EPA Region 5 Records Ctr.
277730

Comprehensive Site Investigation Report

Johns Manville Manufacturing Facility
1871 North Pershing Road
Waukegan, Illinois 60087

October 17, 2002
Revision 0

Prepared for

W. D. Clinton
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Illinois Environmental Protection Agency
Bureau of Land
Remedial Project Management Section
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P.O. Box 19276
Springfield, Illinois 62794-9276

FOR ILLINOIS EPA USE:
LOG NO. _____

Site Remediation Program Form (DRM-2)
(To Be Submitted with all Plans and Reports)

I. Site Identification:

Site Name: Johns Manville
Street Address: 1871 North Pershing Road
City: Waukegan Illinois Inventory I. D. Number: 0971900014
IEMA Incident Number: 891724, 951836, 2000976, 20020977

II. Remediation Applicant:

Applicant's Name: William D. Clinton Company: Johns Manville
Street Address: 1871 North Pershing Road
City: Waukegan State: IL ZIP Code: 60087 Phone: 303-808-2127

I hereby request that the Illinois EPA review and evaluate the attached project documents in accordance with the terms and conditions of the Environmental Protection Act (415 ILCS 5), implementing regulations, and the review and evaluation services agreement.

Remediation Applicant's Signature: Will D. Clinton Date: 10/18/02

III. Contact Person:

Contact's Name: William A. Bow Company: LFR Levine-Fricke
Street Address: 630 Tollgate Road, Suite D
City: Elgin State: IL ZIP Code: 60123 Phone: 847-695-8855

IV. Review & Evaluation Licensed Professional Engineer ("RELPE"), if applicable:

RELPE's Name: _____ Company: _____
Street Address: _____
City: _____ State: _____ ZIP Code: _____ Phone: _____

Registration Number: _____ License Expiration Date: _____

All information submitted is available to the public except when specifically designated by the Remediation Applicant to be treated confidentially as a trade secret or secret process in accordance with the Illinois Compiled Statutes, Section 7(a) of the Environmental Protection Act, applicable Rules and Regulations of the Illinois Pollution Control Board and applicable Illinois EPA rules and guidelines. The Illinois EPA is authorized to require this information under Sections 415 ILCS 5/58 - 58.12 of the Environmental Protection Act and regulations promulgated thereunder. Disclosure of this information is required as a condition of participation in the Site Remediation Program. Failure to do so may prevent this form from being processed and could result in your plan(s) or report(s) being rejected. This form has been approved by the Forms Management Center.

IL 532 2547
LPC 566 Feb-2000

V. Project Documents Being Submitted:

Document Title: Comprehensive Site Investigation Report Date of Preparation of Plan or Report: October 17, 2002

Prepared by: LFR Levine-Fricke Prepared for: Johns Manville

Type of Document Submitted:

- ☑ Site Investigation Report - Comprehensive
- ☐ Site Investigation Report - Focused
- ☐ Remediation Objectives Report-Tier 1or 2
- ☐ Remediation Objectives Report-Tier 3
- ☐ Remedial Action Plan
- ☐ Remedial Action Completion Report
- ☐ Sampling Plan
- ☐ Health and Safety Plan
- ☐ Community Relations Plan
- ☐ Risk Assessment
- ☐ Contaminant Fate & Transport Modeling
- ☐ Environmental Remediation Tax Credit - Budget Plan Review
- Other: _____

Document Title: Bid Specification for Phase I and Phase II Demolition Date of Preparation of Plan or Report: September 17, 1999

Prepared by: LFR Levine-Fricke Prepared for: Johns Manville

Type of Document Submitted:

- ☐ Site Investigation Report - Comprehensive
- ☐ Site Investigation Report - Focused
- ☐ Remediation Objectives Report-Tier 1or 2
- ☐ Remediation Objectives Report-Tier 3
- ☐ Remedial Action Plan
- ☐ Remedial Action Completion Report
- ☐ Sampling Plan
- ☐ Health and Safety Plan
- ☐ Community Relations Plan
- ☐ Risk Assessment
- ☐ Contaminant Fate & Transport Modeling
- ☐ Environmental Remediation Tax Credit - Budget Plan Review
- ✓ Other: Historical Supplemental Information

Document Title: Bid Specification for Phase III Demolition Date of Preparation of Plan or Report: July 20, 2000

Prepared by: CADDIS, Inc. Prepared for: Johns Manville

Type of Document Submitted:

- ☐ Site Investigation Report - Comprehensive
- ☐ Site Investigation Report - Focused
- ☐ Remediation Objectives Report-Tier 1or 2
- ☐ Remediation Objectives Report-Tier 3
- ☐ Remedial Action Plan
- ☐ Remedial Action Completion Report
- ☐ Sampling Plan
- ☐ Health and Safety Plan
- ☐ Community Relations Plan
- ☐ Risk Assessment
- ☐ Contaminant Fate & Transport Modeling
- ☐ Environmental Remediation Tax Credit - Budget Plan Review
- ✓ Other: Historical Supplemental Information

VI. Professional Engineer's Seal or Stamp:

I attest that all site investigations or remedial activities that are the subject of this plan(s) or report(s) were performed under my direction, and this document and all attachments were prepared under my direction or reviewed by me, and to the best of my knowledge and belief, the work described in the plan and report has been designed or completed in accordance with the Illinois Environmental Protection Act (415 ILCS 5), 35 Ill. Adm. Code 740, and generally accepted engineering practices, and the information presented is accurate and complete.

Engineer Name: David Peterson

Company: David M. Peterson, P.E., P.C. Corporation Phone: 216-554-0413

Registration Number: 062-050310

Signature: _____ License Expiration Date: 11/30/2003

Professional Engineer's Seal or Stamp:

DAVID M. PETERSON 062-050310 LICENSED PROFESSIONAL ENGINEER OF ILLINOIS

V. Project Documents Being Submitted:

Document Title: Amended Site Classification Completion Report Date of Preparation of Plan or Report: June 9, 1997

Prepared by: C.C. Johnson & Malhotra, P.C. Prepared for: Johns Manville (formerly Schuller International Inc.)

Type of Document Submitted:

- ☐ Site Investigation Report - Comprehensive
- ☐ Site Investigation Report - Focused
- ☐ Remediation Objectives Report-Tier 1or 2
- ☐ Remediation Objectives Report-Tier 3
- ☐ Remedial Action Plan
- ☐ Remedial Action Completion Report
- ☐ Sampling Plan
- ☐ Health and Safety Plan
- ☐ Community Relations Plan
- ☐ Risk Assessment
- ☐ Contaminant Fate & Transport Modeling
- ☐ Environmental Remediation Tax Credit - Budget Plan Review
- ✓ Other: Historical Supplemental Information

Document Title: UST Closure Report Date of Preparation of Plan or Report: February 26, 1996

Prepared by: C.C. Johnson & Malhotra, P.C. Prepared for: Johns Manville (formerly Schuller International Inc.)

Type of Document Submitted:

- ☐ Site Investigation Report - Comprehensive
- ☐ Site Investigation Report - Focused
- ☐ Remediation Objectives Report-Tier 1or 2
- ☐ Remediation Objectives Report-Tier 3
- ☐ Remedial Action Plan
- ☐ Remedial Action Completion Report
- ☐ Sampling Plan
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- ☐ Community Relations Plan
- ☐ Risk Assessment
- ☐ Contaminant Fate & Transport Modeling
- ☐ Environmental Remediation Tax Credit - Budget Plan Review
- ✓ Other: Historical Supplemental Information

Document Title: 45 Day Report Date of Preparation of Plan or Report: October 3, 1995

Prepared by: C.C. Johnson & Malhotra, P.C. Prepared for: Johns Manville (formerly Schuller International Inc.)

Type of Document Submitted:

- ☐ Site Investigation Report - Comprehensive
- ☐ Site Investigation Report - Focused
- ☐ Remediation Objectives Report-Tier 1or 2
- ☐ Remediation Objectives Report-Tier 3
- ☐ Remedial Action Plan
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- ☐ Risk Assessment
- ☐ Contaminant Fate & Transport Modeling
- ☐ Environmental Remediation Tax Credit - Budget Plan Review
- Other: Historical Supplemental Information

VI. Professional Engineer's Seal or Stamp:

I attest that all site investigations or remedial activities that are the subject of this plan(s) or report(s) were performed under my direction, and this document and all attachments were prepared under my direction or reviewed by me, and to the best of my knowledge and belief, the work described in the plan and report has been designed or completed in accordance with the Illinois Environmental Protection Act (415 ILCS 5), 35 Ill. Adm. Code 740, and generally accepted engineering practices, and the information presented is accurate and complete.

Engineer Name: David Peterson

Company: David M. Peterson, P.E., P.C. Corporation Phone: 216-554-0413

Registration Number: 062-060310

Signature:

Professional Engineer's Seal or Stamp:

DAVID M. PETERSON 062-060310 LICENSED PROFESSIONAL ENGINEER OF ILLINOIS

License Expiration Date: 11/30/2003

V. Project Documents Being Submitted:

Document Title: UST Incident #891724 Status Report Date of Preparation of Plan or Report: April 14, 1993

Prepared by: C.C. Johnson & Malhotra, P.C. Prepared for: Johns Manville (formerly Schuller International Inc.)

Type of Document Submitted:

- ☐ Site Investigation Report - Comprehensive
- ☐ Site Investigation Report - Focused
- ☐ Remediation Objectives Report-Tier 1or 2
- ☐ Remediation Objectives Report-Tier 3
- ☐ Remedial Action Plan
- ☐ Remedial Action Completion Report
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- ☐ Community Relations Plan
- ☐ Risk Assessment
- ☐ Contaminant Fate & Transport Modeling
- ☐ Environmental Remediation Tax Credit - Budget Plan Review
- ✓ Other: Historical Supplemental Information

Document Title: Work Plan for Manville UST Phase I Groundwater Investigation Date of Preparation of Plan or Report: January 10, 1991

Prepared by: C.C. Johnson & Malhotra, P.C. Prepared for: Johns Manville (formerly Manville Sales Corporation)

Type of Document Submitted:

- ☐ Site Investigation Report - Comprehensive
- ☐ Site Investigation Report - Focused
- ☐ Remediation Objectives Report-Tier 1or 2
- ☐ Remediation Objectives Report-Tier 3
- ☐ Remedial Action Plan
- ☐ Remedial Action Completion Report
- ☐ Sampling Plan
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- ☐ Community Relations Plan
- ☐ Risk Assessment
- ☐ Contaminant Fate & Transport Modeling
- ☐ Environmental Remediation Tax Credit - Budget Plan Review
- ✓ Other: Historical Supplemental Information

Document Title: _____ Date of Preparation of Plan or Report: _____

Prepared by: _____ Prepared for: _____

Type of Document Submitted:

- ☐ Site Investigation Report - Comprehensive
- ☐ Site Investigation Report - Focused
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- Other: _____

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I attest that all site investigations or remedial activities that are the subject of this plan(s) or report(s) were performed under my direction, and this document and all attachments were prepared under my direction or reviewed by me, and to the best of my knowledge and belief, the work described in the plan and report has been designed or completed in accordance with the Illinois Environmental Protection Act (415 ILCS 5), 35 Ill. Adm. Code 740, and generally accepted engineering practices, and the information presented is accurate and complete.

Engineer Name: David Peterson

Company: David M. Peterson, P.E., P.C. Corporation Phone: 216-554-0413

Registration Number: 062-030310

Signature: _____ License Expiration Date: 11/30/2003

Professional Engineer's Seal or Stamp:

DAVID M. PETERSON 062-030310 LICENSED PROFESSIONAL ENGINEER OF ILLINOIS

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EXECUTIVE SUMMARY

This Comprehensive Site Investigation Report (CSIR) has been developed to address soil and groundwater quality within the former Building Area of the approximately 353-acre Johns Manville (JM) Property located along the shoreline of Lake Michigan in the City of Waukegan, Lake County, Illinois. The Property may be divided into five general areas: Building (roughly 109 acres), Disposal (roughly142 acres), Borrow (roughly 50 acres), Beach (roughly 23 acres) and Canal (roughly 29 acres). This report specifically addresses conditions within the former Building Area, which hereafter is referred to as the "Site" or "Remediation Site."

JM has an interest in preparing the Site for future beneficial use. Under any future use scenario, it must be determined whether the Site's manufacturing history might pose a concern to human health and/or the environment. To address these concerns, JM has enrolled the Site into the Illinois Site Remediation Program (SRP), with the goal of receiving a "No Further Remediation" (NFR) letter from the Illinois Environmental Protection Agency (IEPA). The NFR letter will serve as IEPA confirmation that the Site is safe for future use.

This CSIR is the first of several reports that JM intends to submit to the IEPA. The purposes of the CSIR are as follows:

1. Identify, based upon the Site's history, areas that may present a potential concern to the human health and the environment. Each potential concern is identified as a unique "Recognized Environmental Condition" (REC). For this report, RECs were initially identified using the following sources of information:
   - Review of Sanborn and other fire insurance maps, ranging in dates from 1924 to 1972.
   - Review of several hundred plant drawings that were compiled in a central location from the various manufacturing buildings prior to demolition. These drawings were reviewed to identify storage tanks and manufacturing processes at the Site.
   - Review of historical aerial photographs dating from 1946, 1953, 1956, 1972, and 1978.
   - Interviews with available plant personnel. At the time of demolition, JM employed seven maintenance personnel at the facility. Staff members had an approximate average length of service at the plant of 35 years and thus, were invaluable in providing information regarding former manufacturing processes, tank locations and contents, and the history of each of the buildings.
   - Site inspections. LFR personnel have been on-Site for four years and during that time, have conducted extensive inspections related to developing the

engineering drawings for demolition, the surveys of asbestos and other Regulated Materials, and ongoing oversight of each phase of demolition.

2. Evaluate each REC to determine its potential to adversely affect soil and/or groundwater quality beneath the Site. This step forms the basis of any additional investigation needed for the REC, including the type of investigation and potential chemicals of concern. For example, if an REC involves a kerosene underground storage tank, then the State of Illinois considers benzene, toluene, ethylbenzene, and total xylenes (BTEX) and polynuclear aromatic hydrocarbons (PNAs) to be potential chemicals of concern. Any subsequent soil or groundwater sampling would involve testing for these compounds.
3. "Investigate" each REC to determine whether soil and/or groundwater quality have been adversely impacted at levels exceeding the Tier 1 (residential) Remediation Objectives listed in 35 Illinois Administrative Code Part 742. These regulations are also known as the Tiered Approach to Corrective Action Objectives, or "TACO" regulations. "Investigate" typically refers to the installation of soil borings, test pits, and monitoring wells for the purpose of collecting samples to determine the concentration of various chemicals and naturally-occurring metals within the soil and/or groundwater beneath the Site.
4. Present conclusions regarding each REC and where appropriate, indicate what additional steps may be needed to "close" the REC in anticipation of receiving the NFR letter from IEPA.

As a result of the comprehensive review described above, thirty-seven (37) Recognized Environmental Conditions (RECs) were identified and investigated at the Site. As part of the investigation, approximately 350 soil borings, 16 test pits, 11 piezometers, and 29 monitoring wells were installed and sampled. The investigation included laboratory analysis of:

- 133 soil samples for volatile organic compounds (VOCs)
- 79 soil samples for polynuclear aromatic hydrocarbons (PNAs)
- 14 soil samples for semivolatile organic compounds (SVOCs)
- 29 soil samples for Resource Conservation and Recovery Act (RCRA) metals
- 25 soil samples for SPLP Lead
- 12 soil samples for PCBs
- over 2,500 materials sampled for asbestos
- 15 soil samples for asbestos
- 170 groundwater samples for VOCs
- 58 groundwater samples for PNAs
- 9 groundwater samples for total Lead

Of the 37 Recognized Environmental Conditions (RECs) that were identified and addressed in this report:

- Six of the RECs had been previously closed by the IEPA under the leaking underground storage tank (LUST) program. No further action is warranted for these RECs.
- Twenty-two of the RECs are documented as complete in this CSIR. No further assessment or remedial action (cleanup) is warranted for these RECs.
- Nine of the RECs will require submission of the next series of reports specified by the SRP, which include the Remediation Objectives Report (ROR) and Remedial Action Plan (RAP).

For seven of the nine remaining RECs, the ROR and RAP will describe the placement of a 3-foot thick clean soil cover or equivalent barrier (such as paved roads and parking lots) over the entire Site to address various soil contamination issues, including the presence of asbestos-containing materials found beneath the soil's surface following demolition. With the approval of IEPA and U.S. EPA, JM has placed a mulch material over significant portions of the Site as an interim cover. In addition, minor impacts to groundwater that are not expected to migrate off-Site will be addressed by first, using the TACO-prescribed modeling to confirm that off-Site migration is not expected to occur, and second, developing institutional controls for the Site.

Based upon the data developed to date, it appears further corrective action will be needed to mitigate residual impacts to soil and/or groundwater from the final two RECs (REC 3 and REC 12). REC 3 is related to the removal of a gasoline underground storage tank from the west side of Building D in 1989. REC 12 is related to operation of a solvent recovery system in Building A.

In both cases (REC 3 and REC 12), contaminated soil will likely be excavated and disposed off-Site at a landfill licensed to accept these materials. In addition, contaminated groundwater associated with REC 3 will likely require remediation to applicable remediation objectives. Contaminated groundwater associated with REC 12 is not expected to migrate off-Site, and modeling will be performed to confirm this expectation. All remediation activities will be described in additional detail in the ROR and RAP. Finally, upon completing remediation, documentation of the work will be presented in the Remedial Action Completion Report (RACR), which is the final report to be filed prior to IEPA issuing the NFR letter.

1.0 INTRODUCTION

1.1 Site Description

The approximately 353-acre Johns Manville (JM) facility ("the Property") is located along the shoreline of Lake Michigan primarily in the City of Waukegan, Lake County, Illinois (see Figure 1, Property Location Map). It is bounded on the west by the Union Pacific Railroad, on the south by Greenwood Avenue, Midwest Energy, Commonwealth Edison, and City of Waukegan property, on the east by Lake Michigan, and on the north by Illinois Beach State Park.

For discussion purposes, the Property may be divided into five general areas: Building (roughly 109 acres), Disposal (142 acres), Borrow (roughly 50 acres), Beach (roughly 23 acres) and Canal (roughly 29 acres). Figure 2 (General Property Map) depicts these and other major features.

This Comprehensive Site Investigation Report (CSIR) addresses soil and groundwater quality within the Building Area, which hereafter in this report shall be referred to as the "Remediation Site" or "Site." The Site is outlined on Figure 2.

1.2 Property Development History

JM has occupied the property since approximately 1920. Prior to that time, the area was largely undeveloped. Manufacturing facilities were constructed within the Building Area beginning in the early 1920's with various changes and additions made until the late 1970s. At its peak, the plant employed up to 5,000 workers and produced a wide range of asbestos-containing building products. The manufacture of asbestos-containing materials (ACMs) was discontinued at the Site ca. December 1985. Manufacturing of other building materials continued until September 1998.

As of October 2001, the former manufacturing buildings located within the Building Area and shown as gray on Figure 2, were demolished. The only buildings that currently remain are a new building (constructed in 2000) to house property maintenance staff and equipment, a small security office located at the Property entrance, and a pump house located at the northern end of the Site, adjacent to the Pumping Lagoon. Figure 3 is an aerial photograph of the Property taken in October 2001.

As the October 2001 aerial photograph shows, the former outlines of the buildings may be seen as rectangular, linear features. In general, the buildings were constructed with their floor slabs approximately 4 feet above nominal, outside grade. Hence, once the slabs were removed during demolition, the areas beneath the former buildings are approximately 3 feet higher than the surrounding grade.

During the plant's history, waste manufacturing debris and other ACMs were placed in the Disposal Area. In July 1985, JM submitted a Remedial Investigation Report for the Disposal Area. Completed in 1992, this Area was closed and capped with a cover composed of sand and clay in accordance with a federal Consent Decree between JM, the U.S. Environmental Protection Agency (U.S. EPA), and the State of Illinois. Consistent with the Consent Decree, the Settling and Collection Basins and the Industrial Canal and Pumping Lagoon were left open as part of ongoing manufacturing operations (which subsequently ceased in September 1998). At present; activities are underway pursuant to a U.S. EPA Second Explanation of Significant Differences (ESD) to permanently close the Settling and Collection Basins. This ESD also required that JM conduct a study concerning sediment in the Borrow Area, Pumping Lagoon, and Industrial Canal, and this study was submitted to U.S. EPA and IEPA in September 2002.

The Borrow Area was purchased by JM during the late 1960s for possible future expansion of manufacturing facilities but that expansion never took place. This area was utilized as a source of sand during closure of the Disposal Area during the early 1990s.

1.3 Report Organization

This Comprehensive Site Investigation Report has been developed to address soil and groundwater quality within the Building Area. The principal report elements are:

- Section 2.0: Site Environmental History
- Section 3.0: Subsurface Investigation Activities
- Section 4.0: Subsurface Investigation Results
- Section 5.0: Discussion of Results
- Section 6.0: Summary and Conclusion

Because of the large nature of the Site, and the multiple investigative events that have taken place, the report is generally organized by the Recognized Environmental Conditions (RECs) that have been identified at the Site. RECs are defined in a manner consistent with ASTM Standard 1527-00, as the "*presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property.*" Section 2.0, Site Environmental History, provides a general discussion of the history of the Site and the steps taken since approximately 1998 to identify RECs at the Site.

Assessment of the individual RECs identified in Section 2.0 is discussed in subsequent sections of the report and summarized in Table 19.

2.0 SITE ENVIRONMENTAL HISTORY

To form the basis of the comprehensive subsurface investigation activities discussed later in this report, a thorough review of available data was undertaken in 1998 and 1999. This process was akin to conducting a Phase I environmental site assessment, with the purpose of identifying Recognized Environmental Conditions that warranted additional investigation. In addition, demolition activities begun in 1999 and completed in 2001 provided additional information regarding possible sources of subsurface contamination.

Summarizing, data sources utilized in developing the Site environmental history included:

- Reports related to the removal of various underground storage tanks (USTs) in 1989.
- Various historical fire insurance maps and plant documents and drawings.
- Various historical aerial photographs.
- Interviews with available plant personnel.
- Underground storage tank (UST) removals conducted in 2000 and 2002.
- Building demolition activities conducted from 1999 to 2001.

The following sections discuss each of these in greater detail.

2.1 1989 UST Removal Program

In 1989, JM removed a total of 25 underground storage tanks (USTs) from 11 different excavations located throughout the Building Area. In a letter dated May 9, 1991 (see Appendix A), the Illinois Environmental Protection Agency (IEPA) issued "no further remediation" status for Excavations 1, 6, 7, 8, 9, and 10. Excavations 2, 3, 4, 5, and 11 either required remediation or additional assessment data prior to closure.

Incident Number 891724 was assigned to all of the remaining impacted excavations. In 1995, the release associated with UST Excavation 3 (containing Tank 3) was transferred into the LUST regulations found in 35 Illinois Administrative Code Part 732. Incident number 951826 was assigned to that tank only; all other outstanding UST issues remained associated with Incident Number 891724.

Assessment and corrective action activities conducted through 1996 pursuant to Incident Number 891724 were summarized by C.C. Johnson and Malhotra, P.C. (CCJM) in a *UST Closure Report* dated February 26, 1996. In a letter dated July 29, 1997 (see Attachment A), the IEPA requested that additional information be submitted to the

agency prior to considering closure of the incident. The information requested by the IEPA is addressed in this report. Concurrent with submittal of this CSIR, the appropriate form has been submitted to the IEPA indicating that all remaining LUST issues related to Incident Number 891724 has been transferred to the SRP.

Regarding Incident Number 951826, a *Site Classification Completion Report*, prepared by CCJM on behalf of JM and dated November 19, 1996, was received by the IEPA on November 22, 1996. In a letter dated March 24, 1997 (see Attachment-A), the IEPA rejected the proposed Low Priority Classification for the various reasons specified in the letter. This report addresses current soil and groundwater quality associated with this excavation. Presently, this Incident Number remains in the Part 732 LUST program; JM has not made a decision whether to transfer this release number into the Site Remediation Program.

2.2 Building Demolition

Based upon the age and condition of the former manufacturing buildings and notice from U.S. EPA that JM would be responsible for demolition should any future building owner fail to carry out adequate maintenance, JM elected to demolish nearly all of the structures remaining on-Site. With the exception of a small security building at the property entrance, a pump house located near the Pumping Lagoon, and a small building constructed in 2000 to house remaining maintenance equipment, all buildings were demolished between October 1999 and October 2001. Approximately 1.9 million square feet of buildings were demolished, with all demolition debris removed for off-site disposal at the Onyx Landfill in Zion, Illinois.

Building demolition was divided into 3 phases:

Phase I: Asbestos abatement and removal of tanks and equipment from the eastern section of Building B; this work was conducted concurrent with Phase II.

Phase II: With certain exceptions, abatement and removal of all friable and specified non-friable ACMs, demolition and removal of certain equipment, demolition and removal of all interior office structures, and demolition of Building M. This work was completed between approximately October 1999 and May 2000.

Phase III: Final building demolition and concrete slab/foundation removal. This was begun in August 2000 and completed in October 2001.

The due diligence steps taken in support of building demolition included:

1. Development of engineering drawings of each building at the Site.
2. Comprehensive survey of asbestos-containing materials.

3. Comprehensive survey of other regulated materials (e.g., Lead, Mercury) found within the buildings, including any remaining tanks to be removed during demolition.
4. Development of detailed bid specifications for each phase of demolition. The contractors were held to very specific standards contained in the bid specifications and were supervised by JM representatives at all times during demolition.

The following is a general discussion of the demolition due diligence undertaken at the Site. Additional details may be found in each bid specification written for the project.

2.2.1 Engineering Drawings

Engineering drawings developed for demolition included the location of exterior and interior building walls, office structures, plant ventilation equipment, sub-floor pits, manufacturing equipment (including tanks), and roof types (asbestos vs. non-asbestos). Detailed sets of these drawings were included in the bid specifications provided to the contractors.

There were 23 designated buildings on Site: Building A through Building V (including Buildings P and P1) totaling approximately 1.9 million square feet under roof. Not all building identifiers represent individual structures; several buildings may be designated within one overall structure (e.g., Buildings O and S). Figure 4 depicts the overall building layout and identification scheme.

2.2.2 Surveys of Asbestos and Other Regulated Materials

Concurrent with developing the building drawings, detailed surveys of ACM and other Regulated Materials were initiated in 1998 and completed in 1999.

2.2.2.1 Asbestos Survey

The asbestos survey was undertaken and completed in accordance with current regulations governing demolition in Illinois and estimated quantities of asbestos containing material in the building structures. In addition, particular care was taken to ensure that the survey was not only complete and accurate, but that it could be used as part of the bid specification to reduce or eliminate uncertainty on ACM volumes, and hence, keep project costs down.

To allow maximum flexibility for its use, the survey was incorporated into a Microsoft Access® database. A summary of the confirmed and assumed ACM quantities in the database is:

JM Plant ACM Quantities

EPA Category	Quantity	Units
Friable	236,467	Square feet
	83,504	Linear feet (e.g., pipe insulation)
Category I Non-Friable	1,368,046	Square feet
	19,573	Linear feet
Category II Non-Friable	1,862,861	Square feet
	662,549	Linear feet

In addition, all asbestos sample results were input to the same database and cross-referenced by Homogeneous Application. Approximately 2,500 samples of suspect ACM were collected from the buildings for the survey.

2.2.2.2 Other Regulated Materials Survey

Concurrent with the ACM inventory, a survey of "Other Regulated Materials" was also conducted in the buildings. "Other Regulated Materials" included:

- Stored petroleum hydrocarbons and other solvents
- Mercury in lighting, switches, and meters
- Lead and lead-containing dust
- Cleaning solutions
- Possible PCB-containing light ballasts
- Fluorescent lights

Disposal of these materials was incorporated into the contractor specifications developed for demolition.

2.2.3 Demolition Specifications

2.2.3.1 Phase I Demolition

Phase I Demolition consisted of salvaging certain equipment from the Thermo-12 (T-12) manufacturing process, which until September 1998, was located in the eastern end of Building B.

Phase I began in October 1999 and generally consisted of abating all friable and non-friable asbestos related to the equipment being salvaged, removal of the eastern wall of Building B, match-marking the equipment for re-assembly, and removing the equipment to a temporary off-Site storage location. Phase I was completed June 2000.

All ACM-related activities completed during Phase I (including abatement and off-Site disposal of ALL materials) was completed in accordance with all applicable federal, state, and local laws and regulations. No friable or non-friable ACM removed as part of Phase I remained on-Site; in fact, no demolition-related ACM of any kind was disposed on-Site during any phase of the demolition project. Additional details on Phase I Demolition may be found in the document entitled *Bid Specification for Phase I and Phase II Demolition at the Johns Manville Facility, Waukegan, Illinois (Revision 2)* dated September 17, 1999.

2.2.3.2 Phase II Demolition

With building conditions continuing to deteriorate, concern existed that a catastrophic roof or wall failure could result in a release of asbestos to the environment. With reducing these risks as the primary objective, Phase II Demolition was begun in October 1999 and completed during June 2000. Phase II consisted of abatement and off-Site disposal of all friable (with certain exceptions discussed below) and specified non-friable ACMs, removal and off-site disposal of all Regulated Materials, demolition and removal of certain equipment, demolition and removal of all interior office structures, and demolition of Building M. With the exception of clean concrete and bricks, no demolition debris generated as part of Phase II remained on-Site, including friable or non-friable ACM. Additional details on Phase II Demolition may be found in the document *Bid Specification for Phase I and Phase II Demolition at the Johns Manville Facility, Waukegan, Illinois (Revision 2)* dated September 17, 1999.

2.2.3.3 Phase III Demolition

Phase III Demolition consisted of final abatement and demolition of the Building Area. All buildings were demolished, with the exception of the Guard House (for security purposes) and Building N (Pump House). Nearly 5,500 loads of demolition debris were disposed at the Onyx Landfill in Zion, Illinois; no demolition debris was disposed on-Site.

Following building demolition, all aboveground cement block and reinforced concrete walls, rooms, pits, foundations, floors, and footings were removed to a depth of approximately 12 inches below grade. All pits located within the building footprint were excavated to their bottom and inspected for the presence of equipment or Regulated Materials. All steel liners or equipment were removed. If petroleum contamination was noted, the pits were cleaned and rinsed to remove visual contamination. All materials contaminated with either petroleum or friable asbestos were removed and disposed off-Site in accordance with all applicable federal, state, and local laws and regulations. Non-friable ACM encountered in the pits was managed in the same manner as the building sidewalls and roofing materials. After each pit was emptied of its contents, the bottom was punctured to allow for drainage and then backfilled to grade using sand from the area surrounding the pit.

Subject to removing all protruding steel, all concrete not contaminated with either asbestos or other Regulated Materials (such as petroleum hydrocarbons) was crushed to an approximate size of 8-inches or less and remains on-Site for use as clean fill. In some cases, the plant historically used ACM (typically, a Transite panel) to make a form for a concrete foundation or wall. Any concrete that was removed with pieces of ACM still adhered to it (such as sections of a form) was subsequently transported and disposed off-Site at the Onyx Landfill. Also, concrete that was visually stained with petroleum hydrocarbons (e.g., grease or oil) was also disposed off-Site.

Additional details on Phase III Demolition may be found in the document *Bid Specification for Phase III Demolition at the Johns Manville Facility, Waukegan, Illinois (Revision 1)* dated July 20, 2000. Phase III Demolition was completed as of October 2001.

2.2.4 Demolition Oversight and Management

Substantial measures were taken to ensure that the contractors implemented demolition in accordance with the specifications. JM retained outside engineering services to oversee all phases of the demolition. Specific activities conducted as part of oversight included:

- Tracking of every load of waste material sent off-site for disposal. In addition to waste manifests, a specific Material Release Form was developed and filled out to account for every load that left the site, whether intended for disposal or recycling. No loads were allowed off-site without a Material Release Form, and where appropriate, a waste manifest.
- Supervising every machine on-site dedicated to removing concrete slabs and pit cleaning. Staff observed, at all times, concrete slabs being removed so that in the event asbestos or other regulated materials were observed beneath the slab or within a pit (e.g., petroleum contamination), those materials could be

excavated and properly disposed in accordance with applicable laws and regulations.

2.2.5 Environmental Conditions Resulting from Demolition

The first 2 phases of demolition did not involve extensive subsurface excavation or removal of materials. During Phase III Demolition, a total of 4 environmentally-related conditions were observed. These were:

1. Building D Transformer Release. During demolition of an electrical transformer located between Buildings C and D, several hundred gallons of reserve non-PCB transformer oil were released to the on-site sanitary sewer when the tank containing the oil was inadvertently punctured and the oil drained to the concrete-curbed foundation for the transformer. A drain in the foundation led to the sanitary sewer. The oil was recovered and an investigation was conducted that determined no oil was released outside the sewer. The results of the investigation are discussed in a later section of this report.

2. Building J Transformer Release. During demolition of an electrical transformer located south of Building J, oil within the transformer had not been sufficiently drained before heavy equipment attempted to hoist it prior to loading for off-site transportation. Oil drained to the surface of concrete driveway. The oil was recovered and samples collected from beneath the concrete pavement to determine that the release had not impacted the subsurface soil. The results of the investigation are discussed in a later section of this report.

3. Fog Tunnels. The Fog Tunnels were located above the concrete floor slab in the central eastern section of Building E and were utilized for curing Transite wall panels (an asbestos-containing product). When removing the concrete floor beneath the tunnels, an unspecified solvent-related odor was released to the atmosphere. Soil beneath the slab consisted of medium-grained, very dry sand. The odor quickly dissipated; however, additional investigation was warranted. The results of the investigation are discussed in a later section of this report.

4. Still Room. The Still Room housed several above-ground heated asphalt storage tanks used in the manufacture of asphalt roofing products. Upon removal of the concrete floor slab, partially solidified asphalt was noted in the upper surfaces of the underlying foundation sand. This material was removed for off-site disposal; however, additional investigation of potential impacts was warranted. The results of the investigation are discussed in a later section of this report.

2.3 Due Diligence

As manufacturing operations gradually ceased during the late 1990s, a due diligence process was undertaken with the goal of defining the remaining subsurface environmental conditions located within the Building Area. Begun during 1998, subsurface due diligence included the following:

1. Review of available plant drawings and documents, Sanborn, and other fire insurance maps, including the manufacturing processes that were known to have occurred within each building. Copies of the following maps are included in Appendix B:
    a. Sanborn Fire Insurance Map, dated 1924
    b. Sanborn Fire Insurance Map, dated 1929
    c. Sanborn Fire Insurance Map, dated 1949
    d. Sanborn Fire Insurance Map, dated 1965
    e. Johnson and Higgins Fire Insurance Map, dated April 4, 1936
    f. Factory Insurance Association Map dated January 14, 1955
    g. Factory Mutual Engineering Division Fire Insurance Map, dated October 4, 1972
    h. JM Engineering Drawing dated December 29, 1943; as amended on April 12 ,1944

    In addition, several hundred plant drawings were compiled in a central location from the various manufacturing buildings prior to demolition. These drawings were reviewed to identify storage tanks and related manufacturing processes at the Site.
2. Review of historical aerial photographs. Photographs from 1946, 1953, 1956, 1972, and 1978 are included in Appendix C.
3. Interviews with available plant personnel. At the time of demolition, JM employed 7 maintenance personnel at the facility. The staff had an approximate average length of service at the plant of 35 years and thus, were invaluable in obtaining information regarding former manufacturing processes, tank locations and contents, and the history of each of the buildings.
4. Site inspections. LFR personnel have been on-Site for 4 years and during that time, have conducted extensive inspections related to developing the engineering drawings for demolition, the surveys of asbestos and other Regulated Materials, and ongoing oversight of each phase of demolition.

Table 1 is a Tank Inventory of all storage tanks identified at the Site during due diligence. Many of the tanks were related to manufacturing and contained naturally-occurring minerals such as lime, gypsum, or calcium carbonate. These minerals were

common to JM's manufacturing processes and although present (prior to demolition) at the Site, they do not represent a risk to the environment. Also included on the list are tanks containing materials that, if released, could present a risk to soil or groundwater quality.

Figure 5 shows the location of all storage tanks identified on the Tank Inventory in Table 1.

2.4 2000 UST Removal

On April 27, 2000, the remaining active 2,000-gallon gasoline UST was removed from the subsurface. The UST is identified as Tank 039 on the Site's tank inventory included with this report; the OSFM Tank Number is 26. The inspector from the Illinois Office of the State Fire Marshal did not observe a release of petroleum, therefore, no incident was reported for this tank removal. The location of Tank 039 is shown on Figure 5.

2.5 2002 UST Removals

During the due diligence process discussed in Section 2.3 (above), Tanks 030 and 053 (see Figure 5) were identified as possibly being present, although there was no remaining surficial evidence (tank covers, vent lines, etc...). Older drawings indicated that both tanks contained gasoline. However, the presence of either tank could not be confirmed until after demolition and overlying structures and adjacent utilities were no longer an obstruction or a concern. Following demolition, test pits conducted during December 2001 confirmed their presence; both tanks were subsequently removed under OSFM supervision on July 9, 2002.

At the direction of the OSFM representative, separate IEMA release numbers were obtained for each tank removal. Soil analytical results for both excavations were non-detect for the organic contamination (BTEX) or at background levels for lead. Water samples collected from the base of each excavation were either non-detect (Tank 055) or, in the case of Tank 030 at low levels attributable to an adjacent LUST incident (Tank 005). Therefore, the 45-Day Reports for both incidents were submitted to the IEPA in August 2002 as Corrective Action Completion Reports, with Comprehensive NFR letters requested for both. IEPA review is pending as of the date of this report.

2.6 Recognized Environmental Conditions

Table 2 is a list of the RECs at the Site. This list is inclusive of every known environmental issue within the outline of the Site, including conditions identified as a result of UST removals (regardless of current status), general Site due diligence, and demolition. In most cases, the issues have been resolved and will not result in subsequent corrective action. However, there are exceptions, which will be discussed in

this report. In addition, subsequent reports as required by the Illinois Site Remediation Program will be submitted at the appropriate time(s).

Figure 6 depicts the location of each REC.

3.0 SUBSURFACE INVESTIGATION ACTIVITIES

3.1 Investigative History

Several phases of subsurface investigation have taken place on the Site. These are as follows:

1. 1989 Underground Storage Tank (UST) Removal Program. In 1989, 25 USTs were removed from 11 separate excavations on the Site. Release number 891724 was assigned to the Site. In 6 of the excavations, the IEPA issued a letter stating that no remediation would be necessary (copy in Appendix A of this report); however, additional assessment work was required for 5 of the excavations. In response, numerous soil borings and 23 monitoring wells were installed throughout the former manufacturing area. These data have been incorporated in this CSIR. In addition, several previous reports were submitted to the IEPA LUST Division in support of closure. Copies of the following previously submitted reports are provided as part of this CSIR:

    a. CCJM Environmental Engineers and Scientists; *Work Plan for Manville Underground Storage Tank Phase I Groundwater Investigation*; January 1991. This report focused on investigating those excavations (5 of the original 11) not yet closed by IEPA.

    b. C.C. Johnson & Malhotra, P.C.; *IEPA UST Incident #891724 Status Report*; April 1993.

    c. C.C. Johnson & Malhotra, P.C.; *45 Day Report*; October 3, 1995. Tank 3 (from the 1989 removal program) was transferred to the Part 732 Regulations and given a new release number (951826). Therefore a 45 Day Report was prepared and submitted to the IEPA.

    d. C.C. Johnson & Malhotra, P.C.; *UST Closure Report*; February 26, 1996. This summary report was submitted as a request for closure of the excavations remaining in the Part 731 program (891724). An IEPA response letter requesting additional information was dated July 29, 1997. A copy of that letter is included in Appendix A of this report.

    e. C.C. Johnson & Malhotra, P.C.; *Amended Site Classification Completion Report*; June 9, 1997. This report was submitted in support of closure of the Tank 3 incident that was transferred to the Part 732 Program (951826). An IEPA response letter denying the site classification was dated March 24, 1997. A copy of that letter is included in Appendix A of this report.

Documentation on the means and methods of well installation and sampling is contained within the aforementioned reports. Until submission of this CSIR, no additional technical data regarding the assessment of the 1989 UST removal program have been submitted to the IEPA.

2. During 1998, LFR conducted additional investigations to verify current conditions of the known "release" areas identified in 1989 and to assess additional areas as necessary to prepare for eventual sale of the Site. This included installation of 16 test pits, 111 soil borings, and 4 additional monitoring wells (UMW-24 through UMW-27) throughout the Building Area. The data from this investigation has been incorporated into the CSIR.

3. Following the completion of demolition in October 2001, additional investigations were conducted by LFR. This included the installation of approximately 214 soil borings, 11 piezometers for water level measurements near Building A, and 2 monitoring wells (UMW-29 and UMW-30). The data from this investigation have been incorporated into the CSIR. For clarification purposes, the numbering scheme for monitoring wells inadvertently skipped "UMW-28." No monitoring well with that designation has been installed at the Site.

4. 2000 UST Removal Program. Soil and water samples collected from the excavation for removal of Tank 039 are incorporated into this CSIR. The soil sample locations are shown on Figure 7; the water sample location is shown on Figure 8.

5. 2002 UST Removal Program. Soil and water samples collected from the excavations for removal of Tanks 030 and 053 are incorporated into this CSIR. The soil sample locations are shown on Figure 7; the water sample locations are shown on Figure 8.

Separate and apart from the above referenced investigations within the former Building Area (Site) is work that has been conducted since approximately 1985 pursuant to a Consent Decree regarding closure of the Disposal Area located on the eastern (roughly) one-half of the Property (east of the Site). Two monitoring wells (SMW-01 and SMW-02) for this work are located at the western edge of the Site; the remaining monitoring wells are located adjacent to and within the Disposal Area itself. As appropriate and with proper reference and documentation, water levels and some chemical data have been incorporated into this CSIR.

3.2 Soil Boring Installation

Beginning in 1998, all soil borings were installed under the supervision of an LFR geologist. The geologist maintained a continuous log of the materials and conditions encountered in the borings, classified the soils, noted ground water levels and obtained soil samples for chemical and head space analysis. All field observations and

measurements are presented on the boring logs, which are included in Appendix E. Figure 7 depicts the soil boring locations.

Soil borings were installed using a track or truck mounted "direct push" soil-probe unit. Soil samples were continuously collected in 4-foot lengths using an acetate-sleeve in a 2-inch outside diameter, 1.5-inch inside diameter soil sampler. The sampler was driven using a hydraulic hammer. A new acetate-sleeve was used for each sampling event. Between samples, the soil sampler was decontaminated using an Alconox® solution wash and several water rinses.

Where appropriate, a photoionization detector (PID) equipped with a 10.6 electron volt lamp or a flame ionization detector (FID) was used to screen soil samples for the presence of organic vapors. PID/FID readings were recorded on the soil boring logs.

Soil samples retained for laboratory analysis were collected in clean containers provided by the analytical laboratory. Samples were then placed in an ice-chilled cooler or refrigerator and either picked up by, or delivered to, the analytical laboratory under strict chain-of-custody protocol within 24 hours.

Documentation of which soil samples were selected for laboratory analysis is included in the discussion of the results.

3.3 Piezometer Installation

To assist in the determination of groundwater flow direction in the area located near the Solvent Recovery Room (REC #12), 1-inch diameter PVC piezometers were installed in soil borings 02-12 through 02-22. All piezometers were installed using an expendable aluminum drive point to a depth below the surface of the shallow water table. The depth of the piezometer was dependent upon whether it was installed within the former footprint of the building or at the elevation of the surrounding parking and drive areas (3 to 4 feet difference, as discussed in the Site Description section). All piezometers were screened across the surface of the water table.

The casing top of each piezometer was surveyed to an absolute elevation using a Topcon Autolevel AT-F2.

A copy of the well logs for the piezometers are included in Appendix F. Figure 8 shows the location of each piezometer.

3.4 Monitoring Well Installation

As previously discussed, 29 monitoring wells have been installed throughout the Site for the purpose of investigating UST-related and other RECs. These are designated beginning with the letter "U." Other monitoring wells have been installed on the

Property in support of the CERCLA-related actions within the Disposal Area. These are designated beginning with either the letter "S" or "RI." Nearly all of the relevant chemical data for this CSIR has been collected from the "U"-designated wells. However, water level data and hydraulic conductivity tests conducted on the "S"-designated wells are relevant information to this investigation. Therefore, copies of all well logs, including construction materials and details of each monitoring well are included Appendix F. Figure 8 shows the location of each monitoring well on the Property.

For reference purposes, Table 3 depicts information on the monitoring wells at the Site, including date of installation, screened interval (feet below grade), top of casing elevation, and current status. In several cases, the wells have been destroyed as a result of facility demolition and are no longer available. However, historical water level and chemical data collected from those wells are included as part of this CSIR.

3.5 Water Level Measurements

Monitoring well and piezometer depth-to-water has been measured periodically using a Solinst-type water level indicator that is capable of an accuracy of +/- 0.01 feet. Table 4 contains all water level information collected from monitoring wells or piezometers located on the Site. For the "S"-designated wells, only the latest data (10/17/01) has been included, as this information was used to develop the Property-wide groundwater flow map discussed below.

3.6 Hydraulic Conductivity Testing

On July 30, 2002, rising head slug tests were conducted on the following monitoring wells:

- SMW-01: located on western Property line
- SMW-04: located on northern Property line, east end
- SMW-09: located on western Property line; this well was screened at the base of the aquifer (35.4 to 35.9 feet below grade)
- UMW-30: located on southern Property line, west end

The wells are widely distributed across the Property in an effort to determine whether significant variations in hydraulic conductivity are present within the shallow aquifer.

3.7 Site Elevation Control

Elevation control at the Site in general was established relative to the NAVD 88 datum plane in 2000 during a comprehensive Site survey conducted by Lake County Land

Survey Company of Lake Bluff, Illinois. As part of the survey, 6 permanent benchmarks were set at various locations on the perimeter of the Site. These benchmarks are used to maintain both elevation and spatial control within the Site, now that most permanent structures (e.g., buildings) have been demolished. The locations of the benchmarks are shown on Figure 8.

4.0 SUBSURFACE INVESTIGATION RESULTS

4.1 Geology

Fine to medium fine sand underlies the surface to a depth of between 32 feet and 39.5 feet below ground. Beneath the sand is a hard, dense, gray silty clay; described on the well logs as a glacial till. The till has been encountered at 5 locations on the Property, as follows:

- SMW-2: 32 feet below grade; located at the western Property line
- SMW-6: 39 feet below grade; located in the Disposal Area
- SMW-9: 39.5 feet below grade; located in the Disposal Area
- SMW-11: 38.5 feet below grade; located in the Disposal Area
- SMW-13: 38 feet below grade; located in the Disposal Area

No information is available regarding the thickness of the glacial till. However, as part of facility demolition, 2 water production wells were closed in accordance with Lake County Health Department regulations. The bottom of these wells was measured at approximately 125 feet below grade. No information on soil type was found in the plant records; nor was any data available regarding water production rates or use of the wells in the manufacturing process. Presumably, these wells were utilized as part of the plant's manufacturing water needs until the Pump House was constructed prior to the 1940s and water withdrawals from the Pumping Lagoon were available for manufacturing. The well locations were found on an old plant drawings and verified with field inspections. One of the wells was located beneath the foundation of a newer building (Building A); the other was found in a sub-grade vault adjacent to the eastern end of Building L.

4.2 Hydrogeology

Shallow groundwater is found within 10 feet of the surface within the upper sand unit. Water elevations for most Property monitoring wells/piezometers were last measured on October 17, 2001, as part of the 5-year monitoring requirements for closure of the Disposal Area. Figure 9 depicts the groundwater flow map from that gauging event.

Groundwater on the Site generally flows both east and north, originating from the southwest corner of the Site. There are local flow variations of importance that will be discussed in the sections on specific Recognized Environmental Conditions.

The slug tests results were as follows:

- SMW-01: 72.5 feet per day
- SMW-04: 73.7 feet per day
- SMW-09: 6.19 feet per day
- UMW-30: 66.7 feet per day

SMW-01, SMW-04, and UMW-30 are screened across the upper surface of the shallow aquifer. The results for these 3 wells are similar, with the average (71 feet per day) being consistent with a fine to medium grained sand. The results for SMW-09 are considerably lower. This well is screened at the base of the aquifer (34.9 to 39.9 feet below grade), which may explain the difference in hydraulic conductivity. However, the soil type at the base of the aquifer is also reported as fine sand, therefore, such a large difference is somewhat unexpected. Should the hydraulic conductivity of the lower portions of the aquifer become relevant, additional testing is warranted. Otherwise the average value of 71 feet per day will be utilized for any subsequent analysis. Copies of the raw data area included in Appendix D.

4.3 Potential Migration Pathways and Exposure Route Evaluation

The primary contaminant migration pathway at the Site is through the permeable, sandy soil and via the underlying shallow groundwater. Sanitary and storm sewer lines were closed during Phase III demolition. In addition, given the sandy nature of the soil underlying the Site, migration would not be expected to move preferentially along utilities via permeable excavation backfill. Therefore, all exposure routes (inhalation, ingestion, soil component of groundwater ingestion, and groundwater ingestion) will be evaluated using the properties of the underlying sandy soil and not via any preferential pathways.

4.4 Soil and Groundwater Chemical Analysis

All of the soil and groundwater chemical analysis collected at the Site has been compiled into the following tables:

- Table 5: Volatile Organic Compounds (VOCs) in Soil
- Table 6: Polynuclear Aromatic Hydrocarbons (PNAs) in Soil
- Table 7: Semivolatile Organic Compounds (SVOCs) in Soil
- Table 8: Total Metals in Soil
- Table 9: SPLP Metals in Soil
- Table 10: PCBs in Soil
- Table 11: Total Organic Carbon in Soil

- Table 12: Asbestos in Soil
- Table 13: Volatile Organic Compounds in Water
- Table 14: Polynuclear Aromatic Hydrocarbons in Water
- Table 15: Semivolatile Organic Compounds in Water
- Table 16: Total Lead in Water
- Table 17: Total Petroleum Hydrocarbons in Water
- Table 18: PCBs in Oil or Water

Where applicable, the tables are organized by REC. Most of the samples were collected to investigate specific issues that arose from either the UST program or general due diligence conducted on the Site. As such, the REC is identified in the sample ID header. For those samples that were analyzed pursuant to general assessment on the Site, the general location of the sample is identified in the sample ID header, and the reader is referred to the maps for exact location.

Where applicable, the Tier 1 remediation objectives for Residential Properties and Class I Groundwater pursuant to 35 Illinois Administrative Code Part 742 (TACO) are also shown on each table. These objectives are included for reference purposes only. For those RECs that show exceedances of Tier 1 objectives, final remediation objectives will be calculated as part of the relevant Remediation Objectives Report(s) to be produced in the future.

The following sections present a discussion of the chemical results, organized by REC.

5.0 DISCUSSION OF RESULTS

This section presents a discussion of each REC listed in Table 2.

5.1 REC 1: 1989 UST Excavation 1

In 1989, the plant removed 1 10,000-gallon UST used to store diesel fuel. The tank, identified as Tank 001, was located immediately west of the Pump House. On May 9, 1991 the IEPA issued a letter determining that no further remediation was warranted. Therefore, no additional work is proposed for this REC. A copy of the IEPA letter is included in Appendix A.

5.2 REC 2: 1989 UST Excavation 2

In 1989, the plant removed Tanks 002 (10,000-gallon kerosene), 021 (1,000-gallon kerosene), and 022 (500-gallon kerosene). All were used to supply kerosene in the manufacture of asbestos-containing flexboard products and shingles in the central portion of Building E. A wet, multi-layered asbestos slurry was compressed in large presses into the desired thickness. Each layer of the "sandwich" was separated by a metal sheet. A coating of kerosene was used to prevent the layers of flexboard products from sticking to the metal separator sheets. REC 16 (Building E Kerosene Pits) is a related issue in that upon excavation of the concrete-lined pits during Phase III Demolition, kerosene-impacted soil was found within the pits, which was then excavated and disposed off-Site. Additional work documenting potential impacts to soil in REC 16 is discussed in a further section of this report.

Following removal of the USTs, release number 891724 was assigned to the excavation. According to the 1991 CCJM Work Plan, approximately 1,500 cubic yards of soil were subsequently excavated and disposed off-Site. Based upon photographs and the presence of surficial sand in the former tank area, the excavation extended to the depth of the water table within the limits shown on Figure 10. Test pit TP-4 was completed in 1998 by LFR and verified that clean sandy fill was present in the former excavation area. Test pit TP-D was completed inside Building E prior to demolition to verify the contents (as soil) inside a concrete lined pit. Based upon visual, olfactory, and field screening with a photoionization detector (PID), contaminated soil was not encountered in TP-D.

5.2.1 Soil Sample Collection and Analysis

In a letter dated July 29, 1997 (see Attachment A), the IEPA requested that confirmation soil samples be collected to document that the excavation sidewalls were below applicable cleanup criteria. Based upon the use of kerosene, the appropriate

indicator compounds are Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) and polynuclear aromatic hydrocarbons (PNAs).

In December 2001, soil samples were collected from soil borings 01-1 through 01-10 in the area surrounding the limits of the former excavation. Additionally, during Phase III demolition, metal piping was noted beneath the concrete slab within the area outlined on Figure 10. Therefore, 2 soil borings (01-11 and 01-12) were advanced within this area to determine whether kerosene impacts were present in association with the piping. All samples were analyzed for BTEX and PNAs.

As Table 5 shows, all BTEX compounds were below detection limits. Table 6 (PNAs in soil) shows that of the 16 PNAs, Benzo(a)pyrene (BAP) was found above the Tier 1 Remediation Objective for Ingestion of 0.09 milligrams per kilogram (mg/kg) in soil borings 01-3 (0.1 mg/kg) and 01-4 (0.226 mg/kg). Based upon field screening, 01-10 was installed north of these 2 borings in an effort to delineate potential impacts. The soil sample from 01-10 was non-detect for all 16 PNA compounds. No other soil borings exhibited any impact from PNAs at levels above Tier 1 Remediation Objectives.

5.2.2 Water Sample Collection and Analysis

Tables 13 and 14 (VOCs and PNAs, respectively) display the historical results of water samples from UMW-01, UMW-02, UMW-03, and a "grab" water sample collected using a peristaltic pump from soil boring E-5. The most recent samples were collected by LFR in 1998.

No VOCs were detected above their respective detection limits from any of the 4 sample locations. These results are generally consistent with previous sampling events from the monitoring wells, which were first sampled in 1990.

In water samples collected by LFR on November 13, 1998, PNAs were not detected above their respective method detection limits in the 3 permanent monitoring wells installed within the former excavation area. Benzo(a)anthracene (BAA) and BAP were detected at concentrations slightly above their respective Class I Groundwater Remediation Objectives in the "grab" water sample collected from soil boring E-5.

5.2.3 Conclusions and Recommendations

Regarding residual soil impacts, the data show that a small amount of soil impacted by BAP at levels above the Residential Ingestion Standard of 0.09 mg/kg may be present in the area between the northern extent of the 1989 excavation and soil boring 01-10, as characterized by soil borings 01-3 and 01-4. No additional soil investigation is anticipated or warranted. The impact noted will be addressed through the placement of a 3-foot thick clean soil cover or equivalent barrier (such as paved roads and parking

lots) that will be described in a subsequent Remediation Objectives Report (ROR) and Remedial Action Plan (RAP), as required by the Site Remediation Program (SRP).

Regarding potential groundwater impacts as evidenced by the "grab" water sample from soil boring E-5, groundwater impacted by BAA and BAP may be present in the area immediately north of the former excavation area. This is consistent with the residual soil impacts noted to the south as described in the previous paragraph. Based upon Figure 9, soil boring E-5 is downgradient of the former excavation area. Leaving aside the issue of whether a "grab" groundwater sample is representative of actual aquifer conditions, subsequent analysis to be presented in the ROR/RAP (using equation R26 in the TACO regulations) will show that any potential impact to the groundwater will attenuate to its respective Groundwater Remediation Objective (BAP is the controlling compound) within 160 feet of the sample location, well before reaching any downgradient receptors (in this case, the surface water of the Pumping Lagoon, located approximately 700 feet to the north). Furthermore, with the placement of institutional controls on the Site, this potential impact will need not be addressed beyond documentation in the ROR/RAP to be issued for the Site. No further investigation of the groundwater is anticipated or warranted.

5.3 REC 3: 1989 UST Excavation 3

5.3.1 REC History

In 1989, the plant removed 1 2,000-gallon UST (Tank 003) containing gasoline from the area located west of Building D and immediately north of the former propane tank area (Tank 038). Release number 891724 was assigned to the excavation. In 1995, the release associated with Tank 003 was transferred to the "new" UST program (35 IAC Part 732) and a new release number assigned (951826). REC 3 is assigned to the removal of Tank 003.

The location of Tank 003 is part of a general area of the Site historically used to store and dispense gasoline for plant use. The initial use of the area for dispensing of gasoline appears to be from Tank 053 (noted on 1955 historical map, found, and removed in 2002), 054 (noted on 1955 historical map, but not found), and Tank 055 (noted on 1955 historical map, but not found). Other than the reference on the 1955 historical map, no records are available on the use of Tanks 053, 054, and 055 (REC 26). Presumably subsequent to the use of these tanks, Tank 003 was brought into service. The dispenser for Tank 003 was located immediately within Building D, with the dispenser line running east-west across Front Street. After Tank 003 was removed in 1989, Tank 039 was brought into service (REC 37). The same dispenser was used for Tank 039 as was used for Tank 003. The dispenser line for Tank 039 was separate and is shown on Figure 11. Tank 039 was clean closed (under OSFM permit) in 2000. Tank 053 was located with test pits in December 2001 and removed in July 2002. No dispensing of gasoline occurred after removal of Tank 039.

5.3.1 Previous Soil Disposal

According to the January 1991 CCJM Work Plan, approximately 840 cubic yards of contaminated soil were excavated and disposed off-Site at the BFI landfill in Zion, Illinois. Figures 11 and 12 show the estimated extent of the excavation.

5.3.2 Subsurface Investigation

Since the release was identified in 1989, multiple phases of subsurface investigation have taken place in an effort to define the extent of soil and groundwater impact. Based upon the presence of gasoline, indicator contaminants are BTEX and Lead.

5.3.2.1 Gasoline Impacted Soil

Table 5 lists, for each of the RECs in this area of the Site, all of the VOCs detected in soil samples analyzed in the laboratory. Note that 6 of the soil samples for REC 3 (GT-1, GT-2, TA3-3, TA3-4, TA3-5, and TA3-7) were collected at or below the surface of the water table. Therefore, while these results are helpful in identifying the extent of groundwater impact, they are not indicative of source-area soil contamination and are therefore, excluded from that portion of the analysis. However, in the interest of maintaining a complete record of all recent laboratory analyses, the results are included in Table 5. Review of Table 5 shows that only Benzene was detected in soil at levels exceeding the Tier 1 Soil Component of the Groundwater Ingestion Pathway for Class I Groundwater. No other Exposure Route exceedances were noted for Benzene or other BTEX compounds.

Figure 11 shows the current estimated limits of gasoline impacted soil at REC 3. The map is a compilation of all soil samples collected in the general area, including those collected to close out Tanks 039 (REC 37) and 053 (REC 26).

5.3.2.2 Gasoline Impacted Groundwater

Table 13 lists, for each of the RECs in this area of the Site, all of the VOCs detected in all water samples analyzed in the laboratory. Each of the BTEX compounds have been present at levels exceeding the Class I Groundwater Remediation Objective. Benzene has been chosen to indicate the current extent of impacted groundwater.

Figure 12 shows the extent of Benzene impacted groundwater in association with REC 3. The area of impact extends from the former dispenser to UMW-8, located at the western Property line. This configuration is consistent with the groundwater flow direction as depicted on Figure 9.

5.3.3 Conclusions and Recommendations

Gasoline-related indicator compounds (BTEX) have been identified in both soil and groundwater in association with REC 3. The extent of soil and groundwater impact has been defined, therefore, no additional assessment is proposed.

Based upon exceedances of the Tier 1 Soil Component of the Groundwater Ingestion Pathway and applicable Class I Groundwater Remediation Objectives, remediation will be required. Presently, REC 3 is still under the supervision of the LUST group at the IEPA. No decision has been made regarding whether to formally transfer the release to the SRP. In either case, the appropriate documents will be submitted to the IEPA to identify appropriate remediation objectives and the type of corrective action proposed (if SRP, the ROR and RAP will be developed).

5.4 REC 4: 1989 UST Excavation 4

5.4.1 REC History

In 1989, the plant removed USTs 004, 007, 008, 009, 010, 011, and 012 from the area located immediately south of Building A. This area has also been referred to as the "Southern Tank Farm." With the exception of Tank 004 (diesel fuel), all tanks were used to supply a solvent for use in the manufacture of asbestos-containing gaskets in Building A. The solvent was identified in previous reports as naptha and Methyl Ethyl Ketone (MEK); however, plant records indicate that a solvent commonly referred to as "Enjay," which is a toluene-based product, was the predominant solvent in use in this area. Analytical data from soil and groundwater samples also indicate that Toluene, and not MEK, was released to the soil and groundwater. Therefore, it is assumed that Toluene is the primary contaminant of concern and this discussion will refer to "Enjay" as the solvent used at the Site.

Regarding the overall process for solvent use, the Enjay was stored in the USTs located south of Building A. Figure 13 shows the general layout of the UST and associated transmission lines. Enjay was supplied via the "Supply Line" identified on the figure to machines called "sheeters." The sheeters were used to form the gasket material. The highly volatile Enjay was evacuated from the sheeters via overhead hoods connected to 36-inch diameter vapor transmission lines that penetrated the roof and were connected overhead to a "Solvent Recovery Room." Vapor-phase Enjay was condensed back to liquid form in the Solvent Recovery Room and subsequently returned to the USTs via the "New" and "Old" Return Lines. The Solvent Recovery Room is not considered part of the UST "system," however, it has been designated as REC 12 and is discussed in a later section of this report. Hence the discussions for both REC 4 and REC 12 are somewhat intertwined.

Following removal of the USTs, release number 891724 was assigned to the excavation. According to the January 1991 CCJM Work Plan, approximately 5,400 cubic yards of contaminated soil were excavated and disposed off-Site at the BFI landfill in Zion, Illinois. Figure 13 shows the estimated extent of the excavation.

5.4.2 Soil Sample Collection and Analysis

In a letter dated July 29, 1997 (see Attachment A), the IEPA requested that confirmation soil samples be collected to document that the excavation sidewalls were below applicable cleanup criteria. Based upon the storage of diesel fuel, Enjay, and possible use of MEK, the appropriate indicator compounds are VOCs and PNAs.

In December 2001, in accordance with the IEPA request, soil samples were collected from soil borings 01-94 through 01-101 installed in the area surrounding the limits of the former excavation. Additionally, during Phase III demolition, metal piping was noted beneath the concrete slab in association with the Supply and Return Lines, as shown on Figure 13. Therefore, additional soil samples were collected from these areas. All samples were analyzed for VOCs and PNAs.

5.4.2.1 Former UST Excavation Area

As Table 5 shows, the VOC detected was Toluene in soil boring 01-98 at a concentration of 0.0064 mg/kg, which is below the lowest applicable Remediation Objective of 12 mg/kg. Additionally, in a water-saturated soil sample collected at the elevation of the water table in STF-1 during 1998, Ethylbenzene was detected at a concentration of 18 mg/kg, which is above the Tier 1 Soil Component of the Groundwater Ingestion Pathway for Class I Groundwater limit of 13 mg/kg. Additionally, the concentration of Total Xylenes in that soil sample was 8 mg/kg, which is below the Tier 1 Soil Component of the Groundwater Ingestion Pathway for Class I Groundwater limit of 150 mg/kg. All other soil samples were non-detect for VOCs.

Table 6 shows that no PNAs were detected above their respective detection limits.

5.4.2.2 Former Transmission Lines

Soil samples were collected and analyzed in the laboratory from the following locations in association with the former transmission lines leading both to and from the UST area: 01-102 through 01-108 ("Supply" line area), 01-126 through 01-129 ("Return" line area), and EX4-P-1 through EX4-P-5 ("Return line area south of the building). A total of 16 samples were analyzed for VOCs and SVOCs (which include the 16 PNA compounds).

As Table 5 shows, the only VOC detected was Toluene in soil boring 01-107 at a concentration of 0.0062 mg/kg, which is below the lowest applicable Remediation Objective of 12 mg/kg. All other samples were non-detect for VOCs.

Table 7 shows that BAP was detected in soil sample Exc. 4, P-1 at a concentration of 0.27 mg/kg. No other SVOCs were detected above their respective detection limits.

5.4.3 Water Sample Collection and Analysis

Tables 13 and 14 (VOCs and PNAs, respectively) display the historical results of water samples from UMW-04, UMW-05, UMW-06, UMW-07, and a "grab" water sample collected from soil boring STF-3 by LFR on November 12, 1998 using a peristaltic pump. The 4 monitoring wells were sampled by LFR on November 16, 1998.

Based upon the latest data from 1998, no VOCs were detected above their respective detection limits from samples collected from UMW-04, UMW-06, UMW-07, and STF-3. Ethylbenzene was detected in monitoring well UMW-05 at a concentration of 0.0055 mg/l, well beneath the Class I Groundwater Remediation Objective of 0.7 mg/l. No other VOCs were detected in UMW-05.

As Table 14 shows, while several PNA compounds were detected at low concentrations, none were detected above their respective Class I Groundwater Remediation Objective.

5.4.4 Conclusions and Recommendations

Regarding residual soil impacts, the data show that with the possible exception of BAP in soil sample Exc. 4, P-1 and Ethylbenzene in STF-1, no residual impacts from REC 4 are present within Site soils. Therefore, no additional soil investigation is warranted for REC 4. The BAP impact in the shallow soil sample collected for the pipeline removal south of Building A is attributed to the presence of an asphalt fragment in the soil sample. Asphalt paving was removed to expose the piping and a small piece may have inadvertently been introduced to the soil sample. The piping in this location was used to transmit Enjay, a highly volatile, Toluene-based solvent. Enjay does not contain a detectable fraction of semi-volatile organic compounds. Therefore, given the total lack of impact from Enjay, it is not credible that the BAP detection is due to a release. Rather, as a common component of asphalt, the BAP is most likely attributable to cross-contamination from the overlying pavement. Regarding the presence of Ethylbenzene in STF-1 at levels slightly above the Tier 1 Remediation Objective for the Soil Component of the Groundwater Ingestion Pathway for Class I Groundwater, monitoring wells surrounding this area do not exhibit Ethylbenzene at concentrations greater than the Class I Groundwater Remediation Objective. Furthermore, the soil sample was collected from the saturated zone and therefore, may be considered invalid in the analysis of whether the concentration is of sufficient magnitude so as to cause

groundwater contamination. The BAP impact noted will be addressed through the placement of a 3-foot thick clean soil cover or equivalent barrier (such as paved roads and parking lots) that will be described in a subsequent Remediation Objectives Report (ROR) and Remedial Action Plan (RAP), as required by the Site Remediation Program (SRP).

The 4 monitoring wells were sampled for various VOCs several times since 1990. An overall decreasing trend in concentration, particularly for Toluene in UMW-06, is evidenced by the historical data. By 1994, the Toluene concentration in UMW-06 was below the detection limit of 0.001 mg/l. Based upon the latest data from 1998, no VOCs were detected above their respective detection limits from samples collected from UMW-04, UMW-06, UMW-07, and STF-3. Ethylbenzene was detected in monitoring well UMW-05 during 1998 at a concentration of 0.0055 mg/l, which is well beneath the Class I Groundwater Remediation Objective of 0.7 mg/l. No other VOCs were detected in UMW-05. Based upon the latest data, which are supported by the overall historical trend, no additional assessment of groundwater is warranted for REC 4.

Based upon the above analysis of soil and groundwater quality associated with REC 4, no additional work is proposed for this REC.

5.5 REC 5: 1989 UST Excavation 5

In 1989, the plant removed USTs 005 (Mineral Spirits) and 006 (Mineral Spirits and/or Methanol) from an area located south of Building D (see Figure 14). Following removal of the USTs, release number 891724 was assigned to the excavation. According to the CCJM reports, an unknown volume of impacted soil was excavated and disposed off-Site. In addition, some free floating product was recovered from the excavation and disposed off-Site.

In January 1990, monitoring wells UMW-11 and UMW-12 were installed in the area immediately south of the former tank excavation. Water samples collected and analyzed for VOCs (see Table 13) revealed the presence of BTEX compounds above Class I Groundwater Remediation Objectives. The last sampling round conducted by CCJM was completed on November 1, 1995 showed only Benzene (in UMW-11) at a concentration of 0.009 mg/l, which is slightly above the Class I Groundwater Remediation Objective of 0.005 mg/l. No other BTEX compounds were detected above their respective Class I Groundwater Remediation Objectives. No data for PNAs was collected during the sampling rounds conducted through 1995.

In a letter dated July 29, 1997 (see Attachment A), the IEPA requested that confirmation soil samples be collected to document that the excavation sidewalls were below applicable cleanup criteria. Based upon the use of mineral spirits and methanol, the IEPA identified the appropriate indicator compounds as BTEX, PNAs and Methanol.

5.5.1 Soil Sample Collection and Analysis

In November and December 1998, LFR installed several soil borings in the area surrounding the former excavation and conducted test pits TP-1, TP-2, and TP-7 to establish the general outline of impacted soil and/or groundwater based upon PID screening and limited laboratory analytical data. Soil samples from soil boring D-7 and test pits TP-1, TP-2, and TP-3 were submitted to the laboratory for analysis of VOCs and PNAs. The VOCs Ethylbenzene and Total Xylenes were detected in the soil samples (see Table 5), but none at levels exceeding the most stringent Remediation Objectives for Residential Property or Class I Groundwater. Several PNAs were also detected (see Table 6), but again, none were at levels exceeding the most stringent Remediation Objectives for Residential Property or Class I Groundwater.

In December 2001, additional soil borings were installed to further define the lateral extent of impacted soil. Soil samples from soil borings 01-73 and 01-77 were submitted to the laboratory for analysis of BTEX, PNAs, and Methanol. These soil borings were selected due to the high PID readings noted during field screening. As with the 1998 results, the VOCs Ethylbenzene and Total Xylenes were detected in the soil samples (see Table 5), but none at levels exceeding the most stringent Remediation Objectives for Residential Property or Class I Groundwater. No Methanol was detected above the method detection limit of 0.01 mg/kg. With the exception of Acenaphthylene, all PNAs were detected in the soil samples. However, only BAP was present in both samples at a concentration above the Tier 1 Residential Ingestion Limit of 0.09 mg/kg. No other exceedances were noted.

Figure 14 depicts the estimated extent of soil impact associated with REC 5. The extent is based upon both the laboratory reports and the results of field screening with a PID. It is assumed that soil within this area will exhibit impact from BAP that may exceed the Ingestion Remediation Limits for Residential Property.

5.5.2 Water Sample Collection and Analysis

In November of 1998, LFR collected water samples from soil borings C-1, C-2, and CD-1 and from test pits TP-1 and TP-7. In addition, monitoring well UMW-24 was added to determine whether historical impacts noted in UMW-11 had migrated downgradient. Each water sample was analyzed for VOCs and PNAs. In addition, water samples collected from UMW-11 and UMW-24 were fingerprinted for hydrocarbon type and concentration to aid in determining the type of hydrocarbons present. Figure 15 depicts the water sample locations.

The VOCs Benzene (maximum concentration of 0.011 mg/l), Chlorobenzene (maximum concentration of 0.044 mg/l), Ethylbenzene (maximum concentration of 0.1 mg/l), and Total Xylenes (maximum concentration of 0.31 mg/l) were detected in the water samples. Of these, only Benzene (in C-1 and TP-7) exceeds its Class I Groundwater Remediation Objective of 0.005 mg/l. See Table 13 for the results.

Eight of the 16 PNAs were detected in the water samples. Of these, Benzo(a)anthracene (maximum concentration of 0.0022 mg/l), BAP (maximum concentration of 0.0018 mg/l), Benzo(k)fluoranthene (maximum concentration of 0.00084 mg/l), Dibenzo(a,h)anthracene (maximum concentration of 0.00075 mg/l), and Naphthalene (maximum concentration of 0.23 mg/l) each exceeded their respective Class I Groundwater Remediation Objective. See Table 14 for the results.

The fingerprinting analyses (see Table 17) showed the presence of a predominance of high boiling point hydrocarbons, consistent with either mineral spirits or a fuel oil. Given that several tanks in the area stored mineral spirits, this would appear to support the presence of this compound within the REC. A mild sheen was noted on the surface of the water in UMW-11; therefore, only fingerprinting analysis was conducted on the sample from that well. Note that a relatively high total petroleum hydrocarbon (TPH) concentration was detected in UMW-11, reflective of the sheen noted on the surface of the water sample. However, the TPH concentration measured in the downgradient monitoring well, UMW-24, was considerably lower, reflective of a rapid attenuation of the higher concentrations in the immediate vicinity of the former tank location.

5.5.3 Conclusions and Recommendations

Regarding soil impacts, the data show that BAP-impacted soil is present at levels exceeding the Tier 1 Remediation Objective for the Ingestion Exposure Route within the area outlined on Figure 14. No additional soil investigation is anticipated or warranted. The impact noted will be addressed through the placement of a 3-foot thick clean soil cover or equivalent barrier (such as paved roads and parking lots) that will be described in a subsequent Remediation Objectives Report (ROR) and Remedial Action Plan (RAP), as required by the Site Remediation Program (SRP).

Various VOCs and PNAs were detected during 1998 in water samples at concentrations exceeding their respective Class I Groundwater Remediation Objective. These include Benzene, Benzo(a)anthracene, BAP, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, and Naphthalene. Subsequent analysis to be presented in the ROR/RAP (using equation R26) will show that these impacts to the groundwater will attenuate to their respective Groundwater Remediation Objective within approximately 400 feet of the sample location, well before reaching any downgradient receptors (in this case, the surface water of the Pumping Lagoon, located approximately 1,100 feet to the north). Furthermore, with the placement of a deed restriction eliminating any future use of groundwater on the Site, this potential impact will need not be addressed beyond documentation in the ROR/RAP to be issued for the Site. No further investigation of the groundwater is anticipated or warranted.

5.6 REC 6: 1989 UST Excavation 6

In 1989, the plant removed USTs 013, 014, and 015 from the area located immediately north of the Power House (Building P). On May 9, 1991 the IEPA issued a letter determining that no further remediation was warranted. Therefore, no additional work is proposed for this REC. A copy of the IEPA letter is included in Appendix A.

5.7 REC 7: 1989 UST Excavation 7

In 1989, the plant removed UST 016 from the area located immediately north of the east wall of Building P-1. On May 9, 1991 the IEPA issued a letter determining that no further remediation was warranted. Therefore, no additional work is proposed for this REC. A copy of the IEPA letter is included in Appendix A.

5.8 REC 8: 1989 UST Excavation 8

In 1989, the plant removed USTs 017 and 018 from the area located immediately west of the south end of the west wall of Building F. On May 9, 1991 the IEPA issued a letter determining that no further remediation was warranted. Therefore, no additional work is proposed for this REC. A copy of the IEPA letter is included in Appendix A.

5.9 REC 9: 1989 UST Excavation 9

In 1989, the plant removed UST 019 from the area located immediately north of the former natural gas meter house along the south side of Building C. On May 9, 1991 the IEPA issued a letter determining that no further remediation was warranted. Therefore, no additional work is proposed for this REC. A copy of the IEPA letter is included in Appendix A.

5.10 REC 10: 1989 UST Excavation 10

In 1989, the plant removed UST 020 from the area located immediately north of Building Q. On May 9, 1991 the IEPA issued a letter determining that no further remediation was warranted. Therefore, no additional work is proposed for this REC. A copy of the IEPA letter is included in Appendix A.

5.11 REC 11: 1989 UST Excavation 11

In 1989, the plant removed USTs 023, 024, and 025 from the area located immediately north of the northern annex to Building H. At the time of the removal, no soil samples were collected. In a letter dated July 29, 1997, the IEPA requested that soil samples be collected and analyzed for a wide range of potential contaminants, based upon the (at the time of the letter) