/kg	8,600	mg/kg
Mig	ration Class 1	0.03	mg/kg	12	mg/kg	13	mg/kg	150	mg/kg	12	mg/kg	0 32	mg/kg
Mig	ration Class 2	0.17	mg/kg	29	mg/kg	19	rng/kg	150	mg/kg	18	mg/kg	0.32	mg/kg
Industrial/Commercial	Ingestion	100	mg/kg	410,000	mg/kg	200,000	rng/kg	410,000	mg/kg	41,000	mg/kg	20,000	mg/kg
	Inhalation	1,60	mg/kg	650	mg/kg	400	mg/kg	320	mg/kg	270	mg/kg	8,600	mg/kg
Construction Worker	Ingestion	2,300	mg/kg	410,000	mg/kg	20,000	mg/kg	41,000	img/kg	4,100	mg/kg	2,000	mg/kg
	Inhalation	2.20	mg/kg	42	mg/kg	58	mg/kg	5.6	mg/kg	1.80	mg/kg	140	mg/kg
Soil Saturation		870	mg/kg	650	mg/kg	400	mg/kg	320	lmg/kg	44,705.49	mg/kg	8,800	mg/kg

			Tie	r 2 58L Ob	ectives	_						
	Benzene	Equation	Toluene	Equation	Ethylbenzene	Equation	Total Xylenes	Equation	Naphthalene	Equation	MTBE	
Residential Ingestion	11.64	S-2	1,251	\$-1	1,564	S-1	3,129	S-1	313	5-1	158.4	S-1
Inhalation	28.81	S-6	114474441	5-4	114451441	5-4	21,338.74	S-4	6.738.83	S-4	358,399,91	S-4
Migration Mass-Limit Class 1	0.22	S-28	44.79	Ş-28	31.35	S-20	447.87	S-28	6.27	Ş-28	3.14	S-28
Migration Class 1	4.259	S-17	2626.96	S-17	3,565.92	5-17	MAN STATE	S-17	4,037.92	S-17	11.77	S-17
Industrial-Commercial Ingestion	16.30	S-2	1,635,200	5-1	204,400	S-1	408,600	S-1	40,880	8-1	20,440	S-1
inhalation	55.05	S-6	MARKEDY !!	5-4	1796991	5-4	33,973.08	S-4	10,725.60	S-4	115865131	S-4
Migration Mass-Limit Class 1	0.22	S-28	44.79	S-28	31.35	S-20	447.87	S-28	6.27	S-28	3.14	S-28
Migration Class 1	4.259	S-17	2,626.96	S-17	3,565.92	S-17	133346411.	S-17	4,037.92	8-17	11.77	S-17
Construction Worker Ingestion	2,258.21	S-3	163,236	S-1	204,045	S-1	204,045	S-1_	40,809	S-1	20,405	S-1
Inhalation	77.42	S-7	8.027.18	S-5	2,240.93	S-5	879.12	S-5	69.39	S-5	3,691,38	\$ -5
Soil Saturation	74,533,54	S-29	69,089.07	S-29	44,252.94	S-29	34,890.78	S-29	44,705.49	S-29	428,622.97	S-29

all values are in mg/kg

Version: 6/27/2008

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Illinois Enviromental Protection Agency Leaking Underground Storage Tank Program SSL Input Parameters for Use with Tier 2 Calculations

A. Site Identifica	atīon
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1EMA Incide	ent # (6- or	8-digit):	90-0146 8	3 2004-0969	IEPA LPC # (10-digit):	1390305014
Site Name:	KB Food	l & Gas/Sull	ivan				<u></u>
Site Addres	s (not a P.	O. Box):	111 West Ja	ackson Street		=	
City: Sulliv	/an		County:	Moultrie		Zip Code	e: <u>61951</u>
Leaking US	T Technic	al File					
Tier 2 Calc	ulation Inf	formation					
Equation(s)	Used (ex:	S12,S17,S2	28): <u>S5,6,</u>	7,8,9,10,17,18,19	9,20,21,22,24		.
Contact Info	ormation fo	or Individual	Who Perform	med Calculations	:		
CWM Com	oany, Inc.,	Bob Woodr	uff				
Land Use:	Industria	al/Commerci	al	Soil Typ	e: <u>Loam</u>	· 	**5 .
Groundwate	er: X	Class I		Class II			
Mass Limit:		Yes X	No	If Yes, then Spe	ecify Acreage:		

- Failure to use site-specific parameters where allowed could affect payment from the UST Fund
- Maps depicting source width, plume dimensions, distance, etc. must also be submitted.
- Inputs must be submitted in the designated unit.

AT (ingestion)	=	Ind/Com = 25	yr
1		Con. Worker = 0.115	уr
AT (inhalation)	=	Ind/Com = 25	yr
		Con. Worker = 0.115	yr
AT _c	=	70	yr
BW	=	Ind/Com = 70	kg
			kg
		Con. Worker = 70	kg
C _{sat} =		Benzene = 74533.544	mg/kg
		Toluene = 69089.065	mg/kg
		Ethylbenzene = 44252.944	mg/kg
		Total Xylenes = 34890.784	mg/kg
		MTBE = 428622.974	mg/kg
			mg/kg
			mg/kg
			mg/kg
			mg/kg
			mg/kg

d _a		=	3.048	m
d _s		=	3.048	m
DA	=	Benzene	= 1.21455755751624E-06	cm²/s
		Tok	uene = 4.63807479969942E-07	cm²/s
		Ethylben	zene = 2.38050310577377E-07	cm²/s
		Xyt	enes = 2.47482814038283E-07	cm²/s
		м	TBE = 7.89567667967154E-07	cm²/s
				cm ² /s
				cm²/s
				cm²/s
				cm²/s
				cm²/s

C _w	=	Benzene = 0.1 Toluene = 20 Ethylbenzene = 3665.924	mg/L mg/L
			mg/L
		Ethydhanzona z 2665 024	
		EUDVIDENZENE – 3003.324	mg/L
		Total Xylenes = 37516.972	mg/L
		MTBE = 11.768	mg/L
		WIDE - 11.700	mg/L
			-
			mg/L
			mg/L
			mg/L
			mg/L
d	=	9.883	m
ED (inhalation of	=	Ind/Com = 25	уr
carcinogens)		Con. Worker = 1	yr
ED (ingestion of	=	Ind/Com = 25	yr
noncarcinogens)		Con. Worker = 1	yr
	=	Ind/Com = 25	
ED (inhalation of	_		yr
noncarcinogens)		Con. Worker = 1	yr
ED (ingestion of	=	Ind/Com = 25	yr
groundwater)		Con. Worker = 1	yr
ED _{M-L}	=	70	yr
EF	=	Ind/Com = 250	d/yr
		Con. Worker = 30	d/yr
F(x)	=	0.194	unitless
f _{oc}	=	0.721	g/g
GW₀ы́	=	Benzene = 0.005	mg/L
OUJ		Toluene = 1	mg/L
		Ethylbenzene = 0.7	mg/L
		Total Xylenes = 10	mg/L
		MTBE = 0.07	mg/L
			mg/L
H'	=	Benzene = 0.228	unitless
, ,		Toluene = 0.272	unitless
		Ethylbenzene = 0.323 Total Xylenes = 0.25	unitless
		MTBE = 0.0241	unitless unitless
		W I DC - U.U24 I	
			unitless
			unitless
			unitless
			unitless
			unitless
· · ·	_	0.0402	
<u>i</u>	=	0.0103	m/m
1	Ξ	0.3	m/yr
l I _{M-L}		0.3 0.18	
	Ξ	0.3	m/yr

D _i	=	Benzene = 0.08	3 cm²/s
		Toluene = 0.08	7 cm²/s
		Ethylbenzene = 0.07	
		Total Xylenes = 0.07	_
		MTBE = 0.10	_
			cm²/s
			cm²/s
			cm²/s
			cm ² /s
			cm ² /s
	=	Benzene = 0.000009	7.
D _w	-		2.
		Toluene = 0.000008	•
		Ethylbenzene = 0.000007	•
		Total Xylenes = 0.0000093	
		MTBE = 0.00001	
			cm²/s
			cm²/s
			cm²/s
			cm²/s
			cm²/s
DF	=	1.022863821	unitless
ED (ingestion of	=	Ind/Com = 25	yr
carcinogens		Con. Worker = 1	yr
K _∞	=	Benzene = 58.	9 cm³/g or L/kg
		Toluene = 18	2 cm³/g or L/kg
		Ethylbenzene = 36	3 cm³/g or L/kg
		Total Xylenes = 26	
		MTBE = 11.	
			cm ³ /g or L/kg
			cm³/g or L/kg
			cm ³ /g or L/kg
			cm ³ /g or L/kg
			cm³/g or L/kg
K _s	=	60	m/yr
<u>L</u>	=	64.59053376	m .3a
PEF	=_		m³/kg
PEF'	=_	1-110 05.64	m ³ /kg
Q/C (VF equations)	=	Ind/Com = 85.81	(g/m²-s)/(kg/m³)
0/0 (DEE agreetiage)	_	Con. Worker = 85.81	(g/m²-s)/(kg/m³)
Q/C (PEF equations)		Chronic	(g/m²-s)/(kg/m³)
RfC (mg/m³)	=	Chronic Su 0.03	bchronic 0.08
Benzene Toluene	_	0.03 5	5
Ethylbenzene	_	ວ 1	1
Total Xylenes	=	0.1	0.4
	_	3	3
I MTBF	=	-	-
MTBE	=	0.003	0.003
MTBE	=	0.003	0.003
MTBE	= =	0.003	0.003 NA NA

 Con. Worker = 480
 mg/d
 =
 NA

 NA
 =
 NA

Incident # 90-0146 & 2004-0969

IR _w	= Ind/Com = 1	L/d
K	= 4.351968	m/yr
K _d (non-ionizing	= Benzene = 42.4669	
organcis)	Toluene = 131.222	
	Ethylbenzene = 261.723	
	Total Xylenes = 187.46	
	MTBE = 8.2915	cm³/g or L/kg
		cm²/g or L/kg
		cm²/g or L/kg
		cm²/g or L/kg
		cm²/g or L/kg
16 41 1-1		cm²/g or L/kg
K _d (ionizing organics)		cm²/g or L/kg
K _d (inorganics)		cm²/g or L/kg
VF' =	Benzene = 7090.604	m³/kg
	Toluene = 11474.226	m³/kg
	Ethylbenzene = 16016.141	m³/kg
	Total Xylenes = 15707.959	m³/kg
	MTBE = 8794.225	m³/kg
		m³/kg
		m³/kg
		m³/kg
		m³/kg
		m³/kg
VM _{M-L} =	#VALUE	3
101-2	Toluene = (m³/kg
	#VALUE	, ,
	Total Xylenes = (2 -
	#VALUE	2 -
	#VALUE	m³/kg
		m³/kg
		m ³ /kg
		m /kg m³/kg
		m ³ /kg
VF' _{M-L} =	#VALUE!	m³/kg
	#VALUE!	m³/kg
	#VALUE!	m³/kg
	#VALUE!	m³/kg
	#VALUE!	m³/kg
	·· ·· · · · · · · · · · · · · · · · ·	m³/kg
		m ³ /kg
		m³/kg
		m ³ /kg
		m ³ /kg
	= 0.304	
η		L _{pore} /L _{soil}
θ_{a}	= 0.098	L _{air} /L _{soll}

RfD _o mg/(kg-d)		Chronic	Subchronic
Benzene	=	0.004	0.012
Toluene	=	0.08	0.8
Ethylbenzene	=	0.1	1
Total Xylenes	=	0.2	1
MTBE	=	0.01	0.1
	=	0.02	0.2
	=		0.6
	=		NA
	=		NA
	_=	Dansona = 1	NA 1750 mg/l
S	=	Benzene = 1 Toluene =	•
		Ethylbenzene =	•
		-	-
		Total Xylenes =	=
		MTBE = 5°	•
			mg/L
			mg/L
			mg/L
			mg/L
			mg/L
SF _o	=	Benzene = 0	.055 (mg/kg-d) ⁻¹
•		Toluene s	= NA (mg/kg-d) ⁻¹
		Ethylbenzene =	
		Total Xylenes =	
		•	= NA (mg/kg-d) ⁻¹
		WIDE	
			(mg/kg-d) ⁻¹
			(mg/kg-d) ⁻¹
			(mg/kg-d) ⁻¹
			(mg/kg-d) ⁻¹
			(mg/kg-d) ⁻¹
Т	=	Ind/Com = 7.9E0	
		Con. Worker = 3.6 x	10 ⁰ S
T _{M-L}	=	30	yr
THQ	=	1	unitless
TR	=	1.00E-06	unitless
U _m	=	4.69	m/s
URF	=	Benzene = 7.8 x 1	
	<u> </u>	11.32	m/s
U _t			
V	=	0.5	unitless
VF =		Benzene = 10503	
		Toluene = 16997	
		Ethylbenzene = 23725	_
		Total Xylenes = 23269	
		MTBE = 13027	
			m ³ /kg
			m³/kg

1	m³/kg
	m³/kg
	m³/kg

Incident # 90-0146 & 2004-0969

=	0.206	L _{water} /L _{soil}
=	1.846	kg/l or g/cm3
=	2.652	g/cm ³
=	1	g/cm ³
=	0.073	unitless
	= = = = =	= 1.846 = 2.652 = 1

Illinois Enviromental Protection Agency Leaking Underground Storage Tank Program RBCA Input Parameters for Use with Tier 2 Calculations

Α.	Cita	Idon	4:51	ation
Α.	Site	ıaen	ITHIC	auon

IEMA Incident # (6- or 8	-digit): 90-0146 & 2	2004-0969	EPA LPC # (10-digit):	1390305014
Site Name: KB Food 8	& Gas/Sullivan			
Site Address (not a P.O	. Box): 111 West Jacks	son Street		
City: Sullivan	County:	Moultrie	Zip Code:	61951
Leaking UST Technical	File			
Tier 2 Calculation Info	rmation			
	140 B44 B06V - B46 B45	7 D18 D10 D21 D22	P23 P24 P26	
Equation(s) Used (ex: F	(12,K14,K20). K10, K17	7, 1010,1013, 121, 122,	1120, 1124,1120	
	Individual Who Performed		1120, 1124,1120	
	Individual Who Performed		1120, 1124,1120	
Contact Information for CWM Company, Inc., B	Individual Who Performed		Loam	
Contact Information for CWM Company, Inc., B Land Use: Industrial/	Individual Who Performed	l Calculations:		
Contact Information for CWM Company, Inc., B	Individual Who Performed ob Woodruff Commercial	f Calculations: Soil Type:	Loam	
Contact Information for CWM Company, Inc., B Land Use: Industrial/ Groundwater: X	Individual Who Performed lob Woodruff Commercial Class I Yes X No	Soil Type: Class II If Yes, then Specify A	Loam	

- Failure to use site-specific parameters where allowed could affect payment from the UST Fund
- Maps depicting source width, plume dimensions, distance, etc. must also be submitted.
- Inputs must be submitted in the designated unit.

AT _c	=	70	yr
AT ₀	_	Ind/Com = 25	yr
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	_	Con. Worker = 0.115	yr
BW	=	70	yr
C _{source}	=	See Attached	mg/L
C _(x)	=	See Attached	mg/L
d	=	100	cm

erf	=	See Attached	unitless	
f _{oc}	=	0.721	g/g	
GW _{comp}	=	See Attached	mg/L	
GW _{source}	=	See Attached	mg/L	
H'	=	See Attached	cm3 _{water} /cm ³ _{ae}	
i	=	0.0103	cm/cm	
	=	30	cm/yr	
IR _{air}	=	20	m³/d	
!R _{soil}		Ind/Com = 50	mg/d	
I soil	_	Con. Worker = 480	mg/d	

D ^{air}	= See Attached		cm²/s
D ^{water}	=	See Attached	cm²/s
D _s ^{eff}	=	See Attached	cm ² /s
ED		Ind/Com = 25	уг
=		Con. Worker = 1	yr
EF	=	Ind/Com = 250	d/yr
_		Con. Worker = 30	d/yr

RAF _d (PNAs)	=	0.05	unitless
RAF _d (inorganics)	=	0	unitless
RAF _o	=_	1	unitless
RBSL _{air} (carcinoginic)	=	See Attached	µg/m³
RBSL _{atr} (noncarcinoginic)	=	See Attached	μg/m³
RfD _i	=	See Attached	mg/kg-d
SA	=	3,160	cm²/d
S _d	=	200.0	cm
S _w	=	5,821.7	cm
SF;	=	See Attached	(mg/kg-d) ⁻¹

IR _w	=	Ind/Com = 1	L/d
К	=	1.192	cm/d
		435.197	cm/yr
K _{oc} _	=	See Attached	cm³/g or L/kg
k _s (non-ionizing organics)	=	See Attached	cm ³ _{water} /g _{soil}
K _s (ionizing organics)	=	Not Applicable	cm³ _{water} /g _{soil}
k _s (inorganics)	=	Not Applicable	cm ³ _{water} /g _{soil}
L,	=	100	cm
LF _{sw}	=	See Attached	(mg/L _{mem})/(mg/kg _{me})
M	=	0.5	mg/cm ²
Pe	=	6.9 · 10 ⁻¹⁴	g/cm²-s
RAF _d	=	0.5	unitless
a _x	=	See Attached	cm
α,	=	See Attached	cm
α _z	=	See Attached	cm
λ	=	See Attached	d ⁻¹
π	=	3.1416	
ī	=	9.46 · 10 ⁸	\$

SF _o	=	See Attached	(mg/kg-d) ⁻¹
THQ	=	1	unitless
TR _	=	1.00E-06	unitless
U	=	0.0285	cm/d
Uair	=	225	cm/s
U _{gw}	=	435,207	cm/y
VF _p	=	3.97133E-12	kg/m³
VF _{samb}	=	See Attached	(mg/m³ _{er})/mg/kg _{est} or kg/m³
VF _{ss}	=	See Attached	kg/m3
W	=		cm
w	=	0.142	gwater/gsoil
δ _{air}	=	200	cm
δ_{gw}	=	200	cm
θ _{as}	=	0.167868	cm³ _{air} /cm³ _{soil}
θ _{ws}	=	0.262132	cm³ _{water} /cm³ _{soil}
θτ	=	0.43	cm³/cm³ _{soil}
Ρ _b	=	1.846	g/cm ³
ρ _w	=	1	g/cm ³

	H'	λ	Koc
Benzene	0.228	0.0009	58.9
Toluene	0.272	0.011	182
Ethylbenzene	0.323	0.003	363
Total Xylenes	0.25	0.0019	260
MTBE	0.0241	0	11.5
		<u> </u>	

Benzene R26 Modeled Groundwater from Vertical Modeled Soils									
	C _{source} from	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	•				erf: S _w / (4 ·	erf: S _w / (2	
Location	S17 (mg/L)	C(x) (mg/L)	X (cm)	α _x (cm)	α _y (cm)	α _z (cm)	√[a, · X])	√[a _z · X])	
MW-5	0.006	0.002	30.48	3.048	1.016	0.1524	1	11	
MW-6	0.001							<u> </u>	
MW-8	0.001								
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			Benzene R	26 Modeled (Groundwater		
			l "	•		erf: S _w / (4 ·	erf: S _w / (2
Location	C(x) (mg/L)	X (cm)	a _x (cm)	α _y (cm)	a _z (cm)	√[α _y · X])	√[α _z · X])
MW-4	0.006	30.48	3.048	1.016	0.1524	1	1
MW-5	6.290	396.24	39.624	13.208	1.9812	1	0.99999955
MW-6	1.700	304.8	30.48	10.16	1.524	1	1
MW-7	0.085	121.92	12.192	4.064	0.6096	1	1
MW-8	2.880	335.28	33.528	11.176	1.6764	1	1
MW-9	1.120	274.32	27.432	9.144	1.3716	1	1
MW-10	2.050	335.28	33.528	11.176	1.6764	1	1
MW-11	0.039	91.44	9.144	3.048	0.4572	1	1
MW-12	0.677	243.84	24.384	8.128	1.2192	1	1
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Toluene R26 Modeled Groundwater from Vertical Modeled Soils									
Location	C _{source} from S17 (mg/L)	C(x) (mg/L)	X (cm)	a _x (cm)	α _y (cm)	α _z (cm)	erf: S _w / (4 · √[α _y · X])	erf: S _w / (2 √[α _z · X])	
MW-5	0.0113				_				
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•			Toluene R	26 Modeled C	Froundwater		
-				_		erf: S _w / (4 ·	erf: S _w / (2 ·
Location	C(x) (mg/L)	X (cm)	a _x (cm)	α _y (cm)	α _z (cm)	√[α _y X])	√[a _z · X])
MW-5	35.400	30.48	3.048	1.016	0.1524	1	1
MW-8	5.000	30.48	3.048	1.016	0.1524	1	1
MW-13	1.670	30.48	3.048	1.016	0.1524	1	1
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	Et	hylbenzene R	26 Modeled	Groundwate	r from vertica	i Modeled 2		
	C _{source} from						erf; S _w / (4 ·	erf: S _w / (2
Location	S17 (mg/L)	C(x) (mg/L)	X (cm)	a _x (cm)	α _y (cm)	α_z (cm)	√[α _y · X])	√[a₂ · X])
MW-5	0.0032							
MW-7	0.0030							
SB-5	0.0037					,,,		
SB-6	0.0035							
MW-8	0.0035							
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			Ethylbenzene	R26 Modele	d Groundwate	er	
Location	C(x) (mg/L)	X (cm)	a _x (cm)	α _y (cm)	α _z (cm)	√[a _y · X])	√[a _z · X])
MW-5	3.760	30.48	3.048	1.016	0.1524	1	1
MW-7	2.350	30.48	3.048	1.016	0.1524	1	1
MW-8	2.210	30.48	3.048	1.016	0.1524	1	1
MW-10	1.670	30.48	3.048	1.016	0.1524	. 1	1
MW-12	0.955	30.48	3.048	1.016	0.1524	1	1
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	C _{source} from	<u> </u>		_	r from Vertica		erf: S _w / (4 ·	erf: S _w /(2
Location	S17 (mg/L)	C(x) (mg/L)	X (cm)	a _x (cm)	α _y (cm)	a _z (cm)	√[α _γ · X])	$\sqrt{[\alpha_z \cdot X]}$
MW-5	0.0175							
MW-7	0.0125							
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	<u>-</u>	1	Total Xylenes	R26 Modele	d Groundwat	ter	
Location	C(x) (mg/L)	X (cm)	α _x (cm)	a _y (cm)	α _z (cm)	erf: S _w / (4 · √[α _y · X])	erf: S _w / (2 · ν[α _z · X])
MW-5	16.300	30.48	3.048	1.016	0.1524	1	1
	10,000						
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		MTBE R26 N	Modeled Gro	undwater fro	m Vertical Mo	odeled Soils		
Location	C _{source} from S17 (mg/L)	C(x) (mg/L)	X (cm)	α _x (cm)	α _y (cm)	a _z (cm)	erf: S _w / (4 · √[α _y · X])	erf: S _w / (2 · √[α₂ · X])
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· - ·			MTRE R2	6 Modeled G	roundwater	<u> </u>	
		- 1	- 1111001112	5 INIOUCIOC		erf: S,, / (4	erf: S _w / (2
Location	C(x) (mg/L)	X (cm)	α _x (cm)	α _y (cm)	α _z (cm)	√[α _y · X])	√[α _z · X])
MW-4	0.118	2438.4	81.28	81.28	12.192	0.99999622	0.58790358
MW-5	0.457	8473.44	282,448	282,448	42.3672	0.81663558	0.18659189
MW-8	0.086	1524	50.8	50.8	7.62	1	0.81059311
MW-9	0.380	7467.6	248.92	248.92	37.338	0.86887309	0.21116495
MW-11	0.232	5029.2	167.64	167.64	25.146	0.97501508	0.30913212
1010 0-11	0.232	3023.2	107.04	107.01	20,110	0.00.000	
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Location	C _{source} from S17 (mg/L)	C(x) (mg/L)	X (cm)	a _x (cm)	α _y (cm)	a _z (cm)	erf: S _w / (4 · √[α _y · X])	erf: S _w / (2 · √[a₂ · X])
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Illinois Environmental Protection Agency Leaking Underground Storage Tank Program RBCA input Parameters for Use with Tier 2 Calculations

	Site Identific	atio	ж								
	IEMA Inciden	(#)	(6- or 8-digit): <u>90-(</u>	146 & 2004-0	1969 IEPA LPC	# (1	0-digit):13903	05014			
	Site Name	KΒ	Food & Gas/Suffiven								
	Site Address	(no	t a P.O. Box): 111 W	lest Jackson &	Street						
	City: Sullivan County: Moultrie Zip Code 61951										
	Leaking UST Tachnical File										
_											
3,			en Information								
	Equation(s) Used (ex: R12,R14,R26): Example R-1, R-2, R3										
	Contact Information for Individual Who Performed Calculations:										
	CWM Company, Inc., Bob Woodruff										
	Land Use	Ind	ustrisl/Commercial		Soil Type. <u>Loam</u>						
	Groundwater	: (X Class I	Class	ti .						
	Mass Limit	ſ	Yes X No	If Yes,	then Specify Acresqu	, _					
			17 used in R26?	Yes X		-					
	Objective iron	m a	17 USEO IN 17207 [1 188 (No						
			If Yes, then Specify	C _{teres} from 8	117		mg/L.				
	- Failure to us	se s	eage other than default de-specific parameters source width, plume d	where allows	d could affect payme	nt fre	om the UST Fund submitted.				
	- Inputs must	t be	submitted in the design	nated unit.							
ncide	nt # <u>90-014</u>	16 8	2004-0969								
Chem	ical:										
Lend	Use										
		-	70	77	D=	-1	1.7(2.1)	cm ² /s			
	AT,	_	ind/Com ≃ 25	yr yr	Duester	-	2	cm²/s			
	AT _e	=	Con. Worker = 0.115	yr	D, "	-		cm ² /s			
	BW	*	70	уr	ED	,	Ind/Com = 25	yr			
	Csource	*		mg/L			Con. Worker = 1	yr			
	C _{res}	æ		mg/L	EF	=	Ind/Com = 250	d/yr			
	d	£	100	cm			Con, Worker # 30	d/yr			
	erf	•	vp	unitiess	RAF (PNAs)	-	0.05	unitiess			
	l _{oc}	2	0.721	9/9	RAF (inorganics)	÷	0	unitiess			
	GW,	Ī	4	mg/L	RAF.	_	1	unitiess			
_	GW _{source}		54.1 3.0	mg/L	RBSL _{ex} (carcinoginie)	-	to decur	μg/m³			
	H'	-	* O) ->	om3/cm	RBSL _{et} (noncercinogenic)	-	10 - 20 - 20 - 20 - 20 - 20 - 20 - 20 -	μα/m			
			0.0103	cm/cm	RfD.	-		mg/kg-d			
	- i		30	спууг	5A		3,160	cm²/d			
	IR,,	▔	20	m³/d	84	•	200.2	cm			
		-	Ind/Com = 50	mg/d	8.,	-	5,821.7	em			
	R	-	Con. Worker = 480	mg/d	8F ₁	•	· *** (1)	(mg/kg-d) ⁻¹			
	IR _w	7	ind/Com = 1	L∕d	6F.	-	d Stene	(mg/kg-d) ¹			
	К	_	1,192	cm/d	THQ	Ξ	11	unitiess			
			435.197	çm/yr	TR	-	1.00E-06	unitless			
	K _{es}	=	لثانة تغييق منفسا	cm³/g or L/kg	ַט	-	0.0285	em/d			
	-longing organics)	×	क्षा विश्वस्था ।	CIM ³	U _{ex}	•	275	cm/s			
	outing (rgarett)	_=_	Not Applicable	cm ³	Ugw		435.207	cm/y			
k	_g (Inorganica)	=	Not Applicable	cm ³ water/Greet	VF.	•	3 97133E-12	kg/m³			
	<u>ц</u>	z	100	m	VF,,,,,,	.=	3 M. 4 1.4	And - Name of the Party of the			
	LF _{ew}	E	\$ \$P (**)	(mathematical)	VF _{et}	=	Section 4	kg/m3			

M		0.5	mg/cm ²	W	=		cm	
Pe		6.9 · 10 ⁻¹⁴	g/cm²-s	w	- 2	0.142	9.00	
RAF ₄	=	0.5	unitiess	6,,,	*	200	cm	
α,	=	81 6 18 A	cm	δ _{2**}	2	200	cm	
۵,	=	81: SP 19:31	ст	θ,,		0.167668	cm³"/cm³"	
σ,	=	21-1800	cm	9,,,	=	0.262132	cm³/cm³	
λ .	=	Te - 250 (44-14)	ď.	θ ₇	=	0.43	em³/cm³ _{wii}	
П	=	3 1416		Ps	=	1.846	g/cm³	
		0.48 405			=	1	n/cm³	

(TACO SSL Equations)

Discussion of Modeling Input Parameters

KB Food & Gas/Sullivan

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Averaging Time for Non-Carcinogens in Inhalation Equation (AT)

The Averaging Time for Non-Carcinogens in Inhalation Equation (AT) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The Averaging Time for Non-Carcinogens default values of 30 yr for residential, 25 yr for industrial/commercial, and 0.115 yr for construction worker are used in the modeling equations.

Averaging Time for Carcinogens (AT_c)

The Averaging Time for Carcinogens (ATc) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The Averaging Time for Carcinogens default value of 70 yr is used in the modeling equations.

Averaging Time for Non-Carcinogens in Ingestion Equation (AT)

The Averaging Time for Non-Carcinogens in Ingestion Equation (AT) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The Averaging Time for Non-Carcinogens default values of 6 yr for residential, 25 yr for industrial/commercial, and 0.115 yr for construction worker are used in the modeling equations.

Body Weight (BW)

The Body Weight (BW) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The Body Weight default value of 15 kg for non-carcinogens, 70 kg carcinogens for residential, 70 kg for industrial/commercial, and 70 kg for construction worker are used in the modeling equations.

Soil Saturation Concentration (Csat)

The Soil Saturation Concentration (Csat) was determined from Equation S-29:

$$C_{sat} = \frac{S}{\rho_b} \cdot [(K_d \cdot \rho_b) + \theta_w + (H' \cdot \theta_a)]$$

The resulting Soil Saturation Concentration for each chemical is as follows (mg/kg):

Benzene = 74533.544 Toluene = 69089.065 Ethylbenzene = 44252.944 Total Xylenes = 34890.784 MTBE = 428622.974

Target Soil Leachate Concentration (Cw)

The Target Soil Leachate Concentration (C_w) was determined from Equation S-18 (mg/L):

Class 1 Target Soil Leachate Concentration

Benzene = 0.1 Toluene = 20

Ethylbenzene = 3665.924 Total Xylenes = 37516.972

MTBE = 11.766

Zone Depth (d)

Equation for Estimation of Mixing The Estimation of Mixing Zone Depth (d) was determined by using equation S-15, which defines d

$$d = (0.0112 \cdot L^{2})0.5 + d_{a}[1-exp - \frac{(-L \cdot I)}{(K \cdot i \cdot d_{a})}]$$

The resulting Estimation of Mixing Zone Depth is 9.883 m.

Aquifer Thickness (d,)

The Aquifer Thickness (da) is a site specific value determined by the length of the monitoring well screen. The Aquifer Thickness value used in the modeling equations was 3.048 meters.

(TACO SSL Equations)

Discussion of Modeling Input Parameters

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Apparent Diffusivity (DA)

The Apparent Diffusivity (DA) was determined by using equation S-10, which defines DA as:

$$D_{A} = \frac{(\theta_{a}^{3.33} \cdot D_{i} \cdot H') + (\theta_{w}^{3.33} \cdot D_{w})}{\eta^{2}} \cdot \frac{1}{(\rho_{b} \cdot K_{d}) + \theta_{w} + (\theta_{a} \cdot H')}$$

The resulting Apparent Diffusivity for each chemical is as follows (cm²/s):

Benzene = 1.21455755751624E-06 Toluene = 4.63807479969942E-07 Ethylbenzene = 2.38050310577377E-07 Total Xylenes = 2.47482814038283E-07 MTBE = 7.89567667967154E-07

Diffusivity in Air (D_I)

The Diffusivity in Air (D_i) is chemical specific and values from Section 742.Appendix C: Table E: Default Physical and Chemical Parameters were used in the modeling equations. The following values were used (cm²/s):

Benzene = 0.088 Toluene = 0.087 Ethylbenzene = 0.075 Total Xylenes = 0.072 MTBE = 0.102

Diffusivity in Water (Dw)

The **Diffusivity in Water (D_w)** is chemical specific and values from Section 742.Appendix C: Table E: Default Physical and Chemical Parameters were used in the modeling equations. The following values were used (cm²/s):

Benzene = 0.0000098 Toluene = 0.0000086 Ethylbenzene = 0.0000078 Total Xylenes = 0.00000934 MTBE = 0.000011

Dilution Factor (DF)

The Dilution Factor (DF) was determined by using equation S-22, which defines DF as:

The resulting Dilution Factor was 1.022. Since the calculated value is less than the default value of 20, the default value for the Dilution Factor is used in the modeling equations.

Exposure Duration for Ingestion of Carcinogens (ED)

The Exposure Duration for Ingestion of Carcinogens (ED) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The Exposure Duration for Ingestion of Carcinogens default values of 25 yr for industrial/commercial and 1 yr for construction worker are used in the modeling equations.

Exposure Duration for Inhalation of Carcinogens (ED)

The Exposure Duration for Inhalation of Carcinogens (ED) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The Exposure Duration for Inhalation of Carcinogens default values of 30 yr for residential, 25 yr for industrial/commercial, and 1 yr for construction worker are used in the modeling equations.

Exposure Duration for Ingestion

The Exposure Duration for Ingestion of Noncarcinogens (ED) was obtained from Section

(TACO SSL Equations)

Discussion of Modeling Input Parameters

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of Noncarcinogens (ED)

742.Appendix C: Table B: SSL Parameters. The Exposure Duration for Ingestion of Noncarcinogens default values of 6 yr for residential, 25 yr for industrial/commercial, and 1 yr for construction worker are used in the modeling equations.

Exposure Duration for Inhalation of Noncarcinogens (ED)

The Exposure Duration for Inhalation of Noncarcinogens (ED) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The Exposure Duration for Inhalation of Noncarcinogens default values of 30 yr for residential, 25 yr for industrial/commercial, and 1 yr for construction worker are used in the modeling equations.

Exposure Duration for the Direct Ingestion of Groundwater (ED)

The Exposure Duration for the Direct Ingestion of Groundwater (ED) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The Exposure Duration for Inhalation of Noncarcinogens default values of 30 yr for residential, 25 yr for industrial/commercial, and 1 yr for construction worker are used in the modeling equations.

Exposure Frequency (EF)

The Exposure Frequency (EF) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The Exposure Frequency default values of 350 d/yr for residential, 250 d/yr for industrial/commercial, and 30 d/yr for construction worker are used in the modeling equations.

Organic Carbon Content of the Soil (f_{cc})

The Organic Carbon Content of the Soil (foc) is a site specific value. The Organic Carbon Content of the Soil was determined to be 0.721 g/g.

Groundwater Remediation Objective (GW_{obi}) The Groundwater Remediation Objective (GW_{obj}) was obtained from Section 742.APPENDIX B: Table E: Tier 1 Groundwater Remediation Objectives for the Groundwater Component of the Groundwater

Class 1 Groundwater Objectives

Benzene = 0.005 Toluene = 1 Ethylbenzene = 0.7 Total Xylenes = 10 MTBE = 0.07

Henry's Law Constant (H')

The value for Henry's Law Constant (H') is chemical specific and values from Section 742.APPENDIX C: TABLE E: Default Physical and Chemical Parameters were used in the modeling equations. The following values were used:

Benzene = 0.228 Toluene = 0.272 Ethylbenzene = 0.323 Total Xylenes = 0.25 MTBE = 0.0241

Hydraulic Gradient (i)

The Hydraulic Gradient (i) was determined from an onsite survey of each of the groundwater monitoring wells. The riser elevations were determined and the depth to groundwater was noted in each well. This data was used to generate a potentiometric flow map with contour lines which show potentiometric head. A corresponding flow line, perpendicular to the contour lines, was determined between two known points of groundwater elevation (MW-2 = 89.64 feet and MW-7 = 95.56 feet). The length of this flow line was then determined to be 214 feet. The hydraulic gradient was determined by the difference in elevation divided by the length of flow between the points: (95.56-89.64) / 214 = 0.02766 ft/ft or 0.02766 m/m or 0.02766 cm/cm.

Infiltration Rate (I)

The Infiltration Rate (I) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The Infiltration Rate default value of 0.3 m/yr was used in the modeling equations.

Age Adjusted Soil Ingestion Factor for Carcinogens (IF_{soil-adj})

The Age Adjusted Soil Ingestion Factor for Carcinogens ($IF_{soil-adj}$) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The $IF_{soil-adj}$ default value of 114 (mg-yr)/(kg-d) is used in the modeling equations.

(TACO SSL Equations)

Discussion of Modeling Input Parameters

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Soil Ingestion Rate (IRsoil)

The Soil Ingestion Rate (IR_{soli}) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The Soil Ingestion Rate default values of 200 mg/d for residential, 50 mg/d for

Daily Water Ingestion Rate (IR,)

The Daily Water Ingestion Rate (IR_w) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The Daily Water Ingestion Rate default values of 2 L/d for residential and 1 L/d for industrial/commercial.

Aquifer Hydraulic Conductivity (K)

The falling hydraulic conductivity (0.0000138 cm/s) was utilized in the modeling equations:

 Conversion factor:
 cm · 1 m · 3600 sec · 24 hr · 365 day

 sec · 100 cm · hour · day · year

The resulting hydraulic conductivity is 4.351968 m/yr.

Soil-Water Partition Coefficient (K_d)

The Soil-Water Partition Coefficient (K_d) was determined by using equation S-19, which defines K_d as (cm³/g):

 $K_d = K_{oc} \cdot f_{oc}$

The resulting Soil-Water Partition Coefficient for each chemical is as follows:

Benzene = 42.4669
Toluene = 131.222
Ethylbenzene = 261.723
Total Xylenes = 187.46
MTBE = 8.2915

Organic Carbon Partition Coefficient (Koc)

The Organic Carbon Partition Coefficient (Koc) value is chemical specific and values from Section 742.APPENDIX C: TABLE E: Default Physical and Chemical Parameters were used in the modeling equations:

Benzene = 58.9 Toluene = 182 Ethylbenzene = 363 Total Xylenes = 260 MTBE = 11.5

Saturated Hydraulic Conductivity (K_s)

The Saturated Hydraulic Conductivity (Ks) was obtained from Section 742.APPENDIX C: Table K: Parameter Estimates for Calculating Water-Filled Soil Porosity (θw). The Saturated Hydraulic Conductivity for Loam, 60 m/yr, was used in the modeling equations.

Source Length Parallel to Groundwater Flow (L) The Source Length Parallel to Groundwater Flow (L) was determined from the site map and analytical results. A value of 45.1104 m was used to encompass the length of contamination parallel to groundwater flow. This value is the distance between soil borings BH-1 and BH-2.

Particulate Emission Factor (PEF)

The Particulate Emission Factor (PEF) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The PEF values of 1.32 x10⁹ (m³/kg) for residential or site specific, 1.24 x10⁹ (m³/kg) for

Inverse of the Mean Concentration

(TACO SSL Equations)

Discussion of Modeling Input Parameters

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at the Center of a Square Source (Q/C)

The inverse of the mean Concentration at the Center of a Square Source (Q/C) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The Inverse default values of 68.81 (g/m²-s)/(kg/m³) for residential, 85.81 (g/m²-s)/(kg/m³) for construction worker are used in the modeling equations.

Inhalation Reference Concentration (RfC)

The Inhalation Reference Concentration (RfC) is toxicological specific and values from the IEPA Toxicology Department and/or IRIS were used in the modeling equations. The following Chronic

Benzene = 0.03 Toluene = 5 Ethylbenzene = 1 Total Xylenes = 0.1 MTBE = 3

The following Subchronic Values were used:

Benzene = 0.08 Toluene = 5 Ethylbenzene = 1 Total Xylenes = 0.4 MTBE = 3

Oral Reference Dose (RfD_o)

The Oral Reference Dose (RfD_o) is toxicological specific and values from the IEPA Toxicology Department and/or IRIS were used in the modeling equations. The following Chronic values were used (mg/kg-d):

Benzene = 0.004 Toluene = 0.08 Ethylbenzene = 0.1 Total Xylenes = 0.2 MTBE = 0.01

The following Subchronic Values were used:

Benzene = 0.012 Toluene = 0.8 Ethylbenzene = 1 Total Xylenes = 1 MTBE = 0.1

Solubility in Water (S)

The Solubility In Water (S) is chemical specific and values from Section 742.Appendix C: Table E: Default Physical and Chemical Parameters were used in the modeling equations. The following values were used (mg/L):

Benzene = 1750 Toluene = 526 Ethylbenzene = 169 Total Xylenes = 186 MTBE = 51000

Oral Slope Factor (SF_o)

The Oral Slope Factor (SF_o) is toxicological specific and values from the IEPA Toxicology

Department were used in the modeling equations. The following values were used ((mg/kg-d))

Benzene = 0.055 Toluene = NA (TACO SSL Equations)

Discussion of Modeling Input Parameters

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Ethylbenzene = NA Total Xylenes = NA MTBE = NA

Exposure Interval (T)

The Exposure Interval (T) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The Exposure Interval default values of 9.5×10^8 seconds for residential, 7.9×10^8 seconds for industrial/commercial, and 3.6×10^6 seconds for construction worker are used in the modeling equations.

Target Hazard Quotient (THQ)

The Target Hazard Quotient (THQ) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The Target Hazard Quotient default value of 1 is used in the modeling equations.

Target Cancer Risk (TR)

The Tier 3 Target Cancer Risk (TR) value was obtained in accordance with Section 742.900 d). The Target Cancer Risk value of 10⁻⁵ is used in the modeling equations.

Inhalation Unit Risk Factor (URF)

The Inhalation Unit Risk Factor (URF) is toxicological specific and values from the IEPA Toxicology Department were used in the modeling equations. A value of 8.3 x 10⁻⁶ (ug/m³)⁻¹ was used for the benzene Inhalation Unit Risk Factor.

Volatilization Factor (VF)

The Volatilization Factor (VF) was determined by using equation S-8, which defines VF as:

$$VF = \frac{Q}{C} \cdot \frac{(3.14 \cdot D_A \cdot T)^{1/2}}{(2 \cdot \rho_b \cdot D_A)} \cdot 10^{-4}$$

The resulting Volatilization Factor for each chemical is as follows (m³/kg):

Industrial/Commercial
Benzene = 105037.778
Toluene = 169975.256
Ethylbenzene = 237257.638
Total Xylenes = 232692.323
MTBE = 130274.645

Construction Worker
Benzene = 7090.604
Toluene = 11474.226
Ethylbenzene = 16016.141
Total Xylenes = 15707.959
MTBE = 8794.225

Volatilization Factor Adjusted for Agitation (VF')

The Volatilization Factor Adjusted for Agitation (VF') was determined by using equation S-9, which defines VF' as:

$$VF' = \frac{VF}{10}$$

This factor is utilized in the construction worker remediation objective calculations. The resulting Adjusted Volatilization Factor for each chemical is as follows (m³/kg):

Benzene = 7090.604 Toluene = 11474.226 Ethylbenzene = 16016.141 Total Xylenes = 15707.959 MTBE = 8794.225 (TACO SSL Equations)

Discussion of Modeling Input Parameters

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"SSL" Total Soil Porosity (n)

The Total Soil Porosity (η) was determined by using equation S-24, which defines η as:

$$\eta = 1 - \frac{\rho_b}{\rho_s}$$

The resulting 'SSL' Total Soil Porosity was 0.304 Lpore/Lsoil.

Air Filled Soil Porosity (θ_a)

The Air-Filled Soil Porosity (θ_a) was determined by using equation S-21, which defines θ_a as:

$$\theta_a = \eta - \theta_w$$

The value for Air Filled Soil Porosity (θa) was determined by SSL Equation S-21. The result for θa is 0.098.

Water Filled Soil Porosity (6,,)

The Water Filled Soil Porosity (θ w) was determined by using Equation S-20, which defines θ_w as:

$$\theta_{w} = \eta \cdot (\frac{1}{K_{+}})^{1/(2b+3)}$$

The resulting Water-Filled Soil Porosity was 0.206 Lwater/Lsoil.

Dry Soil Bulk Density (ρ_b)

The Dry Soil Bulk Density (pb) was determined from a soil sample collected utilizing a Shelby Tube (). According to the laboratory results, the site specific bulk density was PCF (1.846 g/cm3).

Soil Particle Density (p.)

The Soil Particle Density (ps) value was determined from a soil sample collected utilizing a Shelby Tube (). According to the laboratory results, the site specific gravity (soil particle density) was 2.652.

Water Density (ρ_w)

The Water Density (ρ_w) was obtained from Section 742.Appendix C: Table B: SSL Parameters. The ρ_w default value of 1 g/cm³ is used in the modeling equations.

Exponential in Equation S20 {(1/(2b+3)}

The Exponential in Equation S20 {(1/(2b+3)} was obtained from Section 742.APPENDIX C: Table K: Parameter Estimates for Calculatin Water-Filled Soil Porosity (8w). The Exponential in Equation S-20 for Loam, 0.073, was used in modeling equations.

Equation S-5: Non-Carcinogenic Contaminants Construction Worker Inhalation

Equation S-5 was used to determine the most stringent Tier 2 Inhalation remediation objective for: Toluene, Ethylbenzene, Total Xylenes, MTBE, , .

Toluene = 8027.177 Ethylbenzene = 2240.925 Total Xylenes = 879.122 MTBE = 3691.376

Equation S-7: Carcinogenic Contaminants Construction Worker Inhalation

Equation S-7 was used to determine the most stringent Tier 2 Inhalation remediation objective for: benzene, , , .

(TACO SSL Equations)

Discussion of Modeling Input Parameters

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Benzene = 77.42

Equation S-4: Non-Carcinogenic Contaminants Residential and Industrial/Commercial Worker Inhalation

Equation S-4: Non-Carcinogenic Equation S-4 was used to determine the most stringent Tier 2 Inhalation remediation objective for: Contaminants Residential and Toluene, Ethylbenzene, Total Xylenes, MTBE, , .

Industrial/Commercial

Toluene = 779367.77

Ethylbenzene = 217573.969

Total Xylenes = 21338.74

Equation S-6: Carcinogenic Contaminants Residential and Industrial/Commercial Worker Inhalation Equation S-6 was used to determine the most stringent Tier 2 Inhalation remediation objective for: benzene, , , .

MTBE = 358399.907

Industrial/Commercial Benzene = 55.05

Equation S-1: Non-Carcinogenic Contaminants Ingestion

Equation S-1 was used to determine the most stringent Tier 2 Ingestion remediation objective for: Toluene, Ethylbenzene, Total Xylenes, MTBE, , .



Tier 2 Industrial/Commercial Calculations for Benzene KB Food & Gas/Sullivan 90-0146 & 2004-0969

SSL SSL & RBCA

Date Compiled: 04/03/12 Version: 6/27/2008

Input Values		IRISHEASI													
	s Bulk Density> 0	Converted \	/alue to be used in	calcutati	on sheet>	Т	_	T C	SDA Soil Classific	ation:[Loam					
	nic Matter (%) -> 0	FOC % (0.58 conversion)			nic Matter (m		0		C mg/kg (0.58 conv		- i	foc conversion t	o a/a:	0.000	
	p _b - Dry Soil Bulk Density	1 00 % (0:00 00)							= 1.7; or Site Spe						
	os - Soil Particle Density				Site Speci			,	· · · · · · · · · · · · · · · · · · ·						
	O Air Filled Soil Porosity	0.098	Value from S-21	Top 1 r	neter = 0.26	: below	1 meter =	0.13: Grav	el = 0.05; Sand =	0.14; Sill =0.24; Cl	ay = 0.19	or Calculated V	alue (S2	1)	
	Ow - Water Filled Soil Porosity		Value from S-20	Top 1 r	neter = 0.15	below	1 meter =	0.30: Grav	el = 0.20; Sand =	0.18 Silt =0.16 CI	ay = 0.17:	or Calculated V	alue (S2	0)	
	n - SSL: Total Soil Porosity		Value from S-24							iculated Value (S2					
	i - Hydraulic Gradient	0.30-1	Value II OII O-E+	Site Sc		20, 000	0.42,	<u> </u>	0.2, 0.00, 0.00						
	foc - Total Organic Carbon (g/g	<u> </u>		Surface	e Soil = 0.00	X6; Subs	urface Soi	il = 0.002;	or Site Specific						
	DF - Dilution Factor		Value from S-22	If calcu	ilated value	for DF is	s less than	1 20, then	20 default is used,	else calculated va	ue is use	d			
9.884	d - Mixing Zone (m)	9.884	Value from S-25		alculated va										
3.048	d, - Depth of source (m)		feet = 10	Depth	of Source (\	/entical ti	hickness o	of contami	nation)						
4.35	K - Hydraulic Conductivity (m/y	rr) cm/sec =	1.38E-05	Site Sp	ecific	1.19	9E+00	cm/d	4.35E+02	cm/yr]Use cm/d fo	r R15, R1	19, & R26. cm/y	r for R24		
	L - Source Length Parallel to G		feet = 211.9112	Site Sp	ecific (m)										
	d Aquifer Thickness (m)		feet = 10	Site Sp	pecific (m)										
	I - Inflitration Rate (m/yr)			0.3 for	Illinois										
	K Saturated Hydraulic Condu	uctivity		See Ta	ble K for In	put Valu	es								
	GW Groundwater Remedia				3.025	GW	Groundwa	ter Reme	diation Objective C	lass 2					
0.003	1/(2b+3) - Exponent for S20		_		able K for in					_					
70	BW - Body Weight			Reside	ntial = 70 (c	arcinog	enic): 15 (r	non-carcin	ogenic); Industrial	Commercial = 70;	Construct	ion Worker = 70	RBCA:	- 70	
	IF -Age Adjusted Soil Inge	estion Factor for Carcinogens		114											
50	IR _{sol} -Soil Ingestion Rate		_	Reside	ntial = 200:	Industria	al/Comme	rcial = 50:	Construction World	ker = 480					
					ne = 0.055										
	SF _o -Oral Slope Factor						^	-11							
1	IRDaily Water Ingestion Rate	<u> </u>			ntial = 2; In	dustnav	Commerci	a) = }							
	S - Solubility in Water				ne = 1750					orker = 10 ⁻⁴ at point	4 \				
1.0E-06	TR - Target Cancer Risk				ential = 10";	Industr	al/Comme	rcial = 10	Construction yvo	inker = 10 - at point	OT JUSTIA	exposure			_
70	AT _a -Average Time for Carcino	ogens		70											
	URF - Inhalation Unit Risk Fac	tor		Benze	ne =7.8 x 10)*									
	EF - Exposure Frequency								Construction Wo				_		
	ED - Exposure Duration for Inf								Construction Works	Worker = 85.81; o	Table H				
68.81		centration at the center of a squa	re source							uction Worker = 3.6					
	T - Exposure Interval		ood	30	ential = 9.5 ;	CIO", ING	iustriave oi	nineiciai -	7.9 X TO , CONSU	uclion Worker - 3.0) X IV				
30		III Limit Volatifization Factor Equa													
70		ration to Groundwater Mass-Limit Equ		70					 -						
		tion to Groundwater Mass-Limit E	quation S28	0.18			_								
0.088	D _i - Diffusivity in Air				ne = 0.088										
0.228	H' - Henry's Law Constant				ne = 0.228								-		
9.80E-06	D _w - Diffusivity in Water				ne = 9.8 x 1	0-									
58.9	Koc - Organic Carbon Partition	Coefficient		Banze	ne = 58.9		_								
		Otto-ship								·					
industriaVC	ommercial Ingestion Tier II Be	enzene Objective TR x AT, x 365	105 ~	_	70		205					2 65.02			
S-2 =			1.0E-06	х.	70	X	365				-	1.57E-03	=	16.300	mg/kg
-	Sf _e x	10 ⁴ x EF x IF _{set-ob}	0.055	×	1.00E-06	x	250	x	114			1.57E-03			
<u> </u>												•			
Construction	in Worker Ingestion Tier II Be														
S-3 =		x BW x AT _e x 365	1.0E-06	х	70	X	70	X	365		-	1.8E+00	=	2258.21	mg/kg
3~3 -	Sf.	x 10 ⁻⁴ x EF x IRsoil	0.055	x	1.00E-06	x	30	×	450			7,92E-04			
1															

Tier 2 Industrial/Commercial Calculations for Benzene KB Food & Gas/Sullivan 90-0148 & 2004-0969

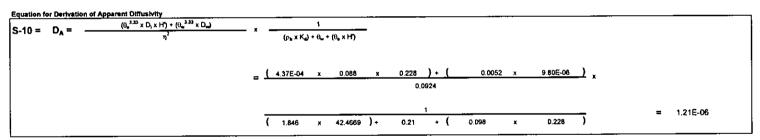
Industrial/Commercia	il Inhalation Tier II Benzene Objective											_	_		_	-	١
S-6 =	TR x ATc x 365	 1.0E-06	х	70	x	365						=	0.02555	=	55.051	mg/kg	l
3-0 -	URF x 1000 x EF x ED x 1/VF	7.80E-06	x	1000	×	250	x	25	•	(1/	1.05E+05)		4.64E-04				

Construction Worker I	nhalation Tier II Benzene Objective								 ;								
6.7.5	TR x ATc x 365	. = -	1.0E-06	x	70	x	365						- =	0.02555	=	77.421	mg/kg
5-7 =	URF x 1000 x EF x ED x 1/VF		7.80E-06	x	1000	x	30	x	1	,	(1/	7.09E+02)	3.30E-04			

RESIDENTIAL OR COMMERCIAL

S-8 = VF =
$$\frac{Q}{C} \times \frac{(3.14 \times D_A \times T)^{1/2} \times 10^4}{(2 \times p_B \times D_A)}$$
 = 85.81 $\times \frac{(3.14 \times 1.21E-06 \times 7.90E+08)^{1/2} \times 0.0001}{(2 \times 1.846 \times 1.21E-06)}$ = 0.4710 = 105037.7787

Construction Worker
$$S-8 = VF = \frac{Q}{C} \times \frac{(3.14 \times D_A \times T)^{1/2} \times 10^4}{(2 \times p_b \times D_A)} = \frac{85.81}{(2 \times 1.846} \times \frac{(3.14 \times 1.21E-06 \times 3.60E+06)^{1/2} \times 0.0001}{(2 \times 1.846 \times 1.21E-06)} = \frac{0.0318}{0.0000} = 7090.6040$$



Tier 2 Industrial/Commercial Calculations for Benzene KB Food & Gas/Sullivan 90-0148 & 2004-0959

Target Soll	Leachate	Concentration (Class 1)																
S-18 =	C _w =	ĐF x GW _{aaj}	=	20.0	X X	. 0	.005									=	0.1	
Soil-Water	Partition C	oefficient																
S-19 =	K _d =	K _{oc} x f _{oc}	=	58.9	ю х	. 0	,721									=	42.4669	
Water-Fille	d Parasity																	
S-20 =	Θ, =	η X Κ _α 1/(23-3)	-	0.3	0 x	60	0.000 0.000	-]0.073								=	0.2065	
Air-Filled F	orosity										-				•			
1	-	η - Θ _w	=	0.3	0 -	(0.21										0.0980	
Dilution Fa	ctor											_					•	
ı		1 + Kxix	<u> </u>	0.30	5 x	64	.0103 4,591	x	9.884	• •	1					=	1.0229	
GW Ingesti	00														-			
S-23 =		TR x BW x At, x SF, x IR, x EF x	365 ED =	1.0E			70 1.000	×	70 250	×	365 25	_		=	1.8E+00 343.75	-	0.0052	mg/L
Total Soil																		
S-24 =	η =	1 - P ₆	=	1	-	- 1	.652	•								=	0.3039	
Estimation	of Mixing	Zone Depth																
S-25 =	d =	(0.0112 x L ²) ^{0.5} + d _a 1 -e	xp (-Lxl) (Kxixd_)	-]														
ļ			=	(0.01	12 x	6-	4.591	2}05+										
						3	3.048	x_	1 - exp	{-	-64,591 4,352	х х	0.3 0.0103) X	3.048] =	9.884	m
Soll Satura	tion Limit			4.71	-													
S-29 =	C _{sat} =	$\frac{S}{\rho_b}$ x [(K _a x ρ b) + Θ w	+ (H' x 0a)) =	1.8	20 x ({ 42	2.4669	×	1,846) +	0.206	+ (0.228	×	0.098)]=	74,533.54	mg/kg

3



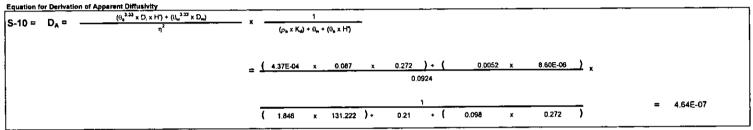
Tier 2 Industrial/Commercial Calculations for Toluene KB Food & Gas/Sullivan 90-0146 & 2004-0969

SSL SSL & RBC/ RBCA IRIS/HEAS Date Compiled: 04/03/12 Version: 6/27/2008

Financiary 0 Convented Value to be used in relations intered = -			[IRIS/HEAST]											****	(UI), (UZ)),		
March Dept. Sept. Sept. Sept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept. Dept	nput Values		Converted '	Value to be used in	refoulatio	n sheet>		- 1	U	SDA Soil Classifi	cation: Lo	oam					
1.54							ra)						fo	conversion to	o a/a:	0.000	
2.525 63 - 504 Printics Density 0.094 Value from 5-21 Tip 1 Intel® = 0.25 above 1 motor = 0.13 c(lareel * 0.05 Sand * 0.14 Siz = 0.24 Caty * 0.15 or Cisculated Value (ECV) 0.700 0.00 Very Effect of Processy 0.726 Very Broth 5-20 Tip 1 motor * 0.25 below 1 motor = 0.13 c(lareel * 0.05 Sand * 0.14 Siz = 0.24 Caty * 0.15 or Cisculated Value (ECV) 0.701 Very Effect of Processy 0.726 Very Broth 5-20 Tip 1 motor * 0.15 below 1 motor = 0.15 below 1 motor = 0.15 c(lareel * 0.05 Sand * 0.14 Siz = 0.05 Caty * 0.05 or Cisculated Value (ECV) 0.701 Very Effect of Cisculated Value (ECV) Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 motor * 0.05 below 1 to ECV Very Broth 5-20 Tip 1 mo			T GC M (0:30 CONTCISION)	0.500											17		
2.090								7.0, 0111	1.0, 0.2	1.11, 61 61.0 - 2			-				
2.700 P.S. March Freed Seal Process*			0.008	Value from S.21				meter = 0	13: Grav	el = 0.05: Sand =	D 14 Silt	=0.24° Clay = 0	19: or	Calculated Va	ilue (S2	1)	
0.394 0.186 Create Sea Prevents 0.294 Value from 5.22 0.195 Create Sea Prevents 0.797 Value from 5.22 0.195 Create Sea Prevents 0.797 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.22 0.195 Value from 5.23 0.195 Value from 5.23 0.195 Value from 5.23 0.195 Value from 5.23 0.195 Value from 5.23 0.195 Value from 5.23 0.195 Value from 5.23 Value from 5.23 0.195 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value from 5.23 Value					Top 1 m	eter = 0.25	below 1	meter = 0.	30: Grav	el e 0.20; Sand	0.18: Sit	=0.16: Clay a 0	17 or	Calculated Va	due (S2	m.	
Sint Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Specific Spec														0010000100			
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2000 CF Charlon Factor 1.023 Visite from 5.22 Fractivated value for DF is less than 20, len 20 detailed usined, seed calculated value in steed					Sudace	Soil = 0 006	Cubr	urface Soil :	0.002	or Sita Specific							
3.4 A. Depth of course (m)				Value from S-22	If exicul	sted value fo	r DF is	less than 2	0 then 2	O default is used.	else calc	ulated value is	used				
3-042 A. Depth of scores (m) more = 1.386 of Sec. 1.184 co. 3.56 co. 1.184 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 co. 3.56 c								1000 (1701) 2	<u> </u>							•	
3.5 S. Hydrane Continctively (trity)								nickness of o	contamir	ation)						-	
1. Source Length Persials to Groundwater Flow (tit) New 10 Site Specific (m)			A cmisec a								cm/vr IU:	se cm/d for R15	R19.	& R26, cm/vr	for R24		
3.04.8							,.,•										
0.3 for Winnels Age (many) 5. K., Santzel Hydraulic Conductivity 5. Ser Table K for Input Values 1.000 (RW _a - Convenioned Remediation Objective Class 1 2.5 (RW _a - Groundwater Remediation Objective Class 2 1.0073 11(29-3); Exposente RSSSS 5.88 Table K for Input Values 1.15 (RW - Body Weight 1.16 (Figure Age Agusted Sol of Inpation Factor for Carcinogens 1.14 (Figure Age Agusted Sol of Inpation Rate 1.14 (Figure Age Agusted Sol of Inpation Rate 1.14 (Figure Age Agusted Sol of Inpation Rate 1.14 (Figure Age Agusted Sol of Inpation Rate 1.14 (Figure Age Agusted Sol of Inpation Rate 1.15 (Residential - 200, Industrial/Commercial = 50, Construction Worker = 400 1.16 (Figure Age Agusted Sol of Inpation Rate 1.17 (Figure Age Agusted Sol of Inpation Rate 1.18 (Figure Age Agusted Sol of Inpation Rate 1.18 (Figure Age Agusted Sol of Inpation Rate 1.18 (Figure Age Agusted Sol of Inpation Rate 1.18 (Figure Age Agusted Sol of Inpation Rate 1.18 (Figure Age Agusted Sol of Inpation Rate 1.18 (Figure Age Agusted Sol of Inpation Rate 1.18 (Figure Age Agusted Sol of Inpation Rate 1.18 (Figure Age Agusted Sol of Inpation Rate 1.18 (Figure Age Agusted Sol of Inpation Rate 1.18 (Figure Age Agusted Sol of Inpation Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (Figure Age Consecution Rate) 1.18 (fourdwater Flow (III)														
50 K Saturated Prijectalic Conductivity See Table K for Input Values				1001 - 10													
1000 GWa_ Groundward Remediation Objective Class 1 2.5 GWa_ Groundward Remediation Objective Class 2			and the				41/04.0										
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114					See Tal	de K for Inpu	t Value	3			M	nial = 70: 0 - · ·		Winds at = 70.	DBC 4 -	י לח	
Fig Sp. Ingestion Rate						niai = 70 (cai	cinoge	nic); 15 (noi	n-carcine	ogenicjį industriai	s-commen	cial = /U; Cons:	· oction	TAULKET = /U;	KDCM	- 10	
Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision Revision		IF to a - Age Adjusted Soil Inge	stion Factor for Carcinogens														
Section Tokene 10	50	IR _{see} -Soil Ingestion Rate				· · ·				Construction Wor	ker = 480						
Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Solidon Soli	1	IR, -Daily Water Ingestion Rate			Resider	ntial = 2; Indu	striaVC	Commercial	= 1								
10E-06 TR. Target Center Risk	526																
Feature Frequency Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Feature Fe													man ex	posure			
25 ED - Exposure Duration for Inhalation for Non-Cercinogens Residential = 30; Industria/Commercial = 25; Construction Worker = 1			_														
7,00E+06 T - Exposure Interval			atation for Non-Carcinogens		Resider	ntial = 30; Ind	lustrial/	/Commercia	l = 25; C	onstruction Work	er = 1						
Total Exposure Interval for Mail Limit Volatilization Factor Equation S26 30 70 10 10 10 10 10 10 1	68.81		centration at the center of a squa	re source													
Construction Worker Ingestion Remediation Objectives for Non-Carcinogenic Contaminants 1	7.90E+08	T - Exposure Interval				itial = 9.5 x1	0°; Indu	ustnal/Comn	nercial =	7.9 x 10°; Constr	uction Wo	orker = 3.6 x 10					
0.18	30	T _{ML} - Exposure Interval for Ma	II Limit Volatilization Factor Equa	tion S26													
D. Diffusivity in Air Toluene = 0.087 Toluene = 0.087 Hr - Henry's Law Constant	70	ED _{M4} - Exposure Duration for Migr	ation to Groundwater Mass-Limit Equ	uation S28	70												
Dottsurviy in Air Tolusine = 0.087	0.18	- Infiltration Rate for Migrat	ion to Groundwater Mass-Limit E	quation 528	0.18												
10 10 10 10 10 10 10 10	0.087				Toluene	= 0.087										_	
Section Diff. Diff. Writer Tolure Set Set 10^4					Toluene	= 0.272											
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Construction Worker Ingestion Remediation Objectives for Non-Carcinogenic Contaminants S-1 = THO x BW x AT x 365	S-1 -			0.000001	x 1/	0.8	x	250	x	25	. x	50		0.390625	-	1033200	mg/kg
S-1 = THQ x BW x AT x 365 = 1 x 70 x 0.115 x 365 = 2938.25		72															
S-1 = THQ x BW x AT x 365 = 1 x 70 x 0.115 x 365 = 2938.25																	
S-1 = 10 ⁴ x (1/R/D _x) x EF x ED x R _{rol} = 0.000001 x 1/ 0.8 x 30 x 1 x 480 = 0.018 = 153/256 mg/k Inhalation Non-Carcinogenic Residential, ind/Commercial THQ x AT x 385 = 1 x 25 x 365	Construction			ogenic Contaminen	ts	70			_	205				2078 26			
10 x (1/RfC_x) x EF x ED x (1/RfC x 1/VF) 10 x (1/RfC_x) x EF x ED x (1/RfC x 1/VF) 10 x (1/RfC_x) x EF x ED x (1/RfC x 1/VF) 10 x (1/RfC_x) x EF x ED x (1/RfC x 1/VF) 10 x (1/RfC_x) x 1/	S-1 =			- =	x				. х				= -		=	163236	mg/kg
S-4 = THQ x AT x 365	J-1 -	10 ⁻⁶ x (1/	RfD_) x EF x ED x IR _{soil}	0.000001	x 1/	D.B	x	30	×	1	×	480		0.018			
S-4 = THQ x AT x 365																	-
S-4 = THQ x AT x 365	Name and the	No of second Backs - 4-1							_								
EF x ED x (1/RIC x 1/VF) 250 x 25 x 1/ 5 x 1/ 169975.2565 Tier 2 Inhalation Objective cannot exceed Soil Saturation Limit nhalation Non-Carcinogenic Construction Worker S-5 = 1 x 0.115 x 365 EF x ED x (1/RIC x 1/VF) 30 x 1 x 1/ 5 x 1/ 1147.422527 EF x ED x (1/RIC x 1/VF) RESIDENTIAL OR COMMERCIAL					v	25	·	385						9125	_	4040040	
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THQ x AT x 365 = 1 x 0.115 x 365 = 41.975 = 8027.177 mg/k S-5 = EF x ED x (1/RTC x 1/NF) = 30 x 1 x 1/ 5 x 1/ 1147.422627 = 0.005229 = 8027.177 mg/k RESIDENTIAL OR COMMERCIAL		EF X	ED A (INCIC A HAT)	230	^	23	^ ''	•	^ "		Inhalati.	on Objective	Cann		Soil Se	turation Limi	t
S-5 = THQ x AT x 365 = 1 x 0.115 x 365 = 41.975 = 8027.177 mg/k EF x ED x (1/RIC x 1/VF) = 30 x 1 x 1/ 5 x 1/ 1147.422627 = 0.005229 = 8027.177 mg/k RESIDENTIAL OR COMMERCIAL										1 161 2	arati	T. Onjuctive					-
S-5 = THQ x AT x 365 = 1 x 0.115 x 365 = 41.975 = 8027.177 mg/k EF x ED x (1/RIC x 1/VF) = 30 x 1 x 1/ 5 x 1/ 1147.422627 = 0.005229 = 8027.177 mg/k RESIDENTIAL OR COMMERCIAL		 															
S-5 = EF x ED x (1/RIC x 1/NF) 30 x 1 x 1/ 5 x 1/ 1147.422627 0.005229	Inhalation I	Non-Carcinogenic Construction	IN WORKER	•	_	D 115		355						41.975			
RESIDENTIAL OR COMMERCIAL	S-5 =				- X		× 1/		v 47	1147 422627			_ =		=	8027.177	mg/kg
		ĘF x I	ED X (HRIU X HVF)	Su	*	'	A H	3	× 11	, 171,722021				J. 000222			
		·															
	DECISES:	AL OD COMMERCIAL	_														
S-8 = VF = $\frac{Q}{C} \times \frac{(3.14 \times D_A \times T)^{11} \times 10^{-1}}{(2 \times p_A \times D_A)}$ = $\frac{85.81}{(2 \times 1.846 \times 4.64E-07)} \times \frac{(3.14 \times 4.64E-07)}{(2 \times 1.846 \times 4.64E-07)} = \frac{0.2917}{1.71E-06}$ = $\frac{0.2917}{1.71E-06}$			17 4		,			4 0 45 05		7.005.00	1.12	0.0004		0.2011			
C $(2 \times p_x \times O_x)$ (2 x 1.846 x 4.64E-07) 1.71E-06	S_8 =	VF = 0 x (3.14 x D _A x T) " x 10"	_ = 85.81	<u> </u>		×		X		, x	0.0001	_ = .		=	169975.2565	
		c	(2 × p _b × D _b)		(2	x	1.846	×	4.64E-07)			1.71E-06			

Tier 2 Industrial/Commercial Calculations for Toluene KB Food & Gas/Sullivan 90-0146 & 2004-0969

L	_																
	ion Worker	<u> </u>	(3.14 × D _A × T) ^{1/2} × 10 ⁻⁴			ι	3.14	x	4.64E-07	x	3.60E+06) 1/7 ×	0.0001		0.0196	= 11474.2263	
S-8 =	VF =	c x	(2 x p _b x D _A)	=	85.81	× (2	x	1.846	×	4.64E-07)		_ =	1.71E-06	= 114/4.2203	



Soil Component of the Migration to Groundwater Clanup Objective (Class 1) $S-17 = C_w \times \left[K_v + \frac{(\theta_w + \theta_n \times H)}{\rho b} \right] = 20$	X 131,222 + (0.206	+ 0.098 x 0.272 }	= 2626.961 mg/kg
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arget Soil Leachate Concent	ration (Class 1)				
S-18 = C _w =	DF x GW _{skij}	=	20.00	x 1.000	= 20
oil-Water Partition Coefficier 6-19 = K _d =	Y _{oc} x f _{oc}	=	182.00	x 0.721	= 131.222
Vater-Filled Porosity $6-20 = \Theta_{w} = \eta x$	1 1/(28-3) K ₄	=	0.30	x 0.300 0073	= 0.2065

5

Tier 2 Industrial/Commercial Calculations for Toluene KB Food & Gas/Sullivan 90-0146 & 2004-0969

Air-Filled Po	-	η •	Θ.,		= (0.30	-	0.21							,			=	0.0980	:
Dilution Fac		1 +	Kxlxd IxL	:		4.35	x	0.0103 64.591	x	9.884	+	1							1,0229	
GW Ingestio S-23 ≃	en en en en en en en en en en en en en e		TR x BW x At, x 365 SF, x IR, x EF x ED		=	0E-06 0.000	x x	15	x x	0 250	x x	365 25	-		·	0.0E+00 0		=	#DIV/01	mg/L
Total Soli P	orosity η =	1	Ps.		-	1	_ . -	1.845 2.652	-									=	0.3039	
		Zone Depth (0.0112 x L	²) ⁰³ + d _n 1 -exp	(-t. x l) (K x i x d _a)]	.0112	x	64,591	•		,	£4 501		0.3	١.					
Soil Satural	tion Limit C _{sat} =		[[K _a x pb] + 9w + [l	H' x 8a]]	= -	526 1.846	-x[(1 - exp		-64.591 4,352 0.206	* + (0.272	× ×	0.098		=	9.884	m mg/kg

Tier 2 Industrial/Commercial Calculations for Ethylbenzene KB Food & Gas/Sullivan 90-0146 & 2004-0969

Date Compiled: 04/03/12 SSL SSL & RBCA Version: 6/27/2008

		RBCA	IRISHEAST												Vers	BON: B/21/2	.04	
put Values											DA Soil Clas	ification: II o	-					
	s Bulk Density ->	0			Value to be used ذ 0.000 حداد		on sneet - nic Matter (i				mg/kg (0 58 c		0.000	fo	c conversion t	o o/o:	0.000	Т
	nic Matter (%) ->		FOC % (0.58	COLIABLZION)-3 0.000						1.7; or Site		0.000	,	O CONTROLLEMENT	- y- H.		
	p. Dry Soil Bulk						Site Spec		- 1,0, SIL -	(.b, Clay	- t.r, or sate	Specific.						
	ps - Soil Particle			0.098	Value from S-21	Z.03 01	meter = 0.3	98 halow	1 meter = 0	13: Grave	La D 05: San	# 0 14: Sin	=0.24: Clay =	0.19:0	r Calculated Vi	able (S21)	
	Θ, - Air Filled Sol					T 1		E balan	1	20 Crave	1 = 0.00; Can	- 0.14; SIH	±0.16: Clay =	0.17:0	r Calculated V	alua (S20		
	Ow - Water Filled			0.206	Value from S-20						lay * 0.36; or			0.11,01	- Opiculates 11	0.00 (020	·	
0.304	η - SSL: Total So			0.304	Value from S-24	Site Sc		J. 25, San	u = U.32, SI	ii - 0.40, C	144 × 0.30, 0	Calculated	49/00 (02-7)					
	I - Hydraulic Grad							106: Subs	urface Soil	= 0.002: 0	r Site Specific	_					_	
0.721 20.000	foc - Total Organi OF - Dilution Fact		<u> </u>	1.023	Value from S-22								ulated value i	is used				
	d - Mixing Zone (9.884	Value from S-25		aculated v											
	d Depth of sou			0.00	feet = 10				hickness of	contamina	ition)		•					
	K - Hydraulic Cor			cm/sec =	1.38E-05	Site Sc			9E+00	cm/d		cm\r D	se cm/d for R	15. R19.	, & R26. cm/yr	for R24		
			Groundwater Flow (m)		feet = 211.9112		ecific (m)	1	<u> </u>		11.002							
64.591			Froundwater Flow (m)		feet = 10		ecific (m)											
	d Aquifer Thick					0.3 for												
	I - Infiltration Rate		-11 is				able K for t	nout Mohi							-			
	K, - Saturated Hy					260 11	_			Demedi	ntine Objective	Class 2						
			tion Objective Class 1	1			1			el Kelixedi	stion Objectiv	e Class Z						
0.073	1/(2b+3) - Expon					See 18	bla K for 1	nput Valu	16\$		namia): Indust	ial/^amman	eiel e 70: Con	struction	n Worker = 70;	PRCAR	70	
	BW - Body Weigl						ential = 70	carcinog	enic); 15 (A	3ri-carcino	penic), indust	IN COLUMN TO	cial = 70, Cuil	SHECHOL	TTOIRE - 10,	KUUA -		
			estion Factor for Carc	inogens		114												_
50	(R _{voil} -Soil Ingest	on Rate									onstruction V	ronter = 480						 -
1	IR,, -Daily Water	Ingestion Rat	te						Commercia	=1								
169	S - Solubility in V	Vater				Ethylb	enzene = 1	169									_	
1.0E-06	TR - Target Cand	er Risk				Reside	ntial = 10°	; Industri	al/Commen	cial = 10°;	Construction	Worker = 10	4 at point of i	inuisu e	xposure .			
250	EF - Exposure Fr										Construction							
25	ED - Exposure D	uration for Int	halation for Non-Carci	inogens		Reside	ential = 30	Industria	VCommerci	al = 25; Co	nstruction W	orker = 1	85.81; or Ta	ble H			_	
			centration at the cent	ero fasqu	are source	Reside	ential = 66.	B1; Indus	tnavComm	Clai = 65	61; Construct	eta vetica 16/a	onker = 3.6 x 1	ne Li				
.90E+08							nual = 9.5	XIU"; INC	ustnav.com	mercial =	7.9 X IU ; COP	SUUCION VVC	7 X 5 X 1					
30			II Limit Volatilization f			30	_											
70			ration to Groundwater M			70												
0.18	I _{M-L} - Infiltration F	tate for Migra	tion to Groundwater M	tass-Limit i	Equation \$28	0.18										_		
0.075	D _i - Diffusivity in	Air					enzena = (
0.323	H' - Henry's Law	Constant					enzena = (
7.80E-06	D Diffusivity in	Water					enzena = 7											
25	AT - Average Tin	ne for Non-Ca	arcinogens In Ingestio	n Equation							struction Wo							
25	AT - Average Tir	ne for Non-Ca	arcinogens in Inhalatio	on Equation	<u></u>		ential = 30;	Industria	VÇommerci	al = 25; Co	instruction W	orker = 0.115	<u> </u>					
- 1	THO - Target Ha					_1_												
1	RfC - Inhalation	Reference Co	ncentration				ic = 1; Sub											
0,1	RfD, - Oral Refe	rence Dose					ic = 0,1; S		<u>≖1</u>									
363.00	K _∞ - Organic Ca	rbon Partition	Coefficient			Ethytb	enzene = :	363										
dustrial/C	ommercial Inges		ation Objectives for	Non-Carci														
-1 =			2 x BW x AT x 365		_ =	x	70	X	25	_ x	365			_ =	638750	=	204400	m
		10 ⁴ x (1/	RfD) x EF x ED x IR	eoil .	0.00000)1 x 1/	0,1	×	250	×	25	×	50		3,125			
n meter te di	an Warker Inches	on Demodis	tion Objectives for N	no Carrin	onenic Contamin	inte			•									
	an and see miles		2 x BW x AT x 365		1	x	70	x	0.115	x	365			_	2938.25	_	204046	

ि	onstruction Worker Ingestion Remediation Objectives for Non-Carcinogenia	: Contaminant	3												- 1
- 1	THQ x BW x AT x 365	1	¥	70	x	0.115	x	365			_	2938.25	_	001015	
IS	1 =			-:-						480	= .	0.0144	=	204045	mg/kg
١٣	10 ⁻⁴ x (1/R/O₂) x EF x ED x IR ₊₊₀	0.000001	x 1/	1	×	30	×	1	×	460		0.0144			
- 1															

Inhalation Non-Carcinogenic Residential, Ind/Commercial S-4 = THQ x AT x 365 EF x ED x (1/RiC x 1/VF)	=	1 250	x x	25 25	x x 1/	365 1	x 1/	237257.6383	= 9125 0.026343	=	346396	mg/kg
								Tier 2 Inhalation C	bjective cannot exceed S	oll Sat	uration Limit	t

Inhalation Non-Carcinogenic Construction Worker										 				٦.
C F	Inhalation No													1
		THQ x AT x 365	1	×	0.115	×	365				=	2240.925	mg/kg	
EFXEDX(TARICXTAF) 30 X 1 X II 1 X II 1601.01419	3-5 =	EF x ED x (1/RfC x 1/VF)	30	×	1	x 1/	1	x 1/	1601.61419	0.018731				

					 					-								
R	ESIDENT	AL OR CO	MERCIA	L					•						•		<u> </u>	Π
ء ا		VF =	a j	(3.14 x D _A x T) ^{1/2} x 10 ⁻⁴	 85.81	, Ĺ	3.14	×	2.38E+07	×	7.90E+08) ^{1/2} X	0.0001	_ =	0.2085	=	237257.6383	- 1
3	-6 =	VP =	С.	(2 × ρ _b × D _A)	 03.07	<u>^(</u>	2	×	1.846	×	2.38E-07)			8.79E-07			-

Tier 2 Industrial/Commercial Calculations for Ethylbenzene KB Food & Gas/Sullivan 90-0146 & 2004-0969

							80-0	146 & 20	004-0969									
Construction	VF =	<u>o</u> x	$(3.14 \times D_A \times 7)^{3/2} \times 10^{-4}$ $(2 \times p_b \times D_A)$	=	85.81	x <u>(</u>	3.14	x	2,38E-07 1.846	x x	3.60E+06 2.38E-07) ^{1/2} ×	0.0001	=	0.0141 8.79E-07	. =	16016.1419	
Equation fo S-9 =	VF' =		on Factor - Construction \ VF 10	Worker =	16016.1419 10	-				- -						=	1601.6142	
Equation fo	or Derivatio	on of Apparent I	Olffusivity		·							_						
S-10 =	D _A =	(θ _a ³	x D _i x H) + (θ _w ^{3.33} x D _w) η ²	x	(_{Рв} х К	1 1 + 0 + (ر	(0 _a x H')	_										
				=	(_4.37E-04	x	0.075	<u> </u>	0.323) + (924	0.005	2 x	7.80E-06	×				
					(1.846	x	261.723)+	0.21	+ (0.098	x	0.323			=	2.38E-07	
Soil Comp S-17 =	onent of th	e Migration to C	Froundwater Clanup Object	ctive (Class 1) (θ _m + θ _e x H) pb	_] =		14	×	- 261,723 -	+ (_	0.206		0.098 1.848	×	0.323	<u> </u>	3565.924	mg/
Target Soi	l Leachate	Concentration (Class 1)															
S-18 =	C _w =		DF x GW _{ebj}	=	20.00	x	0.700									=	14	
Soli-Water	Partition (Coefficient			•													
S-19 =	K _d =		K _{ec} x f _{ec}	=	363.00	x	0,721									-	261.723	
Water-Fille S-20 =	od Porosity Θ _w =		¥(23×3)	=	0.30	×	0.300				_			<u> </u>		=	0.2065	•

9

Tier 2 Industrial/Commercial Calculations for Ethylbenzene KB Food & Gas/Sullivan 90-0146 & 2004-0969

							90-0	146 & ZU	04-0969									
Air-Filled Po S-21 =	•	η - Θ _w		=	0.30	-	0.21						_			•	= 0.0980	
Offution Fac S-22 =		1 +	Kxixd (xL	= -	4,35	×	0.0103 64,591	x	9.884	+	1						= 1.0229	
GW Ingestio	n		BW x At _e x 365 IR _{ee} x EF x ED		1,0E-06 0.000	x x	70 1.000	x	0 250	x x	365 25	-		٠.	0.0E+00	- '	= #DIV/0!	mg/
Total Soil Pi S-24 =	orosity η =	1 - Pa Pa		=	1		1.846 2.652	-						-	<u>.</u>	;	= 0.3039	
Estimation of S-25 =	of Mixing i	Zone Depth (0.0112 x L ²) ^{0.5} + d _e	1-exp	_	0.0112	x		•	1 - exp	{-	-64.591 4.352	<u>x</u>	0.3)	3.048	- <u>]</u>	= 9.884	п
Soil Saturat S-29 =		S	pb) + Gw + (H" x 8a)]	= -	169 1.846	-×[(261.723	×	1,846	, .	0.206	+ 1	0.323	×	890,0	11:	= 44,252.9	4 mg/

Tier 2 Industrial/Commercial Calculations for Total Xylenes KB Food & Gas/Sullivan 90.0146 & 2004.0969

04/03/12 SSL & RBCA Date Compiled: SSL Vanion: 8/27/2008 Input Values Holcomb's Bulk Density --> Converted Value to be used in calculation sheet -> USDA Soil Classification: Loam FOC % (0.58 conversion) -> 0.000 Organic Matter (mg/kg) 0 foc conversion to o/o: FQC mg/kg (0.58 conversion) Organic Matter (%) --> n 1.846 p. Dry Soll Bulk Density 1.5 or; Gravel = 2.0; Sand = 1.8; Silt = 1.6; Clay = 1.7; or Site Specific 2.65 or: Site Specific ps - Soil Particle Density Top 1 meter = 0.28; below 1 meter = 0.13; Gravel = 0.05; Sand = 0.14; Sift =0.24; Clay = 0.19; or Calculated Value (S21) 0.098 Value from S-21 0.098 O. - Air Filled Soit Porosity Top 1 meter * 0.15; below 1 meter = 0.30; Gravel = 0.20; Sand * 0.18; Sitt =0.18; Clay = 0.17; or Calculated Value (S20) 0.206 Value from S-20 0.208 Ow - Water Filled Soil Porosity 0.304 η - SSL: Total Soil Porosity 0.304 Value from S-24 0.43 or; Gravel - 0.25; Sand = 0.32; Sift = 0.40; Clay = 0.36; or Calculated Value (\$24) Site Specific 0.0103 i - Hydraulic Gradient Surface Soil = 0.006; Subsurface Soil = 0.002; or Site Specific 0.721 foc - Total Organic Carbon (g/g) 1.023 Value from S-22 If calculated value for DF is less than 20, then 20 default is used, else calculated value is used. 20.000 DF - Dilution Factor 9.884 d - Mixing Zone (m) 9.884 Value from S-25 2; or calculated value d. Depth of source (m) Depth of Source (Vertical thickness of contamination) 3.048 feet = 10 4.35E+02: cm/yr Use cm/d for R15, R19, & R26, cm/yr for R24 4 35 K - Hydraulic Conductivity (m/yr) cm/sec = 1.38E-05 Site Specific 1.19E+00 cm/d 64.591 L - Source Length Paratlel to Groundwater Flow (m) feet = 211.9112 Site Specific (m) 3.048 d, - Aquifer Thickness (m) feet = 10 Site Specific (m) | - Infiltration Rate (m/yr) 0.3 for Illinois 0.3 See Table K for Input Values K, - Saturated Hydraulic Conductivity 10 GW_{obj} - Groundwater Remediation Objective Class 2 10.000 GWood - Groundwater Remediation Objective Class 1 0.073 1/(2b+3) - Exponent for \$20 See Table K for Input Values Residential = 70 (carcinogenic); 15 (non-carcinogenic); Industrial/Commercial = 70; Construction Worker = 70; RBCA = 70 70 BW - Body Weight IF solen -Age Adjusted Soil Ingestion Factor for Carcinogens Residential = 200; Industrial/Commercial = 50; Construction Worker = 480 IR_{sol} -Soli Ingestion Rate IR., -Daily Water Ingestion Rate Residential = 2; Industrial/Commercial = 1 186 S - Solubility in Water Total Xylenes = 186 1.0E-06 TR - Target Cancer Risk Residential = 104; Industrial/Commercial = 104; Construction Worker = 104 at point of human exposure Residential = 350; Industrial/Commercial = 250; Construction Worker = 30 250 EF - Exposure Frequency Residential = 30; Industrial/Commercial = 25; Construction Worker = 1 ED - Exposure Duration for Inhalation for Non-Carcinogens Residential = 68.81; Industrial/Commercial = 85.81; Construction Worker = 85.81; or Table H Q/C - Inverse of the mean concentration at the center of a square source 7.90E+08 T - Exposure Interval Residential = 9.5 x10⁸; Industrial/Commercial = 7.9 x 10⁸; Construction Worker = 3.6 x 10⁶ 30 T_{ML} - Exposure Interval for Matl Limit Volatilization Factor Equation S26 าก ED_{M1} - Exposure Duration for Migration to Groundwater Mass-Limit Equation S28 70 Intitration Rate for Migration to Groundwater Mass-Limit Equation S28 0.18 Total Xylenes = 0.072 D_i - Diffusivity in Air Total Xylenes = 0.25 0.250 H' - Henry's Law Constant 9.34E-06 D_w - Diffusivity in Water Total Xvienes = 9.34 x 107 AT - Average Time for Non-Carcinogens In Ingestion Equation Residential = 6; Industrial/Commercial = 25; Construction Worker = 0.115 Residential = 30; Industrial/Commercial = 25; Construction Worker = 0.115 AT - Average Time for Non-Carcinogens In Inhalation Equation THQ - Target Hazard Quotient RfC - Inhalation Reference Concentration Chronic = 0.1; Subchronic = 0.4 RfD, - Oral Reference Dose Chronic = 0.2; Subchronic = 1 260.00 K... - Organic Carbon Partition Coefficient Total Xylenes = 260 Industrial/Commercial Ingestion Remediation Objectives for Non-Carcinogenic Contaminants 638750 THO x BW x AT x 365 408800 mg/kg S-1 = - = −0.000001 1.5625 Construction Worker Ingestion Remediation Objectives for Non-Carcinogenic Contaminants THO x BW x AT x 365 70 0.115 2938.25 204045 S-1 = mg/kg X (1/RID.) X EF X ED X IR... 0.0144 Inhalation Non-Carcinogenic Residential, Ind/Commercial 9125 365 THQ x AT x 365 33973.079 mg/kg S-4 = 232692,3237 0.268595023 EF x ED x (1/RfC x 1/VF) 250 25 x 1/ 0.1 x 1/ Inhalation Non-Carcinogenic Construction Worker 41.975 THQ x AT x 365 879.122 mg/kg S-5 = 0.047746496 EF x ED x (1/RfC x 1/VF) x 1/ D.4 x 1/ 1570,795908 RESIDENTIAL OR COMMERCIAL (3.14 x D_A x T) 1/2 x 10-4 2.47E-07 7.90E+08 0.2126 = 232692.3237

2

2,47E-07

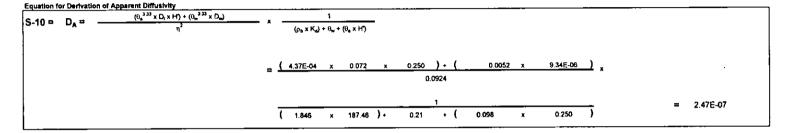
9,14E-07

1.846

Ċ

 $(2 \times \rho_b \times D_A)$

Tier 2 Industrial/Commercial Calculations for Total Xylenes KB Food & Gas/Sulthvan 90-0148 & 2004-0969



Soli Compo S-17 =	nent of th	x Migratio	on to Grou	ndwater Clanup	Objective (Class (6 _w + 8 _a x pb		=		200	x 187.46	+ (_	0.206 Tier 2 So	+ Il Compon	0.098 1.846 ent of GW in	x gestion	0.250 Objective ca	=	37516.973 Soil Saturation	mg/kg
Target Soli S-18 =		Concentr	ation (Clas	DF x GW _{elq}		a	20.00	x	10,000					_			=	200	
Soll-Water		Coefficient	t	K _{oc} x f _{oc}		_	260.00	x	0.721								=	187,46	

Water-Filled Porosity
$$S-20 = \Theta_{W} = v_{1} \times \frac{1}{K_{4}} \qquad \qquad D.30 \times \left[\frac{0.300}{60.000} \right]^{0.072} = 0.2065$$

0.206

12

0.098

0.250

)] = 34,890.78 mg/kg

Tier 2 Industrial/Commercial Calculations for Total Xylenes KB Food & Gas/Sullivan 90-0146 & 2004-0969

Air-Filled Po	-	η - Θ"			0.30	_	0.21									=	0.0980	
			<u> </u>				_											
Dilution Fact		, · · · · · · · · · · · · · · · · · · ·	Kxixd		4.35	x	0.0103	×	9.884							_	4.0000	
S-22 =	DF =	1 +	IxL	= -	0.300		64.591			+	1					=	1.0229	
GW Ingestion	n		BW x At, x 365		1.0E-06	x	70	x	0	x	365				0.0E+00			
S-23 =			x IR. x EF x ED	= -	0.000	x	1.000	×	250	x	25	-		=	0		#DIV/0!	mg/L
Total Soil Po S-24 =	prosity η =	1 - Ps Ps		±	1	•	1.848 2.652	-					·			=	0.3039	
Estimation of S-25 =		Zone Depth (0.0112 x L ²) ^{0.5} + d _e	1 -exp	(-L x l)		-												
	-	•	L	_	0.0112	x	64.591	²) ^{0,5} +										
						_	3.048	×	1 - axp	{	-64.591 4.352	×	0.3 0.0103	<u> </u>	3.048	<u>-</u>)] =	9.884	m

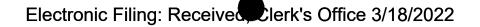
Soil Saturation Limit

[(K_a x pb) + 0w + (H' x 0a)]

Tier 2 Industrial/Commercial Calculations for MTBE KB Food & Gas/Sullivan 90-0146 & 2004-0969

Date Compiled: 04/03/12 Version: 6/27/2008

		RBCA	IRIS/HEAST											Ven	ion: 6/27/	2008	
Input Values				Value to be used in ca	alas dadia			-		JSDA Soil Classi	fination/li			г			
	s Bulk Density ->		FOC % (0.58 conversion			nc Matter (n	_	0		OC mg/kg (0.58 cor		0.000	1 f	oc conversion t	o ala:	0.000	
	inic Matter (%)>		POC % (0.38 convension							ay = 1.7; or Site S		0.000	<u>, "</u>	OC CONTENSION I	O 39'8'	0.000	
	ρ _b - Dry Soil Bulk ps - Soil Particle					Site Spec		1 - 1.0, 360	- 1.0, 0	ay = 1.1, 0/ Oile C	эроспіс						
$\overline{}$	O Air Filled So		0.098					1 meter =	0 13: Gr	avel = 0.05; Sand	1 = 0 14: 5	ilt ≠0 24: Clav	= 0.19:	or Calculated \	/alue (S)	21\	
	Ow - Water Filled		0,206							evel = 0.20; Sand							
										o; Clay = 0.36; or				OI CAICAIAICA (aide (O	207	
	η - SSL & Θτ - RE		Porosity 0.304		Site Sc		U.ZQ, GM	nu = 0,32,	Sitt = 0.41	5, Clay - 0.30, U	Calculate	N VAIDE (324)					
	i - Hydraulic Grad foc - Total Organ						NO6: Sub	surface So	nii = n nna	or Site Specific					-		
	DF - Dilution Fac		1.023							20 default is use		alculated value	is used	i			
	d - Mixing Zone (9,884			lculated v											
	d, - Depth of sou				Depth :	of Source	(Vertical	thickness	of contan	nination)							
	K - Hydraulic Co		n cm/sec =	1.38E-05	Site Sp	ecific	1.1	9E+00	cm/d	4.35E+02	cm/yr t	Jse cm/d for R	15, R19	, & R26. cm/yr	for R24		
			roundwater Flow (m)	feet = 211.9112	Site Sp	ecific (m)											
	d Aquifer Thick			feet = 10	Site Sp	ecific (m)								•			
	I - Infiltration Rat				0.3 for	Illinois						.,,,,,,,					
	K Saturated H		ctivity		See Ta	ble K for I	npul Val	ues									
			ion Objective Class 1	.,	- (0.07	GW _{ab} -	Groundwa	ter Reme	diation Objective	Class 2						
	1/(2b+3) - Expon		Ç			ble K for I											
	BW - Body Weig								(non-carc	inogenic); Industr	nal/Comm	ercial = 70; Co	onstructi	on Worker = 70	, RBCA	* 70	
			stion Factor for Carcinogens		114												
50	IR _{sol} -Soil Ingest				Reside	ntia) = 200); Industi	rial/Comme	ercial = 50); Construction W	/orker = 4	80					
1	IRDaily Water							/Commerc									
	S - Solubility in V					= 51 000											
	TR - Target Can						8. Industr	nal/Comme	emial = 10	Construction	Worker =	10 ⁻⁸ at point of	human	exposure			
	EF - Exposure F									0; Construction \							
25			alation for Non-Carcinogens							Construction Wo							
			entration at the center of a squ	are source	Reside	ntial = 68.	81; Indu	strial/Comr	mercial =	85.81; Constructi	ion Worke	r = 85.81; or T	able H				
	T - Exposure inte				Reside	ntial = 9.5	x10 ⁸ ; In	dustrial/Co	mmercial	= 7.9 x 10 Con	struction \	Worker = 3.6 x	10 ⁶				
30	T _{ML} - Exposure	interval for Mai	l Limit Volatilization Factor Equ	ation S26	30												
70	ED _{M.1} - Exposure D	Duration for Migra	ation to Groundwater Mass-Limit Ec	guation S28	70						•••						
0.18	Infiltration F	Rate for Migrat	on to Groundwater Mass-Limit	Equation S28	0.18												
0,102	D _i - Diffusivity in			,	MTBE	= 0.102											
	H' - Henry's Law				MTBE	= 0.0241											
	D Diffusivity in				MTBE	= 1.1 x 10	-5										
			rcinogens in Ingestion Equation	1	Reside	ntial ≠ 6; I	Industria!	VCommerc	ial = 25; ¢	Construction Wor	ker = 0.11	15					
			rcinogens In Inhalation Equatio		Reside	ntial = 30;	Industri	al/Commer	cial = 25;	Construction Wo	orker = 0.1	115					
1	THQ - Target Ha		•		1												
3	RfC - Inhalation		ncentration			c = 3; Sub				····							
0.01	RfD _e - Oral Refe	rence Dose			Chroni	c = 0.01; S	Subchror	ric = 0.1									
11.50	K _{oc} - Organic Ca	rbon Partition	Coefficient		MTBE	= 11.5											
Residential	Ingestion Reme		tives for Non-Carcinogenic Co	ontaminants		_		4-									
S-1 =			x BW x AT x 365	_ =1	x	70	X	25	х	365			- =	638750	=	20440	mg/kg
3-1-		10 ⁻⁶ x (1//	RfD _o) x EF x ED x IR _{soll}	0.000001	x 1/	0.01	x	250	x	25	x	50		31.25			
L																	
G		d== D====#:-*	in- Objections for Non-C	anania Cantami													
Construction	on worker ingest		ion Objectives for Non-Caroln x BW x AT x 365	ogenic Contaminants 1	٠ .	70		0.115	v	365				2938.25			
S-1 =	_		R(D,) x EF x ED x iR	0.000001	x 1/	01	<u> </u>	30		1	x	48D	- =	0.144	=	20405	mg/kg
		10 ° X (1/1	ZID [©] Y CL X CD X IIZ ^{60#}	1.0000001	X 1/	U. I	*	30		,	*	400		0.177			
L																	
inhalation N	Von-Carcinogeni		ind/Commercial														
S-4 =			HQ x AT x 365	_ =1	х	25	x	385				***	_ =	9125	=	570602.949	mg/kg
		EFx	ED x (1/RfC x 1/VF)	250	x	25	x 1/	3	x 1/	130274.6459				0.015992			
										Tier 2	inhalat	ion Objecti	ve can	not exceed S	ooii Sa	turation Limit	τ
	Yon-Carcinogeni		n Worker HQ x AT x 365		J	0.115	v	365						41 975			
S-5 =			ED x (1/RfC x 1/VF)	_ =		1	x 1/	3	x 1/	879.4225671			_ =	41.975 0.011371	=	3691.376	mg/kg
1		CP X	D X (IIRIO X IIVI)	50	•	•	^ "	•	^ "	5. 5.7EE0011				2.41.41.			



