

ENVIRONMENTAL PROTECTION INDUSTRIES

CERTIFIED MAIL

December 21, 2006

Mr. Mohammed Rahman
Illinois Environmental Protection Agency
Bureau of Land - #24
Leaking Underground Storage Tank Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

**Re: Corrective Action Plan and Budget
LPC #0312255050 – Cook County
Oak Park/ Chakkalapadavil, James
427 West Madison Street
LUST Incident #20050027, #901088
LUST Technical File**

Dear Mr. Rahman:

Environmental Protection Industries (EPI), on behalf of James Chakkalapadavil, is submitting one (1) original and one (1) copy of the Corrective Action Plan (CAP) and Budget for the above-referenced LUST Incident.

Should you have any questions, please do not hesitate to contact us at your convenience.

Sincerely,
Environmental Protection Industries

Cindy Panagiotopoulos
Cindy Panagiotopoulos
Project Manager

RELEASABLE

FEB 21 2007

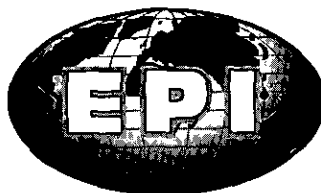
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Enclosures: One (1) original and one (1) copy of the CAP & Budget



ENVIRONMENTAL PROTECTION INDUSTRIES

**CORRECTIVE ACTION PLAN
AND BUDGET**

LPC #0312255050 – Cook County
Oak Park/ Chakkalapadavil, James
427 West Madison Street
LUST Incident #20050027, #901088

EPI Project # 041293

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CORRECTIVE ACTION PLAN AND BUDGET

**LPC #0312255050 – Cook County
Oak Park/ Chakkalapadavil, James
427 West Madison Street
LUST Incident #20050027, #901088**

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Budget and Billing Form



D SOIL AND GROUNDWATER INVESTIGATION RESULTS

D.1 DESCRIPTION OF INVESTIGATION ACTIVITIES PERFORMED TO DEFINE EXTENT OF SOIL AND/OR GROUNDWATER CONTAMINATION

Site investigations and the proposed remedial activities described herein were conducted by Environmental Protection Industries (EPI) at the gas station facility located at 427 West Madison in Oak Park, Illinois (the Site, refer to Figure 1, Tab 2).

Two (2) 12,000-gallon gasoline Underground Storage Tanks (USTs) are currently located on the Site. The Site is listed as having two (2) LUST Incidents, #901088 and #20050027. Incident #901088 was reported as a gasoline release in April of 1990. There have been no IEPA reports (i.e. 20/45 Day Reports) submitted in connection with the release. No remedial activities are listed to have taken place since the Incident occurred and it is still listed as open. Incident #20050027 was assigned to the Site after a release was discovered during a subsurface investigation conducted on January 7, 2005.

Early Action Investigation (January 2005)

On January 7, 2005, two (2) soil borings, SB1 and SB4, were advanced on the Site during a subsurface investigation. While conducting this subsurface investigation, high PID readings were encountered in the soil samples collected. Based on that information, a release was reported to the Illinois Emergency Management Agency (IEMA) and Incident #20050027 was assigned to the Site. Soil samples were tested for Benzene, Toluene, Ethyl benzene and Xylenes (BTEX) concentrations. Analytical results indicated that target analytes were detected at concentrations above the Tier 1 Soil Remediation Objectives (SROs) in the sample collected from soil boring SB1. The sample collected from SB4 did not contain any detectable concentrations of the target analytes.

Site Investigation (September and November 2005, March and July 2006)

On September 1, 2005, five (5) soil borings, SB102, SB105, SB106, SB107 and SB108, were advanced per the approved SIP dated April 6, 2005. Soil samples were collected and tested for BTEX and MTBE. The analytical results identified BTEX and/or MTBE constituents at concentrations above the IEPA Tier 1 SROs in the soil samples collected from all the soil borings.

On November 11, 2005, three (3) additional soil borings, SB101, SB103 and SB104 were advanced per the approved Amended SIP dated April 6, 2005. Soil samples were collected and tested for BTEX and MTBE. The analytical results identified no detectable concentration of target analytes in the soil samples collected from SB101 and SB103. The analytical results identified BTEX and MTBE constituents above the IEPA Tier 1 SROs in the soil samples collected from soil boring SB104.

On March 7, 2006, five (5) off-site soil borings, SB109 through SB113, were advanced adjacent to the site in the Right of Ways of Madison Street and Elmwood Avenue per the



approved Amended Stage 2 SIP dated February 10, 2006. Three (3) temporary wells were installed in the offsite soil borings SB110, SB112 and SB113. The analytical results identified no target analytes in the soil samples collected from SB109 through SB113. Temporary wells were installed however groundwater was not encountered in any of the three (3) temporary wells and therefore off-site groundwater sampling could not be conducted. Monitoring well MW6, which was installed by another consultant, located off-site in the right of way of Elmwood Avenue, was accessed and discovered to be completely dry and no groundwater sample could be obtained from that off-site location.

On July 6, 2006, four (4) off-site soil borings, SB114 through SB117, were advanced on the adjacent property located at 507 South Elmwood Avenue per the approved Stage 3 SIP dated May 12, 2006. Three (3) temporary wells were installed in soil borings SB115, SB116 and SB117. The analytical results identified no detectable concentrations of target analytes in the soil samples collected from any of the soil borings. The three temporary wells were all dry and therefore no groundwater samples were able to be collected.

For detailed information on the Site Investigation Activities, refer to the Site Investigation Completion Report (SICR), dated July 27, 2000.

Groundwater Investigation

On November 11, 2005, four (4) groundwater samples were collected from permanent monitoring wells, MW1 through MW4. The groundwater samples were analyzed for BTEX and MTBE. The groundwater analytical results indicated that BTEX and MTBE were not detected in the groundwater samples collected from MW1, MW2 and MW4. The groundwater sample collected from MW3 contained a Benzene concentration above the Tier 1 Groundwater Remediation Objectives for Class I and Class II Groundwater.

For detailed information on the Site Investigation Activities, refer to the Site Investigation Completion Report (SICR), dated July 27, 2006.

D.2 ANALYTICAL RESULTS AND CLEANUP OBJECTIVES IN TABULAR FORMAT (See Tab 3, Tables 1 and 2)

D.3 LABORATORY REPORTS Provided for reference in Tab 3.

D.4 SOIL BORING LOGS Refer to the Site Investigation Completion Report dated July 27, 2006.

D.5 MONITORING WELL LOGS Refer to the Site Investigation Completion Report dated July 27, 2006.

D.6 SITE MAPS (See Tab 2)



E. TECHNICAL INFORMATION

E.1 A DISCUSSION OF HOW THE CAP SHALL REMEDIATE THE RELEASE

The results of the investigations indicate that soil and groundwater were impacted by the release from the USTs located on the Site. In evaluating the appropriate methods to use for the corrective actions, the Site location, adjacent properties, soil type, natural and manmade migration pathways, groundwater characteristics and site geology were considered.

Soil Remediation

EPI proposes the use of engineered barriers and institutional controls and a Highway Authority Agreement to eliminate the potential exposure to the detected constituents.

Groundwater Contamination

EPI proposes the use of the Oak Park Groundwater Ordinance and a Highway Authority Agreement with the Village of Oak Park for the identified groundwater contamination.

The results indicated that Toluene and Ethyl benzene groundwater contamination would remain within the property boundary. The Benzene contamination is projected to extend across the property boundary and into Elmwood Avenue and Madison Street. The MTBE contamination is projected to extend across the property boundaries and within an approximate radius of 330 feet. For detailed calculations and plume diagrams, please refer to the Site Investigation Completion Report dated July 27, 2006.

E.2 SAMPLING PARAMETERS AND CORRESPONDING REMEDIATION OBJECTIVES (SROs)

The sampling parameters for delineating the soil and groundwater contamination are BTEX and MTBE. The soil remediation objectives were selected in accordance with 35 Illinois Administrative Code (IAC) Part 742. Site contamination was compared to the most stringent IEPA Tier 1 SROs.

E.3 BASIS FOR SAMPLING PARAMETERS AND CLEANUP OBJECTIVES

The material released at the site was gasoline. The sampling parameters have been chosen in accordance with 35 IAC Section 732.310 (b), (c) and the proposed SROs have been chosen in accordance with 35 IAC Section 742 Appendix B, Tables A and B for soil and Table E for groundwater.

E.4 MEDIA SAMPLING PLAN

Not applicable.



E.5 CURRENT AND FUTURE USE OF THE PROPERTY

Currently the Site is a gas station that is in operation. The future use of the property is as a gasoline service station.

E.6 PROPOSED PREVENTATIVE, ENGINEERING, AND INSTITUTIONAL CONTROLS

Not applicable.

E.7 WATER SUPPLY WELL SURVEY

A water well survey was conducted for the purpose of identifying and locating all private, potable and community water supply wells within 2,500 feet of the UST systems. The primary sources contacted for the well survey were the Illinois State Water Survey (ISWS) and the Illinois State Geological Survey (ISGS). Included in this report is all water well information from the ISWS and ISGS within Township 39 North, Range 13 East, and Sections 7, 8, 17 and 18.

The ISWS survey of private community water supply wells identified zero well listings within a 2,500-foot radius of the Site. Ten (10) private well listings are located in unknown locations in Section 7 and three (3) private well listings in unknown locations in Section 17.

The ISGS database did not identify any municipal or commercial wells within a 2,500-foot radius of the Site.

The Water Well Location Map is provided in Figure 6, Tab 2. Well Data from the ISGS and ISWS are provided in Tab 8.

E.8 APPENDICES

- a. References and data sources report that are organized; and
- b. Field logs, well logs, and reports of laboratory analysis.

See Tab 4.

E.9 SITE MAPS

See Tab 2.

E.10 ENGINEERED DESIGN SPECIFICATIONS

EPI proposes the following approaches: 1) construction worker safety precaution as an institutional control for the Construction Worker Soil Inhalation Exposure Route; 2) the existing Site building and concrete pavement as engineered barriers for the Soil



Inhalation Exposure Routes; 3) an on-site groundwater use restriction will be placed on the Site for the Soil Component of Groundwater Ingestion and Groundwater Ingestion Exposure Routes; and 4) Highway Authority Agreement for contamination in the right-of-ways.

Engineered Barriers

The proposed on-site engineered barriers include an existing permanent building structure and concrete and asphalt pavement at least four (4) inches thick. Both barriers will meet the requirements of 35 IAC Part 742 Subpart K. Refer to Figure 4, Tab 2 for the engineered barrier areas.

Construction Worker Scenario

Development of a Site Specific Safety Plan for any future construction activities conducted in the areas of concern at the Site. Safety precautions will be implemented for any future construction activities commencing in the areas of concern. The precaution will ensure that the health of the construction worker is not threatened. The precaution will exclude all impacts present along the construction worker exposure scenario from further consideration at the Site.

Groundwater Ordinance

Since the groundwater modeling results indicated that the contaminated groundwater would migrate off-site to the adjacent properties, property notifications will be performed. A draft Property Owner Notification Letter is provided in Tab 4 for review.

The City of Oak Park currently has an approved Groundwater Ordinance, which will be used for the groundwater contamination that migrates off-site.

Environmental Land Use Control

An Environmental Land Use Control (ELUC) will be used as an institutional control to impose land use limitations and address off-site contamination cause by a release from the Site. A sample ELUC is provided for review in Tab 4.

Highway Authority Agreement

The soil contamination beneath the Right of Way, Madison Street and Elmwood Avenue, will be managed under the terms and conditions of a Highway Authority Agreement with the Village of Oak Park. A copy of the proposed Highway Authority Agreement is included in Tab 4 for your review.

The components of the investigations completed at the Site demonstrate that the residual constituent concentrations would not pose a threat to human health and/or the



environment. Potential exposure pathways will be eliminated from consideration through the use of proposed institutional controls and the establishment of the Highway Authority Agreement.

E.11 A DESCRIPTION OF BENCH/PILOT STUDIES

Not Applicable.

E.12 COST COMPARISON BETWEEN PROPOSED METHOD OF REMEDIATION AND OTHER METHODS OF REMEDIATION

Not Applicable.

E.13 PROPOSED TIERED 2 AND TIERED 3 REMEDIATION OBJECTIVES

Not Applicable.

E.14 DOCUMENTATION FOR ALTERNATIVE TECHNOLOGIES

Not Applicable.

E.15 PROPERTY OWNER SUMMARY FORM

See Form in Tab 1.



IEPA FORMS

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**Illinois Environmental Protection Agency
Leaking Underground Storage Tank Program
Corrective Action Plan**

A. Site Identification

IEMA Incident # (6- or 8-digit): 20050027 IEPA LPC# (10-digit): 0312255050

Site Name: Clark

Site Address (Not a P.O. Box): 427 West Madison

City: Oak Park County: Cook ZIP Code: 60302

Leaking UST Technical File

B. Site Information

1. Will the owner or operator seek reimbursement from the Underground Storage Tank Fund? Yes ☒ No ☐

2. If yes, is the budget attached? Yes ☒ No ☐

3. Is this an amended plan? Yes ☐ No ☒

4. Identify the material(s) released: Gasoline

5. This Corrective Action Plan is submitted pursuant to:

a. 35 Ill. Adm. Code 731.166

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The material released was:

-petroleum

☐

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-hazardous substance (see Environmental Protection Act Section 3.215)

☐

b. 35 Ill. Adm. Code 732.404

☐

c. 35 Ill. Adm. Code 734.335

☒

C. Proposed Methods of Remediation

1. Soil Engineered Barrier; Highway Authority Agreement (HAA); Health and Safety Plan

2. Groundwater Groundwater Ordinance; Property Owner Notifications; HAA, ELWC

D. Soil and Groundwater Investigation Results (for incidents subject to 35 Ill. Adm. Code 731 only or 732 that were classified using Method One or Two, if not previously provided)

Provide the following:

1. Description of investigation activities performed to define the extents of soil and/or groundwater contamination;

2. Analytical results, chain-of-custody forms, and laboratory certifications;

3. Tables comparing analytical results to applicable remediation objectives;
4. Boring logs;
5. Monitoring well logs; and
6. Site maps meeting the requirements of 35 Ill. 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:

1. 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;
 - b. The scope of the problems to be addressed by the proposed corrective action; and
 - c. A schedule for implementation and completion of the plan;
2. 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;
5. 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:
 - a. 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
 - b. Field logs, well logs, and reports of laboratory analyses;
9. Site map(s) meeting the requirements of 35 Ill. 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;
14. Provide documentation to demonstrate the following for alternative technologies:
 - a. The proposed alternative technology has a substantial likelihood of successfully achieving compliance with all applicable regulations and remediation objectives;
 - b. 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.
15. Property Owner Summary form.

F. Exposure Pathway Exclusion

Provide the following:

1. 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 Ill. Adm. Code 721.123;
 - d. Contaminated soils do not exhibit a pH ≤ 2.0 or ≥ 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

Name: Individual
Contact: James Chakkalapadavil
Address: 772 North Adele
City: Elmhurst
State: IL
ZIP Code: 60126
Phone: (630) 674-9312
Signature: [Signature]
Date: 11/21/06

Consultant

Company: Environmental Protection Industries
Contact: Cindy Panagiotopoulos
Address: 16650 South Canal Street
City: South Holland
State: IL
ZIP Code: 60473
Phone: (708) 225-1115
Signature: [Signature]
Date: 12/21/06

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 Ill. 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].

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Licensed Professional Engineer or Geologist

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

Name: Anthony Negri
Company: Environmental Protection Indust.
Address: 16650 South Canal Street
City: South Holland
State: IL
ZIP Code: 60473
Phone: (708) 225-1115
Ill. Registration No.: 062-053668
License Expiration Date: 11/30/17
Signature: [Signature]
Date: 12/22/06



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 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 5/57.17). This form has been approved by the Forms Management Center.

**Illinois Environmental Protection Agency
Leaking Underground Storage Tank Program
Property Owner Summary**

A. Site Identification

IEMA Incident # (6- or 8-digit): 20050027 IEPA LPC# (10-digit): 0312255050

Site Name: Clark

Site Address (Not a P.O. Box): 427 West Madison

City: Oak Park County: Cook ZIP Code: 60302

Leaking UST Technical File

Engineered barriers, institutional controls, and other use restrictions, if any, proposed for this site may not be implemented without approval by the title holder(s) of record for the above-named property or the agent(s) of such person(s). These controls and restrictions will be identified in the No Further Remediation (NFR) Letter, which must be recorded in the chain of title for the property. Failure to maintain these controls is grounds for voidance of the NFR Letter.

B. Preventive, Engineering, and Institutional Controls and Land Use Limitations

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The following controls and restrictions are proposed for the above-named site:

- ☐ Industrial/commercial land use limitation;
- ☐ On-site groundwater restriction prohibiting the use of groundwater beneath the site as a potable water supply;
- ☒ An engineered barrier: ☒ building, ☒ asphalt/concrete, or ☐ other
(description) _____;
- ☒ Groundwater ordinance: ☐ with a MOU, ☐ without a MOU;
- ☒ Construction worker caution notification;
- ☒ Other: ELUC _____;
- ☐ None (There are no proposed institutional controls other than the NFR Letter.)

C. Property Ownership Declaration

I hereby affirm that I have reviewed the attached report entitled Corrective Action Plan and Budget and dated 09/25/06, and that I accept the terms and conditions set forth therein, including any land use limitations, that apply to property I own. I further affirm that I have no objection to the recording of a No Further Remediation Letter containing the terms and conditions identified in the report upon the property I own.

Name of Property Owner: James Chakkalapadavil

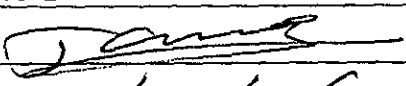
Name of Officer or Agent: _____

Mailing Address: 772 North Adele

City: Elmhurst

State: IL

ZIP Code: 60126

Signature: 

Date: 11/21/06

D. Site Description

Real Estate Tax/Parcel Index Number: 16-18-206-014

Legal Description of Site (must be provided on a separate sheet)

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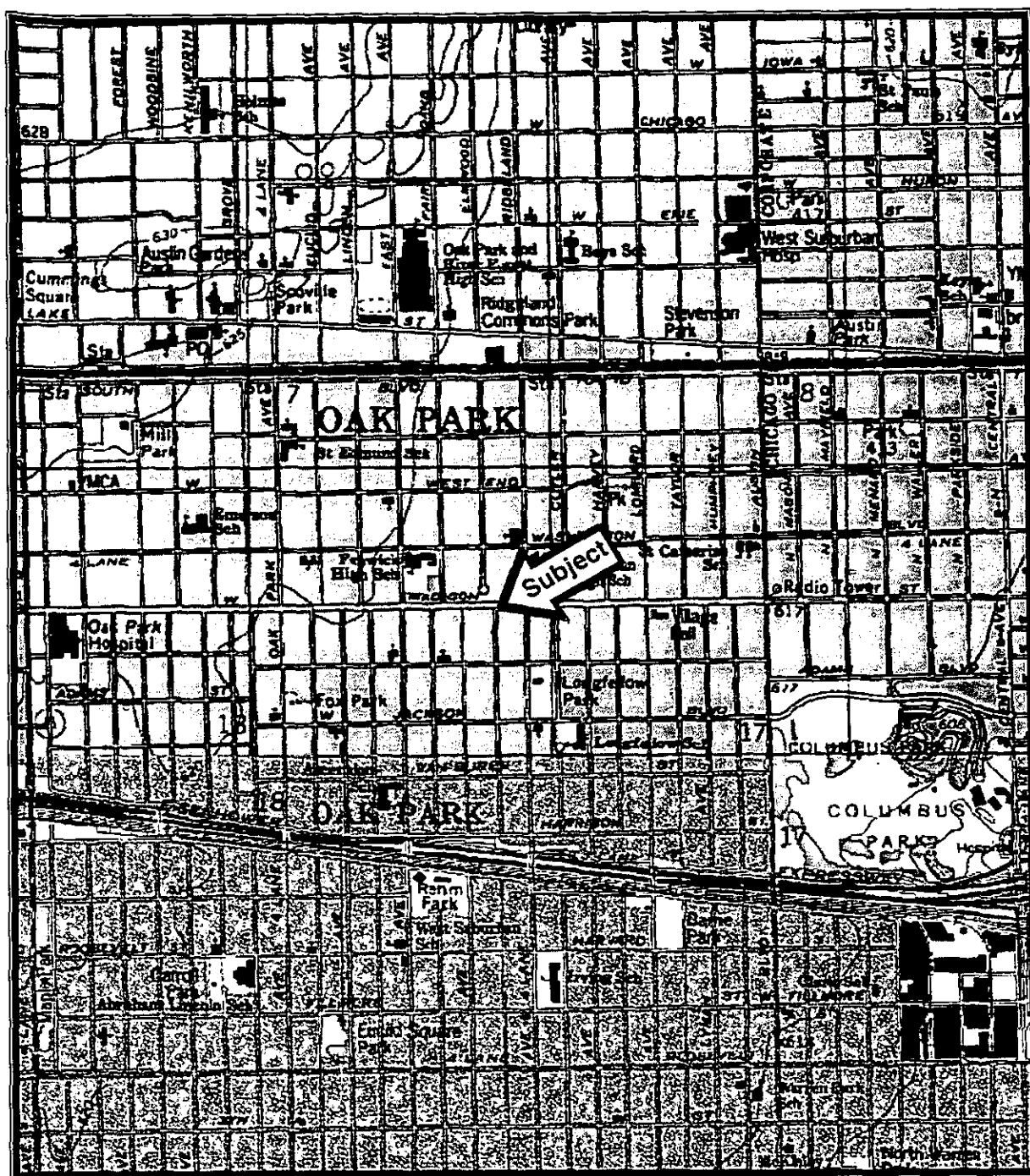
IEPA/BOL



SITE MAPS



USGS TOPOGRAPHICAL MAP



Site Location
USGS 7.5 Minute Topographic Map
River Forest Quadrangle

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1:24000



**FIGURE 1 SOIL BORING/MONITORING WELL
LOCATION MAP**

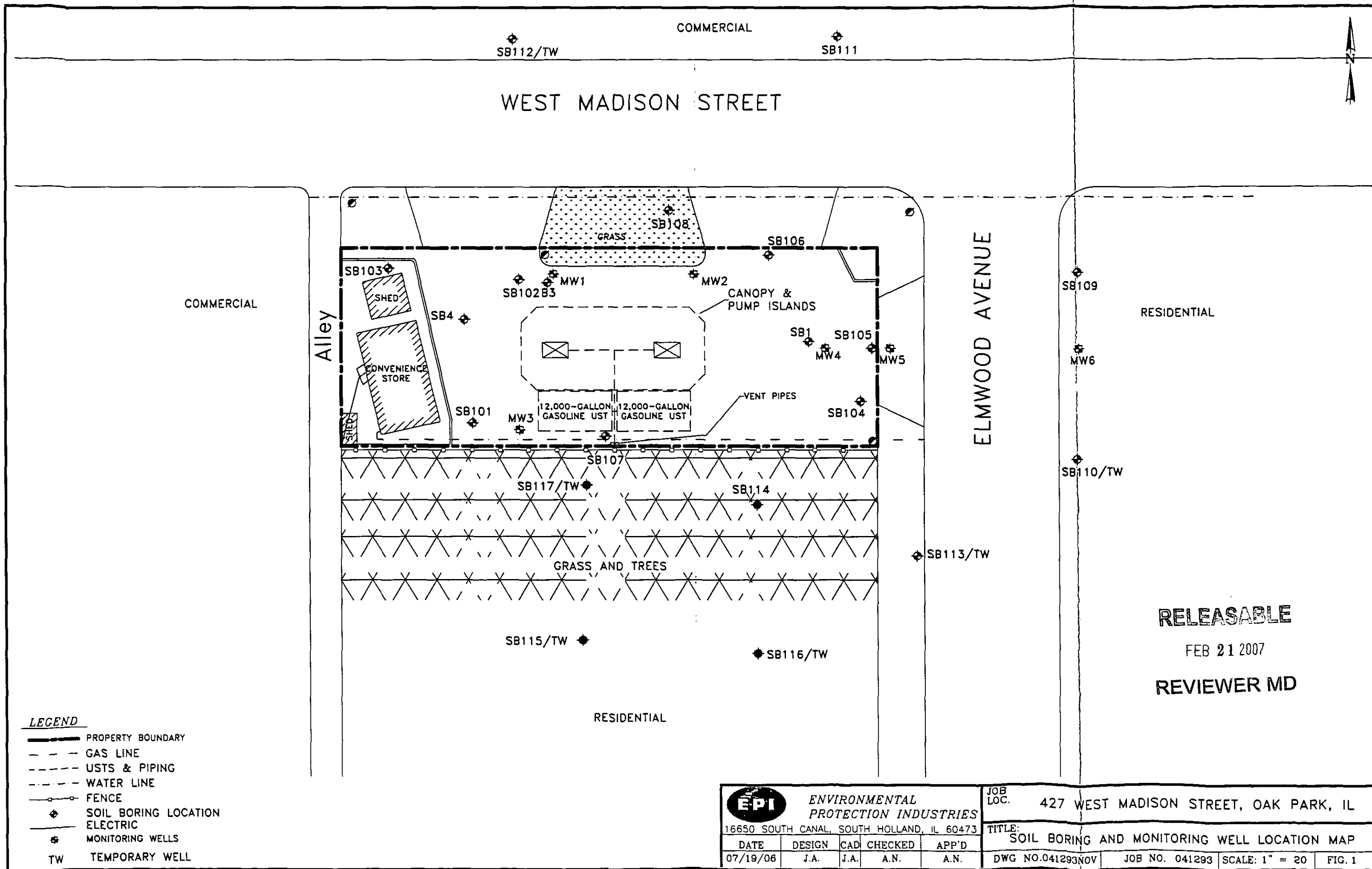




FIGURE 2 EXTENT OF SOIL CONTAMINATION MAP

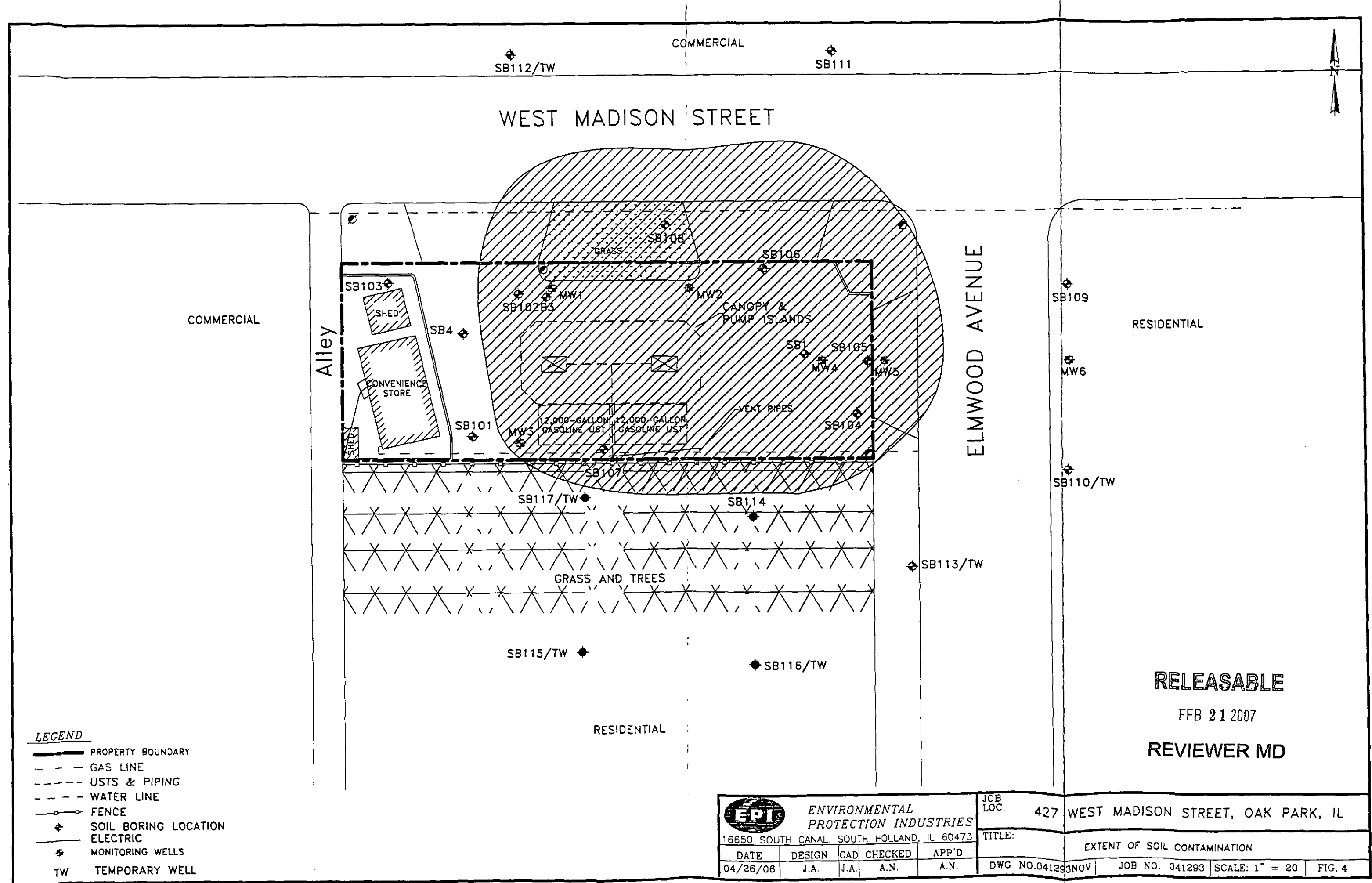
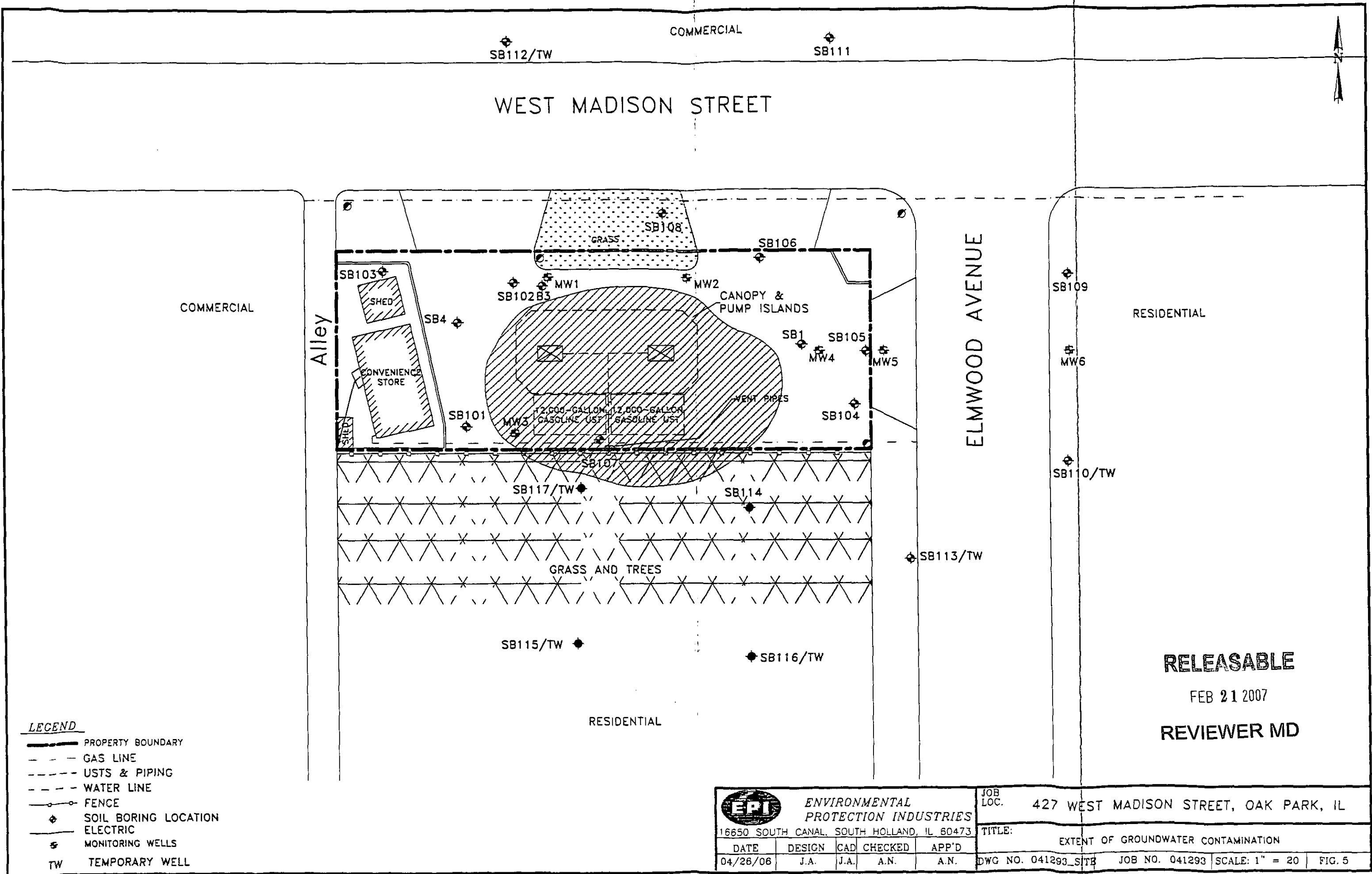




FIGURE 3 EXTENT OF GROUNDWATER CONTAMINATION MAP





**FIGURE 4 PROJECTED EXTENT OF GROUNDWATER
CONTAMINATION MAP**



ENVIRONMENTAL PROTECTION INDUSTRIES		JOB LOC.		427 WEST MADISON, OAK PARK, ILLINOIS	
16650 SOUTH CANAL, SOUTH HOLLAND, IL 60473		TITLE:		PROJECTED EXTENT OF MTBE CONTAMINATION	
DATE	DESIGNED	CAD	CHECKED	APP'D	
07/19/06	C.P.	C.P.	A.N.	A.N.	
DWG NO. 041293		JOB NO. 041293		SCALE: 1"=130'	
				FIG. 8	



FIGURE 5 INSTITUTIONAL CONTROLS MAP

COMMERCIAL

WEST MADISON STREET

AREA SUBJECT TO
HIGHWAY AUTHORITY AGREEMENT

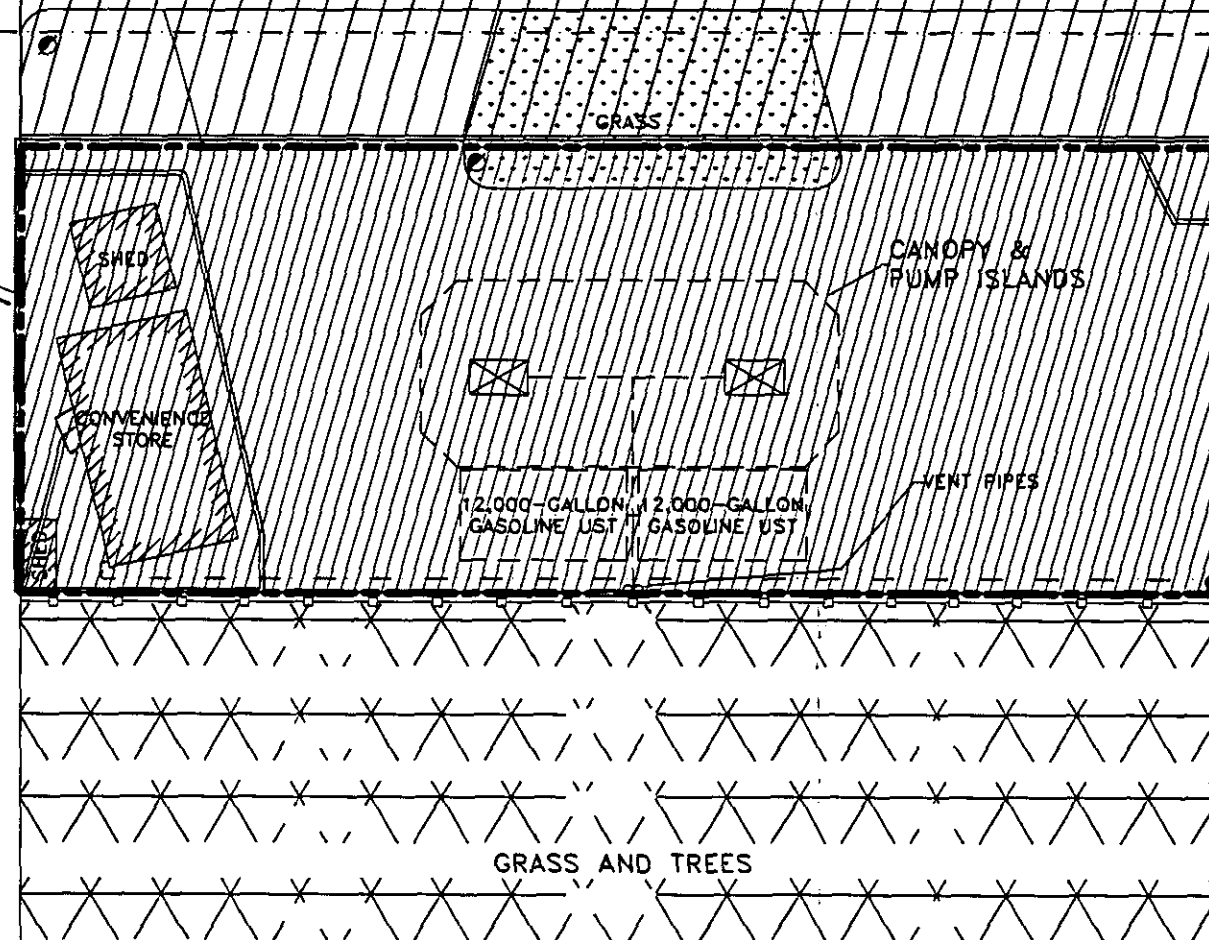
AREA SUBJECT TO
HIGHWAY AUTHORITY AGREEMENT

RESIDENTIAL

ENGINEERED
BARRIER
COMMERCIAL

Alley

ELMWOOD AVENUE



RESIDENTIAL

LEGEND

- PROPERTY BOUNDARY
- - - GAS LINE
- - - USTS & PIPING
- - - WATER LINE
- FENCE
- ELECTRIC

RELEASABLE

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PROTECTION INDUSTRIES

16650 SOUTH CANAL, SOUTH HOLLAND, IL 60473

DATE	DESIGN	CAD	CHECKED	APP'D
12/14/06	J.A.	J.A.	A.N.	A.N.

JOB
LOC.

427 WEST MADISON STREET, OAK PARK, IL

TITLE:

INSTITUTIONAL CONTROLS

DWG NO. 041293 SITE

JOB NO. 041293

SCALE: 1" = 20'

FIG. 5



ANALYTICAL TABLES

SOIL AND GROUNDWATER RESULTS

TABLE 1. Soil Analytical Results

Client: James Chakkalapadavil
 Site: 427 West Madison, Oak Park, IL
 LUST Incident #: 20050027
 Sampling Date: 1/7/05
 Laboratory: GLA
 Matrix: Soil

Chemical Name	Exposure Route-Specific Values*						Soil Component of GW Ingestion Route*		SB1	SB4					
	Residential		Industrial/Commercial		Construction Worker		Class I	Class II	17/2005	17/2005					
	Ingestion	Inhalation	Ingestion	Inhalation	Ingestion	Inhalation			4-6'	6-8'					
BTEX															
Benzene	a	12	0.8	100	1.6	2,300	2.2	0.03	0.17	16.9	ND				
Toluene	b	16,000	650	410,000	650	410,000	42	12	29	55.2	ND				
Ethylbenzene	b	7,800	400	200,000	400	20,000	58	13	19	34.7	ND				
Xylenes (total)	b	160,000	320	1,000,000	320	410,000	320	150	150	185	ND				

* Illinois EPA Tier 1 Soil Remediation Objectives (ROs) for Residential and Industrial/Commercial Properties; (35 IAC 742, Appendix B, Table A and Appendix B, Table B)

All results in parts per million (mg/Kg) unless noted otherwise

nd = None Detected nro = No Remediation Objective na = Not Analyzed

a = Carcinogenic b = Noncarcinogenic

Results in **Bold/Shaded** indicate concentrations exceeding most stringent Tier 1 ROs

TABLE 1. Soil Analytical Results (BTEx, MTBE)

Client: James Chackalapadavil

Sampling Date: See Below

Site: 427 West Madison, Oak Park

Laboratory: GLA

LUST Incident # 20050027

Matrix: Soil

Chemical Name	Exposure Route-Specific Values*						Soil Component of GW Ingestion Route*		SB102	SB102	SB105	SB105	SB106	SB106	SB107	SB107
	Residential		Industrial/Commercial		Construction Worker		Class I	Class II	4-6'	12-14'	4-6'	12-14'	4-6'	12-14'	6-8'	12-14'
	Ingestion	Inhalation	Ingestion	Inhalation	Ingestion	Inhalation			9/1/05	9/1/05	9/1/05	9/1/05	9/1/05	9/1/05	9/1/05	9/1/05
BTEx																
Benzene	12	0.8	100	1.6	2,300	2.2	0.03	0.17	0.571	0.095	18.7	4.19	19.1	3.80	1.47	1.45
Toluene	16,000	650	410,000	650	410,000	42	12	29	ND	ND	37.8	10.6	16.7	1.57	0.397	1.17
Ethylbenzene	7,800	400	200,000	400	20,000	58	13	19	ND	ND	29.0	9.79	46.9	6.58	10.3	4.35
Xylenes (total)	160,000	320	1,000,000	320	410,000	320	150	150	ND	ND	131.0	22.7	267.0	20.1	26.6	4.28
Methyl tert butyl ether	780	8,800	20,000	8,800	2,000	140	0.32	0.32	0.441	ND	3.24	1.06	8.05	0.998	ND	1.20

* Illinois EPA Tier 1 Soil Remediation Objectives (ROs) for Residential and Industrial/Commercial Properties; (35 IAC 742, Appendix B, Table A and Appendix B, Table B)

All results in parts per million (mg/kg) unless noted otherwise

nd = None Detected nro = No Remediation Objective na = Not Analyzed

a = Carcinogenic b = Noncarcinogenic

Results in **Bold/Shaded** indicate concentrations exceeding most stringent Tier 1 ROs

TABLE 1. Soil Analytical Results (BTEX, MTBE)

Client: James Chackalapadavil

Site: 427 West Madison Avenue, Oak Park

LUST Incident #: 20050027

Sampling Date: See Below

Laboratory: TA

Matrix: Soil

Chemical Name	Exposure Route-Specific Values*						Soil Component of GW Ingestion Route*		SB108	SB108	SB101	SB103	SB103	SB104	SB104	SB104
	Residential		Industrial/Commercial		Construction Worker		Class I	Class II	6-8'	12-14'	4-6'	4-6'	10-12'	4-6'	4-6'	6-8'
	Ingestion	Inhalation	Ingestion	Inhalation	Ingestion	Inhalation			9/1/05	9/1/05	11/1/05	11/1/05	11/1/05	11/1/05	11/1/05	11/1/05
BTEX																
Benzene	a	12	0.8	100	1.6	2,300	2.2	0.03	0.17	11.2	0.206	ND	ND	ND	5.81	12.5
Toluene	b	16,000	650	410,000	650	410,000	42	12	29	0.460	ND	ND	ND	ND	1.77	1.63
Ethylbenzene	b	7,800	400	200,000	400	20,000	58	13	19	59.0	0.463	ND	ND	ND	39.7	3.03
Xylenes (total)	b	160,000	320	1,000,000	320	410,000	320	150	150	53.6	1.24	ND	ND	ND	4.40	0.971
Methyl tert butyl ether		780	8,800	20,000	8,800	2,000	140	0.32	0.32	2.02	ND	ND	ND	ND	0.507	2.25

* Illinois EPA Tier 1 Soil Remediation Objectives (ROs) for Residential and Industrial/Commercial Properties; (35 IAC 742, Appendix B, Table A and Appendix B, Table B)

All results in parts per million (mg/Kg) unless noted otherwise

nd = None Detected nro = No Remediation Objective na = Not Analyzed

a = Carcinogenic b = Noncarcinogenic

Results in **Bold/Shaded** indicate concentrations exceeding most stringent Tier 1 ROs

TABLE 1. Soil Analytical Results (BTEx,MTBE)

Client: James Chackalapadavil

Sampling Date: 3/7/06

Site: 427 West Madison Avenue, Oak Park

Laboratory: TA

LUST Incident #: 20050027

Matrix: Soil

Chemical Name	Exposure Route-Specific Values*						Soil Component of GW Ingestion Route*		SB109	SB109	SB110	SB110	SB111	SB111	SB112	SB112
	Residential		Industrial/Commercial		Construction Worker		Class I	Class II	4-6'	12-14'	6-8'	10-12'	6-8'	12-14'	4-6'	12-14'
	Ingestion	Inhalation	Ingestion	Inhalation	Ingestion	Inhalation										
BTEx																
Benzene	a	12	0.8	100	1.6	2,300	2.2	0.03	0.17	nd	nd	nd	nd	nd	nd	nd
Toluene	b	16,000	650	410,000	650	410,000	42	12	29	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	b	7,800	400	200,000	400	20,000	58	13	19	nd	nd	nd	nd	nd	nd	nd
Xylenes (total)	b	160,000	320	1,000,000	320	410,000	320	150	150	nd	nd	nd	nd	nd	nd	nd
Methyl tert butyl ether		780	8,800	20,000	8,800	2,000	140	0.32	0.32	nd	nd	nd	nd	nd	nd	nd

* Illinois EPA Tier 1 Soil Remediation Objectives (ROs) for Residential and Industrial/Commercial Properties; (35 IAC 742, Appendix B, Table A and Appendix B, Table B)

All results in parts per million (mg/Kg) unless noted otherwise

nd = None Detected nro = No Remediation Objective na = Not Analyzed

a = Carcinogenic b = Noncarcinogenic

Results in Bold/Shaded indicate concentrations exceeding most stringent Tier 1 ROs

TABLE 1. Soil Analytical Results (BTEX, MTBE)

Client: James Chackalapadavil

Sampling Date: 3/7/06

Site: 427 West Madison Avenue, Oak Park

Laboratory: TA

LUST Incident #: 20050027

Matrix: Soil

Chemical Name	Exposure Route-Specific Values*						Soil Component of GW Ingestion Route*		SB113 SB113	
	Residential		Industrial/Commercial		Construction Worker		Class I	Class II	6-8'	12-14'
	Ingestion	Inhalation	Ingestion	Inhalation	Ingestion	Inhalation				
BTEX										
Benzene	a	12	0.8	100	2,300	2.2	0.03	0.17	nd	nd
Toluene	b	16,000	650	410,000	410,000	42	12	29	nd	nd
Ethylbenzene	b	7,800	400	200,000	20,000	58	13	19	nd	nd
Xylenes (total)	b	160,000	320	1,000,000	320	410,000	150	150	nd	0.321
Methyl tert butyl ether		780	8,800	20,000	8,800	2,000	0.32	0.32	nd	nd

* Illinois EPA Tier 1 Soil Remediation Objectives (ROs) for Residential and Industrial/Commercial Properties; (35 IAC 742, Appendix B, Table A and Appendix B, Table B)

All results in parts per million (mg/Kg) unless noted otherwise

nd = None Detected nro = No Remediation Objective na = Not Analyzed

a = Carcinogenic b = Noncarcinogenic

Results in **Bold/Shaded** indicate concentrations exceeding most stringent Tier 1 ROs

TABLE 1. Soil Analytical Results (BTEx,MTBE)

Client: James Chackalapadavil

Sampling Date: 7/6/06

Site: 427 West Madison Avenue, Oak Park

Laboratory: TA

LUST Incident #: 20050027

Matrix: Soil

Chemical Name	Exposure Route-Specific Values*						Soil Component of GW Ingestion Route*		SB114	SB114	SB115	SB115	SB116	SB116	SB117	SB117
	Residential		Industrial/Commercial		Construction Worker		Class I	Class II	2-4'	8-10'	4-6'	10-12'	4-6'	10-12'	4-6'	10-12'
	Ingestion	Inhalation	Ingestion	Inhalation	Ingestion	Inhalation										
BTEx																
Benzene	a	12	0.8	100	1.6	2,300	2.2	0.03	0.17	nd	nd	nd	nd	nd	nd	nd
Toluene	b	16,000	650	410,000	650	410,000	42	12	29	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	b	7,800	400	200,000	400	20,000	58	13	19	nd	nd	nd	nd	nd	nd	nd
Xylenes (total)	b	160,000	320	1,000,000	320	410,000	320	150	150	nd	nd	nd	nd	nd	nd	nd
Methyl tert butyl ether		780	8,800	20,000	8,800	2,000	140	0.32	0.32	nd	nd	nd	nd	nd	nd	nd

* Illinois EPA Tier 1 Soil Remediation Objectives (ROs) for Residential and Industrial/Commercial Properties; (35 IAC 742, Appendix B, Table A and Appendix B, Table B)

All results in parts per million (mg/kg) unless noted otherwise

nd = None Detected nro = No Remediation Objective na = Not Analyzed

a = Carcinogenic b = Noncarcinogenic

Results in **Bold/Shaded** indicate concentrations exceeding most stringent Tier 1 ROs

TABLE 2. Groundwater Analytical Results									
Client: James Chakkalapadavil		Site: 427 West Madison, Oak Park, IL		Sampling Date: 11/11/05					
LUST Incident #: 20050027				Laboratory: TA					
				Matrix: Water					
Chemical Name	GW RO (mg/L)*		MW1	MW2	MW3	MW4			
	Class I	Class II							
BTEX									
Benzene	a	0.005	0.025	ND	ND	0.901	ND		
Toluene	b	1.0	2.5	ND	ND	0.00643	ND		
Ethylbenzene	b	0.7	1.0	ND	ND	0.691	ND		
Xylenes (total)	b	10.0	10.0	ND	ND	0.201	ND		
Methyl tert butyl ether		0.07	0.07	ND	ND	0.00725	0.006		

* Illinois EPA Tier 1 Groundwater Remediation Objectives (ROs) for the Groundwater Component of the Groundwater Ingestion Route; 35 IAC 742, Appendix B, Table E

All results in parts per million (mg/L) unless noted otherwise

nd = None Detected nro = No Remediation Objective na = Not Analyzed

a = Carcinogenic b = Noncarcinogenic

Results in **Bold/Shaded** indicate concentrations exceeding most stringent Tier 1 ROs

SUPPORTING INFORMATION



DRAFT HIGHWAY AUTHORITY AGREEMENT

Village of Oak Park

Site PIN: #16-18-206-014

DRAFT

**TIERED APPROACH TO CORRECTIVE ACTION
RIGHT-OF-WAY AGREEMENT**

This Agreement is entered into this _____ day of _____ 2007 pursuant to the Environmental Protection Act ("Act"), 35 IL Admin. Code Section 742.1020 by and among James Chakkalapadavil ("Owner") and ("Operator"), together referred to herein as "Owner/Operator," and the Village of Oak Park ("City"), as follows:

1. This Agreement is not binding on the Village until it is executed by a duly authorized representative of City, and prior to execution, this Agreement constitutes an offer by Owner/Operator. The duly authorized representatives of Owner and Operator have signed this Agreement, and this Agreement is binding upon them, their successors and assigns.
2. Owner/Operator stipulates:
 - a. Owner/Operator is pursuing corrective action at a Site and in the right-of-way adjacent to the Site located at 427 West Madison Street, Oak Park, Illinois ("Site"). Site is legally described in Attachment A.
 - b. The right-of-way adjacent to the Site, described in Attachment B, is subject to this Agreement and is possibly impacted with contaminants from a release at the Site.
 - c. Attached as Attachment C is a site map showing the known and probable area(s) of contaminant impacted soil and groundwater in the right-of-way where, at the time of this Agreement, contaminants exceed the Tier 1 residential remediation objectives under the Act and 35 Ill. Admin. Code Section 742. Also attached as Attachment D is a table showing the concentration of contaminants in soil and/or groundwater within the area described in Attachment B and showing the applicable Tier 1 soil and groundwater remediation objectives for residential property that are exceeded.
 - d. The corrective action is for a confirmed release of petroleum from an underground storage tank at the Site.
 - e. The Illinois Emergency Management Agency has assigned incident number #20050027 to the Site.

- f. Owner/Operator has requested risk-based, site-specific soil and/or groundwater remediation objectives from the Illinois Environmental Protection Agency (Illinois EPA") under the Act and 35 Ill. Admin. Code Section 742.
 - g. Under 35 Ill. Admin. Code 742.1020, the use of risk-based, site-specific remediation objectives in the right-of-way require this Agreement, in lieu of active remediation of the contaminant-impacted soil and groundwater.
3. The Village stipulates that it holds the right-of-way described in Attachment B in trust for the public and has jurisdiction over the right-of-way.
4. The parties stipulate that:
- a. This Agreement is intended to meet the requirements of the Illinois Pollution Control Board ("Board") regulations for such Agreements.
 - b. This Agreement shall be recorded by the Owner/Operator at its expense along with the Illinois EPA's "No Further Remediation" determination with the Cook County Recorder of Deeds. The Owner/Operator will similarly record any attachments, addendums, or alterations to this Agreement. Within thirty (30) days of such recording with the Cook County Recorder of Deeds, the Owner/Operator shall provide the Village a copy of the Agreement that has been stamped by the Cook County Recorder of Deeds to indicate that it has been recorded with that office.
 - c. This Agreement shall be null and void should the Illinois EPA not approve it, or should it not be recorded along with the Illinois EPA's "No Further Remediation" determination, or should the Village not review and approve the "No Further Remediation" determination for the Site as it applies to the right-of-way identified in Attachment B.
5. The Village agrees that it will prohibit by ordinance the use of groundwater that is contaminated at levels above Tier 1 Residential Remediation Objectives beneath its right-of-way identified in Attachment B as a potable or other domestic supply of water. The Village further agrees that it will limit access to soil as described herein under the right-of-way described in Attachment B that is contaminated from the release at levels above the Tier 1 residential remediation objectives, and by requiring applicants for a public way work permit in the right-of-way described in Attachment B to consult the Village before obtaining a permit.
- a. Where the pavement in the right-of-way is to be considered an engineered barrier, the Owner/Operator agrees to reimburse the Village for maintenance activities requested by Owner/Operator. Except for ordinary maintenance performed on Village roadways, the Village does not agree to maintain the right-of-way, nor does it guarantee that the right-of-way will continue as a roadway or that the right-of-way will always be maintained as an engineered barrier.

- b. This Agreement does not in any way limit the City's authority to construct, reconstruct, repair or maintain and operate a right-of-way upon the property identified in Attachment B or to allow to others to do the same. To that extent, the Village reserves the right to identify, investigate, and remove contaminated soil and/or groundwater above Tier 1 residential remediation objectives from the right-of-way identified in Attachment B and to dispose of them as it deems appropriate in accordance with applicable environmental regulations so as to avoid causing a further release of the contaminants and to protect human health and the environment. The Owner/Operator shall reimburse the actual costs incurred by the Village or others in so identifying, investigating, removing, storing, handling or disposing of contaminated soil and/or groundwater, and it shall not be a defense for Owner/Operator that those costs were not consistent with or required by Board or United States Environmental protection Agency regulations, guidelines or policies. Prior to incurring any such costs, and unless there is an urgent reason otherwise, the Village shall first give Owner/Operator thirty days notice and an opportunity to remove or dispose of contaminated soil and/or groundwater, at Owner/Operator's cost, to the extent necessary for the City's work. Such removal and disposal shall be in accordance with all applicable laws and regulations. Failure to give this opportunity to Owner/Operator shall not be a defense to a claim for reimbursement or that the work should not have been done. There is a rebuttal presumption that the contamination found in the right-of-way described in Attachment B arose from the release of contaminants at the Site. Should Owner/Operator not reimburse the costs identified here, this Agreement shall be null and void in addition to such other remedies as may be available to the Village by law.
6. The Owner/Operator agrees to indemnify and hold harmless the City, its agents and employees, and other entities using the right-of-way by a permit issued by the City, for all obligations asserted against or costs incurred by them associated with the release of contaminants of concern as described in Attachments C and D.
7. Violations of the terms of this Agreement by owner/Operator, or its successor(s) in interest, may be grounds for voidance of this Agreement as a Highway Authority Agreement.
8. No violation of a permit by a third party shall constitute a breach of this Agreement by the City. Owner/Operator also agrees that its personnel, if any, at the Site will exercise due diligence in notifying those accessing contaminated soil in the right-of-way of their rights and responsibilities under this Agreement.
9. Should the Village breach this Agreement, Owner/Operator's sole remedy is for an action for damages in the Circuit Court of Cook County. Any and all claims for damages against the City, its agents, contractors, employees or its successors in interest or others under permit from the Village arising at any time are limited to an aggregate maximum of \$10,000.00. No other breach by the City, its successors in interest or others under permit, of a provision of this Agreement is actionable in either law or equity by Owner/Operator

against the Village or them and Owner/Operator hereby releases the City, its agents, contractors, employees and its successors in interest, or others under permit from the Village for any cause of action it may have against them, other than as allowed in this paragraph, arising under this Agreement or environmental laws, regulations or common law governing the contaminated soil or groundwater in the right-of-way. Should the Village convey, vacate or transfer jurisdiction of that right-of-way, Owner/Operator may pursue an action under this Agreement against the successors in interest, other than the City, or any of this departments, or State agency, in a Court of Law.

10. This Agreement is entered into by the Village in recognition of laws passed by the General Assembly and regulations adopted by the Board, which encourage a tiered-approach to remediating environmental contamination. The Village in the spirit of those laws enters into this Agreement. Should any provision for this Agreement be determined to exceed the authority of the City, however, this Agreement shall be null and void.

11. This Agreement (including attachments, addendums, and amendments) shall run with the land and be binding upon all assigns and successors in interest to the Owner/Operator of the Site.

12. The Village will limit access to the Site and right-of-way as follows:

- a. Normal Access: The Village will limit access to the Site and right-of-way via the Village Code Enforcement Department or its successor agency, by which persons seeking authorization to perform subsurface work in a Village right-of-way will be informed of the nature and extent of the contamination, and will be informed that they should take appropriate steps to ensure the health and safety of people working at the Site and right-of-way.
- b. Emergency Access: The Village Fire Department or their successor agencies will be notified of the contamination at this Site and adjacent right-of-way and will be provided with all available environmental data regarding the Site and adjacent right-of-way. Such information will be provided to utilities in the area.

13. This Agreement shall continue in effect from the date of the Agreement until contaminant concentrations in the soil and groundwater are subsequently reduced through active remediation or through natural attenuation to Tier 1 residential levels as approved by the Illinois EPA and Board regulations, such that the right-of-way identified in Attachment B is demonstrated to be suitable for Tier 1 residential use and there is no longer a need for this Agreement, and the Illinois EPA has, upon written request to the Illinois EPA and notice to the City, amended the "No Further Remediation" determination for the Site to reflect unencumbered future use of that right-of-way.

14. Written notice and other communications relating to this agreement directed to the Village shall be sent to:

DRAFT

Village of Oak Park
Building and Code Enforcement Department
123 Madison Street
Oak Park, Illinois 60302

15. Written notice and other communications relating to this Agreement directed to owner/Operator shall be sent to:

James Chakkalapadavil
772 North Adele
Elmhurst, Illinois 60126

With a copy to:

Environmental Protection Industries
Attn. Michael Musa
16650 South Canal Street
South Holland, Illinois 60473

IN WITNESS WHEREOF, the Village of Oak Park has caused this Agreement to be signed by its duly authorized representative:

By: _____

Date: _____

WHEREOF, Owner/Operator, James Chakkalapadavil, has caused this Agreement to be signed by its duly authorized representative:

By: _____
Mr. James Chakkalapadavil

Date: _____

DRAFT

Attachment A

Legal Description

DRAFT

Attachment B

Area Subject to Highway Authority Agreement

COMMERCIAL

WEST MADISON STREET

AREA SUBJECT TO
HIGHWAY AUTHORITY AGREEMENT

RESIDENTIAL

ELMWOOD AVENUE

CANOPY &
PUMP ISLANDS

NEW PIPES

2,000-GALLON 2,000-GALLON
GASOLINE UST GASOLINE UST

GRASS AND TREES

RESIDENTIAL

ENGINEERED
BARRIER


COMMERCIAL

Alley

STREET

CONVENIENCE
STORE

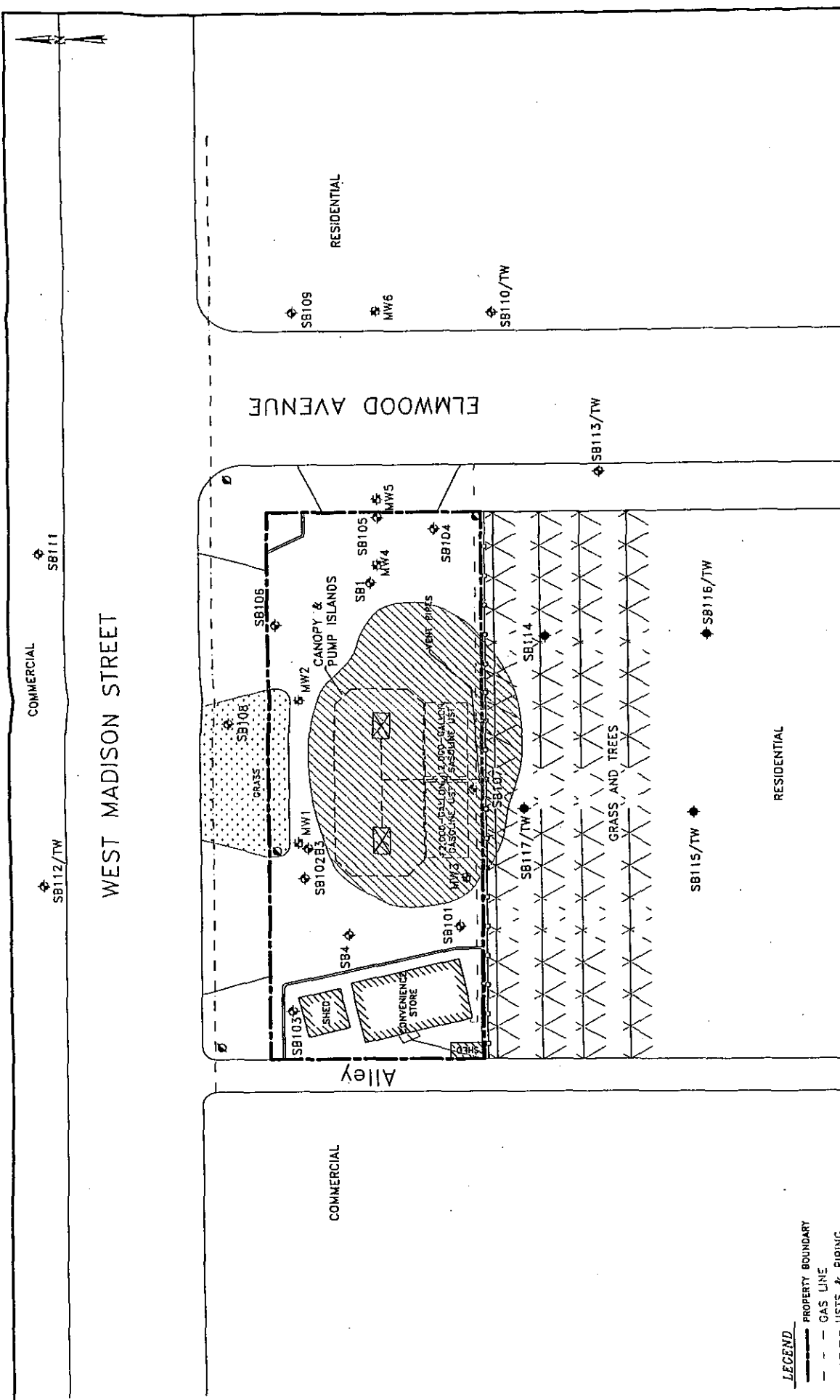
- LEGEND
- PROPERTY BOUNDARY
 - GAS LINE
 - USTS & PIPING
 - WATER LINE
 - FENCE
 - ELECTRIC

		ENVIRONMENTAL PROTECTION INDUSTRIES		JOB Loc. 427 WEST MADISON STREET, OAK PARK, IL	
16650 SOUTH CANAL, SOUTH HOLLAND, IL 60473		TITLE: INSTITUTIONAL CONTROLS		JOB NO. 041293 SITE	
DATE	DESIGN	CAD	CHECKED	APP'D	FIG. #
12/14/06	J.A.	J.A.	A.N.	A.N.	20
					SCALE: 1" = 20'

DRAFT

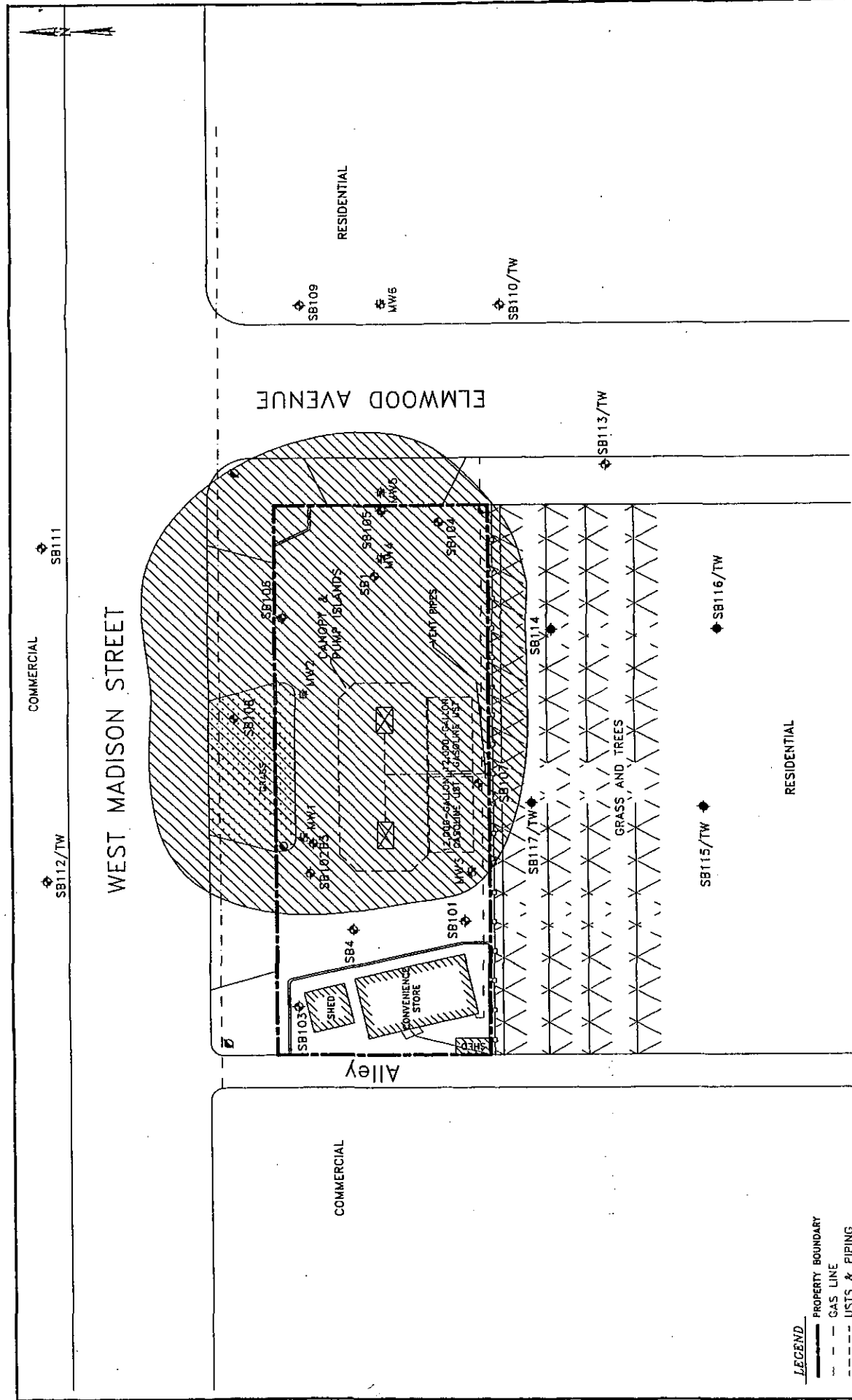
Attachment C

Contamination Map



ENVIRONMENTAL PROTECTION INDUSTRIES		JOB LOC.	427 WEST MADISON STREET, OAK PARK, IL	
18650 SOUTH CANAL, SOUTH HOLLAND, IL 60473	TITLE:	DWG NO.	041283_SIT	JOB NO. 041283
DATE	DESIGN	CAD	CHECKED	APP'D
04/28/06	J.A.	J.A.	A.N.	A.N.
EXTENT OF GROUNDWATER CONTAMINATION		SCALE:	1" = 20'	FIG. 42

- LEGEND**
- PROPERTY BOUNDARY
 - GAS LINE
 - UTS & PIPING
 - WATER LINE
 - FENCE
 - SOIL BORING LOCATION
 - ELECTRIC
 - MONITORING WELLS
 - TEMPORARY WELL



LEGEND

- PROPERTY BOUNDARY
- - - GAS LINE
- - - USTS & PIPING
- - - WATER LINE
- - - FENCE
- ◆ SOIL BORING LOCATION
- ◆ ELECTRIC
- ◆ MONITORING WELLS
- TW TEMPORARY WELL

ENVIRONMENTAL PROTECTION INDUSTRIES		JOB LOC. 427 WEST MADISON STREET, OAK PARK, IL	
16650 SOUTH CANAL, SOUTH HOLLAND, IL 60473		TITLE: EXTENT OF SOIL CONTAMINATION	
DATE	DESIGN	CAD	CHECKED
04/28/06	J.A.	J.A.	A.N.
DWG NO. 041293NOV		JOB NO. 041293	
SCALE: 1" = 20'		FIG. 13	

DRAFT

Attachment D

Analytical Tables

TABLE 1. Soil Analytical Results

Client: James Chakkalapadavil
 Site: 427 West Madison, Oak Park, IL
 LUST Incident #: 20050027
 Sampling Date: 1/7/05
 Laboratory: GLA
 Matrix: Soil

Chemical Name	Exposure Route-Specific Values*						Soil Component of GW Ingestion Route*		SB1	SB4				
	Residential		Industrial/Commercial		Construction Worker		Class I	Class II	17/2005 4-6'	17/2005 6-8'				
	Ingestion	Inhalation	Ingestion	Inhalation	Ingestion	Inhalation								
BTEX	12	0.8	100	1.6	2,300	2.2	0.03	0.17	16.9	ND				
Benzene	a						12	29	55.2	ND				
Toluene	b						13	19	34.7	ND				
Ethylbenzene	b						150	150	185	ND				
Xylenes (total)	b													

* Illinois EPA Tier 1 Soil Remediation Objectives (ROs) for Residential and Industrial/Commercial Properties; (35 IAC 742, Appendix B, Table A and Appendix B, Table B)

All results in parts per million (mg/Kg) unless noted otherwise

nd = None Detected nro = No Remediation Objective na = Not Analyzed

a = Carcinogenic b = Noncarcinogenic

Results in Bold/Shaded indicate concentrations exceeding most stringent Tier 1 ROs

TABLE 1. Soil Analytical Results (BTEX, MTBE)

Client: James Chackalapadavil Sampling Date: See Below

Site: 427 West Madison, Oak Park Laboratory: GLA

LUST Incident # 20050027 Matrix: Soil

Chemical Name	Exposure Route-Specific Values*						Soil Component of GW Ingestion Route*		SB102	SB102	SB105	SB105	SB106	SB106	SB107	SB107
	Residential		Industrial/Commercial		Construction Worker		Class I	Class II	4-6'	12-14'	4-6'	12-14'	4-6'	12-14'	6-8'	12-14'
	Ingestion	Inhalation	Ingestion	Inhalation	Ingestion	Inhalation										
BTEX																
Benzene	12	0.8	100	1.6	2,300	2.2	0.03	0.17	0.57	0.095	18.7	4.19	19.1	3.80	1.47	1.45
Toluene	16,000	650	410,000	650	410,000	42	12	29	ND	ND	37.8	10.6	16.7	1.57	0.397	1.17
Ethylbenzene	7,800	400	200,000	400	20,000	58	13	19	ND	ND	29.0	9.79	46.9	6.58	10.3	4.35
Xylenes (total)	160,000	320	1,000,000	320	410,000	320	150	150	ND	ND	131.0	22.7	267.0	20.1	26.6	4.28
Methyl tert butyl ether	780	8,800	20,000	8,800	2,000	140	0.32	0.32	0.44	ND	3.24	1.06	8.05	0.998	ND	1.20

* Illinois EPA Tier 1 Soil Remediation Objectives (ROs) for Residential and Industrial/Commercial Properties; (35 IAC 742, Appendix B, Table A and Appendix B, Table B)

All results in parts per million (mg/kg) unless noted otherwise

nd = None Detected nro = No Remediation Objective na = Not Analyzed

a = Carcinogenic b = Noncarcinogenic

Results in **Bold/Shaded** indicate concentrations exceeding most stringent Tier 1 ROs

TABLE 1. Soil Analytical Results (BTEx,MTBE)

Client: James Chackalapadavil Sampling Date: See Below

Site: 427 West Madison Avenue, Oak Park Laboratory: TA

LUST Incident #: 20050027 Matrix: Soil

Chemical Name	Exposure Route-Specific Values*										Soil Component of GW Ingestion Route*		SB108	SB108	SB101	SB101	SB103	SB103	SB104	SB104
	Residential		Industrial/Commercial		Construction Worker		Class I	Class II	Ingestion	Inhalation	Ingestion	Inhalation	6-8'	12-14'	4-6'	8-10'	4-6'	10-12'	4-6'	6-8'
	Ingestion	Inhalation	Ingestion	Inhalation	Ingestion	Inhalation														
	BTX	12	0.8	100	1.6	2,300	2.2	0.03	0.17	11.2	0.206	ND	ND	ND	ND	ND	ND	ND	ND	5.81
Benzene	16,000	650	410,000	650	410,000	42	12	29	0.460	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.77	1.63
Toluene	7,800	400	200,000	400	20,000	58	13	19	59.0	0.463	ND	ND	ND	ND	ND	ND	ND	ND	39.7	3.03
Ethylbenzene	160,000	320	1,000,000	320	410,000	320	150	150	53.6	1.24	ND	ND	ND	ND	ND	ND	ND	ND	4.40	0.971
Xylenes (total)	780	8,800	20,000	8,800	2,000	140	0.32	0.32	202	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.507	2.25
Methyl tert butyl ether																				

* Illinois EPA Tier 1 Soil Remediation Objectives (ROs) for Residential and Industrial/Commercial Properties; (35 IAC 742, Appendix B, Table A and Appendix B, Table B)

All results in parts per million (mg/kg) unless noted otherwise

nd = None Detected nro = No Remediation Objective na = Not Analyzed

a = Carcinogenic b = Noncarcinogenic

Results in **Bold/Shaded** indicate concentrations exceeding most stringent Tier 1 ROs

TABLE 1. Soil Analytical Results (BTEX,MTBE)

Client: James Chackalapadavil

Site: 427 West Madison Avenue, Oak Park

LUST Incident #: 20050027

Sampling Date: 3/7/06

Laboratory: TA

Matrix: Soil

Chemical Name	Exposure Route-Specific Values*						Soil Component of GW Ingestion Route*		SB109	SB109	SB110	SB110	SB111	SB111	SB112	SB112
	Residential		Industrial/Commercial		Construction Worker		Class I	Class II	4-6'	12-14'	6-8'	10-12'	6-8'	12-14'	4-6'	12-14'
	Ingestion	Inhalation	Ingestion	Inhalation	Ingestion	Inhalation										
BTEX																
Benzene	a	12	0.8	100	2,300	2.2	0.03	0.17	nd	nd	nd	nd	nd	nd	nd	nd
Toluene	b	16,000	650	410,000	410,000	42	12	29	nd	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	b	7,800	400	200,000	20,000	58	13	19	nd	nd	nd	nd	nd	nd	nd	nd
Xylenes (total)	b	160,000	320	1,000,000	410,000	320	150	150	nd	nd	nd	nd	nd	nd	nd	nd
Methyl tert butyl ether		780	8,800	20,000	2,000	140	0.32	0.32	nd	nd	nd	nd	nd	nd	nd	nd

* Illinois EPA Tier 1 Soil Remediation Objectives (ROs) for Residential and Industrial/Commercial Properties; (35 IAC 742, Appendix B, Table A and Appendix B, Table B)

All results in parts per million (mg/Kg) unless noted otherwise

nd = None Detected nro = No Remediation Objective na = Not Analyzed

a = Carcinogenic b = Noncarcinogenic

Results in Bold/Shaded indicate concentrations exceeding most stringent Tier 1 ROs

TABLE 1. Soil Analytical Results (BTEX, MTBE)

Client: James Chackalapadavil

Sampling Date: 3/7/06

Site: 427 West Madison Avenue, Oak Park

Laboratory: TA

LUST Incident #: 20050027

Matrix: Soil

Chemical Name	Exposure Route-Specific Values*						Soil Component of GW Ingestion Route*		SB113	
	Residential		Industrial/Commercial		Construction Worker		Class I	Class II	6-8'	12-14'
	Ingestion	Inhalation	Ingestion	Inhalation	Ingestion	Inhalation				
BTEX										
Benzene	12	0.8	100	1.6	2,300	2.2	0.03	0.17	nd	nd
Toluene	16,000	650	410,000	650	410,000	42	12	29	nd	nd
Ethylbenzene	7,800	400	200,000	400	20,000	58	13	19	nd	nd
Xylenes (total)	160,000	320	1,000,000	320	410,000	320	150	150	nd	0.321
Methyl tert butyl ether	780	8,800	20,000	8,800	2,000	140	0.32	0.32	nd	nd

* Illinois EPA Tier 1 Soil Remediation Objectives (ROs) for Residential and Industrial/Commercial Properties; (35 IAC 742, Appendix B, Table A and Appendix B, Table B)

All results in parts per million (mg/Kg) unless noted otherwise

nd = None Detected nro = No Remediation Objective na = Not Analyzed

a = Carcinogenic b = Noncarcinogenic

Results in **Bold/Shaded** indicate concentrations exceeding most stringent Tier 1 ROs

TABLE 1. Soil Analytical Results (BTEX,MTBE)

Client: James Chackalapadavil

Sampling Date: 7/6/06

Site: 427 West Madison Avenue, Oak Park

Laboratory: TA

LUST Incident #: 20050027

Matrix: Soil

Chemical Name	Exposure Route-Specific Values*						Soil Component of GW Ingestion Route*		SB114	SB114	SB115	SB115	SB116	SB116	SB117	SB117
	Residential		Industrial/Commercial		Construction Worker		Class I	Class II	2-4'	8-10'	4-6'	10-12'	4-6'	10-12'	4-6'	10-12'
	Ingestion	Inhalation	Ingestion	Inhalation	Ingestion	Inhalation										
BTEX																
Benzene	12	0.8	100	1.6	2,300	2.2	0.03	0.17	nd	nd	nd	nd	nd	nd	nd	nd
Toluene	16,000	650	410,000	650	410,000	42	12	29	nd	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	7,800	400	200,000	400	20,000	58	13	19	nd	nd	nd	nd	nd	nd	nd	nd
Xylenes (total)	160,000	320	1,000,000	320	410,000	320	150	150	nd	nd	nd	nd	nd	nd	nd	nd
Methyl tert butyl ether	780	8,800	20,000	8,800	2,000	140	0.32	0.32	nd	nd	nd	nd	nd	nd	nd	nd

* Illinois EPA Tier 1 Soil Remediation Objectives (ROs) for Residential and Industrial/Commercial Properties; (35 IAC 742, Appendix B, Table A and Appendix B, Table B)

All results in parts per million (mg/Kg) unless noted otherwise

nd = None Detected nro = No Remediation Objective na = Not Analyzed

a = Carcinogenic b = Noncarcinogenic

Results in **Bold/Shaded** indicate concentrations exceeding most stringent Tier 1 ROs

Client: **James Chakkalapadavil**
Site: **427 West Madison, Oak Park, IL**
Sampling Date: **11/11/05**
Laboratory: **TA**
Matrix: **Water**
USET Incident #: **20050027**

[illegible]

Methyl tertiarybutyl ether

All results in parts per million (mg/L) unless noted otherwise

nd = None Detected nro = No Remediation Objective na = Not Analyzed

a = Carcinogenic b = Noncarcinogenic

Results in **Bold/Shaded** indicate concentrations exceeding most stringent Tier 1 ROs

SAMPLE ELUC

SAMPLE ELUC

PREPARED BY:

Name: Environmental Protection Industries
Address: 16650 South Canal Street
South Holland, IL 60473

RETURN TO:

Name: XXXXXXXXXXXXXXXXXXXX
Attn: James Chakkalapadavil/Clark Stanton
Address: 772 North Audle
Elmhurst, IL 60126

THE ABOVE SPACE FOR RECORDER'S OFFICE

Model Environmental Land Use Control

THIS ENVIRONMENTAL LAND USE CONTROL ("ELUC"), is made this ____ day
of _____, 2007, by _____, Property Owner of the real property located at the
common address _____ Property

WHEREAS, 415 ILCS 5/58.17 and 35 Ill. Admin. Code 742 provide for the use of an
ELUC as an institutional control in order to impose land use limitations or requirements related to
environmental contamination so that persons conducting remediation can obtain a No Further
Remediation determination from the Illinois Environmental Protection Agency ("IEPA"). The
reason for an ELUC is to ensure protection of human health and the environment. The limitations
and requirements contained herein are necessary in order to protect against exposure to
contaminated soil and groundwater, or both, that may be present on the property as a result of
retail petroleum facility activities. Under 35 Ill. Admin. Code 742, the use of risk-based, site
specific remediation objectives may require the use of an ELUC on real property, and the ELUC
may apply to certain physical features (e.g., engineering barriers, monitoring wells, caps, etc.).

WHEREAS, James Chakkalapadavil [the party performing remediation] intends to
request risk-based, site specific soil and groundwater remediation objectives from IEPA under 35
Ill. Admin. Code 742 to obtain risk-based closure of the site, identified by Bureau of Land [10-
digit LPC or Identification number] 0312255050, utilizing an ELUC.

NOW, THEREFORE, the recitals set forth above are incorporated by reference as if fully
set forth herein, and the Property Owner agrees as follows:

Section One. Property Owner does hereby establish an ELUC on the real estate, situated
in the County of Cook, State of Illinois and further described in Exhibit A attached
hereto and incorporated herein by reference (the "Property").

Attached as Exhibit B are site maps that show the legal boundary of the Property, any
physical features to which the ELUC applies, the horizontal and vertical extent of the
contaminants of concern above the applicable remediation objectives for soil and groundwater or
both, and the nature, location of the source, and direction of movement of the contaminants of
concern, as required under 35 Ill. Admin. Code 742.

SAMPLE ELUC

Section Two. Property Owner represents and warrants he/she is the current owner of the Property and has the authority to record this ELUC on the chain of title for the Property with the Office of the Recorder or Registrar of Titles in Cook County, Illinois.

Section Three. The Property Owner hereby agrees, for himself/herself, and his/her heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessee, possessor or user of the Property or the holder of any portion thereof or interest therein, that:

- 1) GROUNDWATER UNDER THE PROPERTY SHALL NOT BE USED AS A POTABLE WATER SUPPLY OF WATER.
- 2) ANY CONTAMINATED GROUNDWATER OR SOIL THAT IS REMOVED, EXCAVATED, OR DISTURBED FROM THE PROPERTY DESCRIBED IN EXHIBIT A HEREIN MUST BE HANDLED IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.
- 3) THE AUTO REPAIR SHOP OR THEIR SUCCESSOR(S) WILL RESTRICT ACCESS TO THE SITE, BY WHICH PERSONS SEEKING AUTHORIZATION TO ENTER THE SITE AND PERFORM SUBSURFACE WORK IN THE AREA OF THE CONTAMINATION WILL BE INFORMED OF THE NATURE AND EXTENT OF THE CONTAMINATION, AND WILL BE INFORMED THAT THEY SHOULD TAKE APPROPRIATE STEPS TO ENSURE THE HEALTH AND SAFETY, AS APPLICABLE, OF PEOPLE WORKING AT THE SITE.

Section Four. This ELUC is binding on the Property Owner, his/her heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessee, possessor or user of the Property or the holder of any portion thereof or interest therein. This ELUC shall apply in perpetuity against the Property and shall not be released until the IEPA determines there is no longer a need for this ELUC as an institutional control; until the IEPA, upon written request, issues a new no further remediation determination approving modification or removal of the limitation(s) or requirements(s); and until a release or modification of the land use limitation or requirement is filed on the chain of title for the Property.

Section Five. Information regarding the remediation performed on the Property may be obtained from the IEPA through a request under the Freedom of Information Act (5 ILCS 140) and rules promulgated there under by providing the IEPA with the [10-digit LPC or identification number] listed above.

Section Six. The effective date of this ELUC shall be the date that it is officially recorded in the chain of title for the Property to which the ELUC applies.

WITNESS the following signatures:

Property Owner(s)

By:

Property Owner	James Chakelapadavil/Clark Stanton
(Site Name)	Owner
(Property Address)	772 North Adele
	Elmhurst, IL 60126

Its: _____

Date: _____

SAMPLE ELUC

STATE OF ILLINOIS)
) SS:
COUNTY OF)

I, _____ the undersigned, a Notary Public for said County and State, DO HEREBY CERTIFY, that [Property Address], personally known to me to be the Property Owner(s) of [Property Address], and personally known to me to be the persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that in said capacities they signed and delivered the said instrument as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and official seal, this ____ day of _____, 2006.

Notary Public

STATE _____)
) SS:
COUNTY OF _____)

I, _____, a notary public, do hereby certify that before me this day in person appeared [James Chakkalapadavil (Clark Station)], personally known to me to be the Property Owner(s), of [772 North Adele Elmhurst, IL], each severally acknowledged that they signed and delivered the foregoing instrument as the Property Owner(s) herein set forth, and as their own free and voluntary act, for the uses and purposes herein set forth.

Given under my hand and official seal, this ____ day of _____, 2006.

Notary Public

SAMPLE ELUC

(Parcel Index Number)

Exhibit A

The subject property is located in the City of Oak Park, Cook County, State of Illinois, commonly known as [Property Address], Oak Park, Illinois and more particularly described as:

Address:

[ADDRESS]
Oak Park, Illinois 60454

P.I.N.:

XXXX-XXXX-XXXX-0000

(PURSUANT TO 742.1010(D)(2))

LEGAL DESCRIPTION

[INSERT LEGAL DESCRIPTION]

PIN NO. XXXX-XXXX-XXXX-0000
(Parcel Index Number)

Exhibit B

IN ACCORDANCE WITH SECTION 742.1010(D)(8)(A)-(D):

- (A) Scaled Map showing legal boundary of the property to which the ELUC applies.

Figure 1 - Legal Boundary of ELUC

- (B) Scaled Maps showing the horizontal and vertical extent of contaminants of concern above the applicable remediation objectives for soil and groundwater to which the ELUC applies.

Figure 2 - Estimated Extent of Soil Contamination

Figure 3 - Estimated Extent of Groundwater Contamination

- (C) Scaled Maps showing the physical features to which the ELUC applies.

Figure 1 - Site Map

- (D) Scaled Maps showing the nature, location of the source, and direction of movement of the contaminants of concern.

Figure 4 - Potentiometric Surface Map



OAK PARK GROUNDWATER ORDINANCE

CLERK'S CERTIFICATE

I, Sandra Sokol, Village Clerk of the Village of Oak Park, in the County of Cook and the State of Illinois, do hereby certify that ORDINANCE #2001-0-107 entitled: An Ordinance Prohibiting The Use Of Groundwater As A Potable Water Supply By The Installation Or Use Of Potable Water Supply Wells Or By Any Other Method was adopted by the Village Board of Trustees on December 3, 2001 and approved by the Village President on December 3, 2001. The ORDINANCE is available for public inspection in the Office of the Village Clerk.

IN WITNESS WHEREOF I have set my hand and affixed the seal of said Village of Oak Park this 11th day of December, 2001.

Sandra Sokol
Sandra Sokol
Village Clerk

by: Kathleen M. Cannon
Kathleen M. Cannon
Deputy Village Clerk

(seal)

**AN ORDINANCE PROHIBITING THE USE OF GROUNDWATER AS A
POTABLE WATER SUPPLY BY THE INSTALLATION OR USE OF POTABLE
WATER SUPPLY WELLS OR BY ANY OTHER METHOD**

WHEREAS, various properties throughout the Village of Oak Park, Illinois have been used over a period of time for commercial/industrial purposes or are near properties which have been so used; and

WHEREAS, because of said use, concentrations of certain chemical constituents in the groundwater beneath the Village of Oak Park may exceed Class I groundwater quality standards for potable resource groundwater as set forth in 35 Illinois Administrative Code 620 or Tier 1 residential remediation objectives as set forth in 35 Illinois Administrative Code 742; and

WHEREAS, the Village of Oak Park (hereinafter "the Village") desires to limit potential threats to human health from groundwater contamination while facilitating the redevelopment and productive use of properties that are the source of said chemical constituents;

NOW, THEREFORE, BE IT ORDAINED by the President and Board of Trustees of the Village of Oak Park, County of Cook, State of Illinois as follows:

SECTION ONE: ADOPTION OF FINDINGS.

The findings set forth hereinabove are incorporated herein and are made apart hereof.

**SECTION TWO: USE OF GROUNDWATER AS A POTABLE WATER
SUPPLY PROHIBITED.**

The use or attempt to use as a potable water supply, groundwater from within the corporate limits of the Village of Oak Park, by the installation or drilling of wells or by

any other method is hereby prohibited, including at points of withdrawal by the Village of Oak Park.

SECTION THREE: VILLAGE PROHIBITION.

Except for the provisions contained in Section Four, all restrictions contained in this Ordinance shall be binding upon the Village of Oak Park, Illinois.

SECTION FOUR: PENALTIES.

Any person violating the provisions of this ordinance shall be subject to a fine of up to \$500.00 for each violation.

SECTION FIVE: DEFINITIONS.

"Person" is any individual, partnership, co-partnership, firm, company, limited liability company, corporation, association, joint stock company, trust, estate, political subdivision, or any other legal entity, or their legal representatives, agents, or assigns.

"Potable water" is any water used for human or domestic consumption, including, but not limited to, water used for drinking, bathing, swimming, washing dishes, or preparing foods.

SECTION SIX: REPEALER.

All ordinances or parts of ordinances in conflict with this ordinance are hereby repealed insofar as they are in conflict with this ordinance.

SECTION SEVEN: SEVERABILITY.

If any provision of this ordinance or its application to any person or under any circumstances is adjudged invalid, such adjudication shall not affect the validity of the ordinance as a whole or of any portion not adjudged invalid.

SECTION EIGHT: EFFECTIVE DATE.

THIS ORDINANCE shall be in full force and effect from and after its passage, approval and publication as required by law.

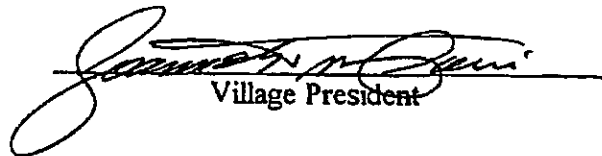
ADOPTED this 3rd day of December, 2001, pursuant to a roll call vote as follows:

AYES: Trustees Carpenter, Ebner, Gockel, Hodge-West, Kostopulos and Turner and President Trapani

NAYS: None

ABSENT: None

APPROVED by me this 3rd day of December, 2001.


Village President

ATTEST:


Village Clerk

BY: 
Deputy Village Clerk

DRAFT PROPERTY OWNER NOTIFICATION LETTER

CERTIFIED MAIL

DRAFT

Month Day, 200X

{Property Owner Name}
{Address}

Re: Property Owner Notification
Clark Gas Station
427 West Madison Street
Oak Park, Illinois
LUST Incident #20050027

Dear Property Owner:

On behalf of BJC Enterprises, Environmental Protection Industries (EPI) is submitting to you a Property Notification Form, as required by the Illinois Environmental Protection Agency (IEPA), to notify you of the potential for off-site migration of groundwater contamination from the property located at 427 West Madison Street, in the Village of Oak Park, Illinois.

The Village of Oak Park has an approved Groundwater Use Restriction Ordinance that prohibits the use of groundwater for potable water within the Village of Oak Park. Under Illinois regulations, local ordinances that effectively prohibit the installation and use of new potable water supply wells may be used to establish groundwater remediation objectives (35 Ill. Administrative Code 742.1015). The IEPA has determined that the ordinance adopted by the Village of Oak Park meets the regulatory requirements. As such, groundwater contamination that does not pose a threat to human health or the environment can be managed in-place with the use of the Groundwater Ordinance.

Sincerely,
Environmental Protection Industries

Cindy Panagiotopoulos
Project Manager

NOTICE

DRAFT

Month Day, 200X

Dear Property Owner:

James Chakkalapadavil/BJC Enterprises is performing an environmental response action at 427 West Madison Street, Oak Park, Illinois. The response action is being performed because of a release of gasoline oil product from underground storage tanks at the property. The response action consists of providing property owners within the estimated limits of the groundwater contamination with this Notification.

To protect human health, Illinois regulations require that Shaukat Sindhu either clean up groundwater contamination or demonstrate that the groundwater in the area of the release will not be used as potable water. ("Groundwater" is the water beneath the ground stored in the pores of soil and rock; some communities and homeowners pump this water out of wells to supply potable water. "A Potable" means fit for human consumption including drinking, bathing, preparing food, washing dishes, and so forth.)

The Village of Oak Park has approved a local ordinance prohibiting the use of groundwater for potable water. Under Illinois regulations, local ordinances that effectively prohibit the installation and use of new potable water supply wells may be used to establish groundwater remediation objectives (35 Illinois Administrative Code 742.1015). The Illinois Environmental Protection Agency ("Illinois EPA") has determined that the ordinance adopted by the Village of Oak Park meets the regulatory requirements. This ordinance has been used by the Illinois EPA in reviewing James Chakkalapadavil/BJC Enterprises request for groundwater remediation objectives as part of this response action.

Your property, XXX XXXX XXXX XXXXX (PIN #1XX-XX-XXX-XXX), is included in the area affected by the ordinance. This means that you cannot install or use private, potable water wells on your property. Based on the remediation objectives established in reliance on this ordinance, groundwater beneath your property may not be suitable for human consumption. Illinois regulations require that you be notified of these facts.

The ordinance may be found at the Village of Oak Park, 123 Madison Street, Oak Park, Illinois. If you wish to obtain a copy of the ordinance, please contact their City Clerk's Office at (708) 383-6400. To learn more about 427 West Madison Street, Oak Park, please contact the Illinois EPA, Bureau of Land Project Manager, Mohammed Rahman at (217) 782-6762. You may also obtain a copy of the complete Illinois EPA file for 427 West Madison Street in Oak Park, Illinois. To do so, you will need to submit a written request with your signature to the Freedom of Information Act (FOIA) Officer, Illinois EPA, Bureau of Land, 1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois, 62794-9276. When requesting a copy of the file, please reference the file heading shown below:

LPC # 0312255050 - Cook County
Oak Park/Chakkalapadavil, James
427 West Madison Street, Oak Park, Illinois
LUST Incident #20050027
LUST Technical File

Sincerely,

Cindy Panagiotopoulos
Project Manager
Environmental Protection Industries



WATER WELL INFORMATION

Tuesday, January 11, 2005

County: COOK

Township: 39N

Range: 13E

Sections: 07,08,17,18

Records Found: 0

Questions: Contact the Illinois State Water Survey's Ground Water Division @ (217)-333-9043

Publication: Please cite the Illinois State Water Survey's PICS (Public-Industrial-Commercial) Database in all publications based wholly or partially on this information.

Note: The data in the PICS Database is a listing of municipal and commercial wells which are known to the Illinois State Water Survey (ISWS). This information was initially entered from public water supply data and supplemented with the Illinois State Water Inventory Project data. This database is updated as additional information is received and verified.

This data cannot be resold or redistributed. The Illinois State Water Survey must be acknowledged in any use of this material.

[illegible]

Location of a 10-acre-plot within a section:

The origin can be found at the lower right-hand-corner of an 8 x 8 grid. In this example, the well is in the 10-acre plot '3d'.

Tuesday, January 11, 2005

County: COOK

Township: 39N

Range: 13E

Sections: 07,08,17,18

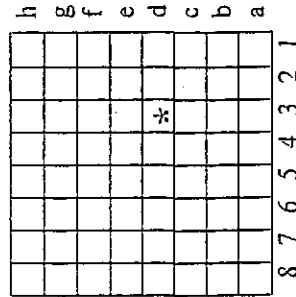
Records Found: 20

Questions: Contact the Illinois State Water Survey's Ground Water Division @ (217)-333-9043

Publication: Please cite the Illinois State Water Survey's Private Well Database in all publications based wholly or partially on this information.

Note: The data in the Private Well Database is a listing of non-municipal wells which are known to the Illinois State Water Survey (ISWS). This information has been entered verbatim from well logs submitted by the driller, chemical analysis reports, well sealing forms, well inventory forms from the 1930-1934 well survey, and other special projects. The accuracy of this data is controlled by those submitting the forms. Information in the Private Well Database has not been verified.

This data cannot be resold or redistributed. The Illinois State Water Survey must be acknowledged in any use of this material.



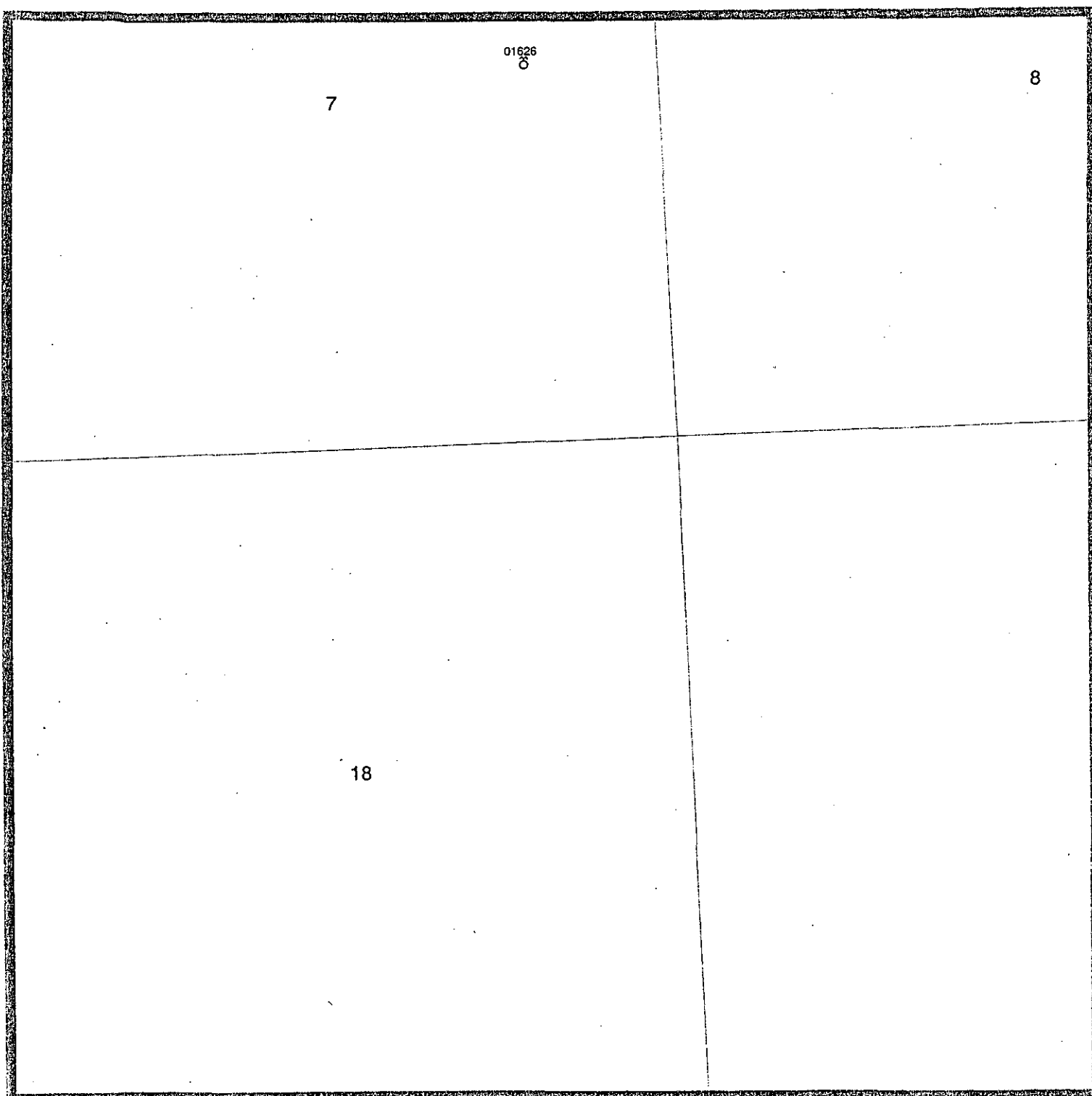
Location of a 10-acre-plot within a section:

The origin can be found at the lower right-hand-corner of an 8 x 8 grid. In this example, the well is in the 10-acre plot '3d'.

WID	FIPS	TWN	RNG	SEC	PLOT	OWNER	DRILLER	DATE	DEPTH	RECORD TYPE	USE	WELL TYPE	AQ TYPE	STAT LVL	PUMP LVL	PUMP GPM
218767	031	39N	13E	07		OAK PARK #9		00/00/1885	2100	OG	CS	--	BR	132		132
rock at 60' well finished in sandstone																
218768	031	39N	13E	07		OAK PARK #10		00/00/1885	1616	OG	CS	--	BR	141		76
218759	031	39N	13E	07		OAK PARK #1		00/00/1885	1568	OG	CS	--	BR			153
well was finished in cambrian sandstone																
218760	031	39N	13E	07		OAK PARK #2		00/00/1885	2140	OG	CS	--	BR	138		15
well was finished in cambrian sandstone																
218761	031	39N	13E	07		OAK PARK #3		00/00/1885	2160	OG	CS	--	BR			51
well was finished in cambrian sandstone																
218762	031	39N	13E	07		OAK PARK #4		00/00/1885	1600	OG	CS	--	BR			
well was finished in cambrian sandstone																
218765	031	39N	13E	07		OAK PARK #7		00/00/1885	2175	OG	CS	--	BR	130		87
well finished in cambrian sandstone																
218766	031	39N	13E	07		OAK PARK #8		00/00/1885	2140	OG	CS	--	BR			71
well finished in cambrian sandstone																
218769	031	39N	13E	07		OAK PARK #11		00/00/1885	1600	OG	CS	--	BR	126		143
60' to rock well 185' to sandstone																
218763	031	39N	13E	07		OAK PARK #5		00/00/1885	1550	OG	CS	--	BR	128		162
well was finished in cambrian sandstone																
218764	031	39N	13E	07	4E	OAK PARK #6		00/00/1885	1525	OG	CS	--	BR	134		152
rock at 60' well finished in sandstone																
33758	031	39N	13E	07	8F	THE FAIR STORE	THORNE	00/00/1937	1623	CO	IC		BR			
33786	031	39N	13E	08	3D	PETERSON ICE CREAM CO	GEIGER	00/00/1905	270	O	IC		BR			
33791	031	39N	13E	17		PUBLIC SERVICE CO OF NO ILL #3	GEIGER	00/00/1908	1705	O	IC		BR			
33789	031	39N	13E	17		PUBLIC SERVICE CO OF NO ILL #1		00/00/0000	78	O	IC					

WID	FIPS	TWN	RNG	SEC	PLOT	OWNER	DRILLER	DATE	DEPTH	RECORD TYPE	USE	WELL TYPE	AQ	STAT	PUMP LVL	PUMP GPM
33790	031	39N	13E	17		PUBLIC SERVICE CO OF NO ILL #2		00/00/1903	142	O	IC					
333575	031	39N	13E	17	6C	COMMONWEALTH EDISON CO.	RD-N-P DRILLING		85	A		DL				
						BARRIE PARK-FORMER MGP SITE:			Sealed: 4/22/03							
						FORMER WELL#1: DEPTH ≈61' FROM										
						CURRENT TOC (TOC=24"										
33792	031	39N	13E	17	6C	PUBLIC SERVICE CO OF NO ILL	GEIGER	09/00/1913	1912	OG	IC				BR	
351167	031	39N	13E	18	8H	VILLAGE OF OAK PARK	MACK R. CLARK		11	A		DL				
									Sealed: 6/18/02							
351168	031	39N	13E	18	8H	VILLAGE OF OAK PARK	MACK R. CLARK		10	A		DL				
									Sealed: 6/18/02							

Map Area: 39N-13E-18 m3 to 39N-13E-8 m3



Explanation		
• Oil	☀ Gas Injection	⊗ Junked
☀ Oil & Gas	⊕ Gas Storage	⊙ Temporarily Abandoned
☀ Gas	⊗ Salt Water Disposal	⊗ Observation
⊙ D&A - Oil Show	⊗ Water Injection	⊗ Other Injection
⊙ D&A - Gas Show	⊗ Water Supply	□ Confidential
⊙ D&A - Oil & Gas Show	○ Permit	⊗ Other Well Type
⊙ D&A	⊙ Water	+ Status Unknown

through any symbol indicates well is currently plugged



0 1102 2204 ft

Illinois State Geological Survey

QuEStoR: Custom Map

Date: 12-JAN-05 Scale: 1:13224

Displayed data is based upon information supplied to the Illinois State Geological Survey (ISGS) and are not field verified. The ISGS does not guarantee the validity, accuracy or completeness of these data.

12-JAN-05

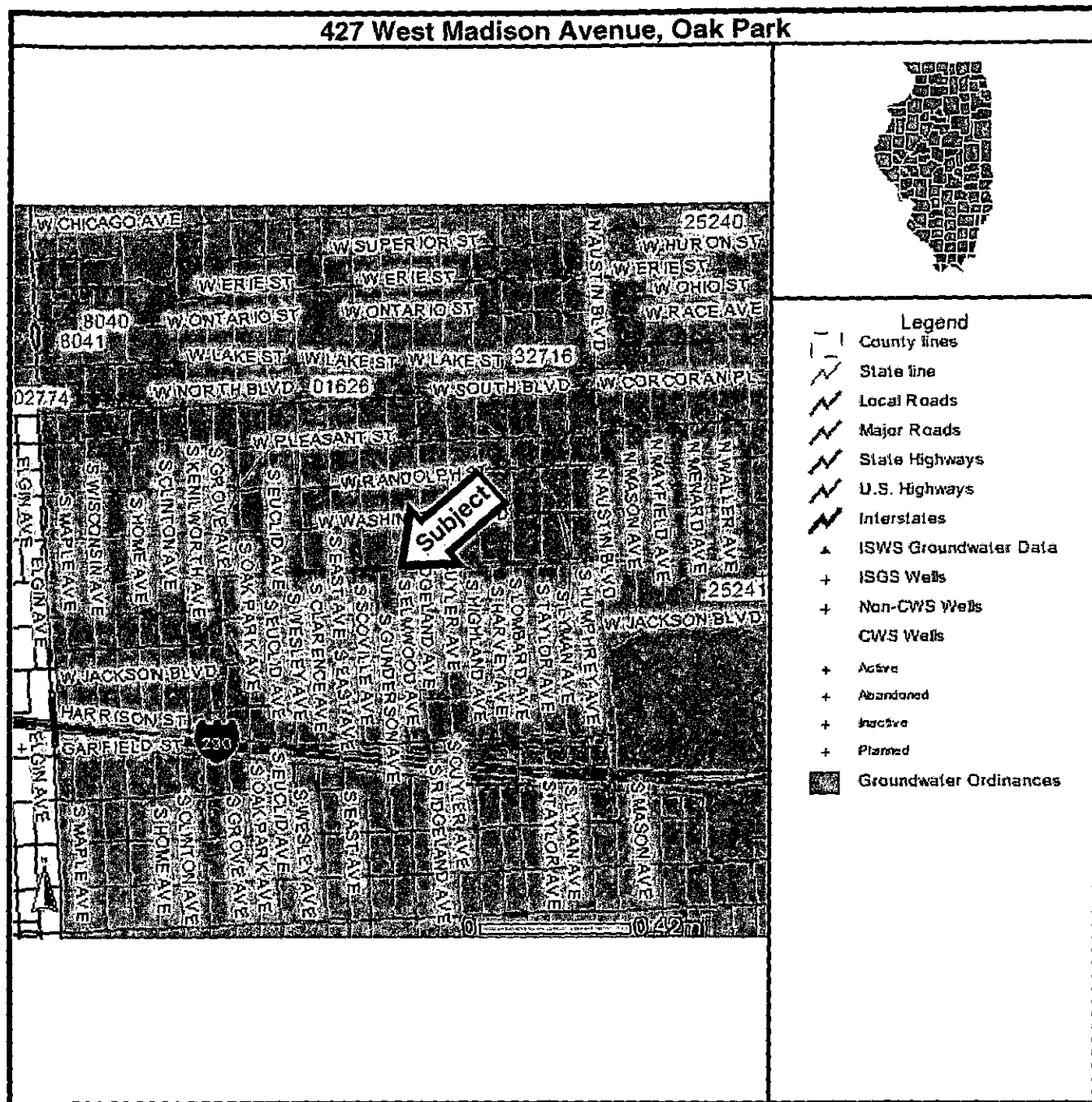
QuESToR Data Extraction

DB: oradb

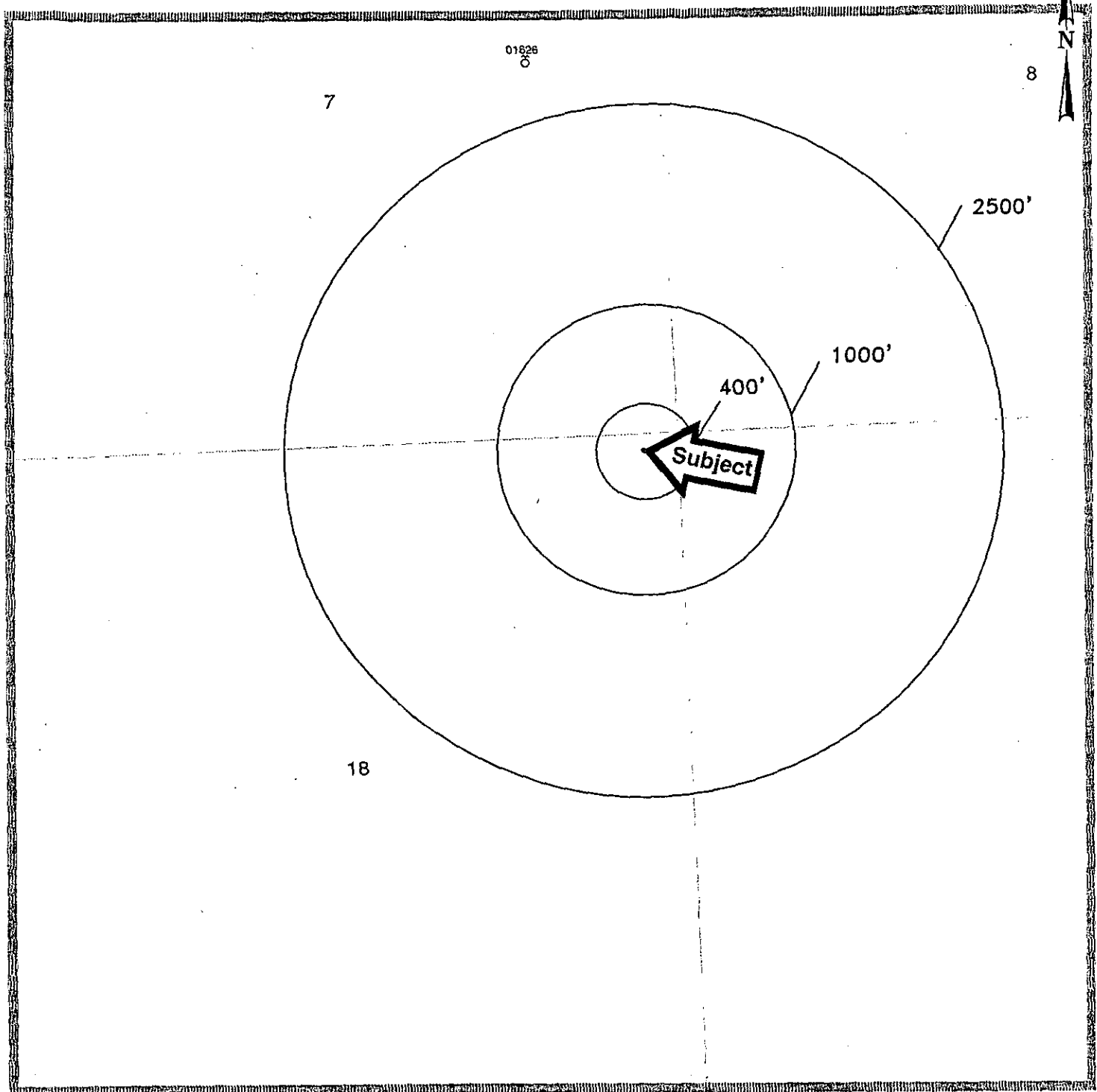
Non Oil and Gas - Wells

120310162600	Chicago Sub. Water	7-39N-13E
Cook	Oak Park Village	6
Status: WATER	SW SE NE	Elev: 623GL
permit: 0	permit date:	comp. date: 01/01/08
Lambert X: 3464029	Lambert Y: 3227477	td: 1616
producing formation:	td formation:	
latitude: 41.888026	longitude: 87.788372	

Information and data presented were obtained from various Federal, State, and local agencies and are subject to revision.



Map Area: 39N-13E-18 m3 to 39N-13E-8 m3



Explanation

● Oil	☼ Gas Injection	☒ Junked
☼ Oil & Gas	⊗ Gas Storage	⊙ Temporarily Abandoned
☼ Gas	⊗ Salt Water Disposal	☒ Observation
☼ D&A - Oil Show	☒ Water Injection	☒ Other Injection
☼ D&A - Gas Show	⊗ Water Supply	☐ Confidential
☼ D&A - Oil & Gas Show	○ Permit	☒ Other Well Type
☼ D&A	☒ Water	+ Status Unknown

through any symbol indicates well is currently plugged



0 1102 2204 ft

Illinois State Geological Survey

QuEStoR: Custom Map

Date: 12-JAN-05 Scale: 1:13224

Displayed data is based upon information supplied to the Illinois State Geological Survey (ISGS) and are not field verified. The ISGS does not guarantee the validity, accuracy or completeness of these data.

EPI ENVIRONMENTAL PROTECTION INDUSTRIES
16650 SOUTH CANAL, SOUTH HOLLAND, IL 60473

JOB LOC. 427 WEST MADISON STREET, OAK PARK, IL

TITLE: ISGS WELL LOCATION MAP

DATE	DESIGNED	CAD	CHECKED	APP'D	DWG NO.	JOB NO.	SCALE	FIG.
02/24/05	C.P.	C.P.	R.M.	R.M.	041293	041293	AS SHOWN	4



S17/R26 MODELING RESULTS

Equation S17 Calculation

Site: Clark
Site Location: 427 West Madison, Oak Park, IL
LUST Incident: 20050027
Contaminant: Benzene
Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	5.810	mg/kg	(Soil Sample SB104 (4-6'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	58.900	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.118	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, p_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, p_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	16.812	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.8406	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site:	<u>Clark</u>
Site Location:	<u>427 West Madison, Oak Park, IL</u>
LUST Incident:	<u>20050027</u>
Contaminant:	<u>Benzene</u>
Soil Type:	<u>Silt Clay</u>

Calculations:

Tier 1 Soil Remediation Objectives	0.206	mg/kg	(Soil Sample SB108 (12-14'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	58.900	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.118	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	0.596	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.0298	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site:	Clark
Site Location:	427 West Madison, Oak Park, IL
LUST Incident:	20050027
Contaminant:	Benzene
Soil Type:	Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	11.200	mg/kg	(Soil Sample SB108 (6-8'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	58.900	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.118	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, p_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, p_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	32.409	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	1.6204	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site:	Clark
Site Location:	427 West Madison, Oak Park, IL
LUST Incident:	20050027
Contaminant:	Benzene
Soil Type:	Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	12.500	mg/kg	(Soil Sample SB104 (6-8'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	58.900	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.118	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	36.170	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	1.8085	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site: Clark
Site Location: 427 West Madison, Oak Park, IL
LUST Incident: 20050027
Contaminant: Benzene
Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	0.571	mg/kg	(Soil Sample SB102 (4-6'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	58.900	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.118	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	1.652	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.0826	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site:	Clark
Site Location:	427 West Madison, Oak Park, IL
LUST Incident:	20050027
Contaminant:	Benzene
Soil Type:	Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	0.095	mg/kg	(Soil Sample SB102 (12-14'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	58.900	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.118	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, p_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, p_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	0.275	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.0137	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site: Clark
Site Location: 427 West Madison, Oak Park, IL
LUST Incident: 20050027
Contaminant: Benzene
Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	18.700	mg/kg	(Soil Sample SB105 (4-6'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	58.900	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.118	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	54.111	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	2.7055	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site: Clark
Site Location: 427 West Madison, Oak Park, IL
LUST Incident: 20050027
Contaminant: Benzene
Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	4.190	mg/kg	(Soil Sample SB105 (12-14'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	58.900	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.118	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	12.124	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.6062	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site:	Clark
Site Location:	427 West Madison, Oak Park, IL
LUST Incident:	20050027
Contaminant:	Benzene
Soil Type:	Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	19.100	mg/kg	(Soil Sample SB106 (4-6'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	58.900	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.118	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	55.268	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	2.7634	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site:	<u>Clark</u>
Site Location:	<u>427 West Madison, Oak Park, IL</u>
LUST Incident:	<u>20050027</u>
Contaminant:	<u>Benzene</u>
Soil Type:	<u>Silt Clay</u>

Calculations:

Tier 1 Soil Remediation Objectives	3.800	mg/kg	(Soil Sample SB106 (12-14'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	58.900	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.118	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	10.996	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.5498	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site: Clark
Site Location: 427 West Madison, Oak Park, IL
LUST Incident: 20050027
Contaminant: Benzene
Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	1.470	mg/kg	(Soil Sample SB107 (6-8'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	58.900	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.118	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	4.254	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.2127	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site:	Clark
Site Location:	427 West Madison, Oak Park, IL
LUST Incident:	20050027
Contaminant:	Benzene
Soil Type:	Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	1.450	mg/kg	(Soil Sample SB107 (12-14'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	58.900	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.118	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	4.196	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.2098	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site:	<u>Clark</u>
Site Location:	<u>427 West Madison, Oak Park, IL</u>
LUST Incident:	<u>20050027</u>
Contaminant:	<u>Benzene</u>
Soil Type:	<u>Silt Clay</u>

Calculations:

Tier 1 Soil Remediation Objectives	16.900	mg/kg	(Soil Sample SB1)
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	58.900	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.118	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	48.902	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	2.4451	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site: Clark
 Site Location: 427 West Madison, Oak Park, IL
 LUST Incident: 20050027
 Contaminant: Toluene
 Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	16.900	mg/kg	(SB1, Soil Component to Groundwater)
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	182.000	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.364	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	28.558	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	1.4	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site: Clark
 Site Location: 427 West Madison, Oak Park, IL
 LUST Incident: 20050027
 Contaminant: Toluene
 Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	37.800	mg/kg	(SB105 (4-6'), Soil Component to Ground)
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	182.000	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.364	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	63.874	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	3.2	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site:	<u>Clark</u>
Site Location:	<u>427 West Madison, Oak Park, IL</u>
LUST Incident:	<u>20050027</u>
Contaminant:	<u>Toluene</u>
Soil Type:	<u>Silt Clay</u>

Calculations:

Tier 1 Soil Remediation Objectives	16.700	mg/kg	(SB106 (4-6'), Soil Component to Ground)
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	182.000	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.364	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	28.220	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	1.4	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site:	<u>Clark</u>
Site Location:	<u>427 West Madison, Oak Park, IL</u>
LUST Incident:	<u>20050027</u>
Contaminant:	<u>Ethylbenzene</u>
Soil Type:	<u>Silt Clay</u>

Calculations:

Tier 1 Soil Remediation Objectives	39.700	mg/kg	(Soil Sample SB104 (4-6'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	363	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.726	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.323	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	41.489	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	2.1	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site:	<u>Clark</u>
Site Location:	<u>427 West Madison, Oak Park, IL</u>
LUST Incident:	<u>20050027</u>
Contaminant:	<u>Ethylbenzene</u>
Soil Type:	<u>Silt Clay</u>

Calculations:

Tier 1 Soil Remediation Objectives	34.700	mg/kg	(Soil Sample SB1)
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	363	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.726	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.323	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	36.264	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	1.8	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site:	<u>Clark</u>
Site Location:	<u>427 West Madison, Oak Park, IL</u>
LUST Incident:	<u>20050027</u>
Contaminant:	<u>Ethylbenzene</u>
Soil Type:	<u>Silt Clay</u>

Calculations:

Tier 1 Soil Remediation Objectives	29.000	mg/kg	(Soil Sample SB105 (4-6"))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	363	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.726	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.323	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	30.307	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	1.5	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site: Clark
Site Location: 427 West Madison, Oak Park, IL
LUST Incident: 20050027
Contaminant: Ethylbenzene
Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	46.900	mg/kg	(Soil Sample SB106 (4-6'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	363	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.726	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.323	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	49.013	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	2.5	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site: Clark
Site Location: 427 West Madison, Oak Park, IL
LUST Incident: 20050027
Contaminant: Ethylbenzene
Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	59.000	mg/kg	(Soil Sample SB108 (6-8'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	363	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.726	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.323	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	61.659	mg/L	(Calculated, Equation S17)
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Groundwater Remediation Objectives (Class I)	3.1	mg/L	(Calculated, Equation S18)

Equation S17 Calculation

Site:	Clark
Site Location:	427 West Madison, Oak Park, IL
LUST Incident:	20050027
Contaminant:	Xylene (total)
Soil Type:	Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	267.00	mg/kg	(SB106 (4-6'), Soil Component to Groundw
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	260.00	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.520	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	357.054	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	17.9	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site:	<u>Clark</u>
Site Location:	<u>427 West Madison, Oak Park, IL</u>
LUST Incident:	<u>20050027</u>
Contaminant:	<u>Xylene (total)</u>
Soil Type:	<u>Silt Clay</u>

Calculations:

Tier 1 Soil Remediation Objectives	185.00	mg/kg	(SB1, Soil Component to Groundwater)
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	260.00	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.520	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.228	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	247.397	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	12.4	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site: Clark
 Site Location: 427 West Madison, Oak Park, IL
 LUST Incident: 20050027
 Contaminant: Methyl tert butyl ether (MTBE)
 Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	1.200	mg/kg	(Soil Sample SB107 (12-14'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	11.5	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.023	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.0241	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	4.915	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.25	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site:	<u>Clark</u>
Site Location:	<u>427 West Madison, Oak Park, IL</u>
LUST Incident:	<u>20050027</u>
Contaminant:	<u>Methyl tert butyl ether (MTBE)</u>
Soil Type:	<u>Silt Clay</u>

Calculations:

Tier 1 Soil Remediation Objectives	0.998	mg/kg	(Soil Sample SB106 (12-14'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	11.5	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.023	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.0241	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	4.088	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.20	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site: Clark
 Site Location: 427 West Madison, Oak Park, IL
 LUST Incident: 20050027
 Contaminant: Methyl tert butyl ether (MTBE)
 Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	8.050	mg/kg	(Soil Sample SB106 (4-6"))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	11.5	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.023	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.0241	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	32.972	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	1.65	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site: Clark
 Site Location: 427 West Madison, Oak Park, IL
 LUST Incident: 20050027
 Contaminant: Methyl tert butyl ether (MTBE)
 Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	1.060	mg/kg	(Soil Sample SB105 (12-14'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	11.5	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.023	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.0241	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	4.342	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.22	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site: Clark
 Site Location: 427 West Madison, Oak Park, IL
 LUST Incident: 20050027
 Contaminant: Methyl tert butyl ether (MTBE)
 Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	3.240	mg/kg	(Soil Sample SB105 (4-6"))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	11.5	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.023	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.0241	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	13.271	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.66	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site: Clark
 Site Location: 427 West Madison, Oak Park, IL
 LUST Incident: 20050027
 Contaminant: Methyl tert butyl ether (MTBE)
 Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	0.441	mg/kg	(Soil Sample SB102 (4-6'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	11.5	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.023	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.0241	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	1.806	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.09	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site: Clark
 Site Location: 427 West Madison, Oak Park, IL
 LUST Incident: 20050027
 Contaminant: Methyl tert butyl ether (MTBE)
 Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	2.250	mg/kg	(Soil Sample SB104 (6-8'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	11.5	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.023	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.0241	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	9.216	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.46	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site:	<u>Clark</u>
Site Location:	<u>427 West Madison, Oak Park, IL</u>
LUST Incident:	<u>20050027</u>
Contaminant:	<u>Methyl tert butyl ether (MTBE)</u>
Soil Type:	<u>Silt Clay</u>

Calculations:

Tier 1 Soil Remediation Objectives	0.507	mg/kg	(Soil Sample SB104 (4-6"))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	11.5	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.023	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.0241	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	2.077	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.10	mg/L	(Calculated, Equation S18)
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Equation S17 Calculation

Site: Clark
 Site Location: 427 West Madison, Oak Park, IL
 LUST Incident: 20050027
 Contaminant: Methyl tert butyl ether (MTBE)
 Soil Type: Silt Clay

Calculations:

Tier 1 Soil Remediation Objectives	2.020	mg/kg	(Soil Sample SB108 (6-8'))
Infiltration Rate, I	0.300	m/year	(Default)
Dilution Factor, DF	20	unitless	(Default)
Organic Carbon Partition Coefficient, K_{oc}	11.5	L/Kg	(Table E, Appendix C)
Organic Carbon Content of Soil, f_{oc}	0.002	g/g	(Default)
Soil-Water Partition Coefficient, K_d	0.023	L/Kg	(Calculated, Equation S19)
Dry Soil Bulk Density, ρ_b	1.700	g/cm ³	(Table B, Appendix C)
Soil Particle Density, ρ_s	2.650	g/cm ³	(Default)
Total Soil Porosity, n	0.430	unitless	(Default)
Saturated Hydraulic Conductivity, K_s	8	m/year	(Table K, Appendix C)
Exponential in Equation 20, $1/(2b+3)$	0.042	unitless	(Table K, Appendix C)
Water-filled Soil Porosity	0.375	L/L	(Calculated, Equation S20)
Air-filled Soil Porosity	0.055	L/L	(Calculated, Equation S21)
Henry's Law Constant, H'	0.0241	unitless	(Table E, Appendix C)
Target Soil Leachate Concentration, C_w	8.274	mg/L	(Calculated, Equation S17)

Groundwater Remediation Objectives (Class I)	0.41	mg/L	(Calculated, Equation S18)
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DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR BENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB1, Benzene
LUST Incident No:	20050027

Soil Contamination Concentration (SSL) 4.400
 Concentration at the source (Cs)= 2.445 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.005 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.005

Distance along centerline of the plume coming from the source (X)= 61.05 ft = 1860.9 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0009 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	186.08753 cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	62.0291766 cm	(Calculated, Equation R17)
Vertical dispersivity Az=	9.3043765 cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186 cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	1.12142009	
Sd/(2*SQRT(Az*X)) C=	0.81073838	
Error function erf(B)=	0.88724424	To determine error function values,
Error function erf(C)=	0.74843522	see F46 & K46 in the linear interpolation section.

Actual B value= 1.12142009 Actual C value= 0.8107384

Automatic calculations : Actual erf(B) 0.88724424 Actual erf(C)= 0.7484352

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR ETHYLBENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB1, Ethylbenzene
LUST Incident No:	20050027

Concentration at the source (Cs)= g/cm³ or mg/L (Calculated from S (Field Measurement))

Concentration at a distance X (Cx)= g/cm³ or mg/L Tier 1 RO for Class I GW :

Distance along centerline of the plume coming from the source (X)= ft = cm (Projected Plume Distance)

First order degradation constant (lambda)= 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= cm/sec = cm/day (Field Measurement)

Hydraulic gradient (i)= cm/cm (Field Measurement)

Total soil porosity (theta T)= cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= ft = cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= ft = cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	<input type="text" value="6.2652953"/> cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	<input type="text" value="2.0884318"/> cm	(Calculated, Equation R17)
Vertical dispersivity Az=	<input type="text" value="0.3132648"/> cm	(Calculated, Equation R18)
Specific discharge U=	<input type="text" value="0.1818419"/> cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	<input type="text" value="33.307655"/>	
Sd/(2*SQRT(Az*X)) C=	<input type="text" value="24.079999"/>	
Error function erf(B)=	<input type="text" value="1"/>	To determine error function values,
Error function erf(C)=	<input type="text" value="1"/>	see F46 & K46 in the linear interpolation section.

Actual B value= Actual C value=

Automatic calculations : Actual erf(B) Actual erf(C)=

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR TOLUENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB1, Toluene
LUST Incident No:	20050027

Concentration at the source (Cs)= 1.4 g/cm³ or mg/L (Calculated from S (Field Measurement))

Concentration at a distance X (Cx)= 1.0 g/cm³ or mg/L Tier 1 RO for Class I GW : 1.0

Distance along centerline of the plume coming from the source (X)= 0.19 ft = 5.7507 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0110 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	0.57506596	cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	0.19168865	cm	(Calculated, Equation R17)
Vertical dispersivity Az=	0.0287533	cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186	cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	362.884102		
Sd/(2*SQRT(Az*X)) C=	262.349563		
Error function erf(B)=	1	To determine error function values,	
Error function erf(C)=	1	see F46 & K46 in the linear interpolation section.	

Actual B value=	362.884102	Actual C value=	262.34956
Automatic calculations : Actual erf(B)	1	Actual erf(C)=	1

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR XYLENES

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, IL
	SB1, Xylenes
LUST Incident No:	20050027

Concentration at the source (Cs)= 12.4 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 10.0 g/cm³ or mg/L Tier 1 RO for Class I GW : 10.0

Distance along centerline of the plume coming from the source (X)= 1.07 ft = 32.501 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0019 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0773 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	3.25006334	cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	1.08335445	cm	(Calculated, Equation R17)
Vertical dispersivity Az=	0.16250317	cm	(Calculated, Equation R18)
Specific discharge U=	0.28112752	cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	64.2086854		
Sd/(2*SQRT(Az*X)) C=	46.4201116		
Error function erf(B)=	1	To determine error function values,	
Error function erf(C)=	1	see F46 & K46 in the linear interpolation section.	

Actual B value=	64.2086854	Actual C value=	46.420112
Automatic calculations : Actual erf(B)	1	Actual erf(C)=	1

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR BENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB102 (4-6'), Benzene
LUST Incident No:	20050027

Soil Contamination Concentration (SSL) 0.571
 Concentration at the source (Cs)= 0.090 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.005 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.005

Distance along centerline of the plume coming from the source (X)= 24.00 ft = 731.55 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0009 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	73.154604 cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	24.384868 cm	(Calculated, Equation R17)
Vertical dispersivity Az=	3.6577302 cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186 cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	2.85262011	
Sd/(2*SQRT(Az*X)) C=	2.06232137	
Error function erf(B)=	0.99994519	To determine error function values,
Error function erf(C)=	0.99646075	see F46 & K46 in the linear interpolation section.

Actual B value= 2.85262011 Actual C value= 2.0623214

Automatic calculations : Actual erf(B) 0.99994519 Actual erf(C)= 0.9964608

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR BENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark 427 West Madison, Oak Park, Illinois SB102 (12-14'), Benzene
LUST Incident No:	20050027

Soil Contamination Concentration (SSL) 0.095
 Concentration at the source (Cs)= 0.014 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.005 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.005

Distance along centerline of the plume coming from the source (X)= 7.58 ft = 231.09 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0009 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	23.1088869	cm (Calculated, Equation R16)
Transverse dispersivity Ay=	7.70296231	cm (Calculated, Equation R17)
Vertical dispersivity Az=	1.15544435	cm (Calculated, Equation R18)
Specific discharge U=	0.18184186	cm/day (Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	9.03039143	
Sd/(2*SQRT(Az*X)) C=	6.52858371	
Error function erf(B)=	1	To determine error function values,
Error function erf(C)=	1	see F46 & K46 in the linear interpolation section.

Actual B value=	9.03039143	Actual C value=	6.5285837
Automatic calculations : Actual erf(B)	1	Actual erf(C)=	1

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR MTBE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB102 (4-6'), MTBE
LUST Incident No:	20050027

Soil Contamination Concentration (SSL) Concentration at the source (Cs)=	0.09 g/cm ³ or mg/L	(Field Measurement)
Concentration at a distance X (Cx)=	0.07 g/cm ³ or mg/L	Tier 1 RO for Class I GW : 0.07
Distance along centerline of the plume coming from the source (X)=	49.12 ft = 1497.3 cm	(Projected Plume Distance)
First order degradation constant (lambda)=	0.0000 1/day	
Aquifer hydraulic conductivity (K)=	1.81E-05 cm/sec = 1.56384 cm/day	(Field Measurement)
Hydraulic gradient (i)=	0.0500 cm/cm	(Field Measurement)
Total soil porosity (theta T)=	0.43 cm ³ /cm ³	(Default)
Source width perpendicular to GW flow direction in horizontal plane (Sw)=	50.00 ft = 1524 cm	(Field Measurement)
Source width perpendicular to GW flow direction in vertical plane (Sd)=	6.56 ft = 199.998 cm	

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	149.727442 cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	49.9091473 cm	(Calculated, Equation R17)
Vertical dispersivity Az=	7.4863721 cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186 cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	1.39374781	
Sd/(2*SQRT(Az*X)) C=	0.94451381	
Error function erf(B)=	0.95128279	To determine error function values,
Error function erf(C)=	0.81836699	see F46 & K46 in the linear interpolation section.

Actual B value=	1.39374781	Actual C value=	0.9445138
Automatic calculations : Actual erf(B)	0.95128279	Actual erf(C)=	0.818367

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR BENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB104 (4-6'), Benzene
LUST Incident No:	20050255

Soil Contamination Concentration (SSL) 5.810
 Concentration at the source (Cs)= 0.841 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.005 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.005

Distance along centerline of the
 plume coming from the source (X)= 48.15 ft = 1467.5 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0009 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW
 flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW
 flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	146.750413 cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	48.9168045 cm	(Calculated, Equation R17)
Vertical dispersivity Az=	7.33752067 cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186 cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	1.42202185	
Sd/(2*SQRT(Az*X)) C=	1.0280605	
Error function erf(B)=	0.95567918	To determine error function values,
Error function erf(C)=	0.85402508	see F46 & K46 in the linear interpolation section.

Actual B value=	1.42202185	Actual C value=	1.0280605
Automatic calculations : Actual erf(B)	0.95567918	Actual erf(C)=	0.8540251

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR BENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB104 (6-8'), Benzene
LUST Incident No:	20050027

Soil Contamination Concentration (SSL)
Concentration at the source (Cs)= 12.500
1.809 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.005 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.005

Distance along centerline of the
plume coming from the source (X)= 56.37 ft = 1718.1 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0009 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW
flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW
flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	171.809196 cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	57.269732 cm	(Calculated, Equation R17)
Vertical dispersivity Az=	8.59045979 cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186 cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	1.21461656	
Sd/(2*SQRT(Az*X)) C=	0.87811541	
Error function erf(B)=	0.91415368	To determine error function values,
Error function erf(C)=	0.78570527	see F46 & K46 in the linear interpolation section.

Actual B value=	1.21461656	Actual C value=	0.8781154
Automatic calculations : Actual erf(B)	0.91415368	Actual erf(C)=	0.7857053

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR ETHYLBENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB104(4-6'), Ethylbenzene
LUST Incident No:	20050027

Concentration at the source (Cs)= g/cm³ or mg/L (Calculated from S (Field Measurement))

Concentration at a distance X (Cx)= g/cm³ or mg/L Tier 1 RO for Class I GW :

Distance along centerline of the plume coming from the source (X)= ft = cm (Projected Plume Distance)

First order degradation constant (lambda)= 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= cm/sec = cm/day (Field Measurement)

Hydraulic gradient (i)= cm/cm (Field Measurement)

Total soil porosity (theta T)= cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= ft = cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= ft = cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	<input type="text" value="7.3878616"/> cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	<input type="text" value="2.4626205"/> cm	(Calculated, Equation R17)
Vertical dispersivity Az=	<input type="text" value="0.3693931"/> cm	(Calculated, Equation R18)
Specific discharge U=	<input type="text" value="0.1818419"/> cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	<input type="text" value="28.246644"/>	
Sd/(2*SQRT(Az*X)) C=	<input type="text" value="20.421106"/>	
Error function erf(B)=	<input type="text" value="1"/>	To determine error function values,
Error function erf(C)=	<input type="text" value="1"/>	see F46 & K46 in the linear interpolation section.

Actual B value= Actual C value=

Automatic calculations : Actual erf(B) Actual erf(C)=

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR MTBE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB104 (4-6'), MTBE
LUST Incident No:	20050027

Soil Contamination Concentration (SSL)
 Concentration at the source (Cs)= 0.1 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.07 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.07

Distance along centerline of the
 plume coming from the source (X)= 55.55 ft = 1693.2 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0000 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.56384 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW
 flow direction in horizontal plane (Sw)= 50.00 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW
 flow direction in vertical plane (Sd)= 6.56 ft = 199.998 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	169.322809	cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	56.4409363	cm	(Calculated, Equation R17)
Vertical dispersivity Az=	8.46614044	cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186	cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	1.23245235		
Sd/(2*SQRT(Az*X)) C=	0.83520724		
Error function erf(B)=	0.91865788	To determine error function values,	
Error function erf(C)=	0.76246127	see F46 & K46 in the linear interpolation section.	

Actual B value= 1.23245235 Actual C value= 0.8352072

Automatic calculations : Actual erf(B) 0.91865788 Actual erf(C)= 0.7624613

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR MTBE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB104 (6-8'), MTBE
LUST Incident No:	20050027

Soil Contamination Concentration (SSL)
Concentration at the source (Cs)= g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= g/cm³ or mg/L Tier 1 RO for Class I GW :

Distance along centerline of the
plume coming from the source (X)= ft = cm (Projected Plume Distance)

First order degradation constant (lambda)= 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= cm/sec = cm/day (Field Measurement)

Hydraulic gradient (i)= cm/cm (Field Measurement)

Total soil porosity (theta T)= cm³/cm³ (Default)

Source width perpendicular to GW
flow direction in horizontal plane (Sw)= ft = cm (Field Measurement)

Source width perpendicular to GW
flow direction in vertical plane (Sd)= ft = cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	<input type="text" value="475.026159"/> cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	<input type="text" value="158.342053"/> cm	(Calculated, Equation R17)
Vertical dispersivity Az=	<input type="text" value="23.7513079"/> cm	(Calculated, Equation R18)
Specific discharge U=	<input type="text" value="0.18184186"/> cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	<input type="text" value="0.43930695"/>	
Sd/(2*SQRT(Az*X)) C=	<input type="text" value="0.29770916"/>	
Error function erf(B)=	<input type="text" value="0.46558065"/>	To determine error function values,
Error function erf(C)=	<input type="text" value="0.3262626"/>	see F46 & K46 in the linear interpolation section.

Actual B value=	<input type="text" value="0.43930695"/>	Actual C value=	<input type="text" value="0.2977092"/>
Automatic calculations : Actual erf(B)	<input type="text" value="0.46558065"/>	Actual erf(C)=	<input type="text" value="0.3262626"/>

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR BENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB105 (4-6'), Benzene
LUST Incident No:	20050027

Soil Contamination Concentration (SSL) 18.700
 Concentration at the source (Cs)= 1.500 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.005 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.005

Distance along centerline of the plume coming from the source (X)= 56.00 ft = 1706.8 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0009 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	170.682018 cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	56.8940061 cm	(Calculated, Equation R17)
Vertical dispersivity Az=	8.53410091 cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186 cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	1.22263784	
Sd/(2*SQRT(Az*X)) C=	0.88391445	
Error function erf(B)=	0.91620369	To determine error function values,
Error function erf(C)=	0.78871632	see F46 & K46 in the linear interpolation section.

Actual B value=	1.22263784	Actual C value=	0.8839145
Automatic calculations : Actual erf(B)	0.91620369	Actual erf(C)=	0.7887163

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR BENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB105 (12-14'), Benzene
LUST Incident No:	20050027

Soil Contamination Concentration (SSL) 4.400
 Concentration at the source (Cs)= 0.606 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.005 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.005

Distance along centerline of the plume coming from the source (X)= 45.74 ft = 1394.2 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0009 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	139.422615	cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	46.4742049	cm	(Calculated, Equation R17)
Vertical dispersivity Az=	6.97113073	cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186	cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	1.49676073		
Sd/(2*SQRT(Az*X)) C=	1.08209348		
Error function erf(B)=	0.96571814	To determine error function values,	
Error function erf(C)=	0.87406026	see F46 & K46 in the linear interpolation section.	

Actual B value=	1.49676073	Actual C value=	1.0820935
Automatic calculations : Actual erf(B)	0.96571814	Actual erf(C)=	0.8740603

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR TOLUENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB105 (4-6'), Toluene
LUST Incident No:	20050027

Concentration at the source (C_s)= 3.2 g/cm³ or mg/L (Calculated from S (Field Measurement))

Concentration at a distance X (C_x)= 1.0 g/cm³ or mg/L Tier 1 RO for Class I GW : 1.0

Distance along centerline of the plume coming from the source (X)= 0.70 ft = 21.47 cm (Projected Plume Distance)

First order degradation constant (λ)= 0.0110 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (θ)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (S_w)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (S_d)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity A_x =	2.14700673	cm	(Calculated, Equation R16)
Transverse dispersivity A_y =	0.71566891	cm	(Calculated, Equation R17)
Vertical dispersivity A_z =	0.10735034	cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186	cm/day	(Calculated, Equation R19)
$S_w/(4 \cdot \text{SQRT}(A_y \cdot X))$ B=	97.1968517		
$S_d/(2 \cdot \text{SQRT}(A_z \cdot X))$ C=	70.2691338		
Error function erf(B)=	1	To determine error function values,	
Error function erf(C)=	1	see F46 & K46 in the linear interpolation section.	

Actual B value= 97.1968517 Actual C value= 70.269134

Automatic calculations : Actual erf(B) 1 Actual erf(C)= 1

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR ETHYLBENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB105(4-6'), Ethylbenzene
LUST Incident No:	20050027

Concentration at the source (Cs)= 1.5 g/cm³ or mg/L (Calculated from S (Field Measurement))

Concentration at a distance X (Cx)= 0.7 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.7

Distance along centerline of the plume coming from the source (X)= 1.63 ft = 49.715 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0030 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	4.9715319 cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	1.6571773 cm	(Calculated, Equation R17)
Vertical dispersivity Az=	0.2485766 cm	(Calculated, Equation R18)
Specific discharge U=	0.1818419 cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	41.975451	
Sd/(2*SQRT(Az*X)) C=	30.346442	
Error function erf(B)=	1	To determine error function values,
Error function erf(C)=	1	see F46 & K46 in the linear interpolation section.

Actual B value=	41.975451	Actual C value=	30.346442
Automatic calculations : Actual erf(B)	1	Actual erf(C)=	1

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR MTBE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB105 (4-6'), MTBE
LUST Incident No:	20050027

Soil Contamination Concentration (SSL)
Concentration at the source (Cs)= 0.66 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.07 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.07

Distance along centerline of the
plume coming from the source (X)= 189.54 ft = 5777.1 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0000 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.56384 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW
flow direction in horizontal plane (Sw)= 50.00 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW
flow direction in vertical plane (Sd)= 6.56 ft = 199.998 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	577.707929 cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	192.56931 cm	(Calculated, Equation R17)
Vertical dispersivity Az=	28.8853964 cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186 cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	0.36122456	
Sd/(2*SQRT(Az*X)) C=	0.24479435	
Error function erf(B)=	0.39054299	To determine error function values,
Error function erf(C)=	0.27080106	see F46 & K46 in the linear interpolation section.

Actual B value=	0.36122456	Actual C value=	0.2447943
Automatic calculations : Actual erf(B)	0.39054299	Actual erf(C)=	0.2708011

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR MTBE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB105 (12-14'), MTBE
LUST Incident No:	20050027

Soil Contamination Concentration (SSL)
 Concentration at the source (Cs)= 0.22 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.07 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.07

Distance along centerline of the
 plume coming from the source (X)= 101.56 ft = 3095.5 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0000 1/day

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.56384 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW
 flow direction in horizontal plane (Sw)= 50.00 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW
 flow direction in vertical plane (Sd)= 6.56 ft = 199.998 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	309.547629 cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	103.182543 cm	(Calculated, Equation R17)
Vertical dispersivity Az=	15.4773815 cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186 cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	0.67415246	
Sd/(2*SQRT(Az*X)) C=	0.45685905	
Error function erf(B)=	0.65961032	To determine error function values,
Error function erf(C)=	0.48178311	see F46 & K46 in the linear interpolation section.

Actual B value=	0.67415246	Actual C value=	0.4568591
Automatic calculations : Actual erf(B)	0.65961032	Actual erf(C)=	0.4817831

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR BENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB106 (4-6'), Benzene
LUST Incident No:	20050027

Soil Contamination Concentration (SSL) 19.100
 Concentration at the source (Cs)= 2.764 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.005 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.005

Distance along centerline of the plume coming from the source (X)= 62.05 ft = 1891.2 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0009 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	189.122563 cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	63.0408544 cm	(Calculated, Equation R17)
Vertical dispersivity Az=	9.45612816 cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186 cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	1.10342357	
Sd/(2*SQRT(Az*X)) C=	0.79772768	
Error function erf(B)=	0.88135268	To determine error function values,
Error function erf(C)=	0.7407464	see F46 & K46 in the linear interpolation section.

Actual B value=	1.10342357	Actual C value=	0.7977277
Automatic calculations : Actual erf(B)	0.88135268	Actual erf(C)=	0.7407464

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR BENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB106 (12-14'), Benzene
LUST Incident No:	20050255

Soil Contamination Concentration (SSL) 3.800
 Concentration at the source (Cs)= 0.550 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.005 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.005

Distance along centerline of the plume coming from the source (X)= 44.89 ft = 1368.3 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0009 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	136.828395	cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	45.609465	cm	(Calculated, Equation R17)
Vertical dispersivity Az=	6.84141975	cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186	cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	1.5251388		
Sd/(2*SQRT(Az*X)) C=	1.10260961		
Error function erf(B)=	0.96898447	To determine error function values, see F46 & K46 in the linear interpolation section.	
Error function erf(C)=	0.88108061		

Actual B value= 1.5251388 Actual C value= 1.1026096

Automatic calculations : Actual erf(B) 0.96898447 Actual erf(C)= 0.8810806

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR TOLUENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB106(4-6'), Toluene
LUST Incident No:	20050027

Concentration at the source (Cs)= 1.4 g/cm³ or mg/L (Calculated from S (Field Measurement))

Concentration at a distance X (Cx)= 1.0 g/cm³ or mg/L Tier 1 RO for Class I GW : 1.0

Distance along centerline of the plume coming from the source (X)= 0.19 ft = 5.7507 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0110 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	0.57506596 cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	0.19168865 cm	(Calculated, Equation R17)
Vertical dispersivity Az=	0.0287533 cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186 cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	362.884102	
Sd/(2*SQRT(Az*X)) C=	262.349563	
Error function erf(B)=	1	To determine error function values,
Error function erf(C)=	1	see F46 & K46 in the linear interpolation section.

Actual B value=	362.884102	Actual C value=	262.34956
Automatic calculations : Actual erf(B)	1	Actual erf(C)=	1

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR ETHYLBENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB106(4-6'), Ethylbenzene
LUST Incident No:	20050027

Concentration at the source (Cs)= g/cm³ or mg/L (Calculated from S (Field Measurement))

Concentration at a distance X (Cx)= g/cm³ or mg/L Tier 1 RO for Class I GW :

Distance along centerline of the plume coming from the source (X)= ft = cm (Projected Plume Distance)

First order degradation constant (lambda)= 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= cm/sec = cm/day (Field Measurement)

Hydraulic gradient (I)= cm/cm (Field Measurement)

Total soil porosity (theta T)= cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= ft = cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= ft = cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	<input type="text" value="8.6977744"/>	cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	<input type="text" value="2.8992581"/>	cm	(Calculated, Equation R17)
Vertical dispersivity Az=	<input type="text" value="0.4348887"/>	cm	(Calculated, Equation R18)
Specific discharge U=	<input type="text" value="0.1818419"/>	cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	<input type="text" value="23.992608"/>		
Sd/(2*SQRT(Az*X)) C=	<input type="text" value="17.345622"/>		
Error function erf(B)=	<input type="text" value="1"/>	To determine error function values,	
Error function erf(C)=	<input type="text" value="1"/>	see F46 & K46 in the linear interpolation section.	

Actual B value= Actual C value=

Automatic calculations : Actual erf(B) Actual erf(C)=

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR MTBE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB106 (4-6'), MTBE
LUST Incident No:	20050027

Soil Contamination Concentration (SSL) Concentration at the source (Cs)=	1.65	g/cm ³ or mg/L	(Field Measurement)
Concentration at a distance X (Cx)=	0.07	g/cm ³ or mg/L	Tier 1 RO for Class I GW : 0.07
Distance along centerline of the plume coming from the source (X)=	305.25	ft = 9304.1	cm (Projected Plume Distance)
First order degradation constant (lambda)=	0.0000	1/day	
Aquifer hydraulic conductivity (K)=	1.81E-05	cm/sec = 1.56384	cm/day (Field Measurement)
Hydraulic gradient (i)=	0.0500	cm/cm	(Field Measurement)
Total soil porosity (theta T)=	0.43	cm ³ /cm ³	(Default)
Source width perpendicular to GW flow direction in horizontal plane (Sw)=	50.00	ft = 1524	cm (Field Measurement)
Source width perpendicular to GW flow direction in vertical plane (Sd)=	6.56	ft = 199.998	cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	930.40777	cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	310.135923	cm	(Calculated, Equation R17)
Vertical dispersivity Az=	46.5203885	cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186	cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	0.22429122		
Sd/(2*SQRT(Az*X)) C=	0.15199748		
Error function erf(B)=	0.24890474	To determine error function values, see F46 & K46 in the linear interpolation section.	
Error function erf(C)=	0.17019901		

Actual B value=	0.22429122	Actual C value=	0.1519975
Automatic calculations : Actual erf(B)	0.24890474	Actual erf(C)=	0.170199

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR MTBE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB106 (12-14'), MTBE
LUST Incident No:	20050027

Soil Contamination Concentration (SSL)
 Concentration at the source (Cs)= 0.2 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.07 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.07

Distance along centerline of the
 plume coming from the source (X)= 95.58 ft = 2913.3 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0000 1/day

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.56384 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW
 flow direction in horizontal plane (Sw)= 50.00 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW
 flow direction in vertical plane (Sd)= 6.56 ft = 199.998 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	291.330182	cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	97.1100606	cm	(Calculated, Equation R17)
Vertical dispersivity Az=	14.5665091	cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186	cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	0.71630853		
Sd/(2*SQRT(Az*X)) C=	0.48542734		
Error function erf(B)=	0.68894613	To determine error function values,	
Error function erf(C)=	0.50760097	see F46 & K46 in the linear interpolation section.	

Actual B value=	0.71630853	Actual C value=	0.4854273
Automatic calculations : Actual erf(B)	0.68894613	Actual erf(C)=	0.507601

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR XYLENES

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, IL
	SB106, 4-6', Xylenes
LUST Incident No:	20050027

Concentration at the source (Cs)= g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= g/cm³ or mg/L Tier 1 RO for Class I GW :

Distance along centerline of the plume coming from the source (X)= ft = cm (Projected Plume Distance)

First order degradation constant (lambda)= 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= cm/sec = cm/day (Field Measurement)

Hydraulic gradient (i)= cm/cm (Field Measurement)

Total soil porosity (theta T)= cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= ft = cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= ft = cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	<input type="text" value="9.11611271"/> cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	<input type="text" value="3.03870424"/> cm	(Calculated, Equation R17)
Vertical dispersivity Az=	<input type="text" value="0.45580564"/> cm	(Calculated, Equation R18)
Specific discharge U=	<input type="text" value="0.28112752"/> cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	<input type="text" value="22.8915878"/>	
Sd/(2*SQRT(Az*X)) C=	<input type="text" value="16.5496312"/>	
Error function erf(B)=	<input type="text" value="1"/>	To determine error function values,
Error function erf(C)=	<input type="text" value="1"/>	see F46 & K46 in the linear interpolation section.

Actual B value= Actual C value=

Automatic calculations : Actual erf(B) Actual erf(C)=

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR BENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison
	SBI07 (6-8'), Benzene
LUST Incident No:	20050027

Soil Contamination Concentration (SSL) 1.470
 Concentration at the source (Cs)= 0.243 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.005 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.005

Distance along centerline of the plume coming from the source (X)= 33.81 ft = 1030.5 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0009 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	103.046541 cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	34.3488469 cm	(Calculated, Equation R17)
Vertical dispersivity Az=	5.15232703 cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186 cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	2.02512664	
Sd/(2*SQRT(Az*X)) C=	1.46407926	
Error function erf(B)=	0.99581608	To determine error function values,
Error function erf(C)=	0.96159653	see F46 & K46 in the linear interpolation section.

Actual B value= 2.02512664 Actual C value= 1.4640793

Automatic calculations : Actual erf(B) 0.99581608 Actual erf(C)= 0.9615965

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR BENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB107 (12-14'), Benzene
LUST Incident No:	20050027

Soil Contamination Concentration (SSL) 1.450
 Concentration at the source (Cs)= 0.210 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.005 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.005

Distance along centerline of the plume coming from the source (X)= 32.87 ft = 1001.8 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0009 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	100.182973	cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	33.3943245	cm	(Calculated, Equation R17)
Vertical dispersivity Az=	5.00914867	cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186	cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	2.08301159		
Sd/(2*SQRT(Az*X)) C=	1.50592758		
Error function erf(B)=	0.9967789	To determine error function values,	
Error function erf(C)=	0.96680399	see F46 & K46 in the linear interpolation section.	

Actual B value=	2.08301159	Actual C value=	1.5059276
Automatic calculations : Actual erf(B)	0.9967789	Actual erf(C)=	0.966804

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR MTBE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB107 (12-14'), MTBE
LUST Incident No:	20050027

Soil Contamination Concentration (SSL)
 Concentration at the source (Cs)= 0.25 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.07 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.07

Distance along centerline of the
 plume coming from the source (X)= 109.93 ft = 3350.7 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0000 1/day

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.56384 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0770 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW
 flow direction in horizontal plane (Sw)= 50.00 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW
 flow direction in vertical plane (Sd)= 6.56 ft = 199.998 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	335.066784	cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	111.688928	cm	(Calculated, Equation R17)
Vertical dispersivity Az=	16.7533392	cm	(Calculated, Equation R18)
Specific discharge U=	0.28003647	cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	0.62280806		
Sd/(2*SQRT(Az*X)) C=	0.42206403		
Error function erf(B)=	0.62156512	To determine error function values, see F46 & K46 in the linear interpolation section.	
Error function erf(C)=	0.44941838		

Actual B value=	0.62280806	Actual C value=	0.422064
Automatic calculations : Actual erf(B)	0.62156512	Actual erf(C)=	0.4494184

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR BENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB108 (6-8'), Benzene
LUST Incident No:	20050027

Soil Contamination Concentration (SSL) 11.200
 Concentration at the source (Cs)= 1.620 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.005 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.005

Distance along centerline of the plume coming from the source (X)= 55.66 ft = 1696.4 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0009 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	169.640451 cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	56.5468171 cm	(Calculated, Equation R17)
Vertical dispersivity Az=	8.48202256 cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186 cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	1.23014466	
Sd/(2*SQRT(Az*X)) C=	0.88934156	
Error function erf(B)=	0.91808613	To determine error function values, see F46 & K46 in the linear interpolation section.
Error function erf(C)=	0.79150642	

Actual B value=	1.23014466	Actual C value=	0.8893416
Automatic calculations : Actual erf(B)	0.91808613	Actual erf(C)=	0.7915064

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR BENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB108 (12-14'), Benzene
LUST Incident No:	20050027

Soil Contamination Concentration (SSL) 0.206

Concentration at the source (Cs)= 1.400 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.005 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.005

Distance along centerline of the plume coming from the source (X)= 55.24 ft = 1683.8 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0009 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 213.36 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	168.382017	cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	56.1273391	cm	(Calculated, Equation R17)
Vertical dispersivity Az=	8.41910086	cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186	cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	1.23933837		
Sd/(2*SQRT(Az*X)) C=	0.89598821		
Error function erf(B)=	0.9203447	To determine error function values, see F46 & K46 in the linear interpolation section.	
Error function erf(C)=	0.79488701		

Actual B value=	1.23933837	Actual C value=	0.8959882
Automatic calculations : Actual erf(B)	0.9203447	Actual erf(C)=	0.794887

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR ETHYLBENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB108(6-8'), Ethylbenzene
LUST Incident No:	20050027

Concentration at the source (Cs)= g/cm³ or mg/L (Calculated from S (Field Measurement))

Concentration at a distance X (Cx)= g/cm³ or mg/L Tier 1 RO for Class I GW :

Distance along centerline of the plume coming from the source (X)= ft = cm (Projected Plume Distance)

First order degradation constant (lambda)= 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= cm/sec = cm/day (Field Measurement)

Hydraulic gradient (i)= cm/cm (Field Measurement)

Total soil porosity (theta T)= cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= ft = cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= ft = cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	<input type="text" value="10.362077"/> cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	<input type="text" value="3.4540258"/> cm	(Calculated, Equation R17)
Vertical dispersivity Az=	<input type="text" value="0.5181039"/> cm	(Calculated, Equation R18)
Specific discharge U=	<input type="text" value="0.1818419"/> cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	<input type="text" value="20.13904"/>	
Sd/(2*SQRT(Az*X)) C=	<input type="text" value="14.559658"/>	
Error function erf(B)=	<input type="text" value="1"/>	To determine error function values,
Error function erf(C)=	<input type="text" value="1"/>	see F46 & K46 in the linear interpolation section.

Actual B value=	<input type="text" value="20.13904"/>	Actual C value=	<input type="text" value="14.559658"/>
Automatic calculations : Actual erf(B)	<input type="text" value="1"/>	Actual erf(C)=	<input type="text" value="1"/>

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR MTBE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	SB108(6-8'), MTBE
LUST Incident No:	20050027

Concentration at the source (Cs)= 0.41 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.07 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.07

Distance along centerline of the plume coming from the source (X)= 146.33 ft = 4460.2 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0000 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.56384 cm/day (Field Measurement)

Hydraulic gradient (I)= 0.0500 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50.00 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 6.56 ft = 199.998 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	446.023419	cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	148.674473	cm	(Calculated, Equation R17)
Vertical dispersivity Az=	22.301171	cm	(Calculated, Equation R18)
Specific discharge U=	0.18184186	cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	0.46787295		
Sd/(2*SQRT(Az*X)) C=	0.31706774		
Error function erf(B)=	0.49181885	To determine error function values,	
Error function erf(C)=	0.34613648	see F46 & K46 in the linear interpolation section.	

Actual B value= 0.46787295 Actual C value= 0.3170677

Automatic calculations : Actual erf(B) 0.49181885 Actual erf(C)= 0.3461365

DOMENICO SOLUTE TRANSPORT MODEL CALCULATION FOR BENZENE

Exposure Pathway:	Groundwater Ingestion
Receptor:	Residential
Site Location:	Clark
	427 West Madison, Oak Park, Illinois
	MW3, Benzene
LUST Incident No:	20050027

Concentration at the source (Cs)= 0.901 g/cm³ or mg/L (Field Measurement)

Concentration at a distance X (Cx)= 0.005 g/cm³ or mg/L Tier 1 RO for Class I GW : 0.005

Distance along centerline of the plume coming from the source (X)= 67.55 ft = 2058.9 cm (Projected Plume Distance)

First order degradation constant (lambda)= 0.0009 1/day (Table E, Appendix C)

Aquifer hydraulic conductivity (K)= 1.81E-05 cm/sec = 1.5638 cm/day (Field Measurement)

Hydraulic gradient (i)= 0.0770 cm/cm (Field Measurement)

Total soil porosity (theta T)= 0.43 cm³/cm³ (Default)

Source width perpendicular to GW flow direction in horizontal plane (Sw)= 50 ft = 1524 cm (Field Measurement)

Source width perpendicular to GW flow direction in vertical plane (Sd)= 7 ft = 200 cm

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax=	205.891034 cm	(Calculated, Equation R16)
Transverse dispersivity Ay=	68.6303446 cm	(Calculated, Equation R17)
Vertical dispersivity Az=	10.2945517 cm	(Calculated, Equation R18)
Specific discharge U=	0.28003647 cm/day	(Calculated, Equation R19)
Sw/(4*SQRT(Ay*X)) B=	1.01355698	
Sd/(2*SQRT(Az*X)) C=	0.68687477	
Error function erf(B)=	0.84825236	To determine error function values,
Error function erf(C)=	0.66864471	see F46 & K46 in the linear interpolation section.

Actual B value=	1.01355698	Actual C value=	0.6868748
Automatic calculations : Actual erf(B)	0.84825236	Actual erf(C)=	0.6686447



BUDGET AND BILLING INFORMATION



**OSFM ELIGIBILITY AND DEDUCTIBLE
DETERMINATION LETTER**



Office of the Illinois
State Fire Marshal

Lindy / Bob / Anthony /
Anne / Anna

General Office
217-785-0969

FAX

217-782-1062

Divisions

ARSON INVESTIGATION

217-782-9116

BOILER and PRESSURE

VESSEL SAFETY

217-782-2696

FIRE PREVENTION

217-785-4714

MANAGEMENT SERVICES

217-782-9889

INFIRS

217-785-5826

HUMAN RESOURCES

217-785-1026

PERSONNEL STANDARDS

and EDUCATION

217-782-4542

PETROLEUM and

CHEMICAL SAFETY

217-785-5878

PUBLIC INFORMATION

217-785-1021

WEB SITE

www.state.il.us/osfm

CERTIFIED MAIL - RECEIPT REQUESTED #7003 3110 0004 1282 0169

March 14, 2005

RECEIVED
BY *[Signature]* DATE *3/17*

James Chakkalapadavil
772 North Adele
Elmhurst, IL 60126

In Re:

Facility No. 2-010024
IEMA Incident No. 05-0027
Clark
427 W. Madison Street
Oak Park, Cook Co., IL

Dear Applicant:

The Reimbursement Eligibility and Deductible Application received on February 17, 2005 for the above referenced occurrence has been reviewed. The following determinations have been made based upon this review:

It has been determined 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 3 12,000 gallon Gasoline
Tank 4 12,000 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

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 105.102(a) (2)).

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

Dorothy Gunn, 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 1 6,000 gallon Gasoline
Tank 2 6,000 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.

If you have any questions, please contact our Office at (217) 785-1020 or (217) 785-5878.

Sincerely,



Deanne Lock
Administrative Assistant
Division of Petroleum and Chemical Safety

cc: IEPA
Facility File



OWNER/OPERATOR BUDGET CERTIFICATION FORM

Illinois Environmental Protection Agency

Owner/Operator and Professional Engineer Budget Certification Form for
Leaking Underground Storage Tank Sites

In accordance with 415 ILCS 5/57, if an owner or operator intends to seek payment from the UST Fund, an owner or operator must submit to the Agency, for the Agency's approval or modification, a budget which includes an accounting of all costs associated with the implementation of the investigative, monitoring and/or corrective action plans.

I hereby certify that I intend to seek payment from the UST Fund for performing Corrective Action activities at 427 W. Madison, Oak Park LUST site. I

further certify that the costs set forth in this budget are 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 and no costs are included in this budget which are not described in the corrective action plan. I further certify that costs ineligible for payment from the Fund pursuant to 35 Illinois Administrative Code Section 732.606 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.
- Legal defense costs.
- Costs incurred prior to July 28, 1989.
- Costs associated with installation of new USTs or the repair of existing USTs.

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DEC 28 2006

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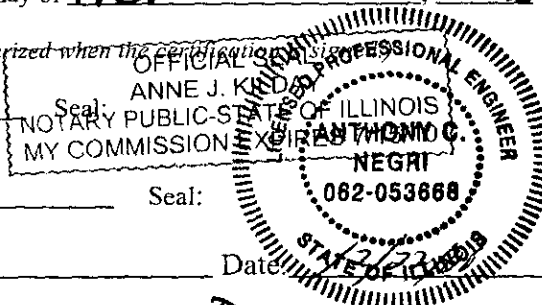
Owner/Operator: James Chakkalapadavil Title: Owner/Operator

Signature: [Signature] Date: 11/21/06

Subscribed and sworn to before me the 21 day of Nov, 2006

(Budget Proposals and Budget Amendments must be notarized when the certification is signed.)

[Signature]
(Notary Public)



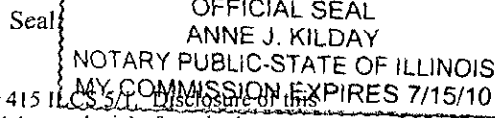
P.E.: Anthony Negri

Seal:

P.E. Signature: [Signature] Date: 11/21/06

Subscribed and sworn to before me the 22 day of Dec, 2006
(Budget Proposals and Budget Amendments must be notarized when the certification is signed.)

[Signature]
(Notary Public)



The Agency 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.



BUDGET AND BILLING FORM

General Information for the Budget and Billing Forms

LPC#: 0312255050 County: Cook

City: Oak Park Site Name: James Chakkalapadavil

Site Address: 427 West Madison

IEMA Incident No.: 20050027 901088

IEMA Notification Date: 01/07/05 04/24/90

Date this form was prepared: 10/09/06

This form is being submitted as a (check one):

- ☒ Budget Proposal
- ☐ Budget Amendment (Budget amendments must include only the costs over the previous budget.)
- ☐ Billing Package

Please provide the name(s) and date(s) of report(s) documenting the costs requested:

Name(s): _____

Date(s): _____

This package is being submitted for the site activities indicated below (check one):

35 Ill. Adm. Code 734:

- ☐ Early Action
- ☐ Free Product Removal after Early Action
- ☐ Site Investigation: Stage 1: ☐ Stage 2: ☐ Stage 3: ☐
- ☒ Corrective Action

35 Ill. Adm. Code 732:

- ☐ Early Action
- ☐ Free Product Removal after Early Action
- ☐ Site Classification
- ☐ Low Priority Corrective Action
- ☐ High Priority Corrective Action

35 Ill. Adm. Code 731:

- ☐ Site Investigation
- ☐ Corrective Action

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General Information for the Budget and Billing Forms

If eligible for reimbursement, where should reimbursement checks be sent? Please note that only owners or operators of USTs may be eligible for reimbursement. Therefore, payment can only be made to an owner or operator. The Illinois EPA is not required to and will not recognize an assignment or other delegation of payment as justification for issuing payment to anyone other than the owner or operator. The following address will be used as the mailing address for reimbursement checks and any final determination letters regarding reimbursement.

Pay to the order of: James Chakkalapadavil

Send in care of: Environmental Protection Industries

Address: 16650 South Canal Street

City: South Holland State: IL Zip: 60473

The payee is the: Owner ☒ Operator ☐ (Check one or both.)

Signature of the owner or operator of the UST(s) (required)

If you have a change of address, click [here](#) to print off a W-9 Form.

Number of petroleum USTs in Illinois presently owned or operated by the owner or operator; any subsidiary, parent or joint stock company of the owner or operator; and any company owned by any parent, subsidiary or joint stock company of the owner or operator:

Fewer than 101: ☒ 101 or more: ☐

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Number of USTs at the site: 2 (Number of USTs includes USTs presently at the site and USTs that have been removed.)

DEC 20 2006

Number of incidents reported to IEMA for this site: 2

IEPA/BOL

Incident Numbers assigned to the site due to releases from USTs: 901088 20050027

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	12,000	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	20050027	Tank Leak
Gasoline	12,000	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	20050027	Tank Leak
		Yes <input type="checkbox"/> No <input type="checkbox"/>		
		Yes <input type="checkbox"/> No <input type="checkbox"/>		
		Yes <input type="checkbox"/> No <input type="checkbox"/>		
		Yes <input type="checkbox"/> No <input type="checkbox"/>		
		Yes <input type="checkbox"/> No <input type="checkbox"/>		
		Yes <input type="checkbox"/> No <input type="checkbox"/>		
		Yes <input type="checkbox"/> No <input type="checkbox"/>		

Proposed Budget Summary and Budget Total

BUDGET SUMMARY PAGE

List the total dollar amount from each of the forms listed below as applicable. The total proposed budget will be automatically calculated.

1. Drilling and Monitoring Well Costs Form: \$ _____
2. Analytical Costs Form: \$ _____
3. Remediation and Disposal Costs Form: \$ _____
4. UST Removal and Abandonment Costs Form: \$ _____
5. Paving, Demolition, and Well Abandonment Costs Form: \$ _____
6. Consulting Fees Form: \$ 14,400.00
7. Handling Charges Form: Handling charges will be determined at the time a billing package is submitted to the Illinois EPA. The amount of allowable handling charges will be determined in accordance with the Handling Charges Form.

Total Proposed Budget (less handling charges): \$ 14,400.00

Consulting Fees Form

Consulting Personnel Time Costs:

Employee Name	Personnel Title*	Hours	Rate*	Total \$
Remediation Category	Task			
Anthony Negri	Professional Engineer	8.00	\$130.00	\$1,040.00
CCAP-BUDGET	Review CAP, Budget Certification			
Cindy Panagiotopoulos	Project Manager	50.00	\$90.00	\$4,500.00
CCAP	Preparation of CAP and Budget Report			
Cindy Panagiotopoulos	Engineer II	10.00	\$85.00	\$850.00
CCAP	Modeling Calculations			
Cindy Panagiotopoulos	CAD II	8.00	\$45.00	\$360.00
CCAP	Maps Preparation			
Zuzana Jurcik	Administrative	2.00	\$35.00	\$70.00
CCAP-BUDGET	Copying/Binding of CAP/Budget			
Cindy Panagiotopoulos	Project Manager	50.00	\$90.00	\$4,500.00
CACR	Preparation of Corrective Action Completion Report			
Anthony Negri	Professional Engineer	8.00	\$130.00	\$1,040.00
CACR	Review and Certify the Corrective Action Completion Report			
Cindy Panagiotopoulos	CAD II	4.00	\$45.00	\$180.00
CACR	Preparation of Corrective Action Completion Report Drawings			

*Times from the Personnel Files and Requirements document must be used.

Total Consulting Personnel Time Costs: \$ \$12,540.00

Consulting Fees Form

Consulting Personnel Time Costs:

Employee Name	Personnel Title*	Hours	Rate*	Total \$
Remediation Category	Task			
Cindy Panagiotopoulos	Engineer II	16.00	\$85.00	\$1,360.00
HAA	Highway Authority Agreement Preparation			
Zuzana Jurcik	Administrative	2.00	\$35.00	\$70.00
CACR	Copy/Bind Corrective Action Completion Report			
Cindy Panagiotopoulos	Project Manager	4.00	\$90.00	\$360.00
CA-REIMB	Reimbursement Package Preparation			
Zuzana Jurcik	Administrative	2.00	\$35.00	\$70.00
CA-REIMB	Copy/Bind Reimbursement Package			
				\$0.00
				\$0.00
				\$0.00
				\$0.00

*Titles from the Personnel Titles and Requirements document must be used.

Total Consulting Personnel Time Costs: \$ \$1,860.00