Tier 2 Industrial/Commercial Calculations for MTBE KB Food & Gas/Sullivan

				90-0	146 &	2004-096
SIDENTIAL OR CO	MMERCIAI	_				
	0	(3.14 x D. x T) ^{1/2} x 10 ⁻⁴	- 1	3 14	¥	7.90F

RESIDENTIAL OR COMMERCIAL

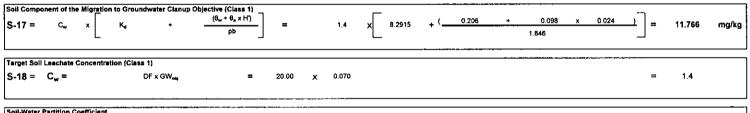
S-8 = VF =
$$\frac{Q}{C} \times \frac{(3.14 \times D_A \times T)^{1/2} \times 10^4}{(2 \times \rho_b \times D_A)}$$
 = 85.81 $\times \frac{(3.14 \times 7.90E+07 \times 7.90E+08)^{1/2} \times 0.0001}{(2 \times 1.846 \times 7.90E+07)}$ = 0.3798 = 130274.6459

Construction Worker

Construction Worker
$$S-8 = VF = \frac{Q}{C} \times \frac{(3.14 \times D_A \times T)^{1/2} \times 10^4}{(2 \times p_b \times D_A)} = 85.81 \times \frac{(3.14 \times 7.90E-07 \times 3.60E+06)^{1/2} \times 0.0001}{(2 \times 1.846 \times 7.90E-07)} = \frac{0.0256}{2.92E-06} = 8794.2257$$

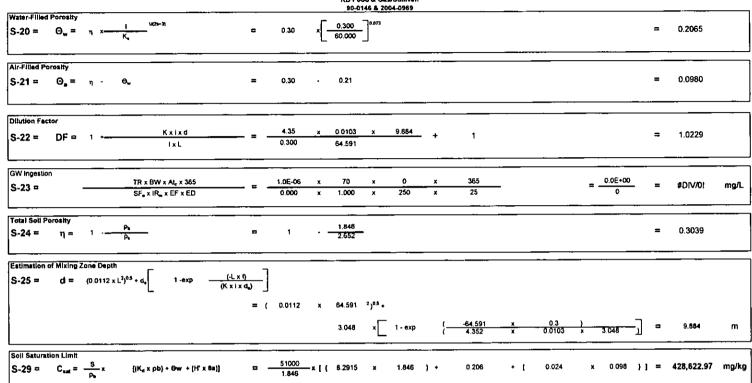
Equation for Derivation of Volatilization Factor - Construction Worker 8794.2257 S-9 = VF' = -= 879,4226

Equation for Derivation of Apparent Diffusivity (θ_a^{3,33} x D_i x H) + (θ_a^{3,33} x D_a) $(\rho_b \times K_d) + \theta_w + (\theta_a \times H)$ _ (4.37E-04 x 0.102 x 0.0052 x 0.024) + (1.10E-05 } = 7.90E-07 (1.846 x 8.2915 }+ 0.024



Soil-Water Partition Coefficient S-19 = K_d = X 0.721 8.2915 $K_{oc} \times f_{oc}$ 11.50

Tier 2 Industrial/Commercial Calculations for MTBE KB Food & Gas/Sullivan

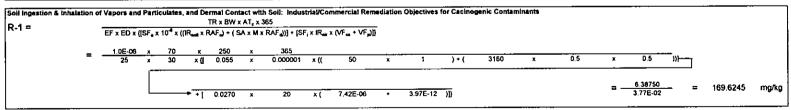


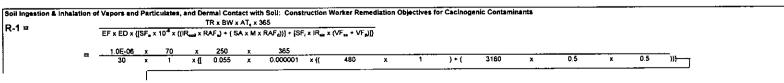


Tier 2 RBCA Industrial/Commercial Calculations for Benzene KB Food & Gas/Sulfivan 90-0145 & 2004-0969

| SSL | SSL & RBCA | IRISMEAST | Date Compiled: 04/03/12

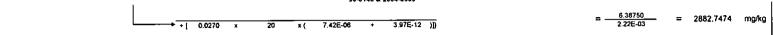
Input Values	l													
	s Bulk Density ->	0				alculation sheet>			Soit Classification:					
	nic Matter (%)>	0	FOC % (0.58 conversio	د- (۱۱	0.000	Organic Matter (mg/kg)	0		y/kg (0.58 conversion)	0.000	foc conversi	on to g/g:	0.000	
	ρ _b - Dry Soil Bulk I					1.5 or, Gravel = 2.0; Sand = 1	.B; Silt = 1.6; C	Clay = 1.7; or Si	ite Specific					
	ps - Soil Particle D					2.65 or; Site Specific	0.00-014-0	40: 01 0.20						
	Or RECA: Total Sc					10.43 or, Gravel - 0.25; Sand =	0.32; Sin = 0.4	40; Clay = 0.36	<u> </u>					
	i - Hydraulic Gradie					Site Specific Surface Soil = 0.006; Subsurf	non Coil - O Of	02: or Cite Coer	elste				**	
	foc - Total Organic			1.38E-0		Site Specific	1.19	cm/d		Use could for R	15, R19, & R26, cm/yr f	or 824		
	K - Hydraulic Cond			feet =	,	Lower depth of surficial soil zo				Caso caisa ior (1	10,1110,0100. 0111911	VI 1.12.1	,	
	d - Lower depth to X - Distance along			i feet = 1	Δ	Distance along the centerine	of the amunds	vater olume em	anatino from a Sou	rce. The x direct	ion is the direction of the	flow.		
	Sd - Source width			i feet = 6		Source width perpendicular to				(a-, <u>, , , , , , , , , , , , , , , , , , </u>				
	W - Width of source		io (eni)	i feet = 8		Width of Source Area Parallel								
	A - First Order Deg		stant		-	Benzene = 0.0009								
	p Water Density					1								
	w - Average soit m		rei			10.1 or, Surface Soil = 0.1; Sut	surface soil =	0.2; or Site Sp	ecific					
	1 - Infiltration Rate					30 for Illinois	•							
200.0	δ _{ow} - Groundwater	Mixing Zone	Thickness (cm)			200				-·- <u>-</u>				
	BW - Body Weight		· · · · · · · · · · · · · · · · · · ·			Residential = 70 (carcinogenia	c); 15 (non-car	rcinogenic); Ind	ustna//Commercial	= 70; Construction	on Worker = 70; RBCA =	×70		
	SF, -Oral Slope Fa					Benzene = 0,055								
1	IRDaily Water In)			Residential = 2; Industrial/Cor								
1.0E-06	TR - Target Cance					Residential = 10 ⁴ Industrial/0	Commercial = 1	10 ⁻⁴ ; Constructi	ion Worker = 10 ⁻⁸ af	point of human	exposure			
	AT, -Average Time		pens			70			<u> </u>					
	EF - Exposure Fre					Residential = 350; Industrial/0	Commercial = 2	250; Constructi	on Worker = 30					
			alation to Carcinogens			Residential = 30; Industrial/Co	ommercial = 2	5; Construction	Worker = 1					
	D, & D Diffusivit					Benzene = 0.088								
0.228	H' - Henry's Law C	Constant				Benzene = 0.228								
9.80E-06	D., & D'"- Diffus	ivity in Water				Benzene = 9.8 x 10 ⁻⁶								
225	Average wine بنا	d speed abov	re ground surface in ambient m	nixing zone		225								
200	o Ambient mixi	ing zone heigl	ht			j 200								
100	L, - Depth to subs	surface soils				1100								
0.00860	RfD, - Inhalation R	Reference Dos	se			IRIS/HEAST			- ''					
0.0270	SF ₁ - Inhalation Ca	ancer Slope F	actor			IRIS/HEAST								
0.0040	RfD, - Oral Refere	ence Dose				IRIS/HEAST								
25	AT _n - Average time	e for noncaci	nogens			Residential = 30; Industrial/C	ommercial = 2:	5; Construction	Worker ≠ 0.115					
	P Perticulate Er					6.9 x 10 ⁻¹⁴						****		
20	IR Daily outdoo	or inhalation r	ate			20								
50	IR _{sel} - Soil ingestic	on rate	•			Residential = 100; Industrial/	Commercial * :	50; Constructio	n Worker = 480		****			
3160	SA - Skin surface	area				13160								
	M - Soil to Skin Ad					10.5								
0.5	RAF ₄ - Dermal Re	stative Absorp	tion			0.5; PNAs = 0.05; Inorganics	= 0.00							
1	RAF, - Oral relativ	ve absorption	factor]1								
9.46E+08	r - Average time (or vapor flux				16.46 x 10 ⁴								
1	THQ - Target Haz					1								
58.90	K _{ec} - Organic Cart	oon Partition I	Coefficient			Benzene = 58.9								





2

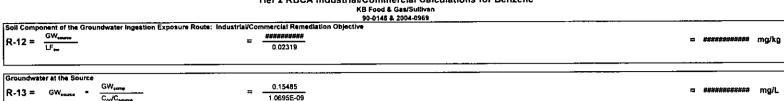
Tier 2 RBCA Industrial/Commercial Całculations for Benzene KB Food & Gas/Sullivan 90-0146 & 2004-0969

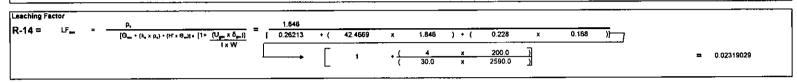


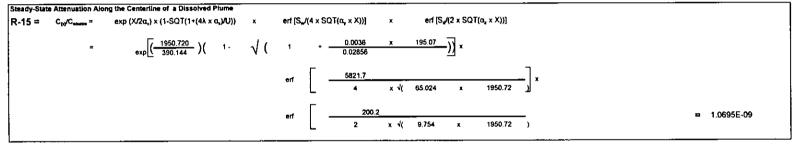
Tier 2 RBCA Industrial/Commercial Calculations for Benzene KB Food & Gas/Sullivan 90-0146 & 2004-0969

Volatillizati	on factor for a	urficial soils. Whichever is less be	tween R-3 a	nd R-4.														
	VE -	2 x W x p, x 10 ³		D ^{ed} , x i	H'		2	x	2590.0	x	1.648	×	1000	_ x				
R-3 =	VF ₃₄ =	2 x W x ρ, x 10 ³ U _{ar} x δ _{ar}	π × [0_	+ (% × p _s)	*(P* = 0_\$ = 1		225	×	200									
		1			1.25E-03		0.228								A 405 - 04	=	7.4240E-06	kg/m3
			3.1416	× [0.26213	+ (42.4669	×	1.846)+(0.228	x	0.168]×	9.46E+08			
Volatiliizati	on factor for s	urficial soils. Whichever is less be	tween R-3 a	ind R-4.														
R-4 =	\/E =	Wxp, xdx 10 ³		=	2590.0	x	1.846	×	100.000	x	1000	_		=	478114000 4.26E+13	=	1,123E-05	kg/m3
K-4 -	VI 48 -	U _{ar} x ō_ x t			225	x	200	x	9.46E+08						4.26E+13			
Volatilizatio	on Factor for a	urficial soils regarding particulates																
R-5 =		P _a x W x 10 ³		_	6.90E-14 225	×	2590.0	×	1000	_				=	1,79E-07	=	3,9713E-12	kg/m3
K-9 -	Vrp	U _{atr} x ô _{atr}		-	225	×	200								45000			
Effective D	litusion Coeffi	clent in Soil Based on Vapor-phase	concentrat	tion														
R-6 =	D, eff =	D ^{alf} x θ _{ts} 3 33 B ₂ + D ^{matter} x θ _{ts} 3 33 H' x θ _c 2		=	0.088	x	2.625E-03	- +	9.80E-06	×	0.0116	_				=	0.00125206	cm2/s
11-0 -	D, -	θ _τ ² H'x θ _τ ²				0,1849	00		0.228	×	0.184900							
MINDELL A					15,7716	×	0.001							=	1.58E-02	=	4092.0612	mg/kg
l		RBSL _{ee} x 10 ⁻³ VF _{nemb}		=		3.854E	06	_							3.654E-06			
R-7 =	apor inhalation	n (outdoor) Route from Subsurface	Soils: Con	structio	n Worker Re	medlation	on Objectives	for Car	cinogenic Cor	ntaminant	is						 	
Ambient V R-7 = Ambient V R-7 =	apor Inhalation		Soils: Con	structio		medlation	on Objectives 0.001	for Car	cinogenic Cor	ntaminant	is			=	3.854E-06 3.94E-01 3.854E-06		102301.5301	mg/kg
R-7 = Ambient V R-7 =		n (outdoor) Route from Subsurface <u>RBSL_{ui} x 10³</u> VF _{sumb}	Soils: Con	structio	n Worker Re	medlatio	on Objectives 0.001	for Car	cinogenic Cor	ntaminant	is .			=	3.94E-01		 	mg/kg
R-7 = Ambient V R-7 =	Carcinoganic	n (outdoor) Routs from Subsurface RBSL _{ut} x 10 ⁻³ VF _{same} : risk-based screening level for air	Soils: Con	structio	n Worker Re 394.2901	medlatio	on Objectives 0.001 -06	for Car	cinogenic Cor	teminant	365	х	1000	=	3.94E-01 3.854E-06		102301.5301	
R-7 = Ambient V R-7 =		n (outdoor) Route from Subsurface <u>RBSL_{ui} x 10³</u> VF _{sumb}	Soils: Con	structio	n Worker Re	mediation x 3.854E	on Objectives 0.001	-				х	1000	=	3.94E-01 3.854E-06		 	
R-7 = Ambient V R-7 = Residentia R-9 =	Carcinogenic RBSL _{et} =	risk-based screening level for air TR x BW x AT _a x 365 x 10 ³ SF, x IR _{ae} x EF x ED		structio	n Worker Re 394.2901 1.0E-06	mediation x 3.854E-	0.001 0.001 06	- x	250		365	x	1000	=	3.94E-01 3.854E-06		102301.5301	
R-7 = Ambient V R-7 = Residentia R-9 =	Carcinogenic RBSL _{er} =	n (outdoor) Route from Subsurface RBSL _{us} x 10 ⁻³ VF _{hamb} : risk-based screening level for air TR x BW x AT _u x 365 x 10 ⁻³ SF, x IR _{us} x EF x ED		structio	n Worker Re 394.2901 1.0E-06	mediation x 3.854E-	0.001 0.001 06	- x	250		365	x	1000	-	3.94E-01 3.854E-06 6387.5 405	=	102301.5301	ug/m3
R-7 = Ambient V R-7 = Residentia R-9 =	Carcinogenic RBSL _{et} =	risk-based screening level for air TR x BW x AT _a x 365 x 10 ³ SF, x IR _{ae} x EF x ED		structio	1.0E-06	mediation x 3.854E-	0.001 -06 -70 -20	- x	250 25		365 30			-	3.94E-01 3.854E-06		102301.5301	
R-7 = Ambient V R-7 = Residentia R-9 = Constructi R-9 =	RBSL _{er} =	n (outdoor) Route from Subsurface RBSL _{us} x 10 ⁻³ VF _{seeb} C risk-based screening level for air TR x BW x AT _a x 365 x 10 ³ SF ₁ x IR _{us} x EF x ED TR x BW x AT _a x 365 x 10 ³ SF ₁ x IR _{us} x EF x ED		structio	n Worker Re 394.2901 1.0E-06 0.027	mediation x 3.854E-	70 20	- х х	250 25 25	x x	365 30 365			-	3.94E-01 3.854E-06 6387.5 405	=	102301.5301	ug/m3
R-7 = Ambient V R-7 = Residentia R-9 = Constructi R-9 =	RBSL _{ee} =	reinogenic risk-based screening level for air TR x BW x AT _x x 365 x 10 ³ SF, x IR _{ex} x EF x ED TR x BW x AT _x x 365 x 10 ³ SF, x IR _{ex} x EF x ED	rel for air	structio = =	1.0E-06 0.027	mediation x 3.854E-	70 20	- х х	250 25 25	x x	365 30 365			-	3.94E-01 3.854E-06 6387.5 405	=	102301.5301	ug/m3
R-7 = Ambient V R-7 = Residentia R-9 = Constructi R-9 =	RBSL _{ee} =	n (outdoor) Route from Subsurface RBSL _{us} x 10 ⁻³ VF _{seeb} C risk-based screening level for air TR x BW x AT _a x 365 x 10 ³ SF ₁ x IR _{us} x EF x ED TR x BW x AT _a x 365 x 10 ³ SF ₁ x IR _{us} x EF x ED	rel for air	structio = =	1.0E-06 0.027	mediation x 3.854E-	70 20	- х х	250 25 25	x x	365 30 365			-	3.94E-01 3.854E-06 6387.5 405	=	102301.5301	ug/m3
R-7 = Ambient V R-7 = Residentia R-9 = Constructi R-9 =	on Worker Can RBSL _{ate} = On Factor - Su VF =	In (outdoor) Route from Subsurface RBSL _{us} x 10 ⁻³ VF _{hamb} E risk-based screening level for air TR x BW x AT _u x 365 x 10 ⁻³ SF, x IR _{us} x EF x ED reinogenic risk-based screening lev TR x BW x AT _u x 365 x 10 ⁻³ SF ₁ x IR _{us} x EF x ED ibsurface Soil to Ambient Air H x p ₂ x 10 ⁻³ [B _{us} + (k _u x p _u) + (H x B _{us})] x 1 -1	rei for air (U _{ser} × O _{ser} × O _{cer} × O _{cer} × W)	structio	1.0E-06 0.027	x x x x	70 20 70 20	_ x x x x x	250 25 250 30	x x	365 30 365			-	3.94E-01 3.854E-06 6387.5 405 6387.5 16.2	=	102301.5301	ug/m3 ug/m3
R-7 = Ambient V R-7 = Residentia R-9 = Constructi R-9 =	on Worker Can RBSL _{ate} = On Factor - Su VF =	risk-based screening level for air TR x BW x AT, x 365 x 10 ³ SF, x IR _{set} x EF x ED reinogenic risk-based screening level TR x BW x AT, x 365 x 10 ³ SF, x IR _{set} x EF x ED burface Soil to Ambient Air H' x p _x x 10 ³ [8 _{set} + (k _x x p _x) + (H' x 8 _{set})] x 1 -	rei for air (U _{ser} × O _{ser} × O _{cer} × O _{cer} × W)	structio	1.0E-06 0.027	x x x x	70 20	- х х	250 25 250 30	x x	365 30 365 1			-	3.94E-01 3.854E-06 6387.5 405	=	15.77160 394.29012	ug/m3
R-7 = Ambient V R-7 = Residentia R-9 = Constructi R-9 =	on Worker Can RBSL _{ate} = On Factor - Su VF =	In (outdoor) Route from Subsurface RBSL _{us} x 10 ⁻³ VF _{hamb} E risk-based screening level for air TR x BW x AT _u x 365 x 10 ⁻³ SF, x IR _{us} x EF x ED reinogenic risk-based screening lev TR x BW x AT _u x 365 x 10 ⁻³ SF ₁ x IR _{us} x EF x ED ibsurface Soil to Ambient Air H x p ₂ x 10 ⁻³ [B _{us} + (k _u x p _u) + (H x B _{us})] x 1 -1	rei for air (U _{ser} × O _{ser} × O _{cer} × O _{cer} × W)	structio	1.0E-06 0.027	x x x x	70 20 70 20	x x x x x x x x x x x x x x x x x x x	250 25 250 30	x x	365 30 365			-	3.94E-01 3.854E-06 6387.5 405 6387.5 16.2	=	15.77160 394.29012	ug/m3 ug/m3

Tier 2 RBCA Industrial/Commercial Calculations for Benzene







R-16 =	α _κ	•	0.10 x X	±	0.1	×	1950.720		195.07200	ст
Transverse R-17 =	Dispersiv Cl _y	rity =		=	195.07		-	=	65.02400	cm

Vertical Disp	ersivity							 -	· · · · · · · · · · · · · · · · · · ·			
R-18 =	α_z	= .	a, 20		= _	195.07				=	9.75360	cm
								 -				
												

Sı	ecific Disc	harge								-				
R	-19 =	υ	•	K x i	=	1,192 0.43000	<u> </u>	0.0103				=	0.02856	cm/d

Longitudinal Dispersivity

Tier 2 RBCA Industrial/Commercial Calculations for Benzene KB Food & Gas/Sullivan 90-0146 & 2004-0969

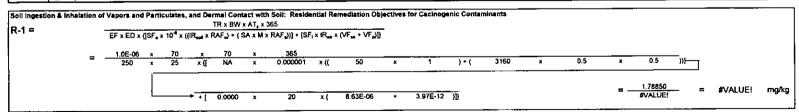
								90-	0146 & 21	004-0969								
Soll-Water	Sorption Co	efficient		3														
R-20 =	k _s =			K _{oc} x f _{oc}	=	58.90	x	0.721000								•	42.4669	
Volumetric	Air Content	t in Vadose 2	one Soi	ls.					<u> </u>			<u> </u>						
R-21 =	θ		6 ₁	ρ,,	=	0.430	- -	1,00	х	1,846						=	0.168	
		tent in Vados	e Zone : × ρ,	Soils		0.14	×	1.846										
R-22 =	θ,,,		P.,		= -	1.00		110-70	-								0.26213	
Total Soil f R-23 =	Percetty 6 _T		e_	+ B_		0.168	•	0.26213				·			<u> </u>	=	0.430	
	Commercial	Carcinogen		dwater Ingestion BW x AT ₄ x 365		1.0E-06	х	70		250	×	365		_ 6	.38750		0.15485	mg/L
R-25 =	•		Si, x	IR _w × EF × ED	= -	0.055	×	1	×	25	×	30	_		41.25		0.15465	myrc
Constructi	on Worker C	Carcinogenic		hwater Ingestion BW x AT, x 365		1.0E-06	x	70	x	250	x	365		6	.38750			
R-25 =	•			IR_ x EF x ED	= -	0.055	×	1	x	30	х х	1			1.65	=	3.87121	mg/L

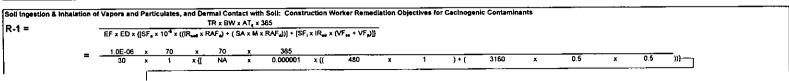
5

Tier 2 RBCA Industrial/Commercial Calculations for Toluene KB Food & Gas/Sultivan 99-0148 & 2004-0969

| SSL | SSL & RBCA | RISHEAST| | Date Compiled: 04/03/12 | Version: 627/2008

Input Values							LICOA C-3 Otavalilantina	li sam	·	
	Bulk Density ->	0		Value to be used in			USDA Soil Classification FOC mo/kg (0.58 conversion	0,000	foc conversion to g/g:	0.000
	nic Matter (%) ->	0	FOC % (0.58 conversion	0.000 حــ (Organic Matter (mg/kg) 1.5 or: Gravel = 2.0; Sand =			0.000	1 toc convension to grg. [0.000
	p Dry Soil Bulk D				2.65 or; Site Specific	1.6, SHL = 1.0,	play = 1.1, or site opecific			
	ρs - Soil Particle Di RBCA: Total Soil Po			_	J 0.43 or, Gravel - 0.25; Sand	. 0.32: Sitt ≠ 0	40: Clay = 0.36			******
	i - Hydraulic Gradie				Site Specific	0,02, 011 <u>1 - 0</u>	10, 010, 0.00			
	foc - Total Organic		· · · · · · · · · · · · · · · · · · ·		Surface Soil = 0.006; Subsur	face Soil = 0.0	02; or Site Specific			
	K - Hydraulic Conde			1.38E-05	Site Specific	1.19		Use cm/d for R	15, R19, & R26. cm/yr for R24	
	d - Lower depth to			feet =	Lower depth of surficial soil z	one. Site-Spe	cific not to exceed 100			
1950.720	X - Distance along	CL of GW PI	lume (cm)	feet = 10	Distance along the centerline	of the ground	water plume emanating from a So	irce. Tha x direct	ion is the direction of gw flow.	
	Sd - Source width -		ne (cm)	: feet ≈ 6.569			flow direction in vertical plane			
	W - Width of source			feet = 80		to Direction t	Wind or Groundwater Movement			
	λ - First Order Degr		stant		Toluene = 0.011					
	ρ _w - Water Density				11		00 - 02-5			
	w - Average soil mo		nt		10.1 or; Surface Soil = 0.1; Su 30 for Illinois	DSUMBCE SOIL	U.Z. or She Specific		<u> </u>	
	I - Infiltration Rate (i 200					
	δ _{per} - Groundwater f		Thickness (cm)			ia): 15 man es	rcinogenic); Industrial/Commercia	= 70: Constauction	on Worker = 70: PRCA =70	
	BW - Body Weight		·			c); 15 (non-ca	icinogenic), industrial commercia	- 10, Consucco	OI WOKES - TO, KBCA -TO	
	SF, -Oral Slope Fa				¡Toluene =					
	IR., -Daily Water In				Residential = 2; Industrial/Co					
	TR - Target Cancer					Commercial =	10 ⁴ ; Construction Worker = 10 ⁴ a	t point of human	exposure	
	AT _c -Average Time		gens		70				. <u> </u>	
	EF - Exposure Fred				Residential = 350; Industrial/ Residential = 30; Industrial/C		250; Construction Worker = 30			
			alation to Carcinogens			ommercial = 2	5, Construction Worker # 1			
	D, & D - Diffusivity				Toluene = 0.087					
	H' - Henry's Law Co				Toluene = 0.272 Toluene = 8.6 x 10 ⁻⁸			-	· 	
	D. & D' Diffusir			-	14.24.14		 -		· · · · · · · · · · · · · · · · · · ·	
			e ground surface in ambient mi	ixing zone	225				 -	
200	ō - Ambient mixin	ng zone heig	ht		200		-		 	
100	L, - Depth to subsu	urface soils			j 100					
	RfD; - Inhalation Re	eference Do:	se		IRIS/HEAST					
	SF ₁ - Inhalation Ca	incer Slope F	actor		IRIS/HEAST					
0.0800	RfD, - Oral Referen	nce Dose			IRIS/HEAST					
25	AT, - Average time	e for noncaci	nogens		Residential = 30; Industrial/C	ommercial = 3	5; Construction Worker = 0.115			
6.90E-14	P Particulate Em	nission Rate		· · · · · · · · · · · · · · · · · · ·	6.9 x 10 ⁻¹⁴					
$\overline{}$	IR Daily outdoor		ate] 20					
	IR Soil ingestio				Residential = 100; Industrial	Commercial =	50; Construction Worker = 480			
	SA - Skin surface a				13160					
	M - Soil to Skin Ad		tor		10.5		· · · · · · · · · · · · · · · · · · ·			
	RAF _a - Dermai Rel				30.5; PNAs = 0.05; Inorganics	= 0.00			<u></u>	
	RAF Oral relative				11					
	I - Average time for				16.46 x 10 ⁸					
1	THQ - Target Haza				1					
	K _m - Organic Carb		Coefficient		Toluene = 182.0					





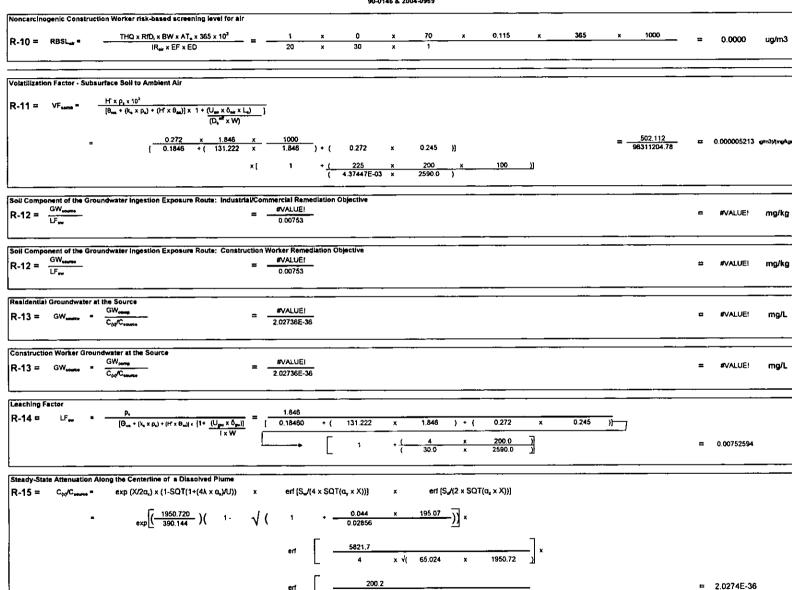
тр/кд

RBCA LC (Toluene)

Tier 2 RBCA Industrial/Commercial Calculations for Toluene KB Food & Gas/Sullivan 90-0148 & 2004-0969

									90-4	D148 & 2	004-0969									
Soll ingesti	on & Inhalation	n of Vapors and Pa	rticulates,	and Der	mal Cont	c1 with	Soll: Indus	trial/Com	mercial Reme	diation	Objectives fo	r Non-Cac	inogenic Cont	aminants					•	
R-2 =					THQ x i	BW x AT	" x 365	_												
K-2 -		EF x ED x I	10*	x [(IR ₊₊	x RAF _a)+(SA x M >	(RAF.)	_ + _	IR _{ail} x (VF _{ee}	+ VF.)										
		ELXEDY!			RfD.				RfD,											
			4		70		25		365											
		= -	<u>,</u>		- 10 - 25		25 1.E-06 0.0800	× ((365 50	×	1)+(3160	х	0.5	x	0.5			
			250	×	25	׾ -	0.0800	•												
									0.03405.40								639750			_
İ				<u> </u>	0.00000	<u> </u>	8.63E-UG		3.9 <u>713E-12</u>							= -	638750 #DIV/0!	=	#DIV/0!	mg/kg
					0.0000														••	
		n of Vapors and Pa					0.0.0		M	distant C	Shinashana dan	Non Cool		minente						
_	ion & Inhalatio	n of Vapors and Pa	rticulates,	and Del		act with BW x AT		arucubn 1	AOINE! Wallsh	LIZUON C	opjecuves (o)	NOII-CACI	INGENIC COM	111111111111111						
R-2 =			10-6	x 1/1R	x RAFa)+(SA x M	x RAFall		IR. x (VF.	+ VF.)	-									
		EF x ED x		~ 1(~ 404	x RAF _e)+(RfD _e			- + -	IR _{eir} x (VF _{ee} RfD _i		-									
Ì																				
			1	x	70	<u> </u>	0	X	365						0.5		0.5			
1		_	30	x	1	x[-	0 1.E-06 0.0800	x <u>!(</u>	480	х	1 .)+(3160	_x	U.5	<u>x</u>				
				+	20	× (8.63E-06	+	3.9713E-12)						2 -	2938.25	=	#DIV/01	mg/kg
					0.00000												#DIV/0!			
L																				
Volatillizati	on factor for s	urficial soils. Which	hever is k	ess betw	een R-3 a	nd R-4.														
R-3 =	VF _{ss} =	2 x W x U _m x	p, κ 10 ³	_ 🗸 –		D ^{ee} , x	г	_ = -	2	X	2590.0	х	1.846	×	1000	— x				
11-5 -		U _m x	6_	•	π×[6_	. + (k, x p.)	-04 r d=1) = 1		225	×	200									
				J_			4.37E-03	×	0.272									=	8.6344E-06	kg/m3
Į.				,	3.1416	x {	0.16460	+ (131.222	×	1,846) + (0.272	×	0.245	l×	9.46E+08			•
<u></u>																			-	
Volatillizati	on factor for s	urficial soils. Whi	hever is k	ess betw	reen R-3 a	nd R-4.											-			
R-4 =		W x p, x d x 10 ³	_				2590.0	×	1.846	×	100.000	x	1000	_		= -	478114000	=	1.123E-05	kg/m3
R-4 =	Vr. = -	U_ x 5_ x t				_	225	x	200	×	9.46E+08						4.26E+13			•
			-														.			•
Volatilizati	on Factor for s	urficial solls regar	ding partic	ulates											·			•		
R-5 =	VE n	P _e x W x 10 ³				= .	6.90E-14	×	2590.0	x	1000	_				= -	1.79E-07 45000	=	3.9713E-12	kg/m3
K-5 =	Vrp	P _e x W x 10 ³ U _{es} x δ _{es}				_	225	×	200								45000			•
L									.		_								**	
Effective D	iffusion Coeffi	cient in Soil Based	on Vapor	-phase c	oncentral	tion														
R-6 =	D, eff =	D** x 6, 239	D**** x 8,	1.0		=	0.087	×	9.296E-03	_ +	8.60E-06	x	0,0036	_				=	0.00437447	cm2/s
K-0 =	O, ==	θ ₁ ?	Hπθ,	7-		_		0.18490	00		0.272	x	0.184900							
																			· -	
Amblent V	apor Inhalation	n (outdoor) Route f	rom Subsi	urface Se	oils: Indu	strial/Co	ommercial F	Remediati	on Objectives	for Nor	-Carcinogeni	c Contam	Inants							
		RBSL × 10 ⁻³				_	0.0000	x	0.001	_						= -	0.00E+00	=	0.0000	mg/kg
R-8 =		RBSL _{et} x 10 ⁻³ VF _{comb}	-			-		5.213E-	06	_							5.213E-06	_	5.5000	
																			_	
Amblase	anne Inhelest-	n (outdoor) Route f	rom Sub-	urface e	nile: Coo	etruction	n Worker Da	mediatio	n Objectives	for Non-	Carcinopeoic	Contamir	nants							
1	apor innautio			unace S	J.13. CON	24 acrio	0.0000	X	0.001	11011-						_	0.00E+00	_	0.000	-A-A-A
R-8 =		RBSL _{as} x 10 ⁻³ VF _{nemb}	-			=		5.213E-		_						= -	5.213E-06	=	0.0000	mg/kg
1		₹7 samb																		
	· · · · · · · ·																•			
Noncarcin	ogenic Reside	ntial risk-based sc	reening le	vel for a	ır															
		THQ x Rf	D, x BW x A	AT, x 365	5 x 10 ³		1	×	0	×	70	×	25	×	365	X	1000	=	0.0000	ug/m3
R-10 =	RBSL _{et} =		tR_ x EF	× ED		- =	20	×	250	×	25							_	0.0000	ugrite
1			-																	

Tier 2 RBCA Industrial/Commercial Calculations for Toluene KB Food & Gas/Sullivan 99-0148 & 2004-0969



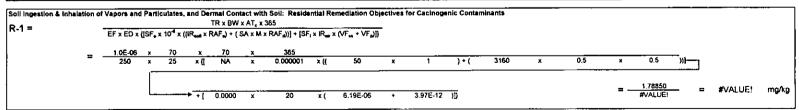
9

Tier 2 RBCA Industrial/Commercial Calculations for Toluene KB Food & Gas/Sullivan 90-0146 & 2004-0969

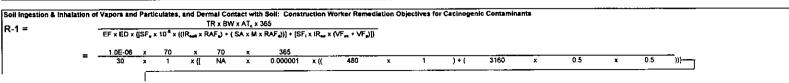
Longitudinal Dis														195.07200	
R-16 =	α _x = 0.10 x X	=	0,1	X	1950.720									185.07200	cm
Transverse Disp	persivity								• •			<u>.</u>			
R-17 =	α _γ = - 0 ₁ /3	= -	195.07 3	-									•	85.02400	cm
					<u>.</u>					·			· · · · ·		
Vertical Dispers	ivity	_													_
R-18 =	α _z =	= -	195.07	•									=	9.75360	cm
Specific Dischar	nge														
R-19 =	U = Kxi 0,	= =	1.192 0.43000	x	0.0103	-						_	-	0.02856	cm/d
Soll-Water Sorp	ntion Coefficient			•	_							·			
R-20 = k,	= K _{ec} x f _{ec}	=	182.00	×	0.721000								=	131.222	
Volumetric Air C	Content in Vadose Zone Soils							•							
R-21 =	$\theta_{as} = \theta_T \cdot \frac{(w \times p_s)}{p_w}$	=	0.430		0.10 1.00	x	1.846	•					=	0.245	
Volumetric Wate	ter Content in Vadose Zone Solls														
R-22 =	θ _{ws} =	= -	1.00	x	1.846	-							=	0.18460	
Total Soil Poros	sity														
	θ _T = α _m → α _m	=	0.245	٠	0.18460								=	0.430	
Groundwater Da	tarcy Velocity		••									_			
R-24 = U _g		=	435.20	x	0.0103								=	4,48	cm/y
Industrial/Comm	mercial Carcinogenic Groundwater Ingestion														
R-25 =	TR x BW x AT, x 365 S1, x IR,, x EF x ED	= _	1.DE-06	x	70	x	70	<u> </u>	365	_	= -	1.78850 #VALUE!	=	#VALUE!	mg/L
	SI, X IK, X EF X ED		NA	×	1	×	250	×	25			#VALUE!			
Construction W	Vorker Carcinogenic Groundwater Ingestion	_ .						· .			· -	4.70050	_		
R-25 =	TR x BW x AT ₄ x 365	=	1.0E-06	X	70	X	70	X	365 1	_	= —	1.78850	=	#VALUE!	mg/L
	St _e x IR _w x EF x ED		NA	x	1	×	30	x	1			#VALUE!			

Tier 2 RBCA Industrial/Commercial Calculations for Ethylbenzene KB Food & Gas/Sullivan 90-0146 & 2004-0969

					90-0146 & 2	2004-0969				
		SSL	SSL & RBCA						Date Compiled:	04/03/12
		RBCA	IRIS/HEAST						Version: 6/27/2008	
out Values										
	s Bulk Density ->	0			calculation sheet>		USDA Soil Classification: L			0.000
	nic Matter (%) ->	0	FOC % (0.58 conversion)	-> 0.000	Organic Matter (mg/kg)		FOC mg/kg (0.58 conversion)	0.000	foc conversion to g/g:	0.000
	p _e - Dry Soil Bufk D				1.5 or, Gravel = 2.0; Sand = 1	.8; Silt = 1.6; Clay	= 1.7; or Site Specific			
	ps - Soil Particle D				2.65 or; Site Specific 10.43 or; Gravel - 0.25; Sand =	0.00.00 - 0.40.	01			
	O+ - RBCA Total So					0.32; Sin = 0.40;	Clay = 0.36		·	
	i - Hydraulic Gradie foc - Total Organic				Site Specific Surface Soil = 0 006; Subsurf	ace Soil a D DOO:	or Site Specific			
	K - Hydrautic Cond			1 38C 05	Site Specific			tse cm/d for R15 F	19, & R26. cm/yr for R24	****
	d - Lower depth to			feet =	Lower depth of surficial soil z				110, 4 10,4. 4111, 10, 14,	
	X - Distance along			feet = 10			plume emanating from a Source	. The x direction is	the direction of gw flow.	
	Sd - Source width -			feet = 6.569	Source width perpendicular to					
	W - Width of source			feet = 80	Width of Source Area Paralle	to Direction to W	nd or Groundwater Movement			
0.0030	λ - First Order Degr	radation Con	stant		Ethylbenzene = 0.003					
1.00	ρ., - Water Density				1 1					
	w - Average soil me		rot		10.1 or; Surface Soil = 0.1; Su	bsurface soil = 0.2	or Site Specific			
30.0	I - Infiltration Rate ((cm/yr)			J 30 for Illinois				·	
200.0	გ _ო - Groundwater i	Mixing Zone	Thickness (cm)) 200					
70	BW - Body Weight				Residential = 70 (carcinogeni	c); 15 (non-carcin	genic); Industrial/Commercial =	70; Construction W	orker = 70; RBCA =70	
×Α	SFOral Slope Fa	ctor			Ethylbenzene =					
1	IR., -Daily Water In	gestion Rate	Y		Residential = 2; Industrial/Co					
1.0E-06	TR - Target Cancer	r Rísk			Residential = 10*; Industrial/	Commercial = 104	Construction Worker = 10 st p	sint of human expo	sure	
70	AT, -Average Time	for Carcino	gens		.70					
250	EF - Exposure Free	quency			Residential ≈ 350; Industrial/0	Commercial = 250	Construction Worker = 30			
25	ED - Exposure Dur	ration for Inh	alation to Carcinogens		Residential = 30; Industrial/C	ommercial = 25; C	onstruction Worker = 1			
0.075	D, & Day - Diffusivity	y in Air			Ethylbenzene = 0.075					
0.323	H - Henry's Law Co	onstant			Ethylbenzene = 0.323					
.80E-06	D. & D. Diffusi	vity in Water			Ethytbenzene = 7.6 x 10 ⁻⁶					
225	U Average wind	speed abov	e ground surface in ambient mix	ding zone	225		-			
200	ō Ambient mixir				1200					
100	L Deoth to subsu	 	·····	····	1100				•	
-100	RfD _i - Inhalation Re				IRIS/HEAST					
	SF, - Inhalation Ca				IRIS/HEAST					
0.4000			actos		IRISHEAST					
	RfD _o - Oral Refere				1.1.1.1.1.1.1.1.1					
	AT Average time		nogens		Residential = 30; Industrial/C	ommercial = 25; C	OUSTINGTION AADLES = 0.112			
	P Particulate Em				6.9 x 10 ⁻¹⁴					
20	IR - Daily outdoo	r inhalation r	ate							
50	(R Soil ingestio	on rate				Commercial = 50;	Construction Worker = 480			
3160	SA - Skin surface a									
0.5						= 0.00			<u> </u>	
			factor		Ì1					
1	RAF. Oral relative	e apsorbinu	Tactor		16 46 x 10 ⁴					
20 50 3160 0.5	IR Daily outdoo	r inhalation r on rate area therence Fac	tor		1.9 x 10		Construction Worker = 480			

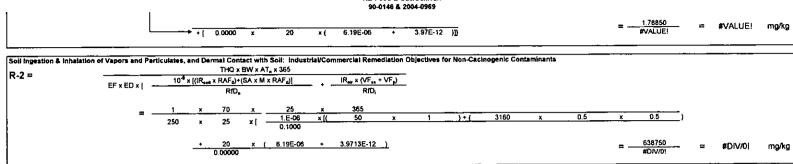


Ethylbenzene * 363



THQ - Target Hazard Quotient K. - Organic Carbon Partition Coefficient

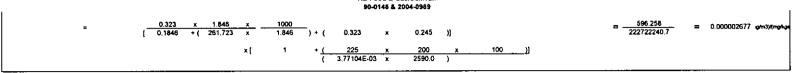
Tier 2 RBCA Industrial/Commercial Calculations for Ethylbenzene KB Food & Gas/Sullivan



Tier 2 RBCA Industrial/Commercial Calculations for Ethylbenzene KB Food & Gas/Sullivan 90-0146 & 2004-0969

Soil Ingestic	on & Inhalatio	n of Vapors and Pa	rticulates,	and Der	mai Cont	act with	Soll: Const	ruction !	Norker Remed		Objectives for I	Non-Cacir	nogenic Conta	minants		_				
R-2 =					THQ x	BW x AT,	x 365													
		EF × ED × [- I(u deal	RfD.		,,,,	- + -	IR _{se} × (VF _{ss} RfD _i		=									
		= .	1	×	70	<u>x</u>	0.115	х	365 480											
			30	×	1	×[-	0.115 1.E-06 0.0030	x [{	480	x	1	}+(3160	х	0.5	хх	0.5			
				•	20 0.00000	x (6.19E-06	<u>+</u>	3.9713E-12							= -	2938.25 #DIV/01	=	#D1V/0I	mg/kg
Volatilitzatio	on factor for s	surficial soits. Whic	hever is to	ss betw	een R-3 a	ind R-4.					••									
R-3 =	VF., =	2 x W x j U _{air} x	D _s x 10 ³	_ √ _		D ^{el} , x l	r	_ = -	2	×	2590.0	х	1.846	x	1000	— х				
	•	U _{air} x	5₌		π x (0_	, + (l _k = p _k)	+(Hf > 0,,,1 , = 1		225	x	200									
				J _			3.77E-03	x	0.323									=	6.1873E-06	kg/m3
				٧	3.1416	x [0.18460	+ (261.723	x	1.846)+(0.323	×	0.245]×	9.46E+08			
Volatiliizatk	on factor for s	surficial solls. Whic	hever is le	ss betw	een R-3 s	ınd R-4.	''								_					
R-4 =	VF = -	W x p _e x d x 10 ³ U _{de} x b _{ee} x 1				= -	2590.0 225	x	1.846 200	x	100.000 9.46E+08	X	1000	_			478114000 4.26E+13	=	1.123E-05	kg/m3
Volatilizatio	on Factor for	surficial soils regard	ding partic	ulates				-												
R-5 =		P _a x W x 10 ³ U _{ai} x δ _{ar}				= -	6.90E-14 225	x x	2590.0 200	×	1000	<u>-</u>				=	1.79E-07 45000	=	3.9713E-12	kg/m3
Effective D		icient in Soil Based			oncentra	tion = -	0.075	x	9.296E-03	_ •	7.80E-06	_ x	0.0036	_					0.00377104	cm2/s
		θ ₁ ²	H* x 6 ₁ 2					0.1849			0.323	x	0.184900							
Ambient Va	apor Inhalatio	n (outdoor) Route fi RBSL _{et} x 10 ⁻³ VF _{semb}	rom Subsu	irface So	lis: Indu	strial/Co	mmercial R 0.0000	emediati x 2.677E-	0.001	for Nor	-Carcinogenio	Contami	nants		**	=	0.00E+00 2.677E-06	=	0.0000	mg/kg
									- 0-11	•		D 4 1-				_	-			
R-8 =	apor inhalatio	n (outdoor) Route fr RBSL _{er} x 10 ⁻³ VF _{temb}	rom Subsu	irface So	olis: Con	struction = -	MOD (M)	x 2.677E-	0.001	— —	Carcinogenic	, ontamin	ams			-	#DIV/01 2.677E-06	=	#DIV/0!	mg/kg
Noncarcine	ogenic industr	rial/Commercial rist	-based sc	reening	level for	ıtr														
R-10 =	RBSL _{at} =	THQ x Rft), x BW x A IR _{er} x EF x	T _n x 365 c ED	x 10 ³	- = -	20	x	0 250	x x	70 25	x	25	х .	365	×	1000	=	0.0000	ug/m:
Noncarcine	ogenic Constr	ruction Worker risk-	based scn	eening k	evel for a	lr							•							
R-10 =	RBSL _{est} =	THQ x Rf	D _i x BW x A !R _{air} x EF x	T _n x 365	x 10³	- = -	20	x	D 30	x	70 1	x	0	x	365	x	1000	=	0.0000	ug/m
Volatilizatio	on Factor - Su	ibsurface Soil to Ar	nbient Air				•						_				<u> </u>			
R-11 =	VF _{semp} =	H' x ρ _s x 10 ³ [θ _{ws} + (k _s x ρ _s)	+ (H' × 8 _m)] x 1 + (L	J _{as} x ō _{air} x D _a × W)	<u>'L')</u>]														

Tier 2 RBCA Industrial/Commercial Calculations for Ethylbenzene KB Food & Gas/Sullivan



Soil Component of the Groundwater Ingestion Exposure Route: Industrial/Commercial Remediation Objective

R-12 =

GW course

LF_{sw} =

#VALUE! mg/kg

0.00378 = #VALUE! mg/kg

Construction Groundwater at the Source $R-13 = \frac{GW_{courts}}{C_{(of}/C_{courts})} = \frac{\frac{GW_{courts}}{C_{(of}/C_{courts})}}{\frac{gVALUE!}{1.7182E-18}} = \frac{gVALUE!}{1.7182E-18}$

Stsady-State Attenuation Along the Centerline of a Dissolved Plume

R-15 = $C_{tof}C_{tomace}$ = $\exp(X/2\alpha_s) \times (1-SOT(1+(4\lambda \times \alpha_s)/U)) \times = \exp\left[\frac{1950.720}{390.144}\right) \left(1 \cdot \sqrt{ \left(1 + \frac{0.012 \times 195.07}{0.02856} \right) } \right] \times = \exp\left[\frac{1950.720}{390.144}\right) \left(1 \cdot \sqrt{ \left(1 + \frac{0.012 \times 195.07}{0.02856} \right) } \right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[\frac{1950.720}{390.144}\right] \times = \exp\left[$

| Congitudinal Dispersivity | R-16 = C_x = 0.10 x X = 0.1 x 1950.720 cm

Transverse Dispersivity

R-17 = $\alpha_y = \frac{\alpha_y}{3} = \frac{195.07}{3}$ = 65.02400 cm

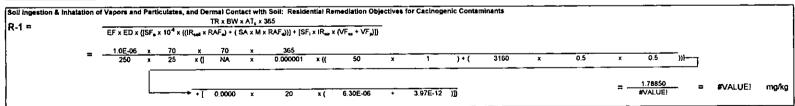
Tier 2 RBCA Industrial/Commercial Calculations for Ethylbenzene KB Food & Gas/Sullivan 90-0146 & 2004-0969

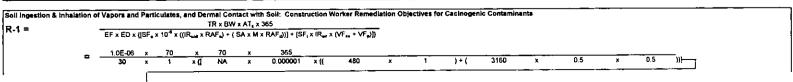
										<u> </u>			
Vertical Dispersivity													
$R-18 = a_2 = \frac{a_1}{20}$	= -	195.07	•								=	9,75360	cm
20		***											
				•									•
Specific Discharge		4.400		0.0103									
$R-19 = U = \frac{K \times I}{\theta_{1}}$	= -	0.43000	<u> </u>	0.0103	-						=	0.02856	cm/d
•		•											
						•••							
Soil-Water Sorption Coefficient													
$R-20 = k_a = K_{sc} \times f_{sc}$	=	363.00	X	0.721000							=	261.723	
 							_						
Volumetric Air Content in Vadose Zone Solls							_			· · · · · · · · · · · · · · · · · · ·			
$R-21 = \theta_{as} = \theta_{7} - \frac{(w \times p_{4})}{2}$	=	0.430		1.00	×	1.845	-				=	0.245	
ρ.,				1.00									
						-							
Volumetric Water Content in Vadose Zone Solls		0.40		4.040									
$R-22 = \theta_{ws} = \frac{w \times \rho_s}{\rho_s}$	= -	1,00	×	1.846	-						=	0.18460	
<u>~</u>													
Total Soll Porosity	_	0.046		0.18460							=	0.430	
R-23 = 6 ₁ = 6 ₄ + 6 ₄	=	0.245	•	0.18400							_	0.400	
	. <u>.</u>												
Groundwater Darcy Velocity	·												
R-24 = U _{me} = K×I	=	435.20	×	0.0103							=	4.48	cm/y
gw													
Industrial/Commercial Carcinogenic Groundwater Ingestion													
R-25 = TR x 8W x AT, x 365	= _	1.0E-06	x	70	X	70	x	365	_	= 1.78850	=	#VALUE!	mg/L
St _o x IR., x EF x ED		NA	x	1	x	250	×	25		#VALUE!			
Construction Worker Carcinogenic Groundwater Ingestion													
TR x BW x AT, x 365		1.0E-06	×	70	x	70	×	365		_ 1.78850	=	#VALUE!	ma/l
R-25 = St. x IR, x EF x ED		NA	×	1	x	30	x	1	_	#VALUE!	-	MVALUE!	mg/L
• "				-									

Tier 2 RBCA Industrial/Commercial Calculations for Total Xylenes KB Food & Gas/Sullivan 90.045.8.7900.0969

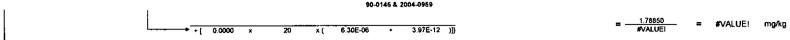
			90-0140 & 2004-0303		
ı	SSL	SSL & RBCA		Date Compiled:	04/03/12
	RBCA	IRIS/HEAST		Version: 6/27/200	r

Input Values			·				USDA Soil Classifica		···		
	s Bulk Density ->	0		Value to be used in c			FOC mg/kg (0.58 conven		foc conversion to g/g:	0.000	
	anic Matter (%)>	D	FOC % (0.58 conversion)	<u>-> 0.000 </u>	Organic Matter (mg/kg) 1.5 or, Gravel = 2.0; Sand = 1	0: CD = 4 C: C		(OR) 0.000	ice conversion to drg.	0.000	
	ρ _b - Dry Soil Bulk D					.B; Sit = 1.6; C	lay = 1.7, or Site Special				
	ps - Soil Particle De				2.65 or; Site Specific 10.43 or; Gravel - 0.25; Sand =	0 22: CH = 0	10: Clay = 0.36				
	OT - RBCA: Total Soi			····································	Site Specific	0.32, SIA = 0.	10, Clay - 0.36		-		
	i - Hydraulic Gradie				Surface Soil = 0.006; Subsurf	aca Soil a 0 0	12: or Site Specific				
	foc - Total Organic			1,38E-05	Sita Specific			Arr I lee cmid for R15	R19, & R26. cm/yr for R24	• • • • • • • • • • • • • • • • • • • •	
	K - Hydraulic Condu d - Lower depth to s			feet =	Lower depth of surficial soil zo			all lose cure or true	(1110, G.1120, GIWY, 1011.127		
	X - Distance along			feet = 10	Distance along the centerline			Source The v direction	is the direction of ow flow.		
	Sd - Source width -			feet = 6,569	Source width perpendicular to			DOUBLE: THE X GIRCOLO.			
	W - Width of source		2	feet = 80	Width of Source Area Paralle			ent			
	A - First Order Degr		estant		Total Xylenes = 0.0019						
	p Water Density				11				- '		_
	w - Average soil mo	vietura contr	end .		10.1 or: Surface Soil = 0.1; Sul	surface soil =	0.2: or Site Specific				
	I - Infiltration Rate (130 for Illinois						
	δ Groundwater N		Thickness (cm)		1200						
	BW - Body Weight				Residential = 70 (carcinogen)	c); 15 (non-car	cinogenic); Industrial/Commer	ial = 70; Construction	Worker = 70; RBCA =70		
	SFOral Slope Far	ctor			¡Total Xylenes ≃						
	IR., -Daily Water Inc		,		Residential = 2; Industrial/Con	mmercial = 1					
	TR - Target Cancer				Residential = 10 ⁴ ; IndustriaV	= (signemmo	0°; Construction Worker = 10	at point of human ex	posure		
	AT, -Average Time		gens		70				_ _		
	EF - Exposure Free				Residential = 350; Industrial/0	Commerciat = 2	50; Construction Worker = 30				
25	ED - Exposure Dun	ation for Inn	atation to Carcinogens		Residential = 30; Industrial/C	ommercial = 2	Construction Worker = 1				
0.072	D, & D ^{ar} - Diffusivity	in Air			Total Xylenes = 0.072						
0.250	H' - Henry's Law Co	onstant			Total Xylenes = 0.250						
9.34E-06	D. & D. Diffusio	vity in Wate	r		Total Xylenes = 9.34 x 10 ⁻⁶						
225			ve ground surface in ambient πία	ding zone	225						
200	ō _{er} - Ambient mixin	ıg zone heig	ht		200		<u> </u>				
100	L, - Depth to subsu	rface soils			1100						
	RfD _i - Inhalation Re	eference Do	se		IRIS/HEAST						
	SF _I - Inhalation Car	ncer Slope I	actor		IRIS/HEAST						
0.2000	RfD _e - Oral Referen	nce Dose			IRIS/HEAST						
25	AT, - Average time				Residential = 30; Industrial/C	ommercial = 2	Construction Worker = 0.115				
6,90E-14	P Particulate Em]6.9 x 10 ⁻¹⁴						
20	IR - Daily outdoor	rinhalation :	rate] 20						
50	IR _{soll} - Soil ingestion				Residential = 100; Industrial/	Commercial = :	50; Construction Worker = 480				
3160	SA - Skin surface a				13160						
	M - Soil to Skin Adl				10.5						
	RAF ₄ - Dermal Rela				0.5; PNAs = 0.05; Inorganics	= 0.00					
1	RAF _e - Oral relative				10.40.40						
9.46E+08	1 - Average time to				16.46 x 10						
260.00	THQ - Target Haza		***		Total Xvienes = 260						
200.00	- Organic Caro	on Faithfull	Continuit		Total Ayunus - 200						





Tier 2 RBCA Industrial/Commercial Calculations for Total Xylenes
KB Food & Gas/Sullivan
90-0146 & 2004-0959

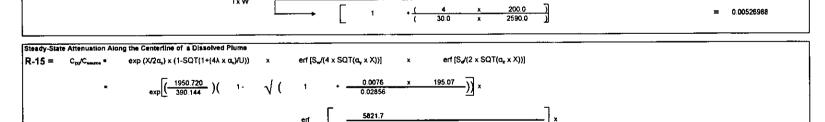


Tier 2 RBCA Industrial/Commercial Calculations for Total Xylenes KB Food & Gas/Sullivan

Fr = ED x 10 - 10 10 10 10 10 10 10												as/Sullivan									
This count is not to a surficial solis. Whichever is seed between R3 and R4.	Call Ingestic	n P Inheletica	of Vanore and Da	rticulates	and Da	rmal Con	tart with	Soll: Indus	trial/Con				Non-Cac	Inggenic Con	taminants		-				
Note 10 10 10 10 10 10 10 1	i -	e de la manacion	or vapors and ra	HILUMIUS,	, and De				LIMBOOK	miles Char Perin		Objectives to	HOII-GEC	mogerne con							
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Fig. 2 1																					
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Volatilitzation Factor for surficial soils. Whichever is less between R-J and R-4. R-4			_	_		•															
Volatilitzation Factor for surficial soils. Whichever is less between R-J and R-4. R-4	l							2 625 02		0.050											
Volatilitization factor for surficial soils. Whichever is less between R-J and R-4.	1				4 -			3.02E-U3	X										=	6.3017E-06	kg/m
R.4 = VF _{ss} = \frac{W x p_x x 9 x 10^2}{U_{ob} X 0_{ob} x 1} = \frac{2590.0}{225} \frac{x}{200} \frac{x}{1.846} \frac{x}{x} \frac{100.00}{100.00} \frac{x}{100.00} \frac{1000}{x} \frac{426E+13}{426E+13} = 1.123E-05 \frac{kgy}{4}\$ Volatilization Factor for surficial solis regarding particulates R.5 = VF _p = \frac{P_x x W x 10^2}{U_{ob} x 0_{ob}} = \frac{6.90E-14}{225} \frac{x}{x} \frac{2590.0}{x} \frac{x}{1000} \frac{1000}{x} \frac{1000}{x} \frac{1000}{45000} = \frac{1.79E-07}{45000} = 3.9713E-12 \frac{kgy}{x}\$ Effective Diffusion Coefficient in Soil Based on Vapor-phase concentration R.6 = D_s^{eff} = \frac{D_s^{eff} y_{a} y_{a}^{230}}{0_s^2 + W x 0_s^2} = \frac{0.072}{0.184900} \frac{x}{9.296E-03} \frac{9.34E-05}{9.286E-03} \frac{x}{0.250} \frac{x}{0.184900} = 0.0038 Ambient Vapor Inhabition (outdoor) Route from Subsurface Soils: Industrial/Commercial Remediation Objectives for Non-Carcinogenic Contaminants R.8 = \frac{RBSL_x x 10^3}{VF_{tures}} = \frac{0.006+00}{2.777E-06} = 0.0000 \frac{x}{0.001} R.8 = \frac{RBSL_x x 10^3}{NF_{tures}} = \frac{0.0000 \frac{x}{0.0000} \frac{x}{0.001}}{2.777E-06} = 0.0000 \frac{x}{0.0001} Noncarcinogenic Industrial/Commercial risk-based screening level for air P.40 = RBSL_s = \frac{THo x RRD, x 8W x AT_s x 365 x 10^3}{THO x RRD, x 8W x AT_s x 365 x 10^3} = \frac{1}{1} \frac{x}{0.000} \frac{x}{0.000} \frac{x}{0.000} \frac{x}{0.000} \frac{x}{0.0000} \frac{x}{0.0000} \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} \frac{x}{0.0000} \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} = 0.0000 \frac{x}{0.0000} = 0						3.1416	× [0.18460	+ (187.46	×	1.848)+(0.250	x	0.245	į x	9.46E+08			
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R-8 = R8SL _{xx} x 10 ³	r-0 -		VF				_		2.777E	-06								2.777E-06		0.000	
R-8 = R8SL _{xx} x 10 ³				_																	
R-8 = R8SL _{xx} x 10 ³																					
Noncarcinogenic Industrial/Commercial risk-based screening level for air THQ x RfD, x BW x AT, x 365 x 1000 = 0.0000 pg.	Ambient Va	por inhalation			urface S	oits: Cor	structio				or Non-	Carcinogenic	Contamin	ants							
VF _{sumb} 2.777E-06 2.777E-06 Noncarcinogenic Industrial/Commercial risk-based screening level for air P. 40 = RBS # THO x RtD, x BW x AT, x 365 x 10 ³ = 1 x 0 x 70 x 25 x 365 x 1000 = 0.0000 µc.	R-8 =		RBSL. x 10°	_			=	0.0000			_						=		=	0.0000	mg/l
P-10 = RBS = THQ x RID, x BW x AT _x x 365 x 10 ³ = 1 x 0 x 70 x 25 x 385 x 1000 = 0.0000 yo	-		∨F _{anne}						2.777E	-06								2,777E-06			•
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P-10 = RBS = THQ x RID, x BW x AT _x x 365 x 10 ³ = 1 x 0 x 70 x 25 x 385 x 1000 = 0.0000 yo																					
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D-10 = RRS) =	1		THO - De	1 - DW - 1	AT - 751	s u ana			· ·	n		70		25		365		1000			
IN _W X EF X EU ZU X 25V X 45	R-10 =	RB\$L_ =				J X 10	_ =			- 360									=	0.0000	ug/m
	1			IK _{EE} X E.F.:	x CD			20	×	230	*	49									

Tier 2 RBCA Industrial/Commercial Calculations for Total Xylenes KB Food & Gas/SullIvan 90.0146 & 200.0959

						90-4	0146 & 2	004-0969									
oncarcino	genic Constru	ction Worker risk-based screening level	for air														
		THO x RfD, x BW x AT, x 365 x 10	y³	1	x	0		70	×	0	×	365	×	1000	=	0.0000	ug/n
t-10 =	RB\$L_ =	THQ x RfD, x BW x AT _n x 365 x 10 IR _m x EF x ED	= -	20	x	30	×	1							-	0,0000	ugri
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olatilizatk	on Factor - Sub	surface Soll to Ambient Air			•												
2 44	VE =	$\frac{H' \times \rho_{s} \times 10^{3}}{[\theta_{soc} + (k_{s} \times \rho_{s}) + (H' \times \theta_{soc})] \times 1 + \frac{(U_{soc} \times \rho_{s})}{(D_{soc}^{ad})}$															
(-) -	41 samo -	$[\theta_{me} + (k_n \times p_n) + (H' \times \theta_{me})] \times 1 + (U_{mir} \times \frac{d}{d\Omega})$	- δ _{±1} χ L ₂ }]														
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2-12 =	LF _{au}		= -	#VALUE!	_										=	#VALUE!	mg
(-12 -	LF			0.00527													_
		<u> </u>															
Soli Comp	onent of the Gr	oundwater Ingestion Exposure Route: C	Construction W	orker Rem	ediation (Objective .			·	_	-				_		
D-12 =	GW	-		#VALUE! 0.00527	_										=	#VALUE!	mga
N-12 -	LF _{sw}			0.00527													-
											_						
	Groundwater		·							_							
R-13 =	GW _{source} =	GW _{comp}	= -	#VALUE!											=	#VALUE!	mg
		C _(x) /C _{source}		1.6542E+	14												
												···					
		undwater at the Source		48./41.1451													
R-13 =	GW _{stanto}	GW _{comp}	= -	#VALUEI	14										=	#VALUE!	mg
		CIT CENTER			• •												
eaching i	Factor	•		1,846													
3 44 -		ρ.		1,040													



0.250

0.245

 $[\Theta_{\underline{\underline{\underline{\underline{}}}}} + (k_{\underline{\underline{\underline{}}}} \times p_{\underline{\underline{\underline{}}}}) + (H' \times \Theta_{\underline{\underline{\underline{}}}})] \times [1 + (U_{\underline{\underline{\underline{\underline{}}}}} \times \delta_{\underline{\underline{\underline{}}}})]$

Tier 2 RBCA Industrial/Commercial Calculations for Total Xylenes KB Food & Gas/Sullivan

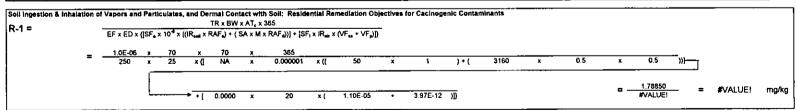
				90-0	146 & 20	04-0969						
Longitudinal Dispersivity $R-16 = Q_x = 0.10 \times X$	=	0,1	x	1950.720							195.07200	cm
Transverse Dispersivity $R-17 = Q_y = \frac{Q_y}{3}$	= _	195.07								=	65,02400	cm
Vertical Dispersivity R-18 = O ₂ =	= -	195.07 20								=	9.75360	cm
Specific Discharge R-19 = U = Kxi Θ _τ	= -	1.192 0.43000	x	0.0103	•		· · ·			=	0.02856	cm/d
Soll-Water Sorption Coefficient $R-20 = k_s = K_{\infty} \times f_{\infty}$	=	260.00	x	0.721000					 	=	187.46	
Volumetric Air Content in Vadose Zone Soils $R-21 = \theta_{as} = \theta_{\tau} - \frac{\langle w \times \rho_{s} \rangle}{\rho_{w}}$	=	0.430		0.10	x	1,846				=	0.245	
Volumetric Water Content in Vadose Zone Soils $R-22 = \theta_{ws} = \frac{w \times \rho_s}{\rho_v}$	= .	0.10	x	1.846	-					-	0.18460	
Total Soil Porosity R-23 = θ_T = θ_{m_1} + θ_{m_2}	=	0.245	+	0.18460						=	0.430	
Groundwater Darcy Velocity R-24 = U _{gw} = K x i	=	435.20	x	0.0103						=	4.48	cm/y
Industrial/Commercial Carcinogenic Groundwater Ingestion TR x BW x AT, x 365 R-25 = Sf ₀ x IR, x EF x ED	= _	1.0E-06 NA	x	70 1	x x	70 250	x x	365 25	= 1.78850 #VALUE!	=	#VALUE!	mg/L
Construction Worker Carcinogenic Groundwater Ingestion R-25 = TR x BW x AT _c x 365 Sf _o x IR _n x EF x ED	= _	1.0E-06 NA	x	<u>70</u>	x x	70 30	x	365 1	1.78850	-	#VALUE!	mg/L

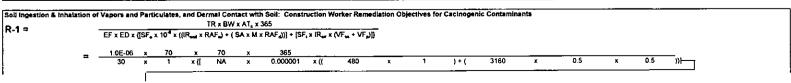
20

Tier 2 RBCA Industrial/Commercial Calculations for MTBE KB Food & Gas/Sullivan

		90-0146 & 2004-0969	
SSL	SSL & RBCA	Date Compiled: 04/	03/12
RBCA	IRIS/HEAST		

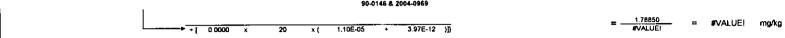
input Values								-			
	s Bulk Density>	0		Value to be used in o		-	USDA Soil Classification		· · · · · · · · · · · · · · · · · · ·		
	nic Matter (%)>	0	FOC % (0.58 conversion	n)> 0.000	Organic Matter (mg/kg)	<u> </u>	FOC mg/kg (0.58 conversion	0.000	foc conversion to g/g:	0.000	.—
	ρ _s - Dry Soil Bulk				1.5 or; Gravel = 2.0; Sand = 1	.8; Sat = 1.6; C	lay = 1.7; or Site Specific				
	ps - Soil Particle [2.65 or; Site Specific						
	OT - RECA: Total S				10.43 or, Gravel - 0.25; Sand =	0.32; Sia = 0.	40; Ctay = 0.36	_			
	i - Hydraufic Gradi				Site Specific Surface Soil = 0,006; Subsurf	inn Cail - C M	W. a. Cia Cassifi	•		-	
	foc - Total Organic							Line amid for D	5, R19, & R26, cm/yr for R24		
	K - Hydraulic Con		,·,	1.38E-05	Site Specific Lower depth of surficial soil zo			DSG CHIVG IOI K	15, K19, 6 K26. CHUYI IOI K24		
	d - Lower depth to			j feet = 10	Distance stone the costedion	of the council	vater plume emanating from a So	ore. The v direction	on is the direction of my flow		
	X - Distance along Sd - Source width			feet = 6.569	Source width perpendicular to	or the ground	low direction in vertical plane	diçe. The A check	bit is the disciplified gw how.		
	W - Width of soun			feet = 80			Wind or Groundwater Movemen				
	A - First Order Dec			; 100t - 00	IMTBE = 0.0	to Daveson te	717,10 07 010111111111111111111111111111				
	p Water Density		n latain.		11						
	w - Average soil n		lead		19.1 or, Surface Soil = 0.1; Sul	heurface enit x	0.2: or Site Specific	••	· · · -	-	
	I - Infiltration Rate				130 for Illinois	Dadridet son -	C.E. Of One Opposite		-		
	δ _m - Groundwater		e Thickness (cm)		200						
	BW - Body Weigh		a reactives (ett)			r): 15 (non-car	cinogenic); Industrial/Commercia	= 70: Constructio	n Worker = 70' RBCA =70		
	SF, -Oral Slope F		·		MTBE =	c), 10 (neizeu.	uniogenity, measures commission				
	IR., -Daily Water I			•	Residential = 2: Industrial/Cor	mmercial = 1	•		-		
	TR - Target Cance				.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		10 ⁴ ; Construction Worker = 10 ⁴	t point of human e	xposuré		
	AT, -Average Tim		OCAOS.		70						
	EF - Exposure Fre		ogoria			Commercial = 2	250: Construction Worker = 30				
			halation to Carcinogens		. Residential = 30; Industrial/C						
	D, & Dar- Diffusive				MTBE = 0.102						
0.024	H' - Henry's Law (Constant			MTBE = 0.024					<u> </u>	
1.10E-05	D., & D ^{weller} - Diffus	sivity in Wate	Ħ		MTBE = 1.1 x 10 ⁻⁶						
225	U Average win	d speed abo	ove ground surface in ambient m	lixing zone] 225						
200	õ _{air} - Ambient mix	ing zone hei	ght] 200						
100	L Depth to subs	surface soils			J 100						
	RfD _i - Inhalation F	Reference D	ose		IRIS/HEAST						
	SF _I - Inhalation C	ancer Stope	Factor		IRIS/HEAST						
0.0100	RfD _e - Oral Refer	ence Dose			IRIS/HEAST						
30	AT, - Average tim	ne for nonca	cinogens			ommercial = 2	5; Construction Worker = 0.115_				
6.90E-14	P. Perticulate E				6.9 x 10 ⁻¹⁴				<u> </u>		
20	IR - Daily outdo	or inhalation	rate		20						
50	IR _{sol} - Soil ingesti	ion rate				Commercial = :	50; Construction Worker = 480				
	SA - Skin surface				3160						
	M - Soil to Skin A				10.5						
	RAF _d - Dermal Re		·		0.5; PNAs = 0.05; Inorganics	= 0.00					
	RAF - Oral relativ]1					_	
9.46E+08	1 - Average time (16.45 x 10 ⁶		- -				
1 1	THQ - Target Haz				1 MTBE = 11.5						
11.50	K _{ee} - Organic Car	tion Partition	Coefficient		M18E # 11,5						





21

Tier 2 RBCA Industrial/Commercial Calculations for MTBE
KB Food & Gas/Sullivan
90-0146 & 2004-0969



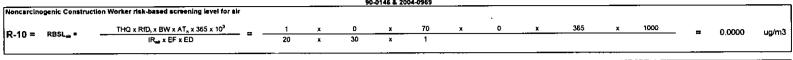


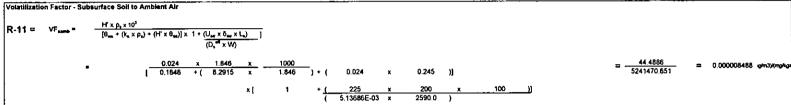
Tier 2 RBCA Industrial/Commercial Calculations for MTBE

									90-	0146 & 2	ns/Sullivan 004-0969						_			
Soil Ingestic	on & Inhalation	of Vapors and Pa	rticulates,	and De	rmal Con	tact witi	h Soil: Indus	trial/Cor	nmercial Rem	ediation	Objectives fo	r Non-Cac	inogenic Co	ntaminants						
R-2 =			404	100	THQ x	BW x A	T, x 365		ID × 4/5	+ 1 (E)										
		EF x ED x [10	X [(IIX _{sel}	Drn	(SA X M	x rovrajj	- • -	IR _{ex} x (VF _{ex}	* 4FpJ										
									11124											
		_	1	x	70	<u>x</u>	30 1.E-06 0.0100	×	365								 ,			
			250	×	25	x[1.E-06	<u> </u>	50	x	1)+{	3160	_ х	0.5	×	0.5)			
							0.0100													
				*	20	× (1.10E-05	<u> </u>	3.9713E-12							= -	766500 #DIV/01	=	#DIV/01	mg/l
					0.00000												#DIA/01			
Soli ingesti	on & inhalation	of Vapors and Pa	rticulates,	and De	rmai Con	tact wit	h Soll: Cons T, x 365	truction	Worker Reme	diation C	bjectives for	Non-Caci	nogenic Com	taminants						
R-2 =			10-9	¥ [/]R				_	IR x (VF	+ VF.)	•									
		EF x ED x {		~ [\(\(\mathref{t}\) \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	RID.			_ · ·	IR _{ex} x (VF _{sq} RfD _s		•									
						_			•											
		=	1	x	70	<u> </u>	0.115 1.E-06 0.0100	X	365		 -)+(3160	×	0.5	x	0.5			
			30	x	1	× [0.0100	. ж н	480		'	, , ,	3100		0.5	 -	0.5			
					0.00000	X	(1.10E-05	+	3.9713E-12							=	2938.25 #DIV/0!	=	#DIV/0!	mg/l
					0.00000															

		rificial soils. Whi	:hever is M	ISS DETV	ween K-3	and K-4	· · H'		2	×	2590.0	×	1.846	x	1000					
R-3 =	VFss =	U. X	Ŏ	 √ -	π × 16	- + (k, s c	k H' 3,) •(H'x (L,)] = i	=	225	×	200		- "			— x				
		- -	-		•															
							5.14E-03	×	0.024									_	1,1017E-05	kg/m
1				٧-	3.1416	х х			8.2915	x	1,846)+(0.024	x	0.245] ×	9.46E+08	_	1,10171,-03	Kgp111
Volatilizati	on factor for as	irficial soits. Whi	hever la k	ess bets	ween R-3	and R-4														
F						_	2590.0	x	1.846	×	100.000	×	1000	_		=	478114000	=	1.123E-05	kg/m
R-4 =	Vr. =	Wxp,xdx10 ³ U _m xδ _m xt	-			_	225	×	200	×	9.46E+08					_	4.26E+13			
L																				
Volatilizatio	on Factor for si	irficial solls regar	ding partic	ulates			•											-		
R-5 =		P _a x W x 10 ³				_	6.90E-14	ı x	2590.0	×	1000	_				=	1,79E-07	=	3.9713E-12	kg/m
K-5 -	Vrp -	U_ x 5,,				_	225	×	200								45000			•
Effective D	iffusion Coeffic	ient in Soil Based	on Vapor	-phase	concentra	tion														
R-6 =	D.*** =	D ²⁰⁰ x θ ₂₁ 333	D ^{weller} x θ _e	1 10		=	0.102	х	9.296E-03	_ +	1.10E-05	x	0.0036					=	0.00513686	cm2
14-0 -	D, -	θ ₁ ²	H* x 6,	7				0.1849	900		0.024	×	0.184900							
				-																
Ambient V	apor Inhalation	(outdoor) Route f		irface S	iolis: Ind	ustriaVC		Remediat		for Non	Carcinogeni	c Contam	inants							
R-8 =		RBSL × 10 ⁻³	-			=	0.0000	X	0.001	_						=	0.00E+00 8.488E-06	=	0.0000	mg/l
		VF _{samb}						8.488E	-06								D.400E-00			
Ambient V	apor inhalation	(outdoor) Route f		irface S	ioils; Co	nstructio			on Objectives	for Non-	Carcinogenic	Contamir	ants				0.00F - 00			
R-8 =		RBSL_x 10 ⁻³	_			=	0.0000	X	0.001	_						=	0.00E+00 8.488E-06	=	0.0000	mg/
		VF						8.488E	-00								0.400E-00			
Noncarcin	ogenic Industri	al/Commercial ris	k-based so	reening	g level for	air														
		THO × Rf	D. x BW × A	AT_ x 36	5 x 10 ³		1	×	0	×	70	×	30	x	365	х	1000	_	0.0000	
R-10 =	RBSL <u></u> ≖	TINE X IV.	IR. x EF	x ED		_ =	1		250	×	25							=	0,0000	ug/n
I								-		•										





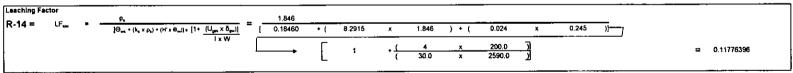


s	oil Compo	onent of the Groundwater Ingestion Exposure Route: Industria	#Commercial Remediation Objective	 		
F	-12 =	GW _{source}	#VALUE! 0.11776	=	#VALUE!	mg/kg

Soli Comp	onent of the Groundwater Ingestion Exposure Route: Construct	ion Worker Remediation Objective				
	GW _{acutto}	#VALUE! 0.11776	-	#VALUE!	mg/kg	
I						

ſ	trial/Commercial Groundwater at the Source			
	$3 = GW_{\text{cours}} = \frac{GW_{\text{cours}}}{C_{\text{Cy/C}_{\text{cours}}}} = \frac{\text{eVALUEI}}{0.695299599}$	=	#VALUE!	mg/L
L				

Constructio	n Worker Grou GW _{sturee} =	GW _{comp} C _{pd} /C _{seutce}	urce	= -	#VALUE! 0.695299599					=	#VALUE!	mg/L



-15 =	C(4)/Ceauce =	exp (X/2a _x) x (1-SQT(1+(4\lambda x a _x)/U))	X	erf [S_/(4 x	SQT(a _y x X))]	×	erf [S./	(2 x SQT	(a* x X})]		
	•	exp[(-1950.720)(1-	√(1 .	0.02856	×	195.07)) ×			
				erf	<u>5821.7</u>	× √(65,024	x	1950.72	-]×	
				er [200.:	2				_	= 0.6952996



Tier 2 RBCA Industrial/Commercial Calculations for MTBE KB Food & Gas/Sullivan 90-0146 & 2004-0959

							90-0	146 & 20	04-0969							
Longitudir															105 07200	
R-16 =	α_{x}	= (0.10 x X	=	0.1	X	1950.720								195.07200	cm
Transvers	e Dispersh	rity														
R-17 =	$\alpha_{\mathbf{y}}$	- -	3 3	= -	195.07 3	-								=	65.02400	сm
		-	.,													.
Vertical Di	spersivity															
R-18 =	az		20	= -	195.07 20	-								=	9,75360	cm
<u> </u>																
Specific D			Kxl	_	1.192	x	0.0103							_	0,02856	cm/d
R-19 =	U	-	K x) O ₁		0.43000									_	0,02000	Citad
Soll-Water	Sorption	Coefficient		,												
R-20 =			K _{oc} x f _{oc}	=	11.50	x	0.721000							=	8,2915	
	-4															
Volumetri	r Air Conte	ent in Vados	e Zone Soils							-						
R-21 =	θ _{as}	=	θ _T - (w x p _x) p _w	=	0.430		0.10 1.00	X	1.846	_				=	0.245	
	- 44		ρ.,				1.00									
Volumetri	c Water Co	ntent in Va	dose Zone Soils										<u> </u>			
R-22 =	θ,,,		₩ x p	= -	0,10	X	1.846	-						=	0.18460	
	-wa		ρ .,		1,00											
Total Soil	Porosity															
R-23 =	-	-	θ ₈₄ + θ ₈₆	=	0.245	+	0,18460							=	0.430	
											,					
Groundwa	iter Darcy	Velocity														
R-24 =	U _{gw} =		Kxi	=	435.20	x	0.0103							=	4.48	cm/y
[mail:marter		al Casals -	enic Groundwater Ingestion								····					
l .	commerc	ai Carcinog	TR x BW x AT _c x 365	_	1.0E-06	x	70	x	70	×	365		_ 1.78850	_	#VALUE!	mall
R-25 =			Sf _e x IR _w x EF x ED	= _	NA	×	1	x	250	x	25	_	#VALUE!	-	#VALUE)	mg/L
<u>. </u>	lan Mark	Carolac	nie Greundweter Ingertion	· · · · · ·												
		. Carcinoge	nic Groundwater Ingestion TR x BW x AT _c x 365	_	1.0E-06	×	70	x	70	x	365		1.78850	_	#VALUE!	mg/L
R-25 =			Sf, x IR, x EF x ED	= _	NA	x	1	x	30	×	1		#VALUE!	_	LUL1	y/L

Environmental Consulting Services

Phone: (217) 522-8001 Fax: (217) 522-8009

April 27, 2012

RE:

IEPA - DIVISION OF RECORDS MANAGEMENT RELEASABLE

MAY 29 2012

REVIEWER MED

Mr. Brad Dilbaitis, Project Manager LUST Section, Bureau of Land Illinois Environmental Protection Agency 1021 North Grand Avenue East Springfield, Illinois 62794-9276

KB Food & Gas/Sullivan

RECEIVED

APR 27 2012

111 West Jackson Street (Rt. 121 & 32) Incident Number: 90-0146/2004-0969

LPC #1390305014—Moultrie County

IEPA/BOL

LUST Technical Reports—Corrective Action Plan and Budget - Revised

TACO Calculations

Dear Mr. Dilbaitis:

In response to your inquiry to us about the TACO Calculations contained within the February 17, 2012, Corrective Action Plan (CAP) and Budget for the above referenced site, we have re-done the calculations, and attached them. As outlined your email to us on March 26, 2012, the calculations that were included in the revised calculations had an incorrect fractional organic carbon entry, and the industrial commercial ingestion objective was calculated using an incorrect equation. The attached calculations are a complete replacement for Appendix D of the document under review. Just to be thorough, we have included pages of calculations that we do not normally publish in a report, in case you have any additional questions as to how the numbers were arrived at.

These revised calculations will change Table 2-1 on page 7 of the CAP to:

Table 2-1 Remediation Objectives

Parameter	TACO Industrial/Commercial Tier 2 Soil Clean-up Objective (mg/kg)	TACO Class 1 Groundwater Clean-up Objective (mg/L)
Benzene	6.24	0.005
Ethylbenzene	229.33	0.7
Toluene	755.56	1.0
Total Xylenes	90.70	10.0
MTBE	563.25	0.07

400 West Jackson, Suite C Marion, IL 62959 (618) 997-2238

APR & 722012

While each of the Clean-up Objectives has changed, there is no substantive impact on the overall CAP with the exception of total xylenes at location SB-3, which will require a construction worker caution. There is no other soil contamination above the Tier 2 Objectives. While some of the benzene modeling distances have been changed slightly, the MTBE modeling, which controlled the overall required area requiring remediation, is unchanged.

The calculations submitted April 6, 2012 should be disregarded. We apologize for the error in the calculations, and have taken steps to try to prevent that from happening again on other projects. If you have any questions or require additional information, please contact Mr. Vince Smith or me at (217) 522-8001.

Sincerely,

Carol L. Rowe, P.G.

Senior Environmental Geologist

xc: Mr. Kamlesh Patel, KB Food & Gas

Mr. William T. Sinnott, CWM Company, Inc.

Z:\KB Sullivan\CAP\CAP Addi. Info Coverletter2.doc

Illinois Enviromental Protection Agency Leaking Underground Storage Tank Program SSL Input Parameters for Use with Tier 2 Calculations

A.	Site	Identification	i
----	------	----------------	---

IEMA Incident # (6- or 8-digit):	90-0146 & 2004-0969		IEPA LPC # (10		1390305014
Site Name: KB Food & Gas/Su	ıllivan				
Site Address (not a P.O. Box):	111 West Jac	ckson Street			
City: Sullivan	_ County:	Moultrie		Zip Code: 6	31951
Leaking UST Technical File					
Tier 2 Calculation Information					
Equation(s) Used (ex: S12,S17,	S28): <u>S5,6,7</u>	,8,9,10,17,18,19 <u>,</u>	20,21,22,24		
Contact Information for Individua	al Who Perform	ed Calculations:			
CWM Company, Inc., Bob Wood	druff, Vince Sm	ith		·	
Land Use: Industrial/Commer-	cial	Soil Type	Loam		
Groundwater: X Class I		Class II			
Mass Limit: Yes	No	If Yes, then Spec	cify Acreage:	·	
		always be rounde			

 Failure to use site-specific parameters where allowed could a 	affec
- Maps depicting source width, plume dimensions, distance, et	c. m

- nust also be submitted.
- Inputs must be submitted in the designated unit.

AT (ingestion)	=	Ind/Com = 25	yr
ļ		Con. Worker = 0.115	уr
AT (inhalation)	=	Ind/Com = 25	уг
		Con. Worker = 0.115	yr
AT _c	=	70	yr
BW	=	Ind/Com = 70	kg
			kg
		Con. Worker = 70	kg
C _{sat} =		Benzene = 958,609	mg/kg
		Toluene = 755.563	mg/kg
		Ethylbenzene = 463,455	mg/kg
		Total Xylenes = 371,416	mg/kg
		MTBE = 9979,274	mg/kg
		Naphthalene = 449.891	mg/kg
			mg/kg
			mg/kg
			mg/kg
			mg/kg

d _a		=	3.048	m
d,		=	3.048	m
DA	=	Benzene	= 9.44339848062212E-05	cm ² /s
		Tole	uene = 4.24107640555468E-05	cm ² /s
		Ethylben	zene = 2.27301824425843E-05	cm²/s
		Xyl	enes = 2.32484620164678E-05	cm²/s
		M	ITBE = 3.39129707968163E-05	cm ² /s
		Naphth	nalene = 2.2205803734471E-07	cm ² /s
				cm ² /s
				cm ² /s
				cm²/s
				cm²/s
			-	

Incident # 90-0 146	ب کا	70 7 -0909	
C _w	=	Benzene = 0.1	mg/L
		Toluene = 20	mg/L
		Ethylbenzene = 38.392	mg/L
		Total Xylenes = 399.372	mg/L
		MTBE = 0.273	
		Naphthalene ≠ 40.635	
			mg/L
			mg/L
			mg/L
	=	0.006	mg/L
<u>d</u>		9.886	m
ED (inhalation of	=	Ind/Com = 25	уr
carcinogens)		Con. Worker = 1	yr
ED (ingestion of	=	Ind/Com = 25	уr
noncarcinogens)		Con. Worker = 1	yr
ED (inhalation of	=	Ind/Com = 25	yr
noncarcinogens)		Con. Worker = 1	yr
ED (ingestion of	=	Ind/Com = 25	yr
groundwater)		Con. Worker = 1	yr
ED _{M-L}	=	70	уr
EF	=	Ind/Com = 250	d/yr
		Con. Worker = 30	d/yr
F(x)	=	0.194	unitless
f _{oc}	=	0.0072	g/g
GW₀₀ij	=	Benzene = 0.005	mg/L
		Toluene = 1	mg/L
		Ethylbenzene = 0.7	mg/L
		Total Xylenes = 10	mg/L
		MT8E = 0.07	mg/L
		Naphthalene = 0.14	mg/L
			mg/L
			mg/L
			mg/L
			mg/L
H'	=	Benzene = 0.228	unitless
		Toluene = 0.272	unitiess
		Ethylbenzene = 0.323	unitless
		Total Xylenes = 0,25	unitiess
		MTBE = 0.0241	unitiess
		Naphthalene = 0.0198	unitiess
			unitiess
			unitless
			unitiess
			unitless
i	=	0.010344828	m/m
	=	0.3	m/yr
I _{M-L}	=	0.18	m/yr
IF _{soil-adj}	=	114	(mg-yr)/(kg-d)
IR _{soit}	=	Ind/Com = 50	mg/d
	=	Ind/Com = 50 Con. Worker = 480	mg/d mg/d

Di	=	Benzene = 0.088	3 cm ² /s
		Toluene = 0.08	7 cm²/s
		Ethylbenzene = 0.079	5 cm²/s
		Total Xylenes = 0.072	_
		MTBE = 0.10	
		Naphthalene = 0.000007	5 cm ² /s
		·	cm²/s
			cm ² /s
			cm²/s
			cm²/s
D _w	=	Benzene = 0.000009	e cm²/s
		Toluene = 0.000008	e cm²/s
		Ethylbenzene = 0.000007	8 cm²/s
		Total Xylenes = 0.0000093	
		MTBE = 0,00001	•
		Naphthalene = 0.000007	•
		•	cm ² /s
			cm²/s
			cm²/s
			cm ² /s
DF	=	1.022960362	unitless
ED (ingestion of	=	Ind/Com = 25	yr
carcinogens		Con. Worker = 1	yr
K _{oc}	=	Benzene = 58.	g cm³/g or L/kg
		Toluene = 18	2 cm³/g or 1./kg
		Ethylbenzene = 36	
		Total Xylenes = 26	
		MTBE = 11.	
		Naphthalene = 200	
			cm³/g or L/kg
			cm ³ /g or L/kg
			cm³/g or L/kg
			cm ³ /g or L/kg
K _s		60	m/yr
L	=	64.6176	m
PEF	=		m³/kg m³/ka
PEF'	=	Ind/Com = 85.81	m ⁻ /Kg (g/m ² -s)/(kg/m ³)
Q/C (VF equations)	_	Con. Worker = 85.81	(g/m ⁻ -s)/(kg/m ⁻) (g/m ² -s)/(kg/ <u>m³)</u>
Q/C (PEF equations)	=	OUII. FTOIRE - 00.01	(g/m²-s)/(kg/m³)
RfC (mg/m ³)		Chronic Su	bchronic
Benzene	=	0.03	0.08
Toluene	=	5	5
Ethylbenzene	=	1	1
Total Xylenes	=	0.1	0.4
MTBE	=	3	3
Naphthalene	=	0.003	0.003
	=		NA
	=		NA
	=		NA
	=		NA NA
			. ** *

Incident # 90-0146 & 2004-0969

K _d (non-ionizing = Benzene = 0.42408 cm²/g	/yr or⊔/kg or⊔/kg
K _d (non-ionizing = Benzene = 0.42408 cm²/g organcis) Toluene = 1.3104 cm²/g Ethylbenzene = 2.6136 cm²/g Total Xylenes = 1.872 cm²/g MTBE = 0.0828 cm²/g Naphthalene = 14.4 cm²/g cm²/g	or L/kg
organcis) Toluene = 1.3104 cm²/g Ethylbenzene = 2.6136 cm²/g Total Xylenes = 1.872 cm²/g MTBE = 0.0828 cm²/g Naphthalene = 14.4 cm²/g cm²/g	or L/kg
Ethylbenzene = 2.6136 cm²/g Total Xylenes = 1.872 cm²/g MTBE = 0.0828 cm²/g Naphthalene = 14.4 cm²/g cm²/g	
MTBE = 0.0828 cm²/g Naphthalene = 14.4 cm²/g cm²/g	or L/kg
Naphthalene = 14.4 cm²/g	or L/kg
cm²/g	or L/kg
•	or L/kg
an ³ ia	or L/kg
Cit 19	or L/kg
cm²/g	or L/kg
cm²/g	or L/kg
	or L/kg
	or L/kg
	/kg
	/kg
Ethylbenzene = 1639.044 m ³	/kg
Total Xylenes = 1620.672 m ³	/kg
MTBE = 1341.866 m ³	/kg
Naphthalene = 16582.844 m ³	/kg
m³	/kg
	/kg
	/kg
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	/kg /kg
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m ³	kg /
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	/kg
	kg /
m ²	/kg
	/L _{soil}
	/L _{soil}

RfD _o mg/(kg-d)			bchronic
Benzene	=	0.004	0.012
Toluene	=	0.08	0.8
Ethylbenzene	=	0.1	1
Total Xylenes	=	0.2	1
MTBE	=	0.01 0.02	0.1 0.2
Naphthalene	=	0.02	0.2
	=		NA
	=		NA
	=		NA
S	=	Benzene = 175	0 mg/L
		Toluene = 52	
		Ethylbenzene = 16	_
		Total Xylenes = 18	6 mg/L l
		MTBE = 5100	0 mg/L
		Naphthalene = 3	1 mg/L
			mg/L
			mg/L
			mg/L
			mg/L
SF _o	=	Benzene = 0.05	5 (mg/kg-d) ⁻¹
		Toluene = N	A (mg/kg-d) ⁻¹
		Ethylbenzene = N	A (mg/kg-d) ⁻¹
		Total Xylenes = N	A (mg/kg-d) ⁻¹
		•	A (mg/kg-d) ⁻¹
		Naphthalene = N	A (mg/kg-d) ⁻¹
		•	(mg/kg-d) ⁻¹
			(mg/kg-d) ⁻¹
			(mg/kg-d) ⁻¹
			(mg/kg-d) ⁻¹
Т	=	Ind/Com = 7.9E08	s
		Con. Worker = 3.6 x 10 ⁶	s
T _{M-L}	=	30	yr
THQ	=	1	unitless
TR	=	1.00E-06	unitless
U _m	=	4.69	m/s
URF	=	Benzene = 7.8 x 10 ⁻⁶	(µg/m³) ⁻¹
Ut	=	11.32	m/s
V	=	0.5	unitless
VF =		Benzene = 11912.15	2
		Toluene = 17775,28	3
		Ethylbenzene = 24280.24	, -
		Total Xylenes = 24008.08	2
		MTBE = 19877.95	
		Naphthalene = 245652.5	2 -
			m³/kg
			m ³ /kg
			m ³ /kg
			m /kg m³/kg
			iii /kg

Incident # 90-0146 & 2004-0969

θ,,	=	0.206	L _{water} /L _{soil}
Ρ _δ	=	1.846	kg/l or g/cm ³
ρ _s	=	2.652	g/cm ³
ρ _w	=	1	g/cm ³
1/(2b+3)	=	0.073	unitless

Illinois Environmental Protection Agency

	Leaking Underground Storage Tank Program
	RBCA Input Parameters for Use with Tier 2 Calculation
Cita Idantification	

IEMA Incident # (6- or 8-digit):	90-0146 & 2	004-0969	IEPA LPC # (10-di	git): 1390305014
Site Name: KB Food & Gas/Su	tlivan			
Site Address (not a P.O. Box):	111 West Jacks	on Street	<u>.</u>	
City: Sullivan	County:	Moultrie	z	Zip Code: <u>61951</u>
Leaking UST Technical File				
Tier 2 Calculation Information				
Equation(s) Used (ex: R12,R14,I	R26): <u>R16, R17</u>	, R18,R19, R21, F	R22, R23, R24,R26	
Contact information for Individua	Who Performed	Calculations:		
CWM Company, Inc., Bob Wood	truff, Vince Smith			
Land Use: Industrial/Commerc	cial	Soil Ty	pe: <u>Loam</u>	
Groundwater: X Class I		Class II		
Mass Limit; Yes 🔀	No	If Yes, then Spec	ify Acreage:	
Objective from S17 used in R26	? Yes	X No		

- Maps depicting source width, plume dimensions, distance, etc. must also be submitted.
 Inputs must be submitted in the designated unit.

В.

AT,	=	70	yr
AT ₀		ind/Com ≈ 25	ут
Λ'n	_	Con. Worker = 0.115	уг
BW	=	70	уr
Csource	=	See Attached	mg/L
C _(x)	=	See Attached	mg/L
d	=	100	cm

D ^w		See Attached	cm²/s
Dweter	E	See Attached	cm²/s
D.**	=	See Attached	cm²/s
ED		Ind/Com = 25	ут
20	-	Con. Worker = 1	yr
EF	=	Ind/Com = 250	d/yr
		Con, Worker = 30	d/yr

erf _	=	See Attached	unitiess	
l _∞	2	0.0072	g/g	
GW _{comp}	=	See Attached	mg/L	
GW _{source}	=	See Attached	mg/L	_
H'	=	See Attached	cm3/cm³_	
Ť		0.010344828	cm/cm	
	±	30	cm/yr	
IR _{air}	=	20	m³/d	
IR _{ed}		Ind/Com = 50	mg/d	
"Neof	-	Con. Worker = 480	mg/d	ļ
IR,,	=	Ind/Com = 1	L/d	j
К	=	1.192	cm/d	
		435.197	cm/yr	_
K₀c	8	See Attached	cm³/g or L/kg	
K _s (non-ionizing organics)	=	See Attached	cm³g	
K _a (ionizing organics)	=	Not Applicable	cm³/Q	
K ₆ (marganics)	=	Not Applicable	cm ³ weter/Quel	
L	=	100	¢m	
LF _{ew}	=	See Attached	ביים אפרים אפרים	٠
М		0.5	mg/cm²	
Pe	=	6.9 · 10 ^{·14}	g/cm²-s	
RAF _d	=	0.5	unitiess	
a,	2	See Attached	cm	
a,	=	See Attached	cm	
a,	=	See Attached	cm	
λ	=	See Attached	d ⁻¹	
π	=	3.1416		
Ţ	=	9.46 · 10 ⁸	5	

RAF _d (PNAs)	=	0.05	unitless
RAF _d (inorganics)	==	0	unitless
RAF,	=	1	unitless
RBSL (carcinoginic)	=	See Attached	μg/m³
RBSL _{et} (noncercinoginic)	=	See Attached	μg/m³
RfD,	-	See Attached	mg/kg-d
SA	=	3,160	cm²/d
S₄	-	200.0	cm
S _w	=	5,821.7	cm
SFı	=	See Attached	(mg/kg-d) ⁻¹
SF.	-	See Attached	(mg/kg-d) ⁻¹
THQ	=	1	unitless
TR	Ξ	1,00E-06	unitless
U	=	0.0286	cm/d
U _{ser}	=	225	· cm/s
Ugw	=	435,207	cm/y
VFp	=	3.97133E-12	kg/m³
VF _{samb}	=	See Attached	(mg/m³_)/mg/kg er kg/m
VF ₆₄	=	See Attached	kg/m3
W	π.		cm_
w	=	0.142	Sweter/Suce
δ _{eir}	=	200	cm
δ _{gw}	=	200	cm
θ_sa	=	0.167868	cm³ _{ss} /cm³ _{sss}
θ _{we}	=	0.262132	cm³/cm³
θτ	=	0.43	cm³/cm³ _{sot} _
Ρυ	=	1,846	g/cm ³
ρ,,	Ŧ	1	g/cm³

	H'	λ	Koc
Benzene	0.228	0.0009	58.9
Toluene	0.272	0.011	182
Ethylbenzene	0.323	0.003	363
Total Xylenes	0.25	0.0019	260
MTBE	0.0241	0	11.5
Naphthalene	0.0198	0.0027	2000
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		Benzene R26	Modeled G	roundwater fi	rom Vertical f	Modeled Soils	5	
	C _{eource} from	1			_		erf: S_/(4 ·	erf: S _# / (2
Location	S17 (mg/L)	C(x) (mg/L)	X (cm)	a _x (cm)	a _y (cm)	a _z (cm)	√[α, X])	√[a₂ · X])
MW-5	0.459	0.005	213.36	21,336	7.112	1.0668	1	1_
MW-6	0.085		•					
8-WM	0.109							
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			Benzene R	26 Modeled C	roundwater		
						erf: S, / (4	erf: S _a /(2
Location	C(x) (mg/L)	X (cm)	a, (cm)	a, (cm)	a _z (cm)	√[α, · XI)	√[a, X])
MW-4	0.006	30,48	3.048	1,016	0.1524	1	1
MW-5	6.290	396.24	39.624	13.208	1,9812	11	0.999999
MW-6	1.700	304.8	30.48	10.16	1,524	1	1
MW-7	0.085	121.92	12.192	4.064	0.6096	1	1 1
MW-8	2.880	335.28	33.528	11.176	1.6764	11	1
MW-9	1.120	274.32	27,432	9.144	1,3716	1 1	1
MW-10	2.050	335.28	33.528	11.176	1.6764	1	1
MW-11	0.039	91,44	9.144	3,048	0.4572	1	1
MW-12	0.677	243.84	24.384	8.128	1.2192	1	1
	1		1				ļ

		Toluene R26	Modeled Gr	oundwater fr	om Vertical N	Aodeled Soils		
Location	C _{source} from S17 (mg/L)	C(x) (mg/L)	X (cm)	a, (cm)	a, (cm)	a, (cm)	erf; s,, / (4 · · · · /(a, · X))	erf: S _∞ / (2 √[α ₂ · X])
MW-5	1.0338					T		
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Location MW-5 MW-8 MW-13	C(x) (mg/L) 35.400 5.000 1.670	X (cm) 30.48 30.48 30.48	a _x (cm) 3.048 3.048 3.048	a, (cm) 1.016 1.016	a _z (cm) 0.1524 0.1524	erf; S,, / (4 · · · /(a, · ×1)	erf: s_/(2 ⋅ √[α₂ ⋅ X]) 1
MW-8	35.400 5.000	30.48 30.48	3.048 3.048	1.016 1.016		1	
MW-8	5,000	30.48	3.048	1.016 -	0.1524	1 4	
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				1.016	0.1524	1	1_1
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	E1	hylbenzene R	26 Modeled	Groundwate	r from Vertic	al Modeled S	oils	
Location	C _{source} from \$17 (mg/L)	C(x) (mg/L)	X (cm)	a _x (cm)	a _y (cm)	a, (cm)	erf: \$_/(4 · \(\frac{1}{2}\arrow \text{X}\)	erf; s _* /(2 · √[a _z · X])
MW-5	0.3027						T	
MW-7	0.2899						1	
SB-5	0.3501						Ī	
\$B-6	0.3337			i				
8-WM	0.3300							
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			Ethylbenzene	R26 Modele	d Groundwat	er	
Location	C(x) (mg/L)	X (cm)	a _x (cm)	α, (cm)	a _z (cm)	√(a, X0)	√(α, XI)
MW-5	3.760	30.48	3.048	1,016	0.1524	1	1
MW-7	2.350	30.48	3.048	1.016	0,1524	1	1
MW-8	2.210	30.48	3.048	1.016	0.1524	1	1
MW-10	1.670	30.48	3.048	1.016	0.1524	1	1
MW-12	0.955	30.48	3.048	1,016	0.1524	1	11
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Total Xylenes R26 Modeled Groundwater from Vertical Modeled Soils												
C _{eauros} from					Ĭ	erf: \$,./(4 ·	erf: S _w / (2 √(a _z ·X))					
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		C _{source} from S17 (mg/L) C(x) (mg/L) 1.6426	C _{MATCS} from S17 (mg/L) C(x) (mg/L) X (cm) 1.6426	C _{exarcs} from S17 (mg/L) C(x) (mg/L) X (cm) a _x (cm)	C _{searce} from S17 (mg/L) C(x) (mg/L) X (cm) a _x (cm) a _y (cm)	C _{maxes} from S17 (mg/L) C(x) (mg/L) X (cm) a _x (cm) a _y (cm) a _z (cm) 1.6426	C _{maxes} from erf: \$ _x /(4 · \$17 (mg/L) C(x) (mg/L) X (cm) a _x (cm) a _y (cm) a _x (cm) 4[a _y · X] 1.6426					

			Total Xylenes	R26 Modele	d Groundwa	er	
Location	C(x) (mg/L)	X (cm)	a _x (cm)	a _v (cm)	a _z (cm)	erf: S _w /(4 √[α, X])	erf: \$ _{**} / (2 ⋅ √(a ₂ ⋅ XI)
MW-5	16,300	30.48	3.048	1.016	0.1524	1	1
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MTBE R26 Modeled Groundwater from Vertical Modeled Soils													
Location	C _{source} from S17 (mg/L)	C(x) (mg/L)	X (cm)	α _ε (cm)	ay (cm)	α _z (cm)	erf: \$_/(4 · - \{a, · XD	erf: S _* / (2 · v[a, · X])					
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			MTBE R2	6 Modeled G	roundwater		
Location	C(x) (mg/L)	X (cm)	α _κ (cm)	a, (cm)	a, (cm)	erf: S_/(4· √[α,·X])	erf: S _w /(2 ·
MW-4	0.118	2438.4	81.28	81,28	12,192	0,99999622	
MW-5	0.457	8473.44	282.448	282,448	42.3672	0.81663558	
MW-8	0.086	1524	50.8	50.8	7.62	1	0.81059311
MW-9	0.380	7467.6	248.92	248.92	37,338	0.86887309	0.21116495
		5029.2	167.64	167,64	25,146	0.97501508	0.30913212
MW-11	0.232	3029.2	107.04	107,04	23.170	0.67301300	0.30813212
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Summary of Tier 2 Calculations KB Food & Gas/Sullivan 90-0146 & 2004-0969 04/26/12

Table 3

Tier 1 Objectives

		Benzene		Toluene		Ethylbenzen	e	Total Xylene	S	Naphthalen	₽	MTBE	
Residential	Ingestion	12	mg/kg	16,000	mg/kg	7,800	mg/kg	16,000	mg/kg	1,600	mg/kg	780	mg/kg
	Inhalation	8.0	mg/kg	650	mg/kg	400	mg/kg	320	mg/kg	170	mg/kg	8,800	mg/kg
Migra	ation Class 1	0.03	mg/kg	12	mg/kg	13	mg/kg	150	mg/kg	12	mg/kg	0.32	mg/kg
Mign	ation Class 2	0,17	mg/kg	29	mg/kg	19	mg/kg	150	mg/kg	18	mg/kg	0.32	mg/kg
Industrial/Commercial	Ingestion	100	mg/kg	410,000	mg/kg	200,000	mg/kg	410,000	mg/kg	41,000	mg/kg	20,000	mg/kg
	Inhalation	1.60	mg/kg	650	mg/kg	400	mg/kg	320	mg/kg	270	mg/kg	8,800	mg/kg
Construction Worker	Ingestion	2,300	mg/kg	410,000	mg/kg	20,000	mg/kg	41,000	mg/kg	4,100	mg/kg	2,000	mg/kg
	Inhalation	2.20	mg/kg	42	mg/kg	58	mg/kg	5.6	mg/kg	1.80	mg/kg	140	mg/kg
Soil Saturation		870	mg/kg	650	mg/kg	400	mg/kg	320	mg/kg	449.89	mg/kg	8,800	mg/kg

Tier 2 SSL Objectives

				116	1 Z 33L VII	GCTIAG2							
		Benzene	Equation	Toluene	Equation	Ethylbenzene	Equation	Total Xylenes	Equation	Naphthalene	Equation	MTBE	
Residential	Ingestion	11.64	S-2	1,251	S-1	1,564	S-1	3,129	S-1	313	S-1	156.4	S-1
	Inhalation	3.27	S-6	[[\$4]\$5\$]\$4[],	S-4	[[\$\$\$\$\$\$\$]],	S-4	11374683111.	S-4	675.82	S-4	/// 2 X/996/ X X///	S-4
Migration Mass-L	imit Class 1	0.22	S-28	44.79	S-28	31.35	S-28		S-28	6.27	S-28	3.14	S-28
Migra	tion Class 1	0.055	S-17	28.73	S-17	38.39	S-17	111188888	S-17	40.64	S-17	0.27	S-17
Industrial-Commercial	Ingestion	104.06	S-2	1,635,200	S-1	204,400	S-1	408,800	S-1	40,880	S-1	20,440	S-1
	Inhalation	6.24	S-6	118888888111.	S-4		S-4	[[[3]444]44][].	\$- 4	1,075.96	S-4	(134.094.144)).	S-4
Migration Mass-L	imit Class 1	0.22	S-28	44.79	S-28	31.35	S-28		S-28	6.27	S-28	3.14	S-28
Migra	tion Class 1	0.055	S-17	28.73	S-17	38,39	S-17		S-17	40.64	S-17	0.27	S-17
Construction Worker	Ingestion	2,258.21	\$-3	163,236	S-1	204,045	S-1	204,045	S-1	40,809	S-1	20,405	S-1
	Inhalation	8.78	S-7	[[[84484]]]]	S-5	229.33	\$-5	90.70	S-5	6.96	S-5	563.25	S-5
Soil Saturation		958.61	S-29	755.56	S-29	463.46	S-29	371.42	S-29	449.89	S-29	9,979.27	S-29_

all values are in mg/kg

Groundwater Contaminate Concentration Exceedances at Surface Water or Set Back Zone (mg/L)

	Benzene	Equation	Toluene	Equation	Ethylbenzene	Equation	Total Xylenes	Equation	Naphthalene	Equation	MTBE	
Result	#DIV/0!	R-26	#DIV/0!	R-26	#DIV/0!	R-26	#DIV/0I	R-26	•		#DIV/0!	R-26
Surface Water Objective	0.86		0.6		0.014		0,36					

Version: 4/26/2012

R-26 Input/Summary Sheet

. Ven	sion: 4/26/2012	K-26 inpubat	immary Sheet		
EMA Incident # (6		90-0146 & 2004-0969			
PA LPC # (10 di		1390305014			
Ite Name:		KB Food & Gas/Sullivan			
ite Address:		111 West Jackson Street			······································
ity:		Sullivan			
ounty:		Moultrie			
ip Code:		61951			·-·
SL Equations Us	sed:	S5.6.7.8.9.10.17.18.19.20.21	22.24		
BCA Equations		Example R-1, R-2, R3	1=-1		
	or Individual who Performed Calcula		oodruff, Vince S	mith	<u> </u>
and Use:		Ind./Com. & Construction			
bjective from S1	17 used in R26:	No			
roundwater:		Class 1			
	Limit Equations:	Standard Equations		If Mass Limit, then Specifiy Acres:	
	ume for Mass Limit Eq.:	0.00			< use this # above
ate Data Is Enter		April 26, 2012			
Entry	Description				
	Holcomb Bulk Density (pcf),	OF .	Shelby Tube	Location:	
1.846	Dry Soil Bulk Density (g/cm	or kg/L): 1.5, or Gravel =2.0, \$	Sand = 1.8, Silt =	1.6, Clay = 1.7, or site specific	
2.652	ρs - Soil Particle Density		Reference		
0.304	Total Soil Porosity	•	0.304	0.304	
0.206	Water Filled Porosity		0.206	0.206	
0.098	Air Filled Porosity		0.098	0.098	
0.430	8 Total Soil Porosity (RBC	A)	0.43 or: Gravel -	0.25; Sand = 0.32; Silt = 0.40; Clay = 0.36	
0.142	w - Average Soil Molsture Co			Soil (top tm) = 0.1; Subsurface Soil (below 1 m) =	iO 2: or Site Specific
Loam	USDA Soil Classification (Pi		U.T. OI, DUDBUTACO	Source con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Scientific Con (Sc	Entry
			<u> </u>	Organic Matter (%);	
0.00720	Fractional Organic Carbon	(foc) in a/a	ŀ	Organic Matter (mg/kg):	
4.55.25	, , , , , , , , , , , , , , , , , , ,	(, 3.3	ľ	Total Organic Carbon (g/g):	0.00721
1,38E-05	Average Hydraulic Conductivity	(cm/sec) Well Name	·	19.3/-)	
1.38É-05	Falling Hydrautic Conductivity (c		1		
1,002-00	Rising Hydraulic Conductivity (c		1	Hydraulic Gradient Calculation	ıs
0.01034	Hydraulic Gradient (0.02 for sit		Meters	MW-12	95.33
		es wui no groundwatar)	3.048 m	MW-8	94.13
10	d Aquifer Thickness (ft)				
10	d Depth of Source (ft) (Vertical Th	ickness of Contamination)	3.048 m	Distance:	116
	X - Distance along the centerline of setback zone or surface water from groundwater flow (ft) (RBCA)	the groundwater plume emanating to the source in the direction of	0 cm		
212	L - Source Length Parallel to	Groundwater Flow (ft)	64.6176 m		
191	Sw: Source Width -horizonta		5821.68 cm		
C(x) - Concentra	ation of Contaminant in ground	water at distance X from the so	urce (mg/L)	Surface Water	
	Benzene	MTBE			
	Toluene				
	Ethylbenzene				
	Total Xylenes				***
-	Chemicals of Conce	m			
Benzene	Naphthalene				
Toluene		Chrysene	1		
Ethylbenzene		Benzo(k)fluoranthene			
Total Xylenes	-	Indeno(1,2,3-cd)pyrene	1		
MTBE			1		
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MTBE

Mass Unit Equations

SSL Equations Needed

□ Inhalation Equations

Groundwater Ingestion Equations

Csat Equations

Fugitive Dust Equations

F Ingestion Equations

Text discussion for "i", L, da, ds, Sw, Sd

Hydraulic Gradient

The Hydraulic Gradient (i) was determined from an onsite survey of each of the groundwater monitoring wells. The riser elevations were determined and the depth to groundwater was noted in each well. This data was used to generate a potentiometric flow map with contour lines which show potentiometric head. A corresponding flow line, perpendicular to the contour lines, was determined between two known points of groundwater elevation. The hydraulic gradient was determined by the difference in elevation divided by the length of flow between the points.

Source Length

The Source Length Parallel to Groundwater Flow (L) was determined from the site map and analytical results. A value of 45.1104 m was used to encompass the length of contamination parallel to groundwater flow. This value is the distance between soil borings BH-1 and BH-2.

Aquifer Thickness

The Aquifer Thickness (d_a) is a site specific value determined by the length of the monitoring well screen. The Aquifer Thickness value used in the modeling equations was 3.048 meters.

Depth of Source

The Depth of Source (d_s) was determined from the analytical results and soil boring logs. A value of 3.048 m was used to encompass the vertical thickness of contamination based upon a clean soil sample at BH-1A, "hot" samples at BH-2B and BH-2C, and a clean soil sample at BH-2D. Thus the vertical thickness of soil contamination has been determined to be 3.048 m.

Source Width

The source width perpendicular to groundwater flow direction in the Horizontal Plane (S_n) was determined from the site map and analytical results. A value of 3566.16 cm was used to encompass the width of contamination in the horizontal plane. This value is the distance between clean wells MW-4 and and MW-6.

Source Depth

The source width perpendicular to groundwater flow direction in the Vertical Plane (S_d) was determined from the soil boring logs and analytical results. A value of 304.8 cm was used to encompass the width of contamination in the vertical plane based on the depths of contamination present and the PID readings from the bore logs.

Distance (X)

			BENZ	ENE				
	Soil Exceed	ances				Groundwater Exceed	ances	
	Soil	X	Gw _{∞j} (mg/L)	C(x)		Groundwater	Х	C(x)
Location	Concentration (mg/kg)	(ft)	R26 Csource	(mg/L)	Location	Concentration (mg/L)	(ft)	(mg/L)
MW-5	5.03	7	0.459	0.0047	MW-4	0,006	1	0.0025
MW-6	0.926		0.085		MW-5	6.290	13	0.0046
MW-8	1.19		0.109		MW-6	1,700	10	0,0043
					MW-7	0,085	4	0.0044
					8-WM	2.880	11	0.0047
					MW-9	1.120	9	0.0044
					MW-10	2,050	11	0.0034
					MW-11	0,039	3	0.0038
					MW-12	0.677	8	0.0042
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	Soil Exceed	ances				Groundwater Exceed	ances	
	Soil	X	Gw _{obj} (mg/L)	C(x)		Groundwater	X	C(x)
Location	Concentration (mg/kg)	(ft)	R26 Csource	(mg/L)	Location	Concentration (mg/L)	(ft)	(mg/L)
MW-5	Concentration (mg/kg) 29.7		1.0338		MW-5	35.400	1	0.0353
					8-WM	5.000	1	0.0050
_					MW-13	1,670	1	0,0017
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			Ethylbe	nzene				
	Soll Exceed	ances			1	Groundwater Exceeds	inces	
	Soil	Х	Gw _{obj} (mg/L)	C(x)		Groundwater	х	C(x)
Location	Concentration (mg/kg)	(ft)	R26 Csource	(mg/L)	Location		(ft)	(mg/L
MW-5	16.6		0.30266123		MW-5	3.760	1	0.296
MW-7	15.9		0,290		MW-7	2.350	1	0.185
SB-5	19.2		0.350		MW-8	2.210	1	0.174
SB-6	18.3	_	0.334		MW-10	1.670	1	0.131
MW-8	18.1		0.330		MW-12	0.955	1	0.075
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			Total X	/lenes				
	Soil Exceed	ances			T	Groundwater Exceed	ances	
Location	Soil Concentration (mg/kg)	X (ft)	Gw _{sbj} (mg/L) R26 Csource	C(x) (mg/L)	Location	Groundwater Concentration (mg/L)	X (ft)	C(x) (mg/L)
MW-5	65.6		1.642575088	(***, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 3 *, 	MW-5	16,300	1	2.9121
MW-7	46.8		1.172					
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	Soll Exceed	ances				Groundwater Exceed		
	Soil	X	Gw _{obj} (mg/L)	C(x)		Groundwater	Х	C(x)
Location	Concentration (mg/kg)	(ft)	R26 Csource	(mg/L)	Location	Concentration (mg/L)	(ft)	(mg/L
			_		MW-4	0.118	80	0.069
					MW-5	0.457	278	0.069
					MW-8	0,086	50	0.069
•					MW-9	0.380	245	0,069
					MW-11	0.232	165	0.069
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			Napht	ha!ene				
	Soli Exceed	ances				Groundwater Exceed	iances	
	Soil	Х	Gw _{ebj} (mg/L)	C(x)		Groundwater	х	C(x)
Location	Concentration (mg/kg)	(ft)	R26 Csource	(mg/L)	Location	Concentration (mg/L)	(ft)	(mg/L)
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			Benzo[a	lpyrene				
	Soil Exceed	ances		4E.4	T	Groundwater Exceed	ances	
	Soil	Х	Gw _{obj} (mg/L)	C(x)	1	Groundwater	Х	C(x)
Location	Concentration (mg/kg)	(ft)	R26 Csource	(mg/L)	Location	Concentration (mg/L)	(ft)	(mg/L)
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100 EN	E MATH FOR VERTICAL SOIL MODELING	RENZENE MATH POR VERTICAL SON MODELING AND R-25 MODELING OF VERTICAL MODELED SON (Attachment A)	SOL. (Atlachment A)								
Semone	Semple C (soil contemmenton at modeling point)	S. C. M.	Communion:	X.Older ates	Balt n e e /3		B-18 p. 0. (20	Term 1" = [X / Q * a, 3]		Tem 7" = (1 - \$0811) + (4 * * " u.) / (10)	
9	277 A Marie 1977	Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Compan	(may x	01 × X(cm)	,	P. (cm)	(em) / 20 - a (cm)	1) X / 2 x q, - Term!	,	د د] Term?
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9.49	0 826 / 0.548 - 1.690	1 690 / 20,000 - 6,06462									
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KB Food & Gas/Suffivan R-35 Caculations ETHT-BEDGENE MATH FOR R-28	KB Food & Gas/Suffivan R:3 Cacuadon Ethniadozene math Por R:3 Modeling	OF CACUMDWATCR (Attachment A)	90-0146 & 2004-0969				
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9	A & 0a	a/Sullivan	G Food & Daz/Sullivan	\$0-0148 & 2004-0969					
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90-0148 & 2004-0989	2 - 5 (mm) 1 (mm) 7 20	20 / 1034 1 3 - 1120 2014 / 20 1 1034 1 3 - 1124 1 1034 / 20	3 604 1524 / 20	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2									-			æ	£	8	7909 x 1224 11 022 123071 200 11 2 150071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 241071 12 2	B			1							
) OF GROUNDHATER (Abachment A)	Connention: R-18: q, = 0.10 * X X (Q) X (see) 0.1 x X (see) q, (err) q, q.	01 1 24364 • P45.14	1524 - 1524	0.1 5029.2 602.9											01. T. 101. 101. 101. 101. 101. 101. 101	,	/I 4 x 5087	/I 4 K SORT	5421.65 / 4 1 50M1 (50M x	11 4 1 80AT										
KB Food & Gas/Suffivary R-35 Catalogue MTRE MATH FOR R-35 MODELING	DAY VIEWS	0110 PAM	ē	220	Ţ			+		† -	†			1		-		Т	7.4	П									į.	



Tier 2 Industrial/Commercial Calculations for Benzene KB Food & Gas/Sullivan 90-0145 & 2004-0969

SSL SSL & RBCA

Date Compiled: 04/26/12 Version: 4/25/2012

	L RBCA	LIRISHEAST											797	SION: 4/20/	2012	
Input Value		1	4) delice to be cored to					116	DA Coil Clas	-icanian:li						
	s Bulk Density -> 0											- 60	oc compension i	o ala:	0.000	1
	nic Matter (%) -> 0	FOC % (U.58 CONVENSION	1) -> 0.000								0.000		oc contentacen	<u> </u>	0.000	
	p - Dry Soil Bulk Density						- 1.0, 311	- 1.0, Clay	- 1.1, 01 346	орости						
	ps - Soil Particle Density O Air Filled Soil Porosity	0.008	Value from C 21				1 meter =	n 13: Grave	1 # 0 05: Sen	d = 0.14 · Si	t =0 24: Clav	n 5 19	or Calculated V	/alue /S2	11)	
	Ow - Water Filled Soil Porosity											- 0.17,	or Descondict 1	, m.c. 10x		
	η - SSL: Total Soil Porosity I - Hydraulic Gradient	0.304	Value from 5-24			25; 54H	Q = 0.32,3	SIR ~ U.40, E	May - 0.36, 0	Calculate	A VAIDE (224)				-	
	foc - Total Organic Carbon (o/	FOC % 10.59 conversion) ->														
	OF - Dilution Factor		Value from S-22								culated value	is used)			
	d - Mixing Zone (m)															
	d, - Depth of source (m)		feet = 10	Depth	of Source (ertical ti	hickness o	of contamin	etion)							
	K - Hydraulic Conductivity (m/	vn cm/sec =	1.38E-05	Site S	pecific	1,19	9E+00	1 cm/d	4.35E+0	2 cm/yr l	Jse cm/d for R	15, R19	8, & R26. cm/y	r for R24		
	L - Source Length Parallel to C		feet = 212	Site S	pacific (m)											
3.048	d Aquifer Thickness (m)		feet = 10	Site S	pecific (m)					-						
	I - Infiltration Rate (m/vr)			0.3 fo	r Illinois											
	K Saturated Hydraulic Cond	buctivity				put Valu	es									
0,005	GW Groundwater Remedia				0.025	GW	Groundwa	der Remedi	stion Objectiv	re Class 2						
0.073	1/(2b+3) - Exponent for S20			See 1	able K for in	out Valu	es		<u> </u>							
70	BW - Body Weight			Resid	lential = 70 (c	arcinoge	enic); 15 (ı	non-carcino	genic); Indus	Irial/Comme	ercial = 70; Co	nstructio	on Worker = 70	, RBCA	• 70	
114		estion Factor for Carcinogens		114												
50	IRSoil Ingestion Rate			Resid	lential = 200;	Industria	al/Comme	rcial = 50; C	onstruction \	Vorker = 48	0					
	SF, -Oral Slope Factor			Benze	ene = 0.055		- 1	-					14.15			
1	IRDaily Water Ingestion Rat	44		Resid	lential e 2: In-	dustrial/	Commerci	al = 1				_				
1750	S - Solubility in Water															-
	TR - Target Cancer Risk					Industria	al/Comme	mial = 10 ⁻⁴ .	Construction	Worker = 1	0-6 at point of	human	exposure			
70	AT, -Average Time for Carcine	onens .				maasin					,					
	URF - Inhatation Unit Risk Fac	 				14					-					
250	EF - Exposure Fraquency						aVComme	rcial = 250	Construction	Worker = 3	10					
25		helation to Carcinogens														
68.81			Jare source													
7.90E+08	T - Exposure Interval			Resid	lential = 9.5)	10 ⁶ Ind	lustrial/Cor	mmercial =	7.9 x 10 ³ Co	nstruction V	Vorker = 3.6 x	10 ⁶				
30	Two - Exposure interval for Ma	all Limit Votatilization Factor Equ	ation S26	30												
70				70												
0.18				0.18										-	•	
0.088	D _i - Diffusivity in Air			Benz	ene = 0.088						•					
0.228	H' - Henry's Law Constant															
	D Diffusivity in Water			Велг	ene = 9.8 x 1	0-6										
58.9	K Organic Carbon Partition	Coefficient	<u> </u>													
	- Signific Carpon 7 Billion										_				_	
IndustriaVC	ommercial Ingestion Tier # B	lenzene Objective									-					
			1,0E-08	×	70	×	70	×	365			_	1.8E+00	_	404.050	D
S-3 =			_ =								50	_ =		=	104.058	mg/kg
1	St _e X 1	IV XEFXED X IRSON	0.033	^	1.00E-00	*	25U	*	23	*	30		1.725-02			
L				_												
Č	- Wednesday Track	Anna Oblastica														
1			1.00.00		70		70		205				1.8E+00			
S-3 =		· · · · · · · · · · · · · · · · · · ·	_ =			х				_		=		=	2258.21	mg/kg
1	Sf.	x 10" x EF x IRsoil	0,055	x	1.00E-06	×	30	x	480				7.92E-04			



Tier 2 Industrial/Commercial Calculations for Benzene KB Food & Gas/Sullivan 90-0146 & 2004-0959

Commercia	i inhalatio	n Tier II Benzene Objective												-			
		TR x ATc x 365	_ = -	1.0E-06	X	70	X	365						0.02555	=	6.243	mg/k
		URF x 1000 x EF x ED x 1/VF		7.80E-06	×	1000	x	250	x	25	→ (1/	1,19E+04)	4.09E-03			
on Worker	Inhalation	Tier If Benzene Objective					_							•			
		TR x ATc x 365	_	1.0E-06	×	70	×	365						0.02555	_	8 780	mg/k
		URF x 1000 x EF x ED x 1/VF		7.80E-06	×	1000	x	30	×	1	» (1 <i>l</i>	8.04E+01)	2.91E-03		0.100	1.1grx
TAL OR CO	MMERCIA	<u> </u>												<u> </u>	_		
VE =	<u> </u>	(3.14 x D _A x T) ^{1/2} x 10 ⁻⁴	=	85.81	. (3.14	×	9.44E-05	x	7.90E+08) ^{1/2} x	0.0001		4.1532	=	11912.1573	
VF	c ^	(2 x p _b x D _A)			(2	x	1.846	×	9.44E-05)			0.0003			
on Worker		m., p. m/2 and				244		0.445.05		2.605.00	1 1/2	0.0004		0.2004			
VF 	<u>a</u> ×		_ =	85.81	׍						 	0.0001	<u> </u>		=	804.1334	
		(2 x p ₆ x D _A)						1,840	х	9.446-00	' -	<u> </u>					
or Derivation	on of Volat		r								-						
VF' =		VF	_ =	10											=	80.4133	
	on of Appr				1						-						
D _A =		η ²	x	(p _b x K _d)		(θ _a x H')	-										
				4.37E-04	X	0.088	x	0.228) +	0.00	52 x	9,80E-06	ᆚ,	t			
								0.6	0924								
									1	<i>T</i>			-		=	9.44E-05	
				1.846	х	0.42408		0.21	•	0.098	×	0.228	,				
	we Migratio	(G., +		1			Г	_		(0.20A		0.098	×	0.228	٦.	0.055	n.
C.	* L	K. +		_ =		0.1	×	0.42408 —	+			1.846	-] "	0.000	mg/k
	on Worker VF = or Derivation Or Derivation Or Derivation Or Derivation	on Worker inhalation VF = Q x On Worker VF = Q x Or Derivation of Volat VF' = Or Derivation of Appa DA = On Derivation of Derivation of Appa	URF x 1000 x EF x ED x 1/VF DON Worker inhalation Ther II Benzene Objective TR x ATc x 365 URF x 1000 x EF x ED x 1/VF TAL OR COMMERCIAL VF = Q x (3.14 x D _A x T) ^{1/2} x 10 ⁻⁴ (2 x p _b x D _A) On Worker VF = Q x (3.14 x D _A x T) ^{1/2} x 10 ⁻⁴ (2 x p _b x D _A) Or Derivation of Volatilization Factor - Construction Worker VF = VF 10 Or Derivation of Apparent Diffusivity DA = (8 _a 3.33 x D ₁ x H) + (8 _a 3.33 x D _a) The property of the Migration to Groundwater Cleanup Objective C x K + (8 _a +	TR x ATC x 365 URF x 1000 x EF x ED x 1/VF DON Worker inhalation Tier it Benzene Objective TR x ATC x 365 URF x 1000 x EF x ED x 1/VF TAL OR COMMERCIAL VF =	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	TR x ATc x 365 URF x 1000 x EF x ED x 1/VF TR x ATc x 365 URF x 1000 x EF x ED x 1/VF TR x ATc x 365 URF x 1000 x EF x ED x 1/VF TR x ATc x 365 URF x 1000 x EF x ED x 1/VF TR x ATc x 365 URF x 1000 x EF x ED x 1/VF TR x ATc x 365 URF x 1000 x EF x ED x 1/VF TR x ATc x 365 URF x 1000 x EF x ED x 1/VF TR x ATc x 365 URF x 1000 x EF x ED x 1/VF TR x ATc x 365 URF x 1000 x EF x ED x 1/VF TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc x 365 TR x ATc 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TO Derivation of Apparent Dif	TR x ATC x 365 URF x 1000 x EF x ED x 10/F TR x ATC x 365 URF x 1000 x EF x ED x 10/F TR x ATC x 365 URF x 1000 x EF x ED x 10/F TR x ATC x 365 URF x 1000 x EF x ED x 10/F TR x ATC x 365 URF x 1000 x EF x ED x 10/F TAL OR COMMERCIAL VF = Q x (0.14 x D_x x 10 ⁻¹² x 10 ⁻¹⁴ = 85.81 x (3.14 x 9.44E-05 x 7.90E-08) \(\frac{10}{2} \) x 0.0001 On Worker VF = Q x (3.14 x D_x x 10 ⁻¹² x 10 ⁻¹⁴ = 85.81 x (3.14 x 9.44E-05 x 3.60E-06) \(\frac{1}{2} \) x 1.846 x 9.44E-05 \) On Worker VF = Q x (3.14 x D_x x 10 ⁻¹² x 10 ⁻¹⁴ = 85.81 x (3.14 x 9.44E-05 x 3.60E-06) \(\frac{1}{2} \) x 1.846 x 9.44E-05 \) On Portvation of Volatilization Factor · Construction Worker VF = \frac{1}{(2 x D_x x D_x)} = \frac{1}{(2 x D_x x D_x)} = \frac{1}{(2 x 1.846 x 9.44E-05 x 3.60E-06)} \(\frac{1}{2} \) x 1.846 x 9.44E-05 \) Or Derivation of Apparent Diffusivity DA = \frac{1}{(3.33 x D_x x 1) \cdot (0.332 x D_x)} \(\frac{1}{(3.322 x D_x)} \) x \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\frac{1}{(2 x X D_x x D_x)} \) \(\fr	TR x ATC x 365 URF x 1000 x EF x ED x 10F 7.80E-06 x 1000 x 250 x 25 , (1/ 1.19E-04) on Worker inhalation Ther it Benzene Objective TR x ATC x 385 URF x 1000 x EF x ED x 10F 7.80E-06 x 1000 x 30 x 1 , (1/ 6.04E+01) TAL OR COMMERCIAL VF =	TR x ATC x 365 URF x 1000 x EF x ED x 1/VF 7.80E-08	TR x AT x 365 URF x 1000 x EF x ED x 1/VF 7.80E-06 x 1000 x 250 x 25 x (1/ 1.19E-04)	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$

Tier 2 Industrial/Commercial Calculations for Benzene KB Food & Gas/Sullivan 90-0146 & 2004-0969

Target Soll	Leachate	Concentration (Class 1)															
S-18 =	C _w =	DF x GW _{nbi}	=	20.00	×	0.005		_							-	0.1	
Soil-Water	Partition C	oefficient															
S-19 =	K₄≖	K _{ee} x f _{ee}	=	58.90	X	0.007										0.42408	
Water-Fille	d Porosity																
S-20 =	Θ* =	η x————————————————————————————————————	=	0.30	x	60.000	-]								=	0.2065	
Air-Filled F	orosity			·		•											
		η - Θ _w	=	0.30	-	0.21						<u> </u>			=	0,0980	
Dilution Fa	ictor																
S-22 =	DF =	1 + Kxixd	= -	4.35 0.300	x	0.0103 64,618	x	9,886	+	1					=	1.0230	
GW Ingesti	ion											•					
S-23 =		TR x 8W x AL x 365 SF _e x IR _w x EF x ED	= -	1.0E-06 0.055	x	1.000	x	70 250	x x	365 25	-		=	1.8E+00 343.75		0.0052	mg/L
Total Soil		. Ph		1		1.846						<u>-</u>				0.3039	
S-24 =	η=	1 - Ph	=	1		2.652	_								<u>-</u>	0.3039	
Estimation	of Mixing	Zone Depth										-					
S-25 =	d =	(0.0112 x L ²) ^{0.5} + d _a 1 -exp —	(-L. x i) (K x i x d _n)														
			= (0.0112	×	64.618	²) ^{0.5} +										
						3.048	×	1 - ехр	{-	-64.618 4.352	xx	0.3 0.0103) <u> </u>	3.048	_7] =	9.886	m
Soil Satur	ation Limit	•		1750			<u> </u>									050.04	
S-29 =	C _{set} =	$\frac{S}{\rho_b} \times \frac{[(K_a \times \rho b) + \Theta w + (H' \times \theta a)]}{[(K_b \times \rho b) + \Theta w + (H' \times \theta a)]}$, .	1.846	-× [{	0.42408	×	1.846) +	0.206	٠ (0.228	X	0.098	,,=	13.868	mg/kg

3



Tier 2 Industrial/Commercial Calculations for Toluene KB Food & Gas/Suffivan 90-0146 & 2004-0969

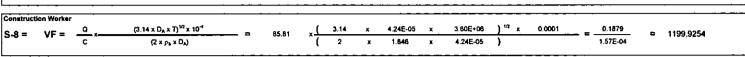
SSL SSL & RBCA

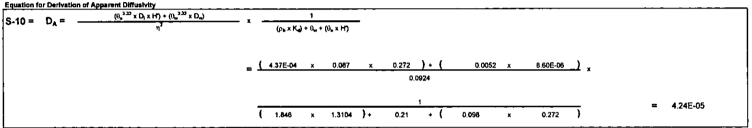
Date Compiled: 04/26/12 Version: 4/26/2012

Input Values	•	RBCA	(IKIS/MEASI)												-			
	s Bulk Density	> 0	Converted	Value to	be used in c	alculatio	n sheel>		- T	U	SDA Soll Classifi	cation; Lo	am				* **	
	anic Matter (%) -		FOC % (0.58 conversion		0.000		ic Matter (m		0		C mg/kg (0.58 com		0.000	fc	c conversion t	o a/a:	0.000	
	Pa - Dry Soil Bul			·					1.8: Silt = 1		= 1,7; or Site Sp							
	ps - Soil Particle						Site Speci		,									
	O. Air Filled Sc		0.098	Value fi					1 meter = 0	13 Grav	el = 0.05; Sand =	0.14: Sift	=0.24: Clay =	0.19: o	r Calculated V	alue (S2	1)	
	Ow - Water Fille		0.206		rom S-20						el = 0.20; Sand =							
	η - SSL: Total Se		0.304								Clay = 0.36; or C							
	i - Hydraulic Gra		0.304	Value II		Site So		.go, Dani	u → v.uz, Oiii	- 0.40,	Olay - 0.30, Ol C		**************************************					
	foc - Total Organ							06: Subs	urface Soil *	0.002	or Site Specific	-		_			-	
	DF - Dilution Fac		1.023	Value f	тогп S-22						20 default is used	else calc	ulated value is	used				
	d - Mixing Zone		9.586		rom S-25		culated va										•	
	d Depth of sou			feet =					hickness of	ontami	nation)							
4.35	K - Hydrautic Co		n cm/sec =	1.38E-0	05	Site Spe			9E+00 i			cm/vr Us	se cm/d for R1	5. R19	& R26. cm/yr	for R24		
64,618			roundwater Flow (m)	feet =			ecific (m)											
	d Aquifer Thic			feet =			ecific (m)											
	1 - Infiltration Ra					Q.3 for I												
60	K, - Saturated H		. بالله رافعي				le K for In	out Value										
										Dimi	Hadis - Object - C	21 2						
1,000			ion Objective Class 1				2.5			Kemec	liztion Objective (JI438 £						-
0.073	1/(2b+3) - Expor		 				ole K for in				nancia), I-44	Man	nial = 70. 0	daudic	a Morkey - 70.	DDCA	70	
15	BW - Body Weig						mai = 70 (i	CHICHOOK	ensc); 15 (no	-carcin	ogenic); Industria		usi = 70; Cons	- LUCUO	I SYLVIKET = 70	VDCV.	- ,0	
114			stion Factor for Carcinogens			114			114									
50	iR _{ee} -Soil Inges										Construction Wor	ker = 480						
1	IR., -Daily Water	r Ingestion Rate	•			Resider	dial = 2; In	dustrial/	Commercial	= 1								
526	S - Solubility in 1	Water				Toluene												
1.0E-06	TR - Target Can					Resider	rtial = 10 ⁴	Industri	al/Commerci	al = 10 ⁻¹	Construction We	orker = 10	at point of h	uman e	xpasure			
250	EF - Exposure F										Construction Wo							
25			alation for Non-Carcinogens								Construction Work							
68.81	Q/C - Inverse of	the mean cond	centration at the center of a squ	are source							5.81; Construction							
7.90E+08	1 - Exposure Int						tial = 9.5	x10" Inc	ustrial/Comm	nercial =	7.9 x 10 ⁸ ; Consti	ruction Wo	orker = 3.6 x 11	<u>" </u>				
30			li Limit Volatilization Factor Equ			30												
70	ED _{mi.} - Exposure	Duration for Mior	ation to Groundwater Mass-Limit Eq	uation 52	8	70												
0.18	Lat - Infiltration	Rate for Migrat	ion to Groundwater Mass-Limit i	Equation	S28	0.18												
0.087	D _i - Diffusivity in					Toluene	= 0.087											
0.272	H' Henry's Law						0.272										•	
8.60E-06	D _w - Diffusivity i						= 8.6 x 1	0.4										
25			rcinogens in Ingestion Equation						Commercial	= 25: Ca	onstruction Worke	r = 0 115						
25			rcinogens in inhalation Equation								onstruction Work							-
1	THQ - Target H					1	70											
5	RfC - Inhalation					Chronic	= 5; Subc	hronic =	5				2 41 50 1					
0.8	RfD Oral Refe						= 0,08; S					,		7 - 3				
182.00	K Organic Co		Coefficient			Toluene												
162.00	In ac - Organic Ci	alboil P Biblion	Coefficient			Tolueti	- 102											
Industrial	commercial Ince	stion Remedia	tion Objectives for Non-Carci	nogenic	Contaminar	ts												
			x BW x AT x 365		1	×	70	×	25	x	365			_	638750	_	******	
S-1 =			RfD.) x EF x ED x IR	- =	0.000001	x 1/	0.8	×	250	×	25	×	50	- =	0.390625	=	1635200	mg/kg
1		10 1(1)	KIDO XEF XED XIIV		0.000001	~ "	4.0	•	200	^		,	**		0.400020			
															· · · · · ·			
Construction	on Worker Inges		ion Objectives for Non-Caroln	ogenic C	ontaminant													
S-1 =			X BW x AT x 365	- 2	1	х	70	x	0.115	x	365				2938.25	=	163236	mg/kg
3-15		10 ⁻⁴ x (1/	R(D _a) x EF x ED x IR _{ee}	-	0.000001	x 1/	0.8	×	30	×	1	х	480	_	0.016	_	.00200	
L		· ·																
inhalation i	Non-Carcinogen		, Ind/Commercial												0405			
S-4 =			HQ x AT x 365	=	1	×	25	×	365		17775.28329			=	9125 0.070322	=	129759.568	mg/kg
1		EF x	ED x (1/RfC x 1/VF)		250	×	25	x 1/	5	x 1/		labalas'	an Ohland			C-11 C-		
											l ier 2	innalatio	on Ubjectiv	o can	nut exceed :	2011 29	turation Limi	·
Inhalation	Non-Carcinogen				_				***						41.675			
S-5 =			HQ x AT x 385	_ = -	1	X	0.115	×	365		*******			_ =	41.975	=	839.448	mg/kg
1		EF x i	ED x (1/RfC x 1/VF)		30	×	1	x 1/	5	x 1/	119.992537	lanks of a co	Ob'		0.050003	ee-	dispution 1 lead	
L											I ter 2	inhaiati	on Objectiv	e can	not exceed :	50II 58	turation Limi	ı.
RESIDENT	TAL OR COMME	RCIAL				_												
S-8 =	VF = -Q		3.14 × D _A × T) ^{1/2} × 10 ⁻⁴ (2 × ρ _b × D _A)	_ =	85.81	· .	3,14	x	4.24E-05	X	7.90E+08) " x	0.0001	_ =	2.7833	=	17775.2833	
3-0 -	<u>-</u>	-	(2 x p _b x D _e)		55.01	^7	2	7	1,846	×	4.24E-05	}			1.57E-04	_		
	•		·- ·- · · · · · · · · · · · · · · · · ·			٠,	-					•						



Tier 2 Industrial/Commercial Calculations for Toluene KB Food & Gas/Sullivan 90-0146 & 2004-0969



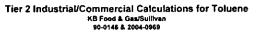


Soil Compor	nent of the	Migrat	ion to Ground	dwater Cleanu	p Objective (Class 1) (θ _w + θ _o x H)	=	20	×	1.3104	+ (_	0.206	•	0.098	×	0.272	 	28.729	mg/kg
		L			đq								1.846					

arget Soll	Leachate Concentrati	on (Class 1)						
S-18 =	C _w =	DF x GW _{obj}	=	20,00	x	1,000	=	20
oll-Water	Partition Coefficient							
-19 =	K _d =	K _{sc} x f _{sc}	=	182.00	×	0.007	=	1.3104
ater-Filie	d Porosity	. UZboži				1200 Just3		
S-20 =	Θ _₩ = η x—	1 V(28+3)	=	0.30	*[-	0.300	=	0.2065



3



Air-Filled Po S-21 ≖	-	η -	e.,			=	0.30		0.21									2	0.0980	
Ditution Fac		1 +		Kxlxd			4.35	×	0.0103	×	9.886		1						1.0230	
J-22 -				İxL			0,300		64.618											
SW Ingestion	n		TR x BW	x At ₄ x 365			1.0E-06	×	15	x	0	х	365	_			0.0E+00		#DIV/0!	mg/l
S-23 =			SF _a x IR _a	x EF x ED			0.000	×	1,000	x	250	x	25				0		#DIVIO!	gr
otal Soll Pe S-24 =	orosity η =	1	Po Ps			=	1		1.846 2.652	-						_		=	0.3039	
stimation (L ²) ^{0.5} + d _n	1 -ехр	(-L×I) (Kxixo	<u></u>]											-			
						= (0.0112	×	64.618	²) ^{0.6} +										
									3.048	×	1 - exp	{-	-64.618 4.352	x	0.3 0.0103)	3.048	<u>-}</u>] =	9.886	m
Soil Saturat S-29 =	tion Limit	<u>з</u> х	[[K _a x pb)	+ 0 w + {H' x	6a)]	n -	526 1.648	-× [(1.3104	×	1.846) +	0.206	+ {	0.272	×	0.098))=	755.58	mg/k



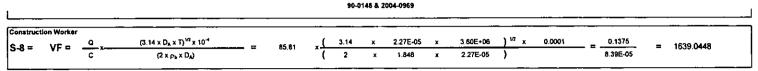
Tier 2 Industrial/Commercial Calculations for Ethylbenzene KB Food & GasSullivan

90-0146 & 2004-0969

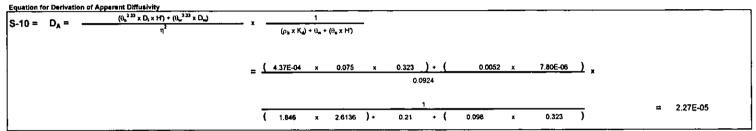
SSL SSL & RBCA | IRISANEAST | Variable 4/26/12

		RBCA	IRIS/HEAST													Va	rsion: 4/25/	2012	
Input Value:																			
	's Bulk Density>	0				be used in o						JSDA Soil Classi							,
	anic Matter (%)>	0	FOC % (0.58 cc	noisnevno)>	0.000		nic Matter (n		0		OC mg/kg (0.58 co		0.000		foc conversion	to g/g:	0.000	
1.846	P Dry Soll Bulk Dens	sity					1.5 or, 0	Gravel = 2.	0; Sand :	= 1.8; Sitt =	1.6, Cla	y = 1.7; or Site S	pecific						
	ps - Soll Particle Dens						2.65 or	Site Spec	ific										
0.098	O. Air Filled Soil Port	osity		0.098	Value f	rom S-21	Top 1 n	neter = 0.2	8; below	1 meter = 0.	13; Gra	vel = 0.05; Sand	= 0.14; Silt	±0.24; Clay	= 0.19;	or Calculated V	/alue (S2	1)	
0.206	Ow - Water Filled Soil			0.206		rom S-20						vel = 0.20; Sand							
0.304	n - SSL: Total Soil Pon			0.304		rom S-24						Clay = 0.36; or 0						-,	
	i - Hydraulic Gradient	USILY		0,504	A STICK 1	IOIII GPZA	Site Sp		/.25, Gail	u - 0.32, 36	0.40	, Clay - 0.30, Of 1	CHICOIALEG	Value (CA.4)					
		(-l-)							AG. Cb.	unfana Cail .	- 0 000	or Site Specific							
0.007	foc - Total Organic Car	roon (gyg)			Making	rom S-22							d also sale	uninted calcu	la vea	4			
20,000	DF - Dilution Factor			1.023						s less than 2	u, men	20 defautt is use	d, else carc	culated value	12 112 6	<u> </u>			
9.886	d - Mixing Zone (m)			9.886		rom S-25		culated va											
3.048	d Depth of source (n	n)			feet =		Depth o	of Source (hickness of	contami								
4.35	K - Hydraulic Conducts	ivity (m/yr)	e e	m/sec ≠	1.38E-0	05	Site Sp	ecific	1.19	9E+00	cm/d	4.35E+02	i_cm/yr_U:	se cm/d for I	<u>R15, R1</u>	19, & R26. cm/y	r for R24	i	
64.618	L - Source Length Part	attel to Gr	oundwater Flow (m)		feet =	212	Site Sp	ecific (m)											
3.048	d Aquifer Thickness				feet =	10		ecific (лі)											
					1001 -		0.3 for												
0.3	I - Infiltration Rate (m/)																		
60	K, - Saturated Hydraul						See 1a	ble K for Ir											
0.700	GW _{stel} - Groundwater F	Remediatk	on Objective Class 1					1	Ġ₩ _{æj} -	Groundwate	r Reme	diation Objective	Class 2						
0.073	1/(2b+3) - Exponent fo	x S20					See Ta	ble K for Ir	nput Valu	es									
70	BW - Body Weight						Reside	ntial = 70 (carcinoge	enic); 15 (no	n-carcir	nogenic); Industri	al/Commen	cial = 70; Co	nstruct	ion Worker = 70	; RBCA :	70	
114	IF Age Adjusted	Soil Inces	tion Factor for Carcin	ogens			114												
50				g				ntial = 200	· Induce	alfCamma-	ial = 60.	Construction Wo	orter a APO						
	IR _{sell} -Soil Ingestion Ra											COLISTICITION AAC	NVE1 - 400	1					
1	IR., -Daily Water Inges									Commercial	= 1								
169	S - Solubility in Water							nzene = 1											
1.0E-06	TR - Target Cancer Ri	sk					Reside	ntial = 10 ⁻⁵	; Industri	al/Commerc	ial = 10°	Construction V	Vorker = 10	at point of	human	exposure			
250	EF - Exposure Freque											D; Construction V							
25	ED - Exposure Duration		lation for Non-Carcin	ogens			Reside	ntial = 30;	Industrial	//Commercia	J = 25; (Construction Wor	rker = 1						
68.81	Q/C - Inverse of the m				are source	:e	Reside	ntial = 68.8	31: Indust	trial/Comme	rcial = 8	5 81; Construction	n Worker =	= 85.81; or T	able H				
	T - Exposure Interval						Reside	ntial = 9.5	x 10 ⁶ Inc	hastria//Comm	nercial :	= 7.9 × 10°; Cons	truction Wo	orker = 36 x	106				
30	T _{M1} - Exposure interva	al for Mali	1 imit Valetifization Er	eter Fau	Minn S26		30	- V.U	X10 1110		**********	1,0 10 1,000							
							70												
70	ED _{ML} - Exposure Duration																		
0.18	I _{se L} - Infiltration Rate for	or Migratic	in to Groundwater Ma	ss-Limit E	Equation	S28	0.18												
0.075	D _i - Diffusivity in Air					-	Ethylbe	nzene = 0	.075										
0.323	H - Henry's Law Cons	tent					Fihylbe	nzene = 0	323										
	D Diffusivity in Wate							nzene = 7											
			T	F							- 06: 0				-				
25	AT - Average Time for											onstruction Work							
25	AT - Average Time for		inogens in innalation	Equation	<u> </u>		Keside	nual = 30;	ingustna	WCommercia	1 Z5, I	Construction Wor	rxer = 0.112	<u> </u>	_			· · ·	
<u> </u>	THQ - Target Hazard 0	Chaneut					1 (0)												
11	RfC - Inhalation Refer		centration				_	: = 1; Subc											
0.1	RfD, - Oral Reference	Dose					Chronic	: = 0.1; Sម	ochronic	= 1									
363.00	K _{ee} - Organic Carbon I	Partition C	cefficient				Ethylbe	nzene = 3	63										
							<u> </u>												
Industrial/C	ommercial ingestion	Remediat	ion Objectives for N	on-Carcia	nogenic	Contaminar	ıtş						-						
[x BW x AT x 365			1	x	70	×	25	×	365				638750			
\$-1 =			D.) x EF x ED x IR		- =	0.000001	x 1/	0.1	×	250	×	25	x .	50	_ =	3.125	=	204400	mg/kg
	1	io x (I/K	INT YELKEN XIK	•		0.000001	A U	0.1	^	250		23		Ju		3.123			
ь																			
Construction	on Worker Ingestion R	amadia-l	on Objectives for No.	o-Carrie	ogenic C	ontaminant													
1			x BW x AT x 365		-gerne t	1	-	70	×	0.115	¥	365				2938.25			
S-1 =					- =	<u> </u>	- 44							400	- =	0.0144	=	204045	mg/kg
1	1	10 ° x (1/R	fD_) x EF x ED x IR.			0.000001	x 1/	1	×	30	x	1	×	480		0.0144			
L																			
Debet 2 2	V	.1.4													_				
inhalation i	Non-Carcinogenic Res																		
S-4 =			10 x AT x 365		=	1	×	25	×	385					-	9125	-	35449	mg/kg
1 -		EF x E	D x (1/RfC x 1/VF)			250	x	25	x 1/	1	x 1/	24280.24801			_	0.257411			
1												Tier 2	2 Inhalatio	on Object	ive ca	nnot exceed	Soil Sa	turation Lim	it
Inhalation !	Non-Carcinogenic Con	struction	Worker													•			
ľ			1Q x AT x 365			1	×	0.115	x	365						41.975	_	220 222	
S-5 =			D x (1/RfC x 1/VF)		_ = -	30		1	x 1/	1	x 1/	163,9044796				0.183033	=	229.330	mg/kg
			~ v (mino v mai)			30	~	•	~ "	,	~ "	144.444100				0.10000			
																			
Deciperio	IAL OR COMMERCIAL																		
RESIDENT	IAL OR COMMERCIAL												. 12						
S-8 =	VE a Q	(3	$(2 \times \rho_b \times D_A)^{1/2} \times 10^{-4}$		_ =	85.81	1.	3.14	×	2,27E-05	×	7,90E+08) ^{1/2} ×	0.0001		2.0376	-	24280.2480	
3-0 -	AL		(2 x o. x D.)			93.01	^7	2	¥	1.846	¥	2.27E-05	1			6.39E-05	_	A-7200.2400	
t	•		4- V hP V DM				٠,	-	^		~	V	•			J.JJL-00			

Tier 2 Industrial/Commercial Calculations for Ethylbenzene KB Food & Gas/Sullivan



Equation fo	or Derivation of Volatilization Facto	r - Construction Worker			
S-9 =	VF' =	VF	1639 0448	=	163.9045
0-5 -	••	10	10		



Soil Compo	nent of th	e Migra	tion to Grou	indwater Cleanu +	p Objective (Class 1) (θ _w + θ _s x H) ρb	2	14	×	2.6136	+ (_	0.206	+	0.098	×	0.323	<u> </u>] =	38,393	mg/kg
		L	-		- 1			L_	-				1.040					•	

Target Soil	Leachate Concentration (Class 1)					 		
S-18 =	C _w =	DF x GW _{ebj}	=	20.00	×	0.700		=	14

Soli-Water Partition Coefficient								\neg
S-19 = K _d =	K _{ec} x f _{ec}	=	363.00	x	0.007	=	2.6136	

Water-Filled Porosity
$$S-20 = \Theta_{\mathbf{w}} = \eta \times \frac{1}{K_{\mathbf{v}}} \qquad = 0.30 \times \left[\frac{0.300}{60.000} \right]^{0.075} = 0.2065$$

2



3

Tier 2 Industrial/Commercial Calculations for Ethylbenzene KB Food & Gas/Sullivan 90-0146 & 2004-0959

									90-0	146 & 20	04-0959										
Air-Filled Po S-21 =	-	η -	θ.,			=	0.30	-	0.21										=	0.0980	
Ollution Fact		1 +	ł	(xixd IxL		. = .	4.35 0.300	x	0.0103 64.618	×	9.886	+	1		=		-		-	1.0230	
GW Ingestion	n		TR x BW : SF _a x IR _a	x A1 ₄ x 365 x EF x ED		. = .	1.0E-08 0.000	x x	70	x	0 250	x x	365 25	_		=	0.0E+0	<u>o_</u>	9	#DIV/0!	mg
Total Soil Po S-24 =	prosity η =	1	Ph Px			-	1		1.846 2.652	<u>-</u>									=	0.3039	
Estimation o	of Mixing a	Cone Depth (0.0112 x L	_²) ^{0.5} + d _a	1 -ехр	(-L x i x	_		×	64.618	2)0.5 +	-				_	•					
									3.048	×	1 - exp	{-	-64.618 4.352	x x	0.3 0.0103) x	3.048		=	9.886	m
Soil Saturati S-29 =	ion Limit C _{sat} =	S x	[(K _d x pb)	+ Gw + (H'	x 6a)]	= .	169 1.846	-×[(2.6136	×	1.848	1 +	0.206	+ (0.323	×	0.098	·)]	=	463.46	mg/



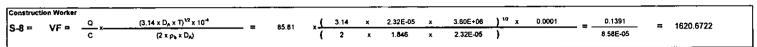
Tier 2 Industrial/Commercial Calculations for Total Xylenes KB Food & Gas/Suttivan 90-0146 & 2004-0969

SSL SSL & RBCA RBCA IRISHEAST Date Compiled: 04/26/12

Input Value	•	KBCA	I INIS/NEASII														
	's Bulk Density -	>T 0	Converted	Value to be used in	calcutatio	on sheet	.> T	-	U	ISDA Soil Classif	cation: L	oam	_				
	anic Matter (%) -		FOC % (0.58 conversion			c Matter (m		0		OC mg/kg (0.58 con		0.000	fo	c conversion to	o g/g:	0,000	
1,846	Ps - Dry Soil Bul		, , , , , , , , , , , , , , , , , , , ,	,						ay = 1,7; or Site \$							
2.552	ps - Solt Particle	Dentitu				Site Spec		,	7,							•	
	O. Air Filled Sc		0.098	Value from S-21				1 meter = (13: Go	avel = 0.05; Sand	1 = 0 14 · S	in =0 24: Clav :	= 0.19: or	Calculated Val	ue (\$21)	· · · · · · · · · · · · · · · · · · ·	
			0.208	Value from S-20						avel = 0.20; Sand							
0.206	Ow - Water Fille									0; Clay = 0.36; or			- 0.17,01	Carculated Val	de lozo		
0.304	η - SSL: Total Se		0.304	Value from S-24			J. 25, San	a = 0.32; S	III = U.41	0; Clay = 0.36, 0r	Caxuate	d Value (324)					
	i - Hydraulic Gre				Site Spe		VOC. Cb.	udass Call	- 0 000	2; or Site Specific							
0.007 20.000	foc - Total Organ DF - Dilution Fa		1.023	Value from S-22						n 20 default is us		siculated value	is used				
9,886			9.886	Value from S-25		cutated value		a idaa iilali	20, 11161	11 20 0018011 13 03	00, 0130 01	SICUIBIOG FAIDO	12 0300				
3.048	d - Mixing Zone		3.660	feet = 10				hickness o	Contan	nination)							
	d Depth of so					<u> </u>	•					a a analid dan Did	£ 040 £	DOC	004		
4.35	K - Hydrautic Co			1.38E-05	Site Spi		1.19	E+00 :	cm/d	4.35E+02	CITIVYT U	Se CITVO TOT PC I	5, K19, 6	R26. cm/yr for	R24		
64.618			roundwater Flow (m)	feet = 212		ecific (m)											
3.048	d _s - Aquifer Thic			feet = 10		ecific (m)											
0.3) - Infiltration Ra				0.3 for I												
60	K, - Saturated H	lydraulic Condu	ctivity		See Tal	ble K for Ir	nput Valu	es									
10.000	GW _{max} - Grounds	water Remediat	ion Objective Class 1			10	GW _{thi} - C	roundwate	r Reme	diation Objective	Class 2						
0.073	1/(2b+3) - Expor				See Tal	ble K for Ir	nput Valu	es									
70	BW - Body Weig								on-carc	inogenic); Industi	nal/Comm	ercial = 70; Co	nstruction	Worker = 70; F	RBCA =	70	
114			stion Factor for Carcinogens	_	114												
50	IR _{ent} -Soil Inges				Resider	nial = 200	: Industri	al/Commer	cial = 50	D: Construction W	orker = 48	30					
	IRDaily Water							Commercia									
			·			vienes = 1			., - 1								
186	S - Solubility in							-110	-1-0	0 construction	Morker -	10 ⁴ at naint at	h	2001100			
1.0E-06	TR - Target Can	cer Risk								50; Construction			noman ex	posure			
250	EF - Exposure F		Title of the Man Company							Construction Wo		50				-	
25 68.81			alation for Non-Carcinogens entration at the center of a squ	*** ******						85.81; Construct		r = 85 81: or Ta	able H				
			semilation at the center of a squ	are source						I = 7.9 x 10°; Con							
7.90E+08	T - Exposure Int					Mai = 9.5	XIU , ING	right Cou	urrer cuar	1 - 1.9 x 10 , Con	\$UUCDON 1	1401XB1 - 3.0 X	10				
30			I Limit Volatilization Factor Equ		30												
70			ition to Groundwater Mass-Limit Eq		70												
0,18	اليمار - infiltration ا	Rate for Migrati	on to Groundwater Mass-Limit I	Equation S28	0.18												
0.072	D _i - Diffusivity in	ı Air			Total X	ylenes = 0	.072										
0.250	H' - Henry's Law	Constant			Total X	ylenes = 0	1.25	_									
9.34E+06	D Diffusivity i				Total X	ylenės = 9	34 x 10	1									
25			rcinogens in Ingestion Equation						1 = 25: 0	Construction Wor	ker = 0.11	5	•				
25			cinogens in Inhalation Equation		Resider	ntial = 30;	Industria	VCommen	ial = 25;	Construction Wo	orker = 0.1	15					
1	THQ - Target H				1												
0.1	RfC - Inhalation	Reference Cor	ncentration		Chronic	: = 0.1; Su	pehronic	= 0.4									
0.2	RfD _a - Oral Refe	erence Dose			Chronic	= 0.2; Su	itchronic	B 1									
260.00	K _{sc} - Organic Ca		Coefficient		Total X	ylenes = 2	60										
200.00	Tree - Organio Ci	arberr draberr	33311131311			,											
Industrial/C	Commercial Inge	stion Remedia	tion Objectives for Non-Carci	nogenic Contamina	nts												
S-1 =		THO	x BW x AT x 365	_ 1	x	70	X .	25	x	365				638750	=	408800	mg/kg
3-15		אר) צ־טר	COUNTER X ED X IR COM	- = 0.000001	X 1/	0.2	Х	250	×	25	×	50		1.5625	_	400000	
L								_									
Coortovti	on Worker Inges	tion Demadist	on Objectives for Non-Carcin	coenic Contaminad	14												
	OII TOURES INGES	THO	x BW x AT x 365	_ 1	- ×	70	×	0.115	x	365				2938.25	_	204045	mg/kg
S-1 =	_	TU - X (17)	RID T E F X E D X IR.	_ =	X 1/	7	X	3 0	X	Τ.	X	480		U,U144	-	204043	шулу
	 																
																	
inhalation	Non-Carcinogen					0.5		act						0476			
S-4 =			HQ x AT x 365	= 1	×	25 25	X 1/	365		24008.08198			= ,	9125 603290011	=	3505.180	mg/kg
		EFXI	ED x (1/RfC x 1/VF)	250	×	25	x 1/	0.1	x 1/		2 lohale	tion Objects		ot exceed So	nil Satı	ration Limit	
			···							i lei	<u> </u>	COLL ODISCO.	TO COMP	A CALGOR SE	Juli	HANDII ENIIL	
Inhalasia -	Non-Carcinogen	ic Construction	n Worker					-							_		
	Inches Cinogen		n worker HQ x AT x 365	1	× .	0.115		365						41.975			
S-5 =	_			- = - 3 0	- A.	V. 110	x 1/	D.4	x 1/	162.0672154				462770955	=	90.704	mg/kg
1		EFXE	ED x (1/RfC x 1/VF)	30		•	X 17	U.4	X 17	102,0012134			U.	702110000			
L	<u>.</u> .																
B#8/5-5		00141						_								***	
RESIDENT	TAL OR COMME		10 -4							7 AAF) ^{1/2} x			0.0007			
S-8 =	VF = °	- x	3.14 x D _A x T) ^{1/2} x 10 ⁻⁴ (2 x ρ _b x D _A)	- = 85.81	×	3.14	×	2.32E-05	X	7.90E+08	<u>ј" х</u>	0.0001	_ = _	2.0607	=	24008.0820	
155	C		(2 x p, x D ₄)		Ϊ (2	×	1.846	×	2.32E-05)			8.58E-05			
1	•				•						•						



Tier 2 Industrial/Commercial Calculations for Total Xylenes KB Food & Gas/Sullivan 90-0145 & 2004-0969



Equation for Derivation of Apparent Diffusivity
$$S-10 \Rightarrow D_{A} \Rightarrow \frac{(0_{x}^{2.33} \times D_{x} \times H^{2} + (0_{x}^{2.33} \times D_{x})}{\eta^{2}} \qquad x \qquad \frac{1}{(\rho_{x} \times K_{x}^{2}) + 0_{x} + (\theta_{x} \times H^{2})} = \frac{\left(4.37E \cdot 0.4 \times 0.072 \times 0.250\right) + \left(0.0052 \times 9.34E \cdot 0.6\right)}{0.0924} \times \frac{1}{0.0924} = 2.32E \cdot 0.5$$

\$-17 = C _w	"	N4 *	ρb	=		200	X 1.872	T -	0.208					=	399.373	mg/k
	_						L				1.846					_
									Tier 2 So	il Compone	nt of GW Ing	estion C	bjective cannot	exceed S	oil Saturation	Limit
Target Soil Leacha	ate Concentratio	n (Class 1)					. •					•				
S-18 = C _w =	=	DF x GW _{obj}	=	20,00	×	10.000								=	200	

1.872

Water-Filled Porosity $S-20 = \Theta_w = \eta \times \frac{1}{K_u}$	=	0,30	0 x \[\begin{pmatrix} 0.300 \\ 60.000 \end{pmatrix} \] =	0.2065

2

260.00 x 0.007

Soil-Water Partition Coefficient

S-19 = K_d =

K_{ec} x f_{ec}







371.42 mg/kg

Tier 2 Industrial/Commercial Calculations for Total Xylenes KB Food & Gas/Sullivan 90-0146 & 2004-0959

Air-Filled Po	orosity																			
S-21 =	⊙ ₂ =	η -	е"			=	0,30	-	0.21									=	0.0980	
Ollution Fac	ctor				•					_										-
S-22 =	DF =	1		Kxixt	<u>.</u>	=	0.300	×	64.618	x	9.886	+	1					-	1.0230	
GW Ingestic	m		TD	BW x AL, x	165		1.0E-06	×	70	x	0	x	365				0.0E+00			
S-23 =				x IR_x EF x			0.000	×	1,000	x	250	x	25	<u>-</u>			0	- :	#DIV/0I	mg/l
Total Soil P S-24 =	Porosity η =	1	Ps.	•	•	e	1	•	1.846 2.652	•									0,3039	
Estimation S-25 =			th x L ²) ^{0.5} + d ₄	1 -e	жр —	(-Lx1)_	<u> </u>			<u></u>			·			<u> </u>	·			
				L			(0.0115 \	x	64.618	2)0.5 +										
									3,048	٦F	1 - ехр	(_	-64.618 4.352	×	0.3 0.0103) *	3,048	_7 =	9.686	m



Tier 2 Industrial/Commercial Calculations for MTBE KB Food & Gas/Sullivan 90-0148 & 2004-0969

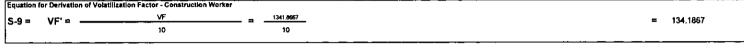
SSL SSL & RBCA RBCA IRIS/HEAST Date Compiled: 04/26/12

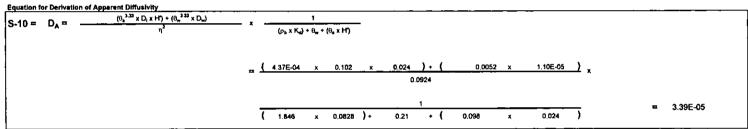
Version: 4/26/2012

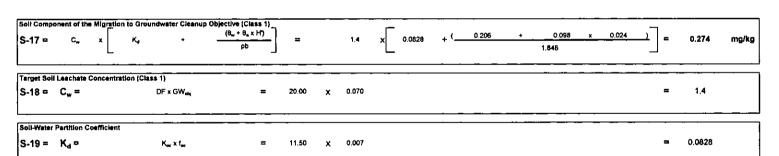
	RBCA	[IRIS/HEAS]]												Varago; 4	V20V2U12	
Input Value														-		
	's Bulk Density> 0			e used in c				-		SDA Soil Class					2.000	
	anic Matter (%) -> 0	FOC % (0.58 conversion))	0.000		ic Matter (n		0		C mg/kg (0.58 oc		0.000	10C CORVE	rsion to g/g	0.000	
	ρ _b - Dry Soil Bulk Density							s = 1.8; Sitt	= 1.6; Cla	y = 1.7; or Site	Specific					
2.652	ps - Soil Particle Density					Site Spec										
0.098	O. Air Filled Soil Porosity	0.098	Value from	m \$-21									y = 0.19; or Calcul			
0.208	Ow - Water Filled Soil Porosit	0.206	Value from	m S-20	Top 1 r	neter = 0.1	15; bolow	v 1 meter =	0.30; Gra	vel = 0.20; San	d = 0.18; S	ilt =0.16; Cla	y = 0.17; or Calcu	ated Value	(\$20)	
0.304	73 - SSL & OT - RBCA: Total So	Porosity 6.304	Value from	m S-24	0.43 or	Gravel -	0.25; Sas	nd = 0.32;	Sift = 0.40	; Clay = 0.36; or	Calculate	d Value (S24)			
	i - Hydrautic Gradient				Site Sp					·		•				
0.007	foc - Total Organic Carbon (g	(a)					006: Sub	surface So	il = 0.002	or Site Specific	;					
20,000	DF - Dilution Factor	1.023	Value fro	m S-22						20 default is us		alculated valu	ie is used			
9.886	d - Mixing Zone (m)	9.886	Value fro			culated v								•		
3.048	d Depth of source (m)		feet = 10					thickness	of contam	ination)						
4.35	K - Hydraulic Conductivity (my	vr) cm/sec =	1.38E-05		Site Sp		•		i cm/d		cmAr I	ise cmid for	R15, R19, & R26.	cmAr for F	724	
	L - Source Length Parallel to		feet = 2			ecific (m)		9L-00	i caled g	7.50L+42		330 CHEB 104	110,1110,0110.	one ji to t	<u> </u>	
64.618		Groundwater Flow (m)	feet = 2			ecific (m)										
3,048	d Aquifer Thickness (m)		1001 - 11	Ų.												
0.3	1 - Inflitration Rate (m/yr)				0.3 for											
60	K _s - Saturated Hydraulic Cond					ble K for I										
0.070	GW _{pbj} - Groundwater Remedi	stion Objective Class 1				0.07	GW _{obj} -	Groundwat	ter Remed	liation Objective	Class 2					
0.073	1/(2b+3) - Exponent for S20					ble K for i										
70	BW - Body Weight				Reside	ntial = 70	(carcino	genic); 15 (non-carci	nogenic); Indust	rial/Comm	ercial = 70; C	construction Work	or = 70; RB	CA = 70	
114	IF	estion Factor for Carcinogens			114											
50	IRSoil Ingestion Rate					ntial = 204): Industr	rial/Comm	ercial a 60	: Construction V	Vorker = 41	80				
											(NO)				· · · ·	
1	IR., -Daily Water Ingestion Ra	R8					rausutat	/Commerc	HE = 1							
51000	S - Solubility in Water					= 51,000										
1.0E-06	TR - Target Cancer Risk												f human exposur	<u> </u>		
250	EF - Exposure Frequency									0; Construction		30				
25		halation for Non-Carcinogens								Construction W						
68.81		ncentration at the center of a squi	are source							5,81; Construct						
7.90E+08	T - Exposure interval				Reside	ntial = 9.5	x10 ⁴ in	dustrial/Co	mmercial	≖ 7.9 x 10°; Cor	struction \	Norker = 3.6	x 10 ⁶			
30	T _{ML} - Exposure Interval for M	all Limit Volatilization Factor Equa	ation S26		30											
70		ration to Groundwater Mass-Limit Eq			70											
0.18		tion to Groundwater Mass-Limit E		28	0.18											
		EDOI) to Ottombwates maaa-carini E	Lquauon o.	-		= 0.102										
0.102	D _I - Diffusivity in Air															
0.0241	H' - Henry's Law Constant					= 0.0241	, —									
1.10E-05	D _w - Diffusivity in Water					= 1.1 x 10										
25		arcinogens in Ingestion Equation								onstruction Wo						
25	AT - Average Time for Non-C	arcinogens in Inhalation Equation	n		Reside	ntial = 30;	Industria	al/Commer	cial = 25;	Construction W	orker = 0.1	115				
1	THO - Target Hazard Quotier	d			1											
3	RfC - Inhatstion Reference C	oncentration			Chroni	c = 3; Sub	chronic s	= 3								
0.01	RfD _e - Oral Reference Dose				Chron	c = 0.01; S	Subchron	nic = 0.1								
11.50	K Organic Carbon Partition	Coefficient			MTBE	= 11.5										
,	1. W Signing Caroon I action															
Donleignet-	I Innestion Demodiation Ohio	ctives for Non-Carcinogenic Co	etamine -													
l .		ctives for Non-Carcinogenic Co Q x BW x AT x 365	est de sei 1134111	٠,	v	70		25		365			_ 63875	io		
S-1 =			- = -	0.000001		0.01		250		25	 -	50	- = 03075		= 20440	mg/k
	10 × (1	/RID _e) x EF x ED x IR _{sol}		0.000001	x 1/	0.01	x	250	×	25	×	50	31.2	,		
										 						
															<u>-</u>	
Construct		tion Objectives for Non-Carcine	ogenic Co	intaminant:	5					***						
S-1 =		Q x BW x AT x 365	- = -	1	X	70	Х	0.115	X	365			<u> </u>		= 20405	mg/k
~-	10 ⁴ x (1	/RfD _u) x EF x ED x IR _{ed}	_	0.000001	x 1/	0.1	x	30	×	1	X	480	0.144	1		
Inhalation	Non-Carcinogenic Residentia															
S-4 =		THQ x AT x 365	_ = _	11	X	25	X	365					=9125		= 87065.435	5 mg/k
- تحرا	EF:	ED x (1/RfC x 1/VF)		250	×	25	x 1/	3	x 1/	19877.9530			0,1048			•
l										Tier	2 inhalat	ion Object	ive cannot exc	eed Soil	Saturation Lis	mit
Inhalation	Non-Carcinogenic Construct	on Worker	****													
		THQ x AT x 365	_	1	x	0.115	x	365					41.97	5 .	- 502 242	mc ⁿ
S-5 =		ED x (1/RfC x 1/VF)	- = -	30	×	1	x 1/	3	x 1/	134,1866671			0.074		= 563.249	mg/k
					-	•		-								

Tier 2 Industrial/Commercial Calculations for MTBE KB Food & Gas/Sullivan

-8 =	VF =	MMERCIAL Q	(3.14 x D _A x T) ^{1/2} x 10 ⁻⁴	=	85.81	. (3.14	. x	3.39E-05	×	7,90E+08) 1/2 x	0.0001		2.4889	=	19877.9531
-		c ^	(2 x p _b x D _A)			^(2	x	1.846	X 	3.39E-05)	_		1.25E-04		
	ion Worker	<u> </u>	(3.14 x D _A x T) ^{1/2} x 10 ⁻⁴			. (3.14	×	3.39E-05	x	3.60E+06) 1/2 ×	0.0001		0.1680	_	1341.8667
8= VF=	c	(2 x ρ _b x D _a)	=	B5,61	× (2	x	1.846	x	3.39E-05)		_ =	1.25E-04	_	1341,0007	











Tier 2 Industrial/Commercial Calculations for MTBE KB Food & Gas/Sullivan

											s/Sullivan 204-0969									
Water-Filled Poros S-20 ≃ Θ _w	ilty = ŋ	x 1 K,	ri(59+3)				0.30	*[-	0.300	.]0.073				·	-			=	0.2065	
Air-Filled Porosity S-21 = Θ _s		- е"				-	0.30	-	0.21		· -								0.0980	
Dilution Factor S-22 = DF	= 1	+	Kx		:	= -	4.35 0.300	×	0.0103 64.618	х _	9.886	+	1		-			•	1.0230	
GW Ingestion S-23 =	_		TR x BW x At SF _a x IR _a x E			e –	1.0E-06 0.000	x	70	x	0 250	X X	365 25	-		=.	0.0E+00 0	. =	#DIV/0!	mg/L
Total Soil Porosity S-24 = η		- <u>Р</u> ь	_		;	<u> </u>	1		1.846 2.652	•								=	0.3039	
Estimation of Mix S-25 = d) Depth 0112 × L ²) ^{0.5}	+ d.	1-ехр -	(-Lxl) (Kxixd)	_]				· -										
						a (0.0112	×	64.618 3.048	•	1 - exp	{-	-64.618 4.352	x x	0.3 0.0103) x	3.048	-] =	9.886	m
Soli Saturation Lin S-29 = C _{sa}		-× (([K ₄ x pb} + 6	w + (H' x I	la]]	= -	51000 1.846	-×{(0.0828	x	1.846) +	0.206	+ (0.024	*	0.098)] =	9,979.27	mg/kg

LEAKING UST TECHNICAL REVIEW NOTES

Reviewed by: Brad Dilbaitis Date Reviewed: 5/9/2012

Re: LPC #1390305014—Moultrie County

Sullivan/ KB Food & Gas

111 West Jackson Street (Rt. 121 & 32)

Leaking UST Incident No. 20040969 & 900146

Leaking UST Technical File

Document(s) Reviewed:

2/17/2012 Corrective Action Plan and Budget—received 2/17/12

4/6/2012

Revised TACO calculations—received 4/10/12

4/27/2012

Re-revised TACO calculations—received 4/27/12

General Site Information:

Site subject to: 734

IEMA date(s): 7/9/2004 & 1/17/1990	Reimbursement: yes								
UST System removed: yesremoved 7/8/04	OSFM Fac. ID #: 4-013187								
Encountered Groundwater: yes, wells screened from 4' bgs-13.5'bgs	SWAP mapping and evaluation completion date: 8/24/2010—not in an ordinanced area								
Free Product: no	Site placement correct in SWAP: yes								
Current/Past Land Use: gas station	MTBE > 40 ppb in groundwater: no								
Size & Product of Tanks: (1) 10,000g unleaded gas	soline, (1) 8,000g leaded gasoline, (1) 8,000g diesel, (1)								
5,000g diesel, (1) 5,000g unleaded gasoline and (1) 2,000g kerosene USTs									

Corrective Action Plan/Budget Review Notes:

- Soil and groundwater contamination extends off site to the north (Jackson Street-Rt. 32), east (Van Buren Street), south (newspaper office, Willaredt Properties) and west (Hamilton Street—Rt. 121)
- Established tier 2 SROs—I/C and construction worker
- Proposing to use an ELUC with the property to the south—News Progress property
- Proposing Highway Authority Agreements for Hamilton Street (II. Rt. 32), Jackson Street (IL. Rt. 121) and Van Buren Street—will include both the City of Sullivan and IDOT
- Proposing that the City of Sullivan adopt either a citywide or a limited groundwater ordinance to exclude the groundwater ingestion exposure route

TACO calculations:

Hydraulic conductivity (K) 1.38×10^{-5} cm/sec Soil bulk density (ρ_b) 1.846 g/cm^3 RELEASABLE Soil particle density (ρ_s) 2.652 g/cm^3 Moisture content (w) $0.142 \text{ gwater/g}_{soil}$ MAY 2.9×2012

Organic carbon content (f_{oc}) 0.00721 g/g

REVIEWER MED

- The site-specific Tier 2 SROs are:
 - Benzene—6.24 mg/kg (S-6, I/C inhalation)
 - Ethylbenzene—229.33 mg/kg (S-5, const. worker Inhalation)
 - Toluene—755.56 mg/kg (S-29, site-specific C_{sat})
 - Total xylenes—90.70 mg/kg (S-5, const. worker Inhalation)
 - MTBE-563.25 mg/kg (S-5, const. worker Inhalation)
- The highest on-site soil BETX concentrations are below the site-specific tier 2 soil remediation objectives

Page 2

Corrective Action Budget:

Drilling and Monitoring Well Costs	\$0.00
Analytical Costs	\$0.00
Remediation and Disposal Costs	\$0.00
UST Removal and Abandonment Costs	\$0.00
Paving, Demolition and Well Abandonment Costs	\$1,719.00
Consulting Personnel Costs	\$31,443.23
Consultant's Materials Costs	\$734.30

- Includes well abandonment costs
- Consultant's Materials Costs requesting 300 copies for the Corrective Action Budget at \$0.10/copy for a total of \$30.00—the budget is 15 pages long—this represents twenty copies of the budget (we received two)—will allow (4) copies; two for us, one for the owner and one for the consultant—that's 60 copies at \$0.10/copy for a total of \$6.00—a \$24.00 deduction—unreasonable, lack of supp doc (a 75-page budget)
- The Consultant's Materials Costs request a total of \$370.00 for copies (3,700 copies)
- Consulting Personnel Costs include:
 - \$4,182.51 for CAP preparation
 - \$2,383.45 for the budget preparation
 - \$3,529.30 for TACO calculations etc.
 - \$687.54 for well abandonment (coordination?)
 - \$3,082.48 for Highway Authority Agreement preparation
 - \$4,205.42 for the preparation/review of the groundwater ordinance
 - \$2,245.94 for the ELUC
 - \$6,096.17 for the preparation of the CACR
 - \$5,030.42 for the claim preparation
 - The claim preparation costs include (30) hours for a Sr. Acct. Tech and (16) hours for a Sr. PM (compliance/oversight) and (6) hours for a Sr. PE for review and certification—a total of 54 hours
- The Stage 3 actual costs originally requested (50), (12) and (4) hours, respectively—this became an issue because the consultant performed the drilling—we only needed one invoice from the lab (and p.o.p for handling charges) and the consultant's personnel time sheets for the claim
- After much back-and-forth, the consultant stated that they overestimate the reimbursement hours because they are expecting us to make deductions and that they have to correct their coding on their time sheets
- The upcoming corrective action claim will require NO documentation from anyone other than the consultant
- The claim for the Stage 3 actual costs is in my hand—it requests a total of 23.5 hours for the claim preparation (approved for 24)
- It is a very safe assumption that the requested hours for reimbursement preparation requested (46) in this Corrective Action Budget are a huge overestimation and the actual hours will be less than the 23.5 hours submitted for the preparation of the Stage 3 claim:
 - The consultant had previously indicated that the preparation hours for reimbursement are estimated on the high side in order to anticipate possible budget deductions (time to correct the coding on their personnel sheets)—I am not making any deductions in Consulting Personnel Costs as this is a proposed budget

Page 3

- Because this Corrective Action Plan does not include any active remediation the only supporting documentation needed for the claim is the consultant's work summary sheets—this is less work and documentation than was needed for the Stage 3 claim, where they requested 23.5 hours
- The consultant was able to previously provide me with the Stage 3 work summary sheets within a couple of hours when requested—it would stand to reason that it would take about the same amount of time to have them ready for the corrective action claim (we need nothing else other than our required Agency forms)
- The consultant has assured me that they will only request payment for the hours spent doing the task, not the hours that were approved for the task

Illinois EPA Recommendation/Comments:

- All on-site soil contamination is below the Tier 2 SROs for BETX and MTBE—the proposed HAAs and ELUCs will address the off-site soil contamination—proposing the adoption of an ordinance—Corrective Action Plan is approved
- Spoke with the consultant concerning the requested copies in the budget-she assured me that, although the budgeted number of copies is exaggerated, only the amount used will be requested in the claim—in addition, she mentioned something about other copies that are internal that get marked up during review and such—will approve the copies at this time as I'm sure I'll get the application for payment when it's received
- Approving the Corrective Action Plan and Budget

BD\CAPnotes.docx





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

PAT QUINN, GOVERNOR

JOHN J. KIM, INTERIM DIRECTOR

217/782-6762

CERTIFIED MAIL

MAY 1 6 2012

7009 3410 0002 3749 4461

KB Sullivan, Inc. Kamlesh Patel 140 Hearthstone Drive Bartlett, Illinois 60103

Re:

LPC #1390305014—Moultrie County

Sullivan/ KB Food & Gas

111 West Jackson Street (Rt. 121 & 32)

Leaking UST Incident No. 20040969 and 900146

Leaking UST Technical File

IEPA - DIVISION OF RECORDS MANAGEMENT RELEASABLE

MAY 16 2012

REVIEWER MED

Dear Mr. Patel:

The Illinois Environmental Protection Agency (Illinois EPA) has reviewed the Corrective Action Plan (plan) submitted for the above-referenced incident. This plan, dated February 17, 2012, was received by the Illinois EPA on February 17, 2012. Additional information was received by the Illinois EPA on April 10, 2012 and April 27, 2012. Citations in this letter are from the Environmental Protection Act (Act), as amended by Public Act 92-0554 on June 24, 2002, and Public Act 96-0908 on June 8, 2010, and 35 Illinois Administrative Code (35 Ill. Adm. Code).

Pursuant to Sections 57.7(b)(2) and 57.7(c) of the Act and 35 III. Adm. Code 734.505(b) and 734.510(a), the plan is approved. The activities proposed in the plan are appropriate to demonstrate compliance with Title XVI of the Act. Please note that all activities associated with the remediation of this release proposed in the plan must be executed in accordance with all applicable regulatory and statutory requirements, including compliance with the proper permits.

In addition, the total budget is approved for the amounts listed in Attachment A. Please note that the costs must be incurred in accordance with the approved plan. Be aware that the amount of payment from the Fund may be limited by Sections 57.7(c). 57.8(d), 57.8(e), and 57.8(g) of the Act, as well as 35 Ill. Adm. Code 734.630 and 734.655.

NOTE: Pursuant to Section 57.8(a)(5) of the Act, if payment from the Fund will be sought for any additional costs that may be incurred as a result of the Illinois EPA's modifications, an amended budget must be submitted. Amended plans and/or budgets must be submitted and approved prior to the issuance of a No Further Remediation (NFR) Letter. Costs associated with a plan or budget that have not been approved prior to the issuance of an NFR Letter will not be paid from the Fund.

Pursuant to Sections 57.7(b)(5) and 57.12(c) and (d) of the Act and 35 III. Adm. Code 734.100 and 734.125, the Illinois EPA requires that a Corrective Action Completion Report that achieves

4302 N. Main St., Rockford, IL 61103 (815)987-7760 595 S. State, Elgin, IL 60123 (847)608-3131 2125 S. First St., Champaign, IL 61820 (217)278-5800 2009 Mail St., Collinsville, IL 62234 (618)346-5120 9511 Harrison St., Des Plaines, IL 60016 (847)294-4000 5407 N. University St., Arbar 113, Pearia, IL 61614 (309)693-5462 2309 W. Main St., Suite 116, Marion, IL 62959 (618)993-7200 100 W. Randolph, Suite 11-300, Chicago, IL 60601 (312)814-6026

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Page 2

compliance with applicable remediation objectives be submitted within 30 days after completion of the plan to:

Illinois Environmental Protection Agency
Bureau of Land - #24
Leaking Underground Storage Tank Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, IL 62794-9276

Please submit all correspondence in duplicate and include the Re: block shown at the beginning of this letter.

If within four years after the approval of this plan, compliance with the applicable remediation objectives has not been achieved and a Corrective Action Completion Report has not been submitted, the Illinois EPA requires the submission of a status report pursuant to Section 57.7(b)(6) of the Act.

Please be advised that, pursuant to Public Act 96-0908, effective June 8, 2010, all releases of petroleum from USTs are subject to Title XVI of the Act, as amended by Public Act 92-0554 on June 24, 2002, and Public Act 96-0908 on June 8, 2010, and 35 Ill. Adm. Code 734. The regulations at 35 Ill. Adm. Code 732 no longer exist, and the only releases subject to 35 Ill. Adm. Code 731 are those from hazardous substance USTs.

If you have any questions or need further assistance, please contact Brad Dilbaitis at (217) 785-8378 or at Bradley.Dilbaitis@illinois.gov.

Sincerely,

Thomas A. Henninger

Unit Manager

Leaking Underground Storage Tank Section

Division of Remediation Management

Bureau of Land

TAH:BD\CAPappBUDapp.docx

Attachment: Attachment A

c: CWM Company

BOL File

Attachment A

Re: LPC #1390305014—Moultrie County

Sullivan/ KB Food & Gas

111 West Jackson Street (Rt. 121 & 32)

Leaking UST Incident No. 20040969 and 900146

Leaking UST Technical File

The following amounts are approved:

Drilling and Monitoring Well Costs
Analytical Costs
Remediation and Disposal Costs
UST Removal and Abandonment Costs
Paving, Demolition, and Well Abandonment Costs
Consulting Personnel Costs
Consultant's Materials Costs

Handling charges will be determined at the time a billing package is reviewed by the Illinois EPA. The amount of allowable handling charges will be determined in accordance with Section 57.1(a) of the Environmental Protection Act and 35 Illinois Administrative Code 734.635.

BD\CAPappBUDappA

ILLENGUENEMINIBORNAGESTALERROTTEE BYORKERSENCY

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

PAT QUINN, GOVERNOR

JOHN J. KIM, INTERIM DIRECTOR

217/782-6762

CERTIFIED MAIL

MAY 1 6 2012

7009 3410 0002 3749 4461

KB Sullivan, Inc. Kamlesh Patel 140 Hearthstone Drive Bartlett, Illinois 60103

Re:

LPC #1390305014---Moultrie County

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2. Article Number	4. Restricted Delivery? (Extra Fee)
PS Form 3811, February 2004 Output Domestic Return	0002 3749 4461
Domestic Return	70 Receipt 102595-02-M-1540



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Protection Agency
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SPRINGFIELD, IL 62794-9276



Environmental Consulting Services

Phone: (217) 522-8001 Fax: (217) 522-8009

June 12, 2012

Mr. Bradley Dilbaitis

Illinois Environmental Protection Agency (IEPA) 1021 North Grand Avenue East P.O. Box 19276 Springfield, Illinois 62794-9276 1390305014-Moulthie KB Fooda Gas LUST Tech

Re: KB Sullivan / Incident #2004-0969

Dear Brad:

I tried to tackle some of your items, where I see some need for additional information or comment.

Item 1. That is what we are attempting to do. We are striving for a consistent, smooth as we can make, transition from proposed to actual to reimbursement document preparation.

The titles used in the budgets are really evolutions of titles that numerous PMs have commented on or we have altered over the years to describe tasks of various personnel. Our staff is constantly modifying to incorporate comments, justifications, etc. in the budget approval process.

We have left the reimbursement claim titles alone over the same course of time as this is the first time anyone has asked or questioned the difference. Since the reimbursement claim, when reviewed on its own merit, sufficiently describes the tasks of the invoices attached, we've had no previous reason to change.

Item 2. Yes, rates do change. Contrary to your citation, the method of accounting is factored into the Reimbursement Claim and identified as such. For example, if a 2011 rate is approved in an SI Budget and the work took place over a 3-year time frame, we don't just throw a total Reimbursement Claim to match the budget to the Agency and ask for the entire amount, which is fundamentally the heart of this disagreement, misunderstanding and debate. As we only bill the Agency for actual costs incurred and other firms pre-bill, we go back into our system, input all the field purchases, etc. and invoices. The personnel rates will be reflective of the year incurred. We do not go back and change a 2008 rate to a 2011, nor do we change a 2011 rate to a 2012 rate to a 2012 Yes, if the Agency wants to be petty, they can cut the higher rate by a few cents, although we gave on the earlier lower rates.

IEPA - DIVISION OF RECORDS MANAGEMENT

Pilit D.E

IEPA/BOL

If we were to go into the database and change the rate of every hour to match a rate in an approved budget (usually approved long after the work was done), our reimbursement time would double or triple (especially on a Stage 3 or a long duration phase). We simply believe it's not in the best interest of either party to do so, given the minimal net proceeds or deductions. Mind you, the number could go either way. Firms that do so are fraudulently presenting their supporting documentation.

For example, you get a promotion, get your new pay rate on February 1, it would be like your boss telling you that you can only get paid that on certain projects, not others, or by rates per fiscal year or some such variable. So, we can't possibly distinguish in any other way than use a rate dated as incurred.

Item 3. Yes, you are correct; however, this is an issue that highly varies among Project Managers. We believe that we are making progress but still have not conquered this issue. Just last week, we received a couple of other budget modifications. In one, three personnel were listed for reimbursement tasks – Senior Project Manager, Senior Professional Engineer and Account Technician. All hours were reduced to the rate of an Account Technician. We're told only one rate would be approved, as the others were duplicative, so from here forward, submit PE rate or we'll only get one of the lowest rates. Obviously, the reimbursement will never reflect the actual budget. Three personnel titles will be used to complete the work.

That is what we are trying to work towards. We are not seeing much uniformity between Project Managers on this issue.

Item 4. You are combining different points. One is "actual" is not 100% actual when the actual budget is prepared, as the work is not complete. The second point was that for instance, if an actual budget for a project was being prepared by us today, April 2012, May 2012 and June 2012 are not fully input into our system, and therefore are not finalized to be a part of the actual budget preparation. The current delay is larger than usual, but a three or four week lag is not unusual. Not everything for April, May, and now June that have been entered into the system are checked.

As we discussed last week, we are re-looking at the last claim in terms of hours and task descriptions. Given that the project came in near budget, I'm speculating that the task descriptions and possibly personnel were varied. As Vince has tried to explain multiple times, we budget to the point of "know" and estimate for the completion. Today is a very good example: if one of our staff was working on a budget, they would get the print-out, knowing full well April, May and June to-date are not yet available, or only so in draft, plus all personnel to complete the report and budget and the subsequent for reimbursement.

Items 6 and 7. Again, we are not seeing uniformity from the Agency. On the date you sent your email, I had a conversation with another Project Manager that said the

Agency does not even look at actual budgets in anywhere near that level of detail. In an attempt to make this claim review more easy to review and comparable to the budget actual; we attempted to utilize the budget actual task descriptions. No reallocations were done. The numbers do look somewhat comparable, but not exact as it was not intended to do so from the onset. We hope that our efforts to do so won't be held as another strike toward our claim if they still don't watch 100%. Again, and according to PMs, we were clearly at or under the total for Plan preparation costs.

I spoke with <u>yet</u> another PM regarding budget development. I wanted to submit via email amended budget pages so all needed tasks and personnel would be included with the budget. I was told: "Don't worry about how the hours break down, as long as the total is OK, we don't look at that." Some drilling was changed, off-site added, on-site changed, budget and plan time changed by percentages, additions and deletions. I was trying to get details so I could track, but was informed not to worry about. This type of review and level of detail is not included in the review and we obviously did not budget enough. In reference to the hours accumulated by the Scientist I, the total was higher than intended. If the hours cannot fit, they are classified as non-billable.

So now Item 7, we develop a budget that incorporates most of what we expect, along with what we've anticipated, including, or sometimes not anticipating another person may step in at the last moment to assist in completion, spend time with a PM to modify the project, the PE review, etc., and now it's somehow distasteful. We've been cultivated to monitor our line items.

Item 8. Certified the actual. OK – we don't monitor others so much, only hearsay on a few other firms, we just can explain how and why we do what we do.

Item 9. We are trying to become more standard internally, if this is the type of detail that will be required, which should translate into a more consistent budget process for both proposed and actual. That should make it easier for us and for the Agency.

Item 10. Our PM can take a stab at the PE, Sr. PM, Administrative Assistant, their own time, unless big red flags are raised during the review, or suddenly a new, or previously non-responsive off-site property appears, and the owner decides to call, the station closes, eligibility needs changed, task status changes, etc. We can't anticipate the Agency's review, either no questions, can I have another boring, can I have the off-site affidavits now instead of later (in the CACR as requested by the "Act"), can we modify a map, budget, general questions, etc. Requests in Budget number decisions have never been based on what we have in a project; other PMs play a bidding game – share some hours here and there, take some personnel titles out here, thus to get to the total that they're pre-established for the number of borings drilled for the phase. I understand that the PMs are to call and "work" out issues with us. The methods vary widely. It would be so far off from what we've actually done by the end of a negotiation. Vince typically does this just for some continuity in-house. But, we

participate in good faith to reduce conflicts and appeals. We write the off-site property owners and present their results. Typically we wait until we can tell them the Agency has approved the SICR. On some occasions, when we're comfortable with the PM, plume delineations, budget confidence, etc., we'll proceed before or during the SICR process.

We've incurred significant hours on this site with additional opt-in, eligibility, deductible, W-9s, etc. The technical research for the re-reporting is discussed later. Hours to opt-in, amend, and create new eligibilities, W-9, deductibles, etc. are charged to the Reimbursement Task Code. Some are charged to reimbursements, many are not charged at all, as sufficient hours were not sufficiently anticipated or budgeted and we end up having to eat as overhead. We've spent significant time getting the last budget approved. The last few weeks, between Sr. Account Technician, Engineer III and Senior Project Manager, we're probably pushing 20-50 plus hours.

Our hope is that with a better understanding of how we operate, albeit differently from other firms, we'll at a minimum explain the pending claim, and also give us insight into how you review budgets and claims. The difficulty moving forward will be to continue to improve our internal standardization, yet designing different methods for different reviewers.

Item 11. Senior Project Manager and Senior Professional Engineer look at what the project should take and in what order, and if any obstacles were mentioned in its progress. We review in differing perspectives in an attempt to cover hours incurred and speculation of hours, hours yet to be incurred, or in some cases yet to be incorporated into the system.

Item 12. Claim preparation. Senior Project Manager begins by reviewing all time already incurred to project for pending phase(s), assembles subs, verifies budgeted rates amounts, number of samples, when and where drilling occurred, field expenses, etc. Then together, the Sr. Account Technician begins segregating hours into tasks by personnel into Agency forms. This is not done electronically. I'm not sure how you perceive this process, but we use the various reimbursement tasks (which we now realize differ from the Agency's tasks just in the way they are laid out and lumped together, actual budget to reimbursement forms) to group personnel and hours by rates, and years, if necessary. We then try to sort them by the phase codes, too.

If, for example, a Geologist II charged 60 hours to plan development and the budget was 45 hours, we would look into the situation to determine the reason for the overage. If there was sufficient room in the budget; contributing personnel had less hours.

If we were to wait until all items entered could be coded, reviewed and assembled as such, we would have completed tech reports sitting in want for 2-3 months. Then, additional time would be incurred to edit them and submit them. For a delay in time

versus a few hours that have slightly differing task descriptions, this seems extremely excessive. We can increase our expected plan, budget and reimbursement time and get the plan out the door. If the time actually needed is slightly less, how is the Fund hurt? We certainly can't bill more. Other consultants are claiming exact amounts prior to completion of the work. Quite honestly, you're praising them for fraud because it looks neat and makes for an easy review. Once again, CW³M is punished because ours is different and we're somehow, someway, doing something horribly wrong when our title/task descriptions don't quite look alike, yet the budget comes in under the approved amount. Se we'll spend 20-50 hours explaining it and modifying it. I have no idea how much time it takes you to review this and write and send these e-mails and correspondence. You get paid regardless of what you do. We do not. Our budget tasks'all come in under budget, or we don't get paid.

Item 14. Although the SICR was submitted in November of last year, we are still hashing out the details of Stage 3, as witnessed by this email exchange. So please, enlighten me on how we were supposed to make a determination of exactly what Stage 3 was going to cost last October or November? At this point, I am not comfortable making an estimate of how much more will be needed after today.

We totally understand the "actual is not actual" problem; and believe we have at least a partial solution for future budgeting clarity. We were not taking the "actual" to the literal and even then to the same benchmark as the Agency. We did not define actual in a "budget" as stiffly as the Agency. It was just a budget. So the largest problem with the system is described in your email; the Agency believes that the costs for a stage end (or are at least a known quantity) when the summary of work for that stage is submitted. You state, "Stage 3 ends when the SICR is submitted". We partially concur. To us, the costs for a stage end when the technical work is done and when the final claim is paid. It is during that gap of time where we are seeing most of the confusion for both the consultants and the Agency. KB Sullivan Stages 1, 2 and 3 is a classic example for each party. Based on the scrutiny, the Agency apparently believes that we are trying to pull one over on them, and we are going to pocket more money than we should have. At the same time, we believe that we may not collect what we were due when the claim was submitted, and by now have spent more time and effort than the approved budget allows, which translates to unrecoverable costs. We even had to submit another budget for Stage 1 and 2 because the task codes weren't listed; however, the total dollars were sufficient in personnel. Claims have already been approved against that budget. Are we now to submit another reimbursement claim for Stage 1 and 2 Budget preparation? Or call it a CA? We elected not to charge the Agency for this work. Another cost lost. Just draw the line and these are lost costs or say they are Corrective Action. Kind of feels like a Pandora's Box here. The stage that never ends. If that claim would have been left alone, Stage 1 and 2 would have been done, never to be heard from again.

Given that each side feels it is being shortchanged, I really do not think we are really that far apart. We are just looking at a lot of the same information from different perspectives, we were looking at line item task totals. In hindsight, I think giving you the printout of the summary of our Stage 3 costs in the email a few months ago was a big mistake. The data in there was raw, and in a format that you do not see and understand, almost like a foreign language. That data is just a snapshot of where the project was at that point in time. We know the hours logged. In some cases, and I am not specifically talking KB Sullivan, there are still a decent amount of hours to be entered, in other cases, some hours need to be clarified or corrected to the right Stage, for example, disappear (be written off as over budget, another phase or ineligible). Depending upon who was involved, categories may need to be adjusted, for example hours entered as "Plan", but the description clearly is a "Field" activity. Just as a PID is used - levels read that day in the field are only given that day and next. We do data base checks for all kinds of verifications and corrections. It is not until the final reimbursement preparation that really detailed review of all the costs associated with a site and phase(s) are really scrutinized, and corrected, if necessary. Corrections are usually minor or relate to our own codes. If we reprint that same report after a reimbursement is prepared, it will be different than before, if nothing more than some or all of the hours associated with the reimbursement preparation are now included. It's generally not until claims are prepared that we know one stage has ended, hours for the month or, need re-coded to the next phase. Unless, it's a clean example of a situation discussed on the next page. The understanding of what the report does means (and doesn't mean) is crucial to using it as a tool to prepare an actual budget, or a reimbursement.

When the real data was submitted, in the form of the claim, it probably had changed. To us, the raw data has been translated and polished into the format you are used to seeing, just like any other claim we prepare. To you, this raised suspicions and questions. If we made a clean cut-off for Stage 3, it may not have been done in the data base at the correct timeframe until reimbursement time. We reviewed the claim. I can assure you that we are not raising titles or rates unless we find an error in the entry. There likely were re-classifications of work done to match the approved budget rates. (For example, the issue resulted in item Handling Charges, or verifying Plan versus Budget time, particularly in the editing process.) This is where the time and expertise of the actual budget preparation and the reimbursement preparation come into play. That is where Vince and I spend time, a little of that is in the actual budget preparation, and then the final is during the reimbursement preparation.

As a company that has been involved with LUST work for over twenty years, we have always been a participant, and sometimes a victim, in the constant evolution of policies and procedures within the program. We understand that minimizing costs are essential to the long-term success of the program, but it should not be the only function of the program because it will then be the death of the program. If the exact minimum amount of detail needed to make it through the program can be defined, then that is

what we can strive to provide, no more, no less. Providing detail beyond the minimum required costs someone money, the UST fund, consultants, and/or the owner/operators. We have been attempting to cut costs, but to cut costs beyond maximizing efficiency means to not be doing something we've been striving to do, and now we're being asked to provide more, tipping the scale of efficiency. We don't mind as long as its consistent. Inconsistency within the program ends up costing everyone. We do not like to see worst case scenario; when something was questioned, we not only provided additional detail for that submittal, but also incorporated it into all similar future submittals. Now, we are trying to be in a cost-cutting mode, so we are trying to lessen the effort and details, but we need to learn what the minimum is. When we have some project managers saying we are still overdoing it, and others saying we are not giving enough, it leaves both sides frustrated. This frustration is not limited to just monetary concerns, but also technical issues. The technical issues have become lost. When a PM can cut a budget by merely cutting a MW, they will strive to do so. We need to get these reimbursement issues resolved, once and for all, and focus on the technical side of the program before the surplus is swept again.

What I am asking for is, give some additional thought to what the costs after the Site Investigation Completion Report is submitted could add up to, and then we can come up with a way to address these fairly. Also, and I cannot stress this enough, consistency is the key to saving time and money for each side. Guessing what is enough, or too much, means someone will be spending unnecessary money. I guess we can just tell you what is actual and what is pending and have our P.E. certify that.

One particular PM, not you, calls with every report, and does the review on the phone with us. Hour after hour. Page by page. How could we possibly know those hours in advance? We can again, only project. If that is what it takes to review the report – fine; but let us estimate it, be prepared for it, give that PM the time they need and ultimately review and approve the document.

Yes, claims are less complicated and cumbersome, but to think that we hit "print" and it's done, is completely over-stated. We're weeding through 10-30 task codes, phase codes, sorting, plugging into forms that don't feed, verifying once again. If we find ourselves over budget, we have to go in and write off hours or determine if justifiable unbudgeted work has occurred that requires a Budget Amendment and pull-out for later submittal. All field expenses are logged at reimbursement time in order to include the correct HC at the appropriate time. The supporting documentation is reviewed and assembled. Technical and fiscal verifications are performed; required drilling is not modified, correct. Site Investigation is generally less than CA and Early Action, but if Site Investigation extends into multiple years, there's no way it should ever be considered minimal. Another that we had with a different PM, also, where the PM added an off-site well to a Stage 2 Plan. No big deal. We modified the budget, changed the maps, etc. Sounds simple; now, however, we have to modify every entry in the entire data base. This PM is kind and workable. I asked about how they review

claims on the back end. I was told: "Don't worry if we don't have tasks for the off-site and some other modifications, as long as our line items match, we're Ok." So, this is the complete opposite.

It just places us in a quandary. Do we design budgets and claims specific to PMs? What about when we don't know who the reviewer will be? We spend more time making sure the reimbursement claim is exact and accurate as it is an actual invoice payable as an accounts receivable. We, somehow, mistakenly, through years of modifications, finally tried this process as we thought it was more serious in nature; mistakes punishable by law, not knowing where and how to establish the comparable items. As stated above, the focus was to come in at or below our line items. Contrary to the discussion underway. We simply are not even looking at those pages, only the line items and sub totals were relevant.

For example, another firm budgets \$4,000 for reimbursement preparation, and in reality, pre-bills and provides no supporting documentation. If audited, it took them half the time. They know they do not have to support that claim. For us, this gets split into 2 claims due to our accounting/data entry dealys and we charge, let's say \$3,600...who has damaged the fund? This lack of understanding is apparently hurting us badly. We elected to take this route, believing it was the right thing to do. If ever audited or investigated, ours is accurate. We've in fact been investigated and all but crucified over supporting documentation, and to this day, held to a different level of accountability. If others can't withstand the scrutiny, that will be their cross to bear. Just as we had this lengthy letter nearly done, we got wrapped up in some other demands, folks on vacation, but had an opportunity to discuss with HernandoAlbarracin and Tom Henninger.

We've just had a pleasant and productive discussion with Tom and Hernando regarding this claim and possibly others. Simply stated, we didn't try to match the two forms. From budget development, we focused on looking at who had performed the work done, what other items might be needed (from it's a draft in my hand to reimbursement letter approval timeframe that we can all argue forever) and generated our "actual" budget. Then, when developing the claim, we looked at our line item totals and sub totals; never looked at the "actual" budget pages. The two documents never met; they had their own courses. Only the Agency's letter and the breakdown.

If this is how you want it, we'll try to get it as close as possible and prepare our claim by actually using the actual budget forms as templates for the mirror. I think there's an understanding that the reimbursement hours haven't all been incurred but some have.

All that's done. It's Corrective Action. We've not charged the Agency for the numerous hours spent with this review, debate, and re-build of our claim. I'm doing so in good faith that what we present is honest and true and probably just junked around. I know for certain that I wrote off many hours of Stage 3 because they were over

budget. Now, I'm writing off more and eating a \$10,000.00 hit. I've paid the lab and met with my partners who've told me to dump this job. We're duped in the appeal. Just file a new Election to Proceed, we've settled, they'll get paid. We do. We then get hit with the \$10,000.00 blind-sided. Our attorney has no idea. So we're out attorney's fees.

We're trying to get along with you and be honest and you're being tainted by another PM with an axe to grind. Where in the heck can you see us ever breaking even on this? The only reason we've not dumped this far is to settle this issue with you and demonstrate there is no foul play. Despite venting and explaining everything in this letter, we're trying to get along and not create rifts. But, if your ear is bent otherwise, all I can do is submit things in the future your way and make you happy.

By no means am I implying that we are perfect and won't change. We are constantly changing. I can't give up on the pre-billing issue. We just want a system that if worked out today can still be relied upon in six weeks. We don't want this to be another "rule-of-the-week" club member.

In an attempt to replace the reimbursement claim forms with descriptions that more closely align those in budget, attached, please find modified forms. Please keep in mind that we had 2 personnel changes during the waning days of Stage 3 and as discussed above, didn't have the work product as the targeted goal when preparing the actual budget; we were led to believe line item budget totals were the barometer. After further review, we see that all task summaries also came at or within budget which was our internal criteria for monitoring budget status.

We regret the stress this has caused on both of us and look for continued guidance and insight on how the Agency's process works. I'm holding countless plans, budgets and claims to address this whole issue and we're trying to modify our approvals to the "actual" situation or at least budget the gap. I promised Hernando and Tom that I will. Without it, we can't even begin to better our framework. We also thank you for maintaining a professional and pleasant attitude while doing this; many of your counterparts don't and progress is halted. So, thank you.

Carol L. Rowe, P.G.

Sincerel

Senior Environmental Geologist

Xc: Mr. William T. Sinnott, CWM Company, Inc.

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Consulting Personnel Costs Form

Employee Name Remediation Category		Personnel Title	Hours	Rate* (\$)	Total Cost		
		Task					
		T	1				
(7/09)		Senior Project Manager	6.25	111.20	\$695.00		
Stage 3-Field	Office Prep., S	cheduling, Arrangements for investig	gation activities/	Technical Compli	ance		
(7/09)		Project Manager	3.00	100.08	\$300.24		
Stage 3-Field	On-site drilling	and sampling					
(7/10)		Project Manager	1.25	102.08	\$127.60		
Stage 3-Field	Stage 3-Field On-site drilling and sampling						
(7/09)		Engineer I	5.25	83.40	\$437.85		
Stage 3-Field	MW surveying	MW surveying/sampling					
(7/09)		Engineer III	4,00	111.20	\$444.80		
Stage 3-Field	Off-Site Drilling						
(7/10)		Engineer III	.50	113.44	\$56.72		
Stage 3-Field	Off-Site Drilling	g and Sampling/MW Surveying and S	Sampling				
(7/11)		Senior Admin. Assistant	.25	51.56	\$12.89		
Stage 3-Field	Office Prep., S	Office Prep., Scheduling, Arrangements for investigation/JULIE/off-site correspondence					
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Employee Name		Personnel Title	Hours	Rate* (\$)	Total Cost
Remediation Category		Task	-		
7/09)	 	Senior Project Manager	4.00	111.20	\$444.80
Stage 3-Plan	Stage 3 Report	technical compliance/oversight			
(7/10)		Senior Project Manager	.50	113.44	\$56.72
Stage 3-Plan	Stage 3 Report	technical compliance/oversight			
(7/11)		Senior Project Manager	.50	114.56	\$57.28
Stage 3-Plan	Stage 3 Report	t technical compliance/oversight			
(7/09)		Senior Prof. Engineer	1.75	144.60	\$253.05
Stage 3-Plan	Stage 3 Repor	t Certification			
(7/11)		Senior Prof. Engineer	1.50	148.96	\$223.44
Stage 3-Plan	Stage 3 Repor	t Certification			
(7/11)		Engineer I	1.50	85.92	\$128.8
Stage 3-Plan	Stage 3 Repor	t Preparation/Development change	e		
(7/09)		Scientist I	48.00	66.72	\$3,202,5
Stage 3-Plan	Stage 3 Plan F	Preparation		···	
(7/10)		Scientist I	8,75	68.04	\$595.3
Stage 3-Plan	Stage 3 Plan F	Preparation			
(07/09)		Engineer III	6.50	111,20	\$722.8
Stage 3-Plan	Stage 3 Plan (Completion			

Employee Name		Personnel	Title	Hours	Rate* (\$)	Total Cost	
Remediation Categor	у	Task					
		Engineer III	-				
(7/10)		Ligitoci III		.50	113.44	\$56.72	
Stage 3-Plan	Sta	ge 3 Plan Completion	· -				
(7/09)		Draftperson/CAD I		2.50	44.48	\$111.20	
Stage 3-Plan	Dra	fting of maps for report					
							
						· · · · · · · · · · · · · · · · · · ·	
	1	Senior Project Mana	ner .				
(07/09)		Senior Project Maria	yeı	1.25	111.20	\$139.00	
Stage 3-Budget	Sta	ge 3 Budget/technical compliance/	overview				
(7/11)		Senior Project Mana	ger	.75	114.56	\$85.92	
Stage 3-Budget	Sta	ge 3 Budget/technical compliance/	overview				
(07/09)		Senior Prof. Enginee	er —	1.00	144.60	\$144.60	
Stage 3-Budget	St	ge 3 Budget Certification					
(07/11)		Senior Prof. Enginee	 er	1.00	148.96	\$148.96	
Stage 3-Budget	St	age 3 Budget Certification			.I	<u> </u>	
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(07/10)		Scientist I		1.00	68.04	\$68.04	
Stage 3-Budget	St	age 3 Budget calculations and prep	arations				
(07/09)	 	Scientist 1		15.75	66.72	\$1,050.84	
Stage 3-Budget	St	age 3 Budget calculations and prep	arations				

Employee Nam	е	Personnel Title	Hours	Rate* (\$)	Total Cost			
Remediation Category		Task						
(07/09)		Engineer III	1.75	111.20	\$194.60			
Stage 3-Budget	Stage 3 Budge	t calculations and preparations						
(07/11)	 	Engineer III	2.75	114.56	\$315.04			
Stage 3-Budget	Stage 3 Budge	t calculations and preparations						
		Senior Admin. Assistant						
Stage 3-Budget	Stage 3 Budge	t compilation, assembly and distrib	oution					
(07/09)		Scientist I	18.75	66.72	\$1,251.00			
Stage 3-Field	Off-site access							
(07/10)		Scientist I	33.25	68.04	\$2,262.33			
Stage 3-Field	Off-site access							
(07/11)		Scientist II	1.50	74.48	\$111.72			
Stage 3-Field	Off-site access							
(07/10)		Engineer I	5.00	83.40	\$417.00			
Stage 3-Field	Off-site access	s/affidavits						
(07/11)		Engineer I	9.00	85.92	\$773.28			
Stage 3-Field	Off-site access	s/affidavits						
(07/10)		Senior Project Manager	4.00	113.44	\$453.76			
Stage 3-Field	Off-site access	s requests, agreement, correspond	lence/affidavits					

Employee Nam	e Personnel Title	Hours	Rate* (\$)	Total Cost	
Remediation Category	Task	(
07/11)	Senior Project Manager	3.75	114.56	\$429.6	
Stage 3-Field	Off-site access requests, agreement, correspond	ence/affidavits			
(07/10)	Engineer III	4.25	113.44	\$482.1	
Stage 3-Field	Off-site access/affidavits				
(07/11)	Engineer III	2.75	114.56	\$315.0	
Stage 3-Field	Off-site access/affidavits				
(07/10)	Senior Draftperson/CAD	.50	68.04	\$34.0	
Stage 3-Field	Drafting/Locations/Elevation/Contamination Leve	vels			
(07/11)	Draftperson/CAD IV	1.25	68.72	\$85.9	
Stage 3-Field	Orafting/Locations/Elevation/Contamination Leve	els			
(07/11)	Draftperson/CAD III	5.00	52.92	\$264.6	
Stage 3-Field	Drafting/Locations/Elevation/Contamination Leve	els			
(07/10)	Draftperson/CAD I	4.75	45.36	\$215.4	
Stage 3-Field	Drafting/Locations/Elevation/Contamination Leve	els			
<u> </u>					
(07/09)	Scientist I	3.00	66.72	\$200.1	
Stage 2-Results	Stage 2 Results				

Employee Name	Personnel	Title Hour	s Rate* (\$)	Total Cost
Remediation Category		Task		
				<u>, </u>
				
07/09)	Senior Project Mana	ger .75	111.20	\$83.4
Stage 3-Pay	Stage 3 Reimbursement oversight/tec	hnical compliance		
(07/10)	Senior Project Mana	ger .25	113.44	\$28.3
Stage 3-Pay	Stage 3 Reimbursement oversight/tec	hnical compliance		
(07/11)	Senior Project Mana	iger 3.5	0 114.56	\$400.9
Stage 3-Pay	Stage 3 Reimbursement oversight/tec	chnical compliance		
(07/11)	Senior Acct. Techni	cian 2.7	5 63.0	\$173.2
Stage 3-Pay	Stage 3 Reimbursement Preparation			
	Geologist III	1.0	00 100.8	4 \$100.
(07/11) Stage 3-Pay	Stage 3 Reimbursement Preparation			
(07/09)	Scientist I	5.1	75 66.7	2 \$383
Stage 3-Pay	Stage 3 Reimbursement Preparation	/OSFM eligibility and de	eductible application	

Employee Name		Personnel Title	Hours	Rate* (\$)	Total Cost				
Remediation Category		Task	Task						
		Scientist I			4505.05				
(07/10)			8.75	68.04	\$595.35				
Stage 3-Pay	Stage 3 Rei	imbursement Preparation/OSFM eligit	oility and deductil	ole application					
(07/09)		Engineer III	.75	111.20	\$83.40				
Stage 3-Pay	Stage 3 Re	imbursement Preparation							
(07/11)		Senior Prof. Engineer	3.00	148.96	\$446.88				
SICR	SICR Certif	fication							
(07/11)		Geologist III	32.00	100.84	\$3,226.88				
SICR	SICR Prepa	aration							
(07/11)		Engineer I	1.50	85.92	\$128.88				
SICR	SICR Prepa	aration							
(07/10)		Senior Project Manager	.25	114.56	\$28.64				
SICR	SICR techr	nical compliance/oversight							
(07/11)		Senior Project Manager	8.25	114.56	\$945.12				
SICR	SICR techr	nical compliance/oversight							
(07/10)		Engineer III	.50	113.44	\$56.72				
SICR	SICR Prep	aration							
(07/11)		Engineer III	11,25	114.56	\$1,288.80				
SICR	SICR Prep	aration							

Employee Nam	e	Personnel Title	Hours	Rate* (\$)	Total Cost				
Remediation Category		Task							
		1	- 						
07/10)		Scientist I	4.00	68.04	\$272.16				
SICR	SICR Preparation	on							
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Total of Consulting Personnel Costs	\$25,614.17
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Electronic Filingrukterzeinverden Cleurlahren Office 3/18/2022

Reviewer:	Stephanie Kincaid	Queue Date:		Initial Re	view Date:	11/19/20
LPC # & County:	1390305014 / Moultrie	Subject to Program:	734	PM: <u>Dill</u>	acitic	
Site Name:	Sullivan / KB Food & Gas			FW. <u>DIII</u>	Jaillis	· · · · · · · · · · · · · · · · · · ·
LUST IncidentClaim #		В	illing Period:	1/1/15	to	3/31/20
- 1 4 %	011 01	. 5. "				
Early Action:		Low Priority:				-
Free Product:	Site Invest.:	Corre	ctive Action:	x		
Amount requested for				2,125.96	3	-
SUB TOTAL:				\$2,125.9	6	
Less: STANDARD DEL	DUCTIBLE:			met		
<u>Less:</u> DEDUCTIONS:						
deny whole claim, lack o	of doc			(2,125.9	6)	
•		•				,
SUMMARY DA	∧ ⊤⊏·					
NFR DATE		•		-		
OPT-IN DAT	E:	Total Amoun	t Due:	\$0.00		:
Payee:	KB Food & Gas		Facility	KB Food & Gas		
Attention:	CWM Company, Inc.			111 West Jackso	n Street/R	outes 121&132
				Sullivan, Illinois		
Address:	P.O. Box 571			Moultrie		
City/St./Zip:	Carlinville, Illinois 62626					0290

TO:	Mohammed Rahma	n		Initia	al Review Date:	11/19/20	
FROM:	Stephanie Kincaid			Р	roject Manager:	Dilbaitis	
				Subj	ject to Program:	734	
LPC # & County:	1390305014 / Moul				_		
Site City & Name:	Sullivan / KB Food				-		
Site Address:	111 West Jackson	Street/Routes	121 & 132		-		
LUST Incident-Claim #							
Queue Date: LUST / FISCAL FILE	10/28/2020						
LUST / FISCAL FILE							
The above referenced	facility's consultants/	contractors su	ıbmission regard	ina invoices an	d billinas has be	en reviewed.	
			J		J		
The consultant/contract	tor in this billing pacl	age is:	CWM Company,	Inc.			
0 0 0	40/00/00				400 D . D .	0.10 = 10.4	
Queue Date:	10/28/20	••		Б.	120 Day Date:		
				Revised	d 120 Day Date:		
IEMA:	7/0/04			EO D	ove After ICNA.	0/6/04	
OSFM:	7/9/04				ays After IEMA:		
F.P. Discovered:			45 Days After		45 Day Report:		
E.A. Ext Date:					vas Discovered: . Comp. Report:		
NFR Date:					. Comp. Report:		
Opt-In Date:					ork being billed:		
Opt-In as New Owner:			Or Glage o	i Oile iiivest. W	ork being billed.		
Opt in do New Owner.							
# of Eligible Tanks:	6	Tank Size:	10,000 gas, 2x 8	3,000 gas, 5,00	0 diesel, 5,000 g	as, 2,000 kerd	
Tank Pull:		-	, , , , , , , , , , , , , , , , , , , ,		Not Planned:		
		•					
The Billing Period for	this claim covers:		1/1/15	to	3/31/20		
			•				
The Amount Request	ed in this billing pack	age is:		\$2,125.96	_		
TI D I (A (A	16 (1)						
The Budget Amount A	approved for this site	e is:			_		
The Deductible Applie	nd to this hilling nack	ano is.		met			
The <u>beductible Applie</u>	to this billing pack	aye is.	_	mer	_		
Early Action:		Site Class.:		Low Priority:		High Priority:	
Free Product:		Site Invest.:			orrective Action:	-	
		•					
MANDATORY DOCUM	MENTS:						
<u>x</u>	1. Payment Certific	ation Form.					
<u>x</u>	2. Owner/Operator	& Professiona	al Engineer/Geol	ogist Billing Ce	rtification Form.		
<u>x</u>	3. Private Insuranc	e Coverage Q	uestionnaire & A	ffidavit Forms.			
<u>x</u>	4. Federal Taxpaye	er Identification	n Number &/or W	/-9 Form(s):			
<u>x</u>	5. Copy of OSFM E	ligibility / Ded	uctibility Letter.				
<u>x</u>	6. Women / Minorit	y Business Er	nterprise Form.				

(Comments on Page 2)

	Electron	ic Amproved Lids	T Budget/Billing Tr	acking Sommany o	2/12/2022		
	Lioution	no i iling. i k	oorroa, or		, TOILULL	Project Manager:	Dilbaitis
LUST Incident #: LUST Site City & Name:	20040969 Sullivan / KB Sulliv	- van		_			
Phase of Work being billed for:		_SI		_FP	XX	_CA	
APPROVED BUDGET AMOUNTS:	_						
Budget Line Items	Approved Costs	Amendment #1	Amendment #2	Amendment #3	Amendment #4	Amendment #5	Approved Cumulative
Date of Approved Budget	5/16/12						

Budget Line Items	Approved Costs	Amendment #1	Amendment #2	Amendment #3	Amendment #4	Amendment #5	Approved Cumulative
Date of Approved Budget	5/16/12						
Drilling & Monitoring Well Costs:	0.00						\$0.00
Analysis Costs:	0.00						\$0.00
Remediation & Disposal Costs:	0.00						\$0.00
UST Removal & Abandonment Costs:	0.00						\$0.00
Paving, Demo. & Well Aband. Costs:	1,719.00						\$1,719.00
Consulting Fees:							\$0.00
Consulting Personnel Costs:	31,443.23						\$31,443.23
Consulting Materials Costs:	734.30						\$734.30
Handling Charges:							
Totals	\$33,896.53	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$33,896.53

AMOUNTS PER CLAIM APPLIED TO APPROVED BUDGET LINES:

Billing Line Items	Billing #1	Billing #2	Billing #3	Billing #4	Billing #5	Billing #6	Billing Cumulative
Date of Billing	7/29/13	5/19/14	4/24/15	10/28/20			
Drilling & Monitoring Well Costs:	0.00	0.00	0.00	0.00			\$0.00
Analysis Costs:	0.00	0.00	0.00	0.00			\$0.00
Remediation & Disposal Costs:	0.00	0.00	0.00	0.00			\$0.00
UST Removal & Abandonment Costs:	0.00	0.00	0.00	0.00			\$0.00
Paving, Demo. & Well Aband. Costs:	0.00	0.00	0.00	0.00			\$0.00
Consulting Fees:							\$0.00
Consulting Personnel Costs:	11,116.80	4,875.80	1,818.58	0.00			\$17,811.18
Consulting Materials Costs:	211.75	37.96	38.43	0.00			\$288.14
Handling Charges:	2.35	1.10	0.24	0.00			\$3.69
Totals	11,330.90	4,914.86	1,857.25	0.00	0.00	0.00	18,103.01

BILLING TO BUDGET DIFFERENTIALS:

Budget/Billing Line Items				Line Item Differences
Drilling & Monitoring Well Costs:				\$0.00
Analysis Costs:				\$0.00
Remediation & Disposal Costs:				\$0.00
UST Removal & Abandonment Costs:				\$0.00
Paving, Demo. & Well Aband. Costs:				\$1,719.00
Consulting Fees:				\$0.00
Consulting Personnel Costs:				\$13,632.05
Consulting Materials Costs:				\$446.16
Handling Charges:				



Illinois Enlancing Hinge Received Clerk's Office 3/18/2022 LUST Claims Unit

LCTS Queue Date Tracking Worksheet

Friday, October 30, 2020

LPC Number 1390305014

Incident Number 20040969 -- 71556

120-Day Date 12/26/2020

425/2021

Queue Date 8/28/2020 10/28/2020

Site Name KB FOOD & GAS

Owner Name KB FOOD & GAS

Operator Name KB FOOD & GAS

Class Code CA

Program 734

Amount Requested \$2,125.96

Billing Period From

1/1/2015

To

3/31/2020

Consultant Name CWM Company, Inc.

Opt-In Date 2/18/2010

NFR Date

NFR Recorded Date

Division File

Comments

First claim for this Incident Number?

Yes

No

Yearly breakdowns required?

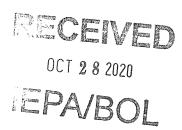
Yes

IEMA 7.9-2004

Ded \$10,000 applied to prior claim
(associated incident 900146)

REIMBURSEMENT CLAIM
January1, 2015 - March 31, 2020
KB SULLIVAN, INC.
Sullivan/Moultrie County

LPC #1390305014 Incident Number 1990-0146 Incident Number 2004-0969



Electronic Filing: Received, Clerk's Office 3/18/2022 CW Company

701 W. South Grand Avenue Springfield, IL 62704

Environmental Consulting Services

Phone: (217) 522-8001 Fax: (217) 522-8009

October 20, 2020

Mr. Gregory W. Dunn, Manager Illinois Environmental Protection Agency Leaking Underground Storage Tank Section P.O. Box 19276 Springfield, IL 62794-9276

Re: LPC#1390305014

KB Sullivan, Inc.
Sullivan (Moultrie), IL
LUST Incident #90-0146
LUST Incident #04-0969

RECEIVED

Dear Mr. Dunn:

OCT 2 8 2020

Enclosed under this cover please find the original(s) and copy(s) of IEPA Owner / Operator Billing

Certification Form for Leaking Underground Storage Tank Sites (With appropriate signatures by
the Owner/Operator and the Registered Professional Engineer), Form C-1/C-2 Approved Budger

Summary & Billing Summary, and Form A-1/A-2 Budget and Billing Form For Leaking
Underground Storage Tank Sites for Corrective Action Activities for the above referenced Facility, for each billing period represented.

As indicated the Certification(s) apply to work conducted during the following time periods. Accordingly, please find the Illinois Environmental Protection Agency Reimbursement (With Supporting Documentation) for UST Corrective Action as follows:

Period: 01/01/15 - through 01/31/15 - Summary Total Cost:	\$ 91.11
CW ³ M Company, Inc.	\$ 91.11
Subcontractor(s)	\$ 0.00
Period: 03/01/15 - through 03/31/15 - Summary Total Cost:	\$ 164.15
CW ³ M Company, Inc.	\$ 164.15
Subcontractor(s)	\$ 0.00
Period: 04/01/15 - through 04/30/15 - Summary Total Cost:	\$ 3.45
CW3M Company, Inc.	\$ 3.45
Subcontractor(s)	\$ 0.00
Period: 09/01/15 - through 09/30/15 - Summary Total Cost:	\$ 0.49
CW ³ M Company, Inc.	\$ 0.49
Subcontractor(s)	\$ 0.00
Period: 03/01/16 – through 03/31/16 – Summary Total Cost:	\$ 546.89
CW ³ M Company, Inc.	\$ 546.89
Subcontractor(s)	\$ 0.00
Period: 04/01/16 - through 04/30/16 - Summary Total Cos:	\$ 34.07
CW ³ M Company, Inc.	\$ 34.07
Subcontractor(s)	\$ 0.00
Period: 10/01/16 - through 10/31/16 - Summary Total Cost:	\$ 31.28
CW ³ M Company, Inc.	\$ 31.28
Subcontractor(s)	\$ 0.00

1 tilda: 10/01/10 um ough 10/01/10 oumming	1,085.01 1,085.01
Subcontractor(s) \$	0.00
Period: 11/01/18 – through 11/30/18 – Summary Total Cost: \$	70.90
CW ³ M Company, Inc. \$	70.90
Subcontractor(s) \$	0.00
Period: 03/01/20 – through 03/31/20 – Summary Total Cost: \$	98.61
CW ³ M Company, Inc. \$	98.61
Subcontractor(s) \$	0.00

All Time Periods Represented:

Summary Total(s) Cost: \$ 2,125.96

We trust the enclosed reimbursement documentation, Engineer Certification(s) and the Owner/Operator Billing Certification are in accord with your needs and requirements. However, should you or your staff have any questions or require additional information please do not hesitate to contact us at your convenience.

cc: Kamlesh Patel

Ms. Carol L. Sinnott-Rowe, P.G.

File

General Information for the Budget and Billing Forms

LPC #:	1390305014	County	: Moultrie		
City: <u>Su</u>	Ilivan	Site Name	: KB Food & G	as	
Site Addı	ress: 111 West Jackson Street/Ro	utes 121 & 132			
IEMA Ind	sident No.: 90-0146	2004-0969			
IEMA No	tification Date.: Jan 17, 1990	7/9/04			
Date this	form was prepared: Oct 20, 2020)	·		
This for	m is being submitted as a (check	cone):			
	Budget Proposal				
	Budget Amendment (Budget ame	endments must inc	lude only the co	osts over the previ	ous budget.)
\boxtimes	Billing Package		•		
		data(a) af) -l	to a series of	
•	Please provide the name(s) and) aocumenting t	ne costs requeste	d:
	Name(s): Corrective Action Pla	an		***************************************	
	Date(s): 2/17/2012	- Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Hermite - Herm	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		I hearts hard
This pad	kage is being submitted for the	site activities inc	licated below :		
35 III. Ad	Im. Code 734:				
	Early Action				
	Free Product Removal after Early	Action			
	Site Investigation	Stage 1:	Stage 2:	Stage 3:	
\boxtimes	Corrective Action				
35 III. Ad	im. Code 732:				
	Early Action				
	Free Product Removal after Early	/ Action			
	Site Classification				
	Low Priority Corrective Action				
	High Priority Corrective Action				
35 III. Ad	dm. Code 731:				
	Site Investigation				
	Corrective Action				

IL 532 -2825 LPC 630 Rev. 1/2007

	General Information for Electronic Fil The following address will be u regarding payment from the Fu	ing: Receiv	and Billing Forms red, Clerk's Offic ng address for checks a	e 3/18/2022 nd any final detern	nination letters					
: :	Pay to the order of: KB Food	& Gas	****							
	Send in care of: CWM Comp	any, Inc.								
	Address: P.O. Box 571									
	City: <u>Carlinville</u>	-31	State: IL	Zip: 6	2626					
	The payee is the: Owr	ner 🛛 Ope	erator (Check o	ne or both.)						
	K.D. Pato		****		a change of address,					
	Signature of the owner or opera	ator of the UST(s)	(required)	<u>click here</u> to	print off a W-9 Form.					
	Number of petroleum USTs in parent or joint stock company or joint stock company of the o	of the owner or o	perator; and any compa							
	Fewer than 101:		more:							
	Number of USTs at the site:	11 (Nu	umber of USTs includes	USTs presently at	the site and USTs that					
	•	Number of incidents reported to IEMA for this site: 2 Incident Numbers assigned to the site due to releases from USTs: 90-01416 2004-0969								
	Please list all tanks that have e	Please list all tanks that have ever been located at the site and tanks that are presently located at the site.								
	Product Stored in UST	Size (gallons)	Did UST have a release?	Incident No.	Type of Release Tank Leak / Overfill / Piping Leak					
	Gasoline	10,000	Yes 🛛 No 🗌	90-0146 2004-0969	Spills & Overfills					
	Gasoline	8,000	Yes No	2004-0969	Spills & Overfills					
	Gasoline	8,000	Yes 🛛 No 🗌	2004-0969	Spills & Overfills					
	Diesel	5,000	Yes No 🗌	2004-0969	& Overfills					
	Gasoline	5,000	Yes 🛛 No 🗌	2004-0969	& Overfills					
	Kerosene	2,000	Yes 🛛 No 🗌	2004-0969	Spills & Overfills					
	Gasoline	10,000	Yes No 🛛	None	None					
	Gasoline	10,000	Yes No 🛚	None	None					
	Diesel	9 000	Yes No No	None	None					

Product Stored in UST Electronic Filir	ŋg;g <mark>Rec</mark> eiv	ed, Clerk	Çhave SeOffice	379872022	Type of Release Tank Leak / Overfill / Piping Leak
Kerosene	5,000	Yes 🗌	No ⊠	None	None
Gasoline	5,000	Yes 🗌	No 🖂	None	None
		Yes 🗌	No 🗌		
		Yes 🗌	No 🗌		
		Yes 🗌	No 🗌		
		Yes 🗌	No 🗌		
		Yes 🗌	No 🗌		
		Yes 🗌	No 🗌		
		Yes 🗌	No 🗌		



Payment Certification Form This certification must be included with every	annlicatio	on for navm	ent from the UST Fund
This definication must be included with every	аррисанс	on for paying	
I, <u>KB Sullivan</u> , Inc. , the owner or application for payment is being submitted, certify that \$ 2, application for payment, \$ 79,052.37 has alreaded by the submitted of the Illinois EPA for pay I further certify that the number of petroleum USTs in Illinois operator, any subsidiary, parent or joint stock company of the any parent, subsidiary or joint stock company of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner of the owner owner of the owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner owner	ady been pai ment for this presently one owner or	id from the Fu s occurrence owned or oper operator, and	und for this occurrence, and but has not yet been paid. rated by the owner or I any company owned by
Fewer than 101 🔀 101 or	more 🗌		
Except for applications for payment associated with Early A application for payment was approved by the Illinois EPA or payment associated with to 35 III. Adm. Code 731, certify the for payment was approved by the Illinois EPA on	n 5/6 lat a budget /12 budget and	/12 for the work i _ ; and certify approved pla	; except for applications for included in this application that the amount sought for n. I further certify that, if th
 Payment will not result in the owner or operator receiv indemnification costs from the Fund for more than \$1, III. Adm. Code 731 or 732. (OR) Payment will not res corrective action costs or indemnification costs from th sites subject to 35 III. Adm. Code 734. 	000,000 per ult in the ow	occurrence for ner or operate	or sites subject to 35 or receiving payment of
Payment will not result in the owner or operator receiv indemnification costs from the Fund incurred during a			
For costs incurred in calendar years prior to 2	2002:		
\$1,000,000, if fewer than 101 tanks a \$2,000,000, if 101 or more tanks are			
For costs incurred in calendar years 2002 an	d later:		
\$2,000,000, if fewer than 101 tanks a \$3,000,000, if 101 or more tanks are			
Owner/Operator Name: KB Sullivan, Inc.			
Authorized Representative*: Kamlesh Patel		Title: O	wner
Signature: KBPele		Date: _	10-14-2020
Subscribed and sworn to before me the day of (This certification must be notarized when the certification is signed.)	f OCTO.	BEK	20,70
Ald fill	Seal:		WILLIAM T SINNOTT
(Notary Public)		PUBLIC STATE OF ALIMOIS	OFFICIAL SEAL Notary Public - State of Illino My Commission Expires.
*For a corporation, a principal executive officer of at least the leve the board of directors to sign the applicable document if a copy of	el of vice pres	ident, or a per	COLUMN TO STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF

0300

Owner/Operator and Licensed Professional Engineer/Geologist Billing **Certification Form**

Under penalty of perjury as defined in Section 32-2 of the Criminal Code of 1961 [720 ILCS 5/32-2], I certify to

	Incident # 90-0146/04-09 West Jackson St. / Route			eaking Unde	erground S	Storage	Tank site	e locate
City:	Sullivan	State:		Illinois	Zip		61951	
The bills are for were incurred in	the billing period <u>Janu</u> conformance with the E	ary 1 invironmental F	2015 Protectio	_ through _ n Act and 3	March 5 III. Adm			_ and or 734
supervision of to operator whose qualified persor	pplication for payment ar he licensed professional signatures are set forth anel properly gathered ar ation for payment is, to the	engineer or lice below and in a nd evaluated th	ensed pr ccordan e inform	rofessional ce with a sy ation provid	geologist a stem desi ded. The i	and the igned to nforma	owner a o assure t ation in the	hat
determined in	emediating the above-list accordance with Subpart nts, and Appendix E Per	H: Maximum F	ayment	Amounts,	Appendix	D Sam	ple Handl	
EPA, including	re are significant penaltie but not limited to fines, ir 415 ILCS 5/44] and Sect	nprisonment, o	r both as	s provided i	n Section	44 of th	he Enviro	
wner/Operator Na	me: KB Sullivan, Inc.							DAI
	entative*: Kamlesh Pate	/					F	
ddress: 140 Hea				Phone:	630-730	-4450		
ity: Bartlett		ate: Illinois			Zip: 60	7 7 6		
ignature:	2 5 -1-	ato. Initiolo			Date:	702	11 -	2- 24
JUNE	(Notary Public) Wince E. Smith	/ <u>/ </u>	of <u>ac</u> Seal	1	TARY	y Public	CIAL SEAL C-State of hission Exp ny 24, 2024	III.C.S.
P.E./L.P.G. Illinoi	s Registration No.: 062	-046118			70	EE	SAL	
.P.E./L.P.G. Regis	stration Expiration Date:	11/30/21			(A)	1	- WAY	1
ompany Name: (CWM Company, Inc.				1-1	AG*	18	1
	th Grand Avenue West				Phone: 2	17-522	2-8001	
ity: Springfield	/ s	tate: Illinois			Zip: 62	704	1	-
.P.E./L.P.G. Signa	ature: V 5	Litt	,		Date:	140	100/	10
	yorn to before me the	day	of <u>Oc</u>	TOBER			7070	
1-01/10	(Notary Public)			1	-	-		Sun
the board of directors	principal executive officer of to sign the applicable document.	ument if a copy of	el of vice of the reso	presideravo olut oleracedi ILLIMOIS	a person ied dany fru My Cor	FUCHALIZ FUCHALIZ PERSOPSY TIMISSIO UARY 24	Seleby a re Methersec	solution retary o

0301

. :	Site Na	me: KB Food & Gas		
4	Addres	s: 111 West Jackson / Ro	oute 121 & 132	
(City:	Sullivan	State: Illinois	Zip: <u>61951</u>
	Name o		dinġ coverage for this Leaking UST	
3	Amount	t of coverage provided: \$		
4.	Have y	ou or your firm filed a claim	against your insurance company for	or this Leaking UST site?
		Yes 🗌 No [\boxtimes	
í	a. If y	ves, how much is the claim?	? \$	
1	b. If r	no, explain why. No Insura	ance	
	•			
		· ·		······································
		ou or your firm received pay	yment for a claim against your insur	rance company for this Leaking
	site?	Yes ☐ No [M	
	a. If v	ves, how much and when?	·	
,		ate:	Ψ	_
		no, explain why. No Insura	rance	
		makadili kali da manana makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadili makadi		
3.	Are you	u going to file a claim agains Yes	· -	
	a. If y	yes, how much and when?		
		ate:		-
	b. If	no, explain why. No Insura	ance	

Private Insurance Affidavit Kamlesh Patel , a duly authorized representative of KB Sullivan, Inc. (owner/operator or firm's name) (does, does not) does not have private KB Sullivan, Inc. (owner/operator or firm's name) (choose one) insurance coverage for all or part of the costs related to claim for payment of KB Sullivan, Inc. (owner or firm's name) investigation or remediation costs for work performed at KB Food & Gas located at (site name) 111 West Jackson St. (Routes 121 & 132), Sullivan, Illinois of KB Sullivan, Inc. Kamlesh Patel Owner (owner/operator or firm's name) certify that, as of this date, the above information is accurate and complete. Furthermore, I also agree to reimburse the Illinois EPA for any overpayment made by my private insurance company in excess of the deductible amount for each site. Owner/Operator: KB Sullivan, Inc. Title: Kamlesh Patel, Owner k.B. Patal Subscribed and sworn to before me the 🚽ル OFFICIAL SEAL WILLIAM T. SINNOTT Seal: NOTARY PUBLIC, STATE OF ILLINOIS MY COMMISSION EXPIRES 1-18-2012 (Notary Public) The Illinois EPA is authorized to require this information under 415 ILCS 5/1. Disclosure of this information is required. Failure to do so may result in the delay or denial of any budget or payment requested hereunder. This form has been approved by the Forms Management Center.

	Electron Federal Taxpayer Identification Requirement	ation Num	Received, Clerk' iber and Legal S	's O tatu	ffice 3/18/2022 s Disclosure			
	In order to comply with requirements mandated by Internal Revenue Service rules and regulations, the tank owner or operator must complete the section entitled TAXPAYER IDENTIFICATION NUMBER AND LEGAL STATUS DISCLOSURE CERTIFICATION below.							
The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	Enter your taxpayer identification this is your social security numbers Employer Identification Numbers	er. For other en	tities, it is your employer	ident	ification number. Federal			
	If you do not have a TIN, apply for one immediately. To apply, get Form SS-5, Application for a Social Security Number Card (for individuals), from your local office of the Social Security Administration, or Form SS-4, Application for Employer Identification Number (for businesses and all other entities), from your local Internal Revenue Service office.							
	To complete the certification if you do not have a TIN, fill out the certification including that a TIN has been applied for, sign and date the form, and return it to the Illinois EPA. As soon as you receive your TIN, fill out another such form including your TIN, sign and date the form, and send it to the Illinois EPA.							
The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	If you fail to furnish your correct TIN to the Illinois EPA, you are subject to an IRS penalty of \$50.00 for each such failure unless your failure is due to reasonable cause and not to willful neglect.							
	WILLFULLY FALSIFYING CERTIFICATIONS OR AFFIRMATIONS MAY SUBJECT YOU TO CRIMINAL PENALTIES INCLUDING FINES AND/OR IMPRISONMENT.							
	Please return the completed form to the Illinois EPA, Bureau of Land, Leaking UST Claims Unit, Post Office Box 19276, Springfield, Illinois 62794-9276.							
	TAXPAYER IDENTIFICATION NUMB Under penalties of perjury, I certify that Taxpayer Identification Number. I am	t the FEIN or S	ocial Security Number inc	dicate				
	Individual [Sole Propri	etorship		Real Estate Agent			
	Partnership [Governmer	tal Entity		Not-for-Profit Corporation			
	Corporation [Tax Exemp	: Organization		Medical & Health Care			
	Trust or Estate] (IRC 501(a)	only)		Services Provider Corporation			
	260235568	_ K.	D. Patel		92-02-2010			
	Taxpayer Identification Number		Signature		Date			
Nation (National States	KB Sullivan, Inc.							
Samo	Name of Firm (Please print or type)				If you have a change of address, <u>click here</u> to print			
принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания принимания	Note: Original signature required				off a W-9 Form.			
	The Illinois EPA is authorized to requised. (formerly III. Rev. Stat. Ch 111-1, complete this form in its entirety may has been approved by the Forms Mar	2, 1001 et seq. result in the de). Disclosure of this infor elay or denial of any pay	rmatio	n is required. Failure to properly			

(Rev. October 2007)

Electronic Filing: Received, Clerk's Office 3/18/2022 Request for Taxpayer Identification Number and Certification

Give form to the requester. Do not

	ment of the Treasury Revenue Service		IU	entineation Numb	er and Cerun	ication		send to the IRS.	
	Name (as shown	on your incor	ne tax re	tum)					
. 6.	KB Sullivan, Inc	,			•				
page	Business name, it	different from	n above	•					
									
Print or type Specific Instructions	Check appropriate box: ☐ Individual/Sole proprietor ☐ Corporation ☐ Partnership ☐ Limited liability company. Enter the tax classification (D=disregarded entity, C=corporation, P=p ☐ Other (see instructions) ▶							Exempt payee	
rin: Inst	Address (number	street, and	apt. or su	ite no.)		Requester'	s name and a	idress (optional)	
15 P	P.O. Box 571								
Speci	City, state, and Z								
See	List account num	per(s) here (o	ptional)						
Par	Tayna	on Idonti	fi ti -	- Normalian (TIM)					
التكفا	laxpay	er identi	ncatio	n Number (TIN)					
Enter	your TIN in the a	opropriate t	oox. The	TIN provided must match the	name given on Line 1	to avoid	Social secur	ity number	
back	Jp withholding. Fo	r individual:	s, this is	vour social security number (SSN). However, for a re	esident			
vour	sole proprietor, c emplover identific	r disregarde ation numbe	ed entity er (FIM)	y, see the Part I instructions on If you do not have a number,	page 3. For other ent	ities, it is		or	
				name, see the chart on page 4			Employer id	entification number	
numb	er to enter.	III IIIOI C LIIC	ar one i	iame, see the chart on page 4	for guidelines on whos	SU	26 02	i	
Par	till Certific	ation					20 102	233300	
Unde	r penalties of perj	urv. I certify	that:						
				correct taxpayer identification	number (or I am waitir	na for a num	her to he is	sued to me) and	
2. 1	am not subject to	backup wit	thholdin	g because: (a) I am exempt fro	m backun withholding	or (h) I hav	e not been r	otified by the Internal	
L	evenue Service (II	RS) that I ar	n subie	ct to backup withholding as a :	result of a failure to rep	oort all inter	est or divider	nds, or (c) the IRS has	
				t to backup withholding, and on (defined below).					
					boon notified by the II	DC 4b at con-			
For n	Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. See the instructions on page 4.								
Sigr Here			B.	Patel		Date ► Od	3.02-	2010	
Secti	neral Instration references are wise noted.		-	evenue Code unless	Definition of a U considered a U.S.	.S. person person if yo	. For federa	I tax purposes, you are	
		Maa			A second			or association created or	
	pose of Fo		an infa-	mation retum with the	organized in the L States,	Inited State	s or under t	he laws of the United	
THS r	nust obtain your	correct tax	kpayer i	dentification number (TIN)	An estate (other	than a fore	eign estate),	or	
to re	port, for example actions, mortgag	, income p	aid to v	ou, real estate	 A domestic trus 				
aban	donment of secu	red proper	tv. can	cellation of debt, or	301.7701-7).				
contr Us resid reque	Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to: Special rules for partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-6 has not been received, a partnership is required to presume that								
waitii	ng for a number	to be issue	ed),	is correct (or you are	a partner is a fore Therefore, if you a	ign person, ire a U.S. p	and pay the erson that is	e withholding tax. s a partner in a	
				backup withholding, or	partnership condu	icting a trac	te or busine	ss in the United States,	
exem	3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.								
a U.S foreig Note reque	s. trade or busing gn partners' shar s. If a requester c est your TIN, you	ess is not s e of effecti gives you a must use	subject vely co form o the rea	y partnership income from to the withholding tax on nnected income. ther than Form W-9 to uester's form if it is	purposes of estab on its allocable sh	lishing its U are of net i	J.S. status a	e partnership for ind avoiding withholding the partnership ited States is in the	
substantially similar to this Form W-9.									

Form W-9 (Rev. 10-2007)

• The U.S. owner of a disregarded entity and not the entity,



Office of the Illinois Electronic Filing Requived Clerk's Office 3/18/2022

"Partnering With the Fire Service to Protect Illinois"

	CERTIFI	ED MAIL - RECEIPT REQUESTED #7010 0780 0002 1296 1934				
August	9, 2011					
P.O. Bo	livan, Inc. ox 571 ille, IL 62626					
	In Re:	Facility No. 4-013187 IEMA Incident No. 04-0969 KB Sullivan, Inc. 105 West Jackson Sullivan, Moultrie Co., IL				
Dear A	pplicant:					
The Reimbursement Eligibility and Deductible Application received on August 9, 2011 for the above referenced occurrence has been reviewed. The following determinations have been made based upon this review.						
Protecti	ion Agency. It has beer	Proceed as Owner" and have received acceptance from the Illinois Environmental a determined, therefore, that you are eligible to seek payment of costs in excess of response to the occurrence referenced above and associated with the following				
	Eligible Tanks					
	Tank 1 10,000 gallon Tank 2 8,000 gallon C Tank 3 8,000 gallon C Tank 4 5,000 gallon C Tank 5 5,000 gallon C Tank 6 2,000 gallon K	Gasoline Gasoline Diesel Fuel Gasoline				
You mu submitt	ust contact the Illinois E ing your request for pay	Environmental Protection Agency to receive a packet of Agency billing forms for yment.				
An own	ner or operator is eligibl	e to access the Underground Storage Tank Fund if the eligibility requirements are				
1.	Neither the owner nor	the operator is the United States Government,				
2.	The tank does not con	tain fuel which is exempt from the Motor Fuel Tax Law,				
3.	The costs were incurre	ed as a result of a confirmed release of any of the following substances:				
	"Fuel", as de	fined in Section 1.19 of the Motor Fuel Tax Law				

1035 Stevenson Drive • Springfield, II 67203-4259

Printed on Recycled Paper

		Electronic Filing: Received, Clerk's Office 3/18/2022 Aviation fuel
		Heating oil
		Kerosene
Production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production o	,	Used oil, which has been refined from crude oil used in a motor vehicle, as defined in Section 1.3 of the Motor Fuel Tax Law.
	4.	The owner or operator registered the tank and paid all fees in accordance with the statutory and regulatory requirements of the Gasoline Storage Act.
	5.	The owner or operator notified the Illinois Emergency Management Agency of a confirmed release, the costs were incurred after the notification and the costs were a result of a release of a substance listed in this Section. Costs of corrective action or indemnification incurred before providing that notification shall not be eligible for payment.
1000	6.	The costs have not already been paid to the owner or operator under a private insurance policy, other written agreement, or court order.
	7. .	The costs were associated with "corrective action".
	change availabl Control shall fil	nstitutes the final decision as it relates to your eligibility and deductibility. We reserve the right to the deductible determination should additional information that would change the determination become e. An underground storage tank owner or operator may appeal the decision to the Illinois Pollution Board (Board), pursuant to Section 57.9 (c) (2). An owner or operator who seeks to appeal the decision e a petition for a hearing before the Board within 35 days of the date of mailing of the final decision, (35 Administrative Code 105.504(b)).
r n	For info	ormation regarding the filing of an appeal, please contact:
		Clerk Illinois Pollution Control Board State of Illinois Center 100 West Randolph, Suite 11-500 Chicago, Illinois 60601 (312) 814-3620
	The foll	lowing tanks are also listed for this site:
		Tank 7 10,000 gallon Gasoline Tank 8 10,000 gallon Gasoline Tank 9 8,000 gallon Diesel Fuel Tank 10 5,000 gallon Kerosene Tank 11 5,000 gallon Gasoline
	may be there ha from on	oplication indicates that there has not been a release from these tanks under this incident number. You eligible to seek payment of corrective action costs associated with these tanks if it is determined that is been a release from one or more of these tanks. Once it is determined that there has been a release see or more of these tanks you may submit a separate application for an eligibility determination to seek we action costs associated with this/these tanks.
		·

10	me Kach							
Deanne Lock Administrative Assistant Division of Petroleum and Chemical Safety								
ec:	IEPA Facility File	•						
							,	
					•			
			•					

Consultants/Contractors and Subcontractors used Name of Leaking UST site: KB Sullivan (Former V			0-0146,04-0969
The work for this billing was performed from 1/1/1	5	to <u>3/31/2</u>	0
Prime Consultant: CWM Company, Inc.			
FIRM'S NAME, ADDRESS, AND TELEPHONE NUMBER	IS THIS FIRM A WBE OR MBE?	IF WBE OR MBE, WHAT IS ITS STATE OF ILLINOIS VENDOR NUMBER?	AMOUNT PAID OR DUE THIS BILLING (\$)
CWM Company, Inc. 701 South Grand Avenue West Springfield, Illinois 62704 217-522-8001	NO		2,125.96
			* :
·			
	BILLIN	G TOTAL \$ 2,125.96	3

Billing Summary

	\$ Amount Approved in the Budget	\$ Amount Requested for Payment from the Fund
Drilling and Monitoring Well Costs Form	.00	.00
2. Analytical Costs Form	.00	.00
Remediation and Disposal Costs Form	.00	.00
UST Removal and Abandonment Costs Form	.00	.00
5. Paving, Demolition, and Well Abandonment Costs Form	1,719.00	.00
6. Consulting Personnel Costs Form	31,443.23	2,108.37 🗸
7. Consultant's Materials Costs Form	734.30	17.08 🗸
Total Amount Approved in the Budget *	\$33,896.53	NOT APPLICABLE
Subtotal of lines 1-7:	NOT APPLICABLE	\$2,125.45
8. Handling Charges Form	NOT APPLICABLE	.51 ✓
TOTAL AMOUNT REQUESTED FOR PAYMENT	NOT APPLICABLE	\$2,125.96

*Date(s) this Budget(s) was approved:	May 16, 2012

Consulting Personnel Costs Form

Employee Name		Personnel Title	Hours	Rate* (\$)	Total Cost
Remediation Category		Task			
V.E. Smith		Engineer III	.75	114.56	\$85.92
ELUC	Groundwater Or	dinance			
V.E. Smith		Professional Engineer	1.00	126.04	\$126.04
ELUC	Groundwater Or	dinance	1.00	120.04	\$1,20.05
M. Kube		Engineer I	.75	85.92	\$64.44
ELUC	Groundwater Ag	reements		1 00.92	[Ψυ4.42
C.L. Rowe		Senior Project Manager	2.50	114.56\	\$286.40
ELUC	Groundwater Or	dinance	2.00	114.000	φ200.40
V.E. Smith		Senior Prof. Engineer	4.00	148.96\	\$595.84
ELUC	PE Review & Ce	ertification			V
C.L. Rowe		Senior Project Manager	2.25	114.56	\$257.76
НАА	City/Local HAA	Agreements			
M. Kube		Engineer I	.50	85.92	\$42.96
НАА	City/Local HAA	Agreements			

		Personnel Title	Hours	Rate* (\$)	lota	Cost
Remediation Category		Task				
				namen namen namen namen kalendari (h e y y e y y	/ ····	
W.T. Sinnott	T	Senior Project Manager	1.25	114.56	/	\$143.20
CCA-Field	Documentation					***************************************
V.E. Smith		Professional Engineer	.25	126.04	. /	\$31.51
CCA-Field	Documentation	1	.20	120.04	Y	φοιοι
					·	
					T	
		1		-		
*						
R. Stanley		Senior Prof. Geologist	4.50	105.40		\$474.30
CACR	Completion Rep	port				
					Т	
	•		17.75 h	s 🗸		
*Refer to the applicable Maximum	Payment Amou	unts document.				
		Total of Consult	Line Day			,108.37

Consultant's Materials Costs Form

Materials, Equipment,	or Field Purchase	Time or Amount Used	Rate (\$)	Unit	Total Cost		
Remediation Category		Description/Justification					
PID Rental			129.00	/day	\$.00		
CCA-Field	To detect VOC levels in s	oil samples	·				
Survey Equipment Rental		.00	65.00	/day	\$.00		
CCA-Field	Survey monitoring well ele	evations for groundw	ater flow calcula				
Water Level Indicator			24.00	/day	\$.00		
CCA-Field					φ.υυ		
Measuring Wheel			18.00	/day	\$.00		
CCA-Field	Mapping sampling locatio	ns					
Mileage			.58	/mile	\$.00		
CCA-Field	Travel to site						
Disposable Gloves			13.00	/box	\$.00		
CCA-Field	Disposable latex gloves for	or soil and groundwa			,,,,		
Bailing Twine			5.00	/roll	\$.00		
CCA-Field	String for Bailers		0.00	71011	\$.00		
Bailers			12.00	/each	\$.00		
CCA-Field	Disposable bailers for mo	nitoring well develop	ment and sampl	ing			
Copies			.10	/each	\$.00		
HAA	IDOT HAA Corr/Attachme	ents	L				

Materials, Equipment	, or Field Purchase	Time or Amount Used	Rate (\$)	Unit	Total Cost
Remediation Category		Description/.	Justification		
Measuring Wheel		.00	21.00	/day	\$.00
CCA-Field	Measure dimensions durin	g excavation activit	ies, wall sample s	spacing	
Postage		1.00	3.08	/each	\$3.08
CA-Pay	UST Fund Reimb Claim				
Postage		1.00	1.21	/each	\$1.21
ELUC	City GW Ordinance Corres	spondence			
Digital Camera		.00	10.00	/day	\$.00
CCA-Field	To take pictures for docum	nentation of excavat	ion activities		
Copies			.10	/copy	\$.00
CA-Pay	UST Fund Reimb Claim				
Copies			.10	/copy	\$.00
ELUC	GW Ordinance Developm	ent/Attachments			
Postage		1.00	.49	/each	\$.49
СА-Рау	UST Fund Reimb Claim/C	orr - no receipt; use	d internal postag	e meter	
Copies		82.00	.15	/copy	\$12.30
СА-Рау	UST Fund Reimb Claim/S	upp Doc		A	
			2.03	/each	\$.00
Postage					

Total of Consultant Materials Costs

\$17.08

Handling Charges Form

Subcontract or Field Purchase Cost:

Eligible Handling Charges as a Percentage of Cost:

\$0 - \$5,000 \$5,001 - \$15,000 \$15,001 - \$50,000 \$50,001 - \$100,000 \$100,001 - \$1,000,000

12% \$600 + 10% of amt. over \$5,000 \$1,600 + 8% of amt. over \$15,000 \$4,400 + 5% of amt. over \$50,000 \$6,900 + 2% of amt. over \$100,000

Subcontractor Name or Field Pur	rchase	Type of Work Performed by Subcontractor	Subcontractor or Field Purchase Amount (\$)
Field Purchase		Postage: UST Fund Reimb Claim	3.08
Field Purchase		Postage: City GW Ordinance Correspondence	1.21
			· · · · · · · · · · · · · · · · · · ·
	Total Su	bcontractor and Field Purchase Costs:	\$4.29
		Total Handling Charges:	
		Total Handling Charges.	\$.51

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Marion, IL 62959 618/997-2238 701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

CW M Company

Project Work Summary for: KB Food and Gas 2004-0969

For the Month of: January 2015

Date of Work	Employee	Position	Type of Work	Hourly Rate	Hours Worked	Labor Subtotal	Expenses
Tuesday, Januar	y 27, 2015						
	Smith, V.E.	Engineer III 7/1/2014	6 ELUC	\$121.48	0.75	\$91.11	\$0.00
				Line Item Totals:	0.75	\$91.11	\$0.00
				Total project	charges fo	r month:	\$91.11

CW M Coring Filing: Received, Clerk's Office 3/18/2022/959

701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Work Summary for KB Food and Gas 2004-0969

January 2015

Employee	Position		Hourly Rate	Hours Worked	Labor Subtotal
Smith, V.E.	Engineer III 7/1/2014	6 ELUC	\$121.48	0.75	\$91.11
			Smith, V.E. Total:	0.75	\$91.11
			Project Totals:	0.75	\$91.11

Electronic Filing: Received, Clerk's Office 3/18/2022400 W. Jackson Street, Suite C

CW M Company

Marion, IL 62959 618/997-2238 701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Project Work Summary for: KB Food and Gas 2004-0969

For the Month of: March 2015

Date of Work	Employee	Position	Type of Work	Hourly Rate	Hours Worked	Labor Subtotal	Expenses
Thursday, Marc	h <u>5, 2015</u> Haas, R.	Sr. Acct. Technician 7/1/20	14 6 CA-Reimb	\$66.80	0.00	\$0.00	\$4.80
Friday, March 6	<u>, 2015</u> Haas, R.	Sr. Acct. Technician 7/1/20	14 6 CA-Reimb	\$66.80	0.00	\$0.00	\$7.50
Saturday, March	17, 2015 Sinnott, W.T.	Senior Project Manager 7/1/	/20 6 CCA-Field	\$121.48	1.25	\$151.85	\$0.00
				Line Item Totals:	1.25	\$151.85	\$12.30
				Total projec	t charges fo	\$164.15	

CW M Company Filing: Received, Clerk's Office 3/18/2022 (C) 618/997-2238

701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Work Summary for KB Food and Gas 2004-0969

March 2015

Employee	Position	Hourly Rate	Hours Worked	Labor Subtotal
Haas, R.	Sr. Acct. Technician 7/1/2014 6 CA-Reimb	\$66.80	0.00	\$0.00
		Haas, R. Total	0.00	\$0.00
Sinnott, W.T.	Senior Project Manager 7/1/20 6 CCA-Field	\$121.48	1.25	\$151.85
		Sinnott, W.T. Total	1.25	\$151.85
		Project Totals:	1.25	\$151.85

CW M Company

400 W. Jackson Street, Suite C Marion, IL 62959 618/997-2238 701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Project Expenses for: KB Food and Gas 2004-0969

March 2015

Date	Description of Expense	Comment	Phase Code	Quantity	Rate	Expenditure	Field Purchase
March 5, 2015	Copies	UST Fund Reimb Claim/Supp Doc	6 CA-Reimb	32.00	\$0.150	\$4.80	
March 6, 2015	Copies	UST Fund Reimb Claim/Supp Doc	6 CA-Reimb	50.00	\$0.150	\$7.50	
				Ph	Phase Total:		

CW M Company

Marion, IL 62959 618/997-2238 701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Project Work Summary for: KB Food and Gas 2004-0969

For the Month of: April 2015

Date of Work	Employee	Position	Type o	f Work	I	Hourly Rate	Hours Worked	Labor Subtotal	Expenses
Friday, April 24,	2015 Saladino, M.J.	Engineer I 7/2015	6 CA-Reimb	٠.	\$:	92.92	0.00	\$0.00	\$3.08
Thursday, April	30, 2015 Sinnott, W.T.	Senior Project Manager 7/1/20) 6 CA-Reimb		\$12	21.48	0.00	\$0.00	\$0.37
					Line Item Tota	ıls:	0.00	\$0.00	\$3.45
					Tota	l project	charges fo	r month:	\$3.45

CW M Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received, Clerk's Office 1/3/1/8/2020 Company Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received Received

701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Work Summary for KB Food and Gas 2004-0969

April 2015

Employee	Position			urly ate	Hours Worked	Labor Subtotal
Saladino, M.J.	Engineer 1 7/2015	6 CA-Reimb	\$	92.92	0.00	\$0.00
			Saladino, M.J.	Total:	0.00	\$0.00
Sinnott, W.T.	Senior Project Manager	7/1/20 6 CA-Reimb	\$1	21.48	0.00	\$0.00
			Sinnott, W.T.	Total:	0.00	\$0.00
			Project To	tals:	0.00	\$0.00

CW M Company

400 W. Jackson Street, Suite C Marion, IL 62959 618/997-2238 701 W. South Grand Springfield, 1L 62704 217/522-8001

Environmental Consulting Services

Project Expenses for: KB Food and Gas 2004-0969

April 2015

Date	Description of Expense	Comment	Phase Code	Quantity	Rate	Expenditure	Field Purchase
April 24, 2015	Field Purchase	UST Fund Reimb Claim	6 CA-Reimb	3.08	\$1.000	\$3.08	✓
April 30, 2015	Field Purchase Handling Charge	Field Purchases Handling Charge	6 CA-Reimb	0.37	\$1.000	\$0.37	
				Ph	ase Total:	\$3.45	***************************************

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SPRINGFIELD DWN TWN STA
  SPRINGFIELD, Illinois
        627019998
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1615500604-0099

04/24/2015 (217)753-3432 03:07:56 PM

______ - Sales Receipt

Issue Postage:

FARMER CITY IL 61842 Zone-2 First-Class Mail Large EnvWALKER TIRE

Expected Delivery: Mon 04/27/15

Issue Postage:

\$2,45

@@ ~~ BELLEVILLE IL \$5.95 62222-0122 Zone-2 MOTO-FREEBURG Priority Mail 2-Day By Weight CAREIMB. 1 lb. 2.10 oz.

Expected Delivery: Mon 04/27/15 Includes up to \$50 insurance

USPS Tracking #: 9505 5111 6853 5114 5422 09

Issue Postage:

\$5.95

BARTLETT IL 60103-1390 SULLIVAN First-Class Mail Large Env 10.60 oz.

Expected Delivery: Mon 04/27/15

Issue Postage:

\$3.08

CARMI IL 62821-1389 Zone-2 \$2.87 First-Class Mail Large Env HUCKS BEWTON Expected Delivery: Mon 04/27/15

Issue Postage:

-----\$2.87

EFFINGHAM IL 62401 Zone-2 \$2.66 First-Class Mail Large Env SMOOT OIL Expected Delivery: Mon 04/27/15

Issue Postage:

-\$2.66

@@ ~~ ROSSVILLE IL \$5.95 60963-1106 Zone-2 VILLAGE OF ROSSVILLE Priority Mail 1-Day By STAGE I AND CA Weight 1 lb. 5.30 oz.

Expected Delivery: Sat 04/25/15 Includes up to \$50 insurance

USPS Tracking #: 9505 5111 6853 5114 5435 03

Issue Postage:

-----\$5 95

Electronic Filing: Received, Clerk's Office 3/18/2022400 W. Jackson Street, Suite C

Marion, IL 62959 618/997-2238

701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

CW M Company

Project Work Summary for: KB Food and Gas 2004-0969

For the Month of: September 2015

Date of Work	Employee	Position	Type of Work	Hourly Rate	Hours Worked	Labor Subtotal	Expenses
Monday, Septe	mber 28, 2015						
	Haas, R.	Sr. Acct. Technician 7/1	1/2015 6 CA-Reimb	\$68.12	0.00	\$0.00	\$0.49
				Line Item Totals:	0.00	\$0.00	\$0.49
				Total projec	t charges fo	r month:	\$0.49

CW M Company Filing: Received, Clerk's Office 3/18/2027 C 618/997-2238

701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Work Summary for KB Food and Gas 2004-0969

September 2015

Employee	Position	Hourly Rate	Hours Worked	Labor Subtotal
Haas, R.	Sr. Acct. Technician 7/1/2015 6 CA-Reimb	\$68.12	0.00	\$0.00
		Haas, R. Total:	0.00	\$0.00
		Project Totals:	0.00	\$0.00

CW M Company

400 W. Jackson Street, Suite C Marion, IL 62959

701 W. South Grand Springfield, IL 62704 217/522-8001

618/997-2238

Environmental Consulting Services

Project Expenses for: KB Food and Gas 2004-0969

September 2015

Date	Description of Expense	Comment	Phase Code	Quantity	Rate	Expenditure]	Field Purchase
September 28, 201	5 Postage	UST Fund Reimb Claim/Cor	6 CA-Reimb	0.49	\$1.000	\$0.49	
				Pha	ise Total:	\$0.49	

CW M Company

Marion, IL 62959 618/997-2238 701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Project Work Summary for: KB Food and Gas 2004-0969

For the Month of: March 2016

Date of Work	Employee	Position	Type of Work	Hourly Rate	Hours Worked	Labor Subtotal	Expenses
Friday, March 25	, <u>2016</u> Stanley, R.J.	Professional Geologist 7/1/201 6 CAC	R	\$113.96	3.00	\$341.88	\$0.00
Monday, March 2	Stanley, R.J.	Professional Geologist 7/1/201 6 CAC		\$113.96	1.50	\$170.94	\$0.00
	Smith, V.E.	Professional Engineer 7/1/2015 6 ELUG		\$136.28 Line Item Totals:	0.25 4.75	\$34.07 \$546.89	\$0.00 \$0.00
				yperson and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the secon	······································	11114 CM (11114 CM 11114 CM 11114 CM 11114 CM 11114 CM 11114 CM 11114 CM 11114 CM 11114 CM 11114 CM 11114 CM 1	COLUMNICATION CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACT

Total project charges for month: \$546.89

CW M Company Filing: Received, Clerk's Office 3 18/2023 618/997-2238

701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Work Summary for KB Food and Gas 2004-0969

March 2016

Employee	Position	Hourly Rate	Hours Worked	Labor Subtotal
Stanley, R.J.	Professional Geologist 7/1/201 6 CACR	\$113.96	4.50	\$512.82
		Stanley, R.J. Tota	l: 4.50	\$512.82
Smith, V.E.	Professional Engineer 7/1/2015 6 ELUC	\$136.28	0.25	\$34.07
		Smith, V.E. Tota	l: 0.25	\$34.07
		Project Totals:	4.75	\$546.89

CW M Company

Electronic Filing: Received, Clerk's Office 3/18/2022400 W. Jackson Street, Suite C. Marion, H. 62959

Marion, IL 62959 618/997-2238 701 W. South Grand Springfield, 1L 62704 217/522-8001

Environmental Consulting Services

Project Work Summary for: KB Food and Gas 2004-0969

For the Month of: April 2016

Date of Work	Employee	Position	Type of Work	Hourly Rate	Hours Worked	Labor Subtotal	Expenses
Tuesday, April 5	5 <u>, 2016</u>		No.				
	Smith, V.E.	Professional Engineer 7/	/2015 6 CCA-Field	\$136.28	0.25	\$34.07	\$0.00
				Line Item Totals:	0.25	\$34.07	\$0.00
				Total project charges for month:			\$34.07

CW M Collection Filing: Received, Clerk's Office 3 13 13 120 2 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15 16 C 22 15

701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Work Summary for KB Food and Gas 2004-0969

April 2016

Employee	Position	Hourly Rate	Hours Worked	Labor Subtotal
Smith, V.E.	Professional Engineer 7/1/2015 6 CCA-Field	\$136.28	0.25	\$34.07
		Smith, V.E. Total:	0.25	\$34.07
		Project Totals:	0.25	\$34.07

Electronic Filing: Received, Clerk's Office 3/18/2022 400 W. Jackson Street, Suite C. Marion, IL 62959

Marion, IL 62959 618/997-2238 701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

CW M Company

Project Work Summary for: KB Food and Gas 2004-0969

For the Month of: October 2016

Date of Work	Employee	Position	Type of Work	Hourly Rate	Hours Worked	Labor Subtotal	Expenses
Tuesday, October	18, 2016						
	Rowe, C.L.	Senior Project Manager 7/1/20 6 HA	A	\$125.12	0.25	\$31.28	\$0.00
				Line Item Totals:	0.25	\$31.28	\$0.00
				Total project	charges for	r month:	\$31.28

CW M Coffeetpanin Filing: Received, Clerk's Office 3/18/2022959

701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Work Summary for KB Food and Gas 2004-0969

October 2016

Employee	Position	Hourly Rate	Hours Worked	Labor Subtotal
Rowe, C.L.	Senior Project Manager 7/1/20 6 HAA	\$125.12	0.25	\$31.28
		Rowe, C.L. Total:	0.25	\$31.28
		Project Totals:	0.25	\$31.28

CW M Company

Electronic Filing: Received, Clerk's Office 3/18/2022 400 W. Jackson Street, Suite C

Marion, IL 62959 618/997-2238

701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Project Work Summary for: KB Food and Gas 2004-0969

For the Month of: October 2018

Date of Work	Employee	Position	Type of Work	Hourly Rate	Hours Worked	Labor Subtotal	Expenses
Monday, October	er 1, 2018						
	Smith, V.E.	Senior Professional Engineer	7/ 6 ELUC	\$167.60.	0.75	\$125.70	\$0.00
Tuesday, Octob	er 2, 2018						
	Smith, V.E.	Senior Professional Engineer	7/ 6 ELUC	\$167.60	1.00	\$167.60	\$0.00
Wednesday, Oc	tober 3, 2018						
	Smith, V.E.	Senior Professional Engineer	7/ 6 ELUC	\$167.60	0.75	\$125.70	\$0.00
Thursday, Octob	ber 4, 2018						
	Smith, V.E.	Senior Professional Engineer	7/6 ELUC	\$167.60	1.00	\$167.60	\$0.00
Monday, October	er 8, 2018						
	Kube, M.	Engineer I 7/2018	6 ELUC	\$96.68	0.50	\$48.34	\$0.00
	Rowe, C.L.	Senior Project Manager 7/1/20) 6 ELUC	\$128.92	0.25	\$32.23	\$0.00
	Smith, V.E.	Senior Professional Engineer	7/ 6 ELUC	\$167.60	0.50	\$83.80	\$0.00
	Kube, M.	Engineer I 7/2018	6 HAA	\$96.68	0.25	\$24.17	\$0.00
	Rowe, C.L.	Senior Project Manager 7/1/20) 6 HAA	\$128.92	0.50	\$64.46	\$0.00
Tuesday, Octobe	er 9, 2018						
	Kube, M.	Engineer I 7/2018	6 ELUC	\$96.68	0.25	\$24.17	\$0.00
	Rowe, C.L.	Senior Project Manager 7/1/20	6 ELUC	\$128.92	0.50	\$64.46	\$0.00
	Kube, M.	Engineer I 7/2018	6 HAA	\$96.68	0.25	\$24.17	\$0.00
Friday, October	12, 2018						
	Rowe, C.L.	Senior Project Manager 7/1/20	6 ELUC	\$128.92	0.75	\$96.69	\$0.00
0334	Rowe, C.L.	Senior Project Manager 7/1/20) 6 HAA	\$128.92	0.75	\$96.69	\$0.00
Monday, Octobe	er 15, 2018						
	Sinnott, W.T.	Senior Project Manager 7/1/20	6 CA-Reimb	\$128.92	0.00	\$0.00	\$0.14

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Marion, IL 62959 618/997-2238 701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

CW M Company

Project Work Summary for: KB Food and Gas 2004-0969

For the Month of: October 2018

Date of Work	Employee	Position	Type of Work	Hour Rat	-	Labor Subtotal	Expenses
	Kube, M.	Engineer I 7/2018	6 ELUC	\$96.68	0.00	\$0.00	\$1.21
Wednesday, Oct	ober 31, 2018						
	Budget Adjustment	Rate Adjustment	6 CA-Reimb	\$0.60	-0.82	(\$0.49)	\$0.00
	Budget Adjustment (\$60)	Rate Adjustment	6 CA-Reimb	\$60.00	-3.77	(\$226.00)	\$0.00
	Rowe, C.L.	Senior Project Manager 7/1/20	6 ELUC	\$128.92	0.50	\$64.46	\$0.00
	Smith, V.E.	Professional Engineer 7/1/2018	8 6 ELUC	\$141.80	0.25	\$35.45	\$0.00
	Rowe, C.L.	Senior Project Manager 7/1/20	6 HAA	\$128.92	0.50	\$64.46	\$0.00
				Line Item Totals:	4.67	\$1,083.66	\$1.35

Total project charges for month: \$1,085.01

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701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Work Summary for KB Food and Gas 2004-0969

October 2018

Employee	Position			ourly Rate	Hours Worked	Labor Subtotal
Budget Adjustment	Rate Adjustment	6 CA-Reimb		\$0.60	-0.82	(\$0.49
			Budget Adjustment	Total:	-0.82	(\$0.49
Budget Adjustment (\$60)	Rate Adjustment	6 CA-Reimb		\$60.00	-3.77	(\$226.00
		Bud	lget Adjustment (\$60)	Total:	-3.77	(\$226.00
Sinnott, W.T.	Senior Project Manager 7/1/20	6 CA-Reimb	9	3128.92	0.00	\$0.00
			Sinnott, W.T.	Total:	0.00	\$0.00
Kube, M.	Engineer I 7/2018	6 ELUC		\$96.68	0.75	\$72.51
			Kube, M.	Total:	0.75	\$72.5
Rowe, C.L.	Senior Project Manager 7/1/20	6 ELUC	9	5128.92	2.00	\$257.84
			Rowe, C.L.	Total:	2.00	\$257.84
Smith, V.E.	Professional Engineer 7/1/2018	6 ELUC	9	5141.80	0.25	\$35.45
	Senior Professional Engineer 7	6 ELUC	. 9	3167.60	4.00	\$670.40
			Smith, V.E.	Total:	4.25	\$705.85
Kube, M.	Engineer I 7/2018	6 HAA		\$96.68	0.50	\$48.34
			Kube, M.	Total:	0.50	\$48.34
Rowe, C.L.	Senior Project Manager 7/1/20	6 HAA		5128.92	1.75	\$225.6
			Rowe, C.L.	Total:	1.75	\$225.61
			Project T	otals:	4.67	\$1,083.60

CW M Company

400 W. Jackson Street, Suite C Marion, IL 62959 618/997-2238

701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Project Expenses for: KB Food and Gas 2004-0969

October 2018

Date	Description of Expense	Comment	Phase Code	Quantity	Rate	Expenditure	
October 15, 2018	Field Purchase Handling Charge	Field Purchase Handling Charge	6 CA-Reimb	0.14	\$1.000	\$0.14	
October 15, 2018	Field Purchase	City GW Ordinance Correspondence	6 ELUC	1.21	\$1.000	\$1.21	V
				Ph	ase Total:	\$1.35	***************************************

KB Food and Gas 2004-0969

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DOWNTOWN SPRINGFIELD
            411 E MONROE ST
              SPRINGFIELD
                   IL
               62701-9998
               1674180604
10/15/2018
               (800) 275-8777
                                 3:52 PM
Sale
                                    Final
Product
Description
                        Qty
                                    Price
First-Class
                                  $1.21
Mail
Large Envelope
                               KB Sullivan
     (Domestic)
     (SULLIVAN, IL 61951)
                               600 GW
     (Weight: 0 Lb 1.80 0z)
    (Estimated Delivery Date) ordnard
(Wednesday 10/17/2018)
First-Class
Mail
                                 letter Ginger
Large Envelope
     (Domestic)
   (EDWARDSVILLE, IL 62025) (Feet)
(Weight: 0 Lb 1.80 0z)
(Estimated Delivery Date) HAA
(Wednesday 10/17/2018)
First-Class
                                  $1,63
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                               MUTUMARY
Large Envelope
     (Domestic)
                                Cilleseiz
    (GILLESPIE, IL 62033)
     (Weight: 0 Lb 3.80 0z)
                                HAA and GWC
    (Estimated Delivery Date)
     (Wednesday 10/17/2018)
First-Class
                                  $1.21
Mai1
                                Keller Ginger
Large Envelope
     (Domestic)
     (EDWARDSVILLE, IL 62025) (reck
(Weight: 0 Lb 1.80 0z)
     (Estimated Delivery Date) HAA
     (Wednesday 10/17/2018)
Total
                                  $5.26
Debit Card Remit'd
                                  $5,26
     (Card Name: VISA)
    (Account #:XXXXXXXXXXXXXXX3889)
(Approval #: )
     (Transaction #:888)
     (Receipt #:015715)
    (Debit Card Purchase: $5.26)
     (Cash Back:$0.00)
     (AID: A0000000980840
                                    Chip)
     (AL:US DEBIT)
    (PIN: Verified
                       US DEBIT
            Preview your Mail
           Track your Packages
Sign up for FREE @
        www.informeddelivery.com
 All sales final on stamps and postage
 Refunds for guaranteed services only
      Thank you for your business
     UNITED STATES POSTAL SERVICE
             HOLIDAY HIRING!
  August 14, 2018 - November 9, 2018
$16.00/hour - $17.19/hour
            MUST APPLY ONLINE
         AND CREATE YOUR PROFILE
   www.usps.com/carears
Search jobs by state - MISSOURI &
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Environmental Consulting Services

Project Work Summary for: KB Food and Gas 2004-0969

For the Month of: November 2018

Date of Work	Employee	Position	Type of Work	Hourly Rate	Hours Worked	Labor Subtotal	Expenses
Thursday, Nove	ember 1, 2018						
	Smith, V.E.	Professional Engineer 7	7/1/2018 6 ELUC	\$141.80	0.50	\$70.90	\$0.00
				Line Item Totals:	0.50	\$70.90	\$0.00
	·			Total project	charges fo	r month:	\$70.90

701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Work Summary for KB Food and Gas 2004-0969

November 2018

Employee	Position	Hourly Rate	Hours Worked	Labor Subtotal
Smith, V.E.	Professional Engineer 7/1/2018 6 ELUC	\$141.80	0.50	\$70.90
		Smith, V.E. Total:	0.50	\$70.90
	The Post Name and Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Con	Project Totals:	0.50	\$70.90

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Marion, IL 62959 618/997-2238 701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Project Work Summary for: KB Food and Gas 2004-0969

For the Month of: March 2020

Date of Work	Employee	Position	Type of Work	Hourly Rate	Hours Worked	Labor Subtotal	Expenses
Friday, March 27	7, 2020						
	Rowe, C.L.	Senior Project Manager 7/1/20 6 ELUG	0	\$131.48	0.50	\$65.74	\$0.00
	Rowe, C.L.	Senior Project Manager 7/1/20 6 HAA		\$131.48	0.25	\$32.87	\$0.00
			Line Ite	em Totals:	0.75	\$98.61	\$0.00
				Total project	charges fo	r month:	\$98.61

701 W. South Grand Springfield, IL 62704 217/522-8001

Environmental Consulting Services

Work Summary for KB Food and Gas 2004-0969

March 2020

	Employee	Position	Hourly Rate	Hours Worked	Labor Subtotal
The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	Powe C.I.				
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April and a second	Davis C.I.		,		400111
	Rowe, C.L.	Senior Project Manager 7/1/20 6 HAA	\$131.48 Rowe, C.L. Total	0.25	\$32.87 \$32.8 7
			Nowe, C.D. Total	, 0.23	\$32.67
ħ.			Project Totals:	0.75	\$98.61



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) 524-3300

CERTIFIED MAIL # 7017 2680 0001 0209 6065

FEB **0 5** 2021

KB Food & Gas CWM Company, Inc. P.O. Box 571 Carlinville, Illinois 62626

Re:

1390305014 -- Moultrie County

Sullivan / KB Food & Gas

111 West Jackson Street/Routes 121 & 132 Incident-Claim No.: 20040969 -- 71556

Queue Date: October 28, 2020

Leaking UST Fiscal File

Dear Mr. Patel:

The Illinois Environmental Protection Agency (Illinois EPA) has completed the review of your application for payment from the Underground Storage Tank (UST) Fund for the above-referenced Leaking UST incident pursuant to Section 57.8(a) of the Environmental Protection Act (415 ILCS 5) (Act) and 35 Illinois Administrative Code (35 Ill. Adm. Code) 734.Subpart F.

This information is dated October 20,2020 and was received by the Illinois EPA on October 28,2020. The application for payment covers the period from January 1, 2015 to March 31, 2020. The amount requested is \$2,125.96.

On October 28, 2020, the Illinois EPA received your application for payment for this claim. As a result of the Illinois EPA's review of this application for payment, a voucher cannot be prepared for submission to the Comptroller's office for payment. Subsequent applications for payment that have been/are submitted will be processed based upon the date subsequent application for payment requests are received by the Illinois EPA. This constitutes the Illinois EPA's final action with regard to the above application(s) for payment.

There are costs from this claim that are not being paid. Listed in Attachment A are the costs that are not being paid and the reasons these costs are not being paid.

An underground storage tank system owner or operator may appeal this decision to the Illinois Pollution Control Board. Appeal rights are attached.

Page 2

If you have any questions or require further assistance, please contact Stephanie Kincaid of my staff at (217) 558-2693.

Sincerely,

Ind. 2illus Ralmon_

Mohammed Z. Rahman, Manager Leaking Underground Storage Tank Section Bureau of Land

c: CWM Company, Inc. Leaking UST Claims Unit

Appeal Rights

An underground storage tank owner or operator may appeal this final decision to the Illinois Pollution Control Board pursuant to Sections 40 and 57.7(c)(4) of the Act by filing a petition for a hearing within 35 days after the date of issuance of the final decision. However, the 35-day period may be extended for a period not to exceed 90 days by written notice from the owner or operator 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 filing of an appeal, please contact:

Clerk of the Board Illinois Pollution Control Board James R. Thompson Center 100 West Randolph, Suite 11-500 Chicago, IL 60601 (312) 814-3620

For information regarding the filing of an extension, please contact:

Illinois Environmental Protection Agency Division of Legal Counsel 1021 North Grand Avenue East PO Box 19276 Springfield, IL 62794-9276 (217) 782-5544 Page 3

Attachment A Accounting Deductions

Re: 1390305014 -- Moultrie County

Sullivan/KB Food & Gas

111 West Jackson Street/Routes 121 & 132 Incident-Claim No.: 20040969 -- 71556

Queue Date: October 28, 2020 Leaking UST FISCAL FILE

Citations in this attachment are from the Environmental Protection Act (415 ILCS 5) (Act) and 35 Illinois Administrative Code (35 Ill. Adm. Code).

Item # Description of Deductions

1. \$2,125.96, deduction for all costs, which lack supporting documentation. Such costs are ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 734.630(cc). Since there is no supporting documentation of costs, the Illinois EPA cannot determine that costs will not be used for activities in excess of those necessary to meet the minimum requirements of Title XVI of the Act. Therefore, such costs are not approved pursuant to Section 57.7(c)(3) of the Act because they may be used for site investigation or corrective action activities in excess of those required to meet the minimum requirements of Title XVI of the Act.

The claim requests costs associated with a Corrective Action Completion Report. To date the IEPA has not received this Corrective Action Completion Report and has not received any technical documentation since February 17, 2012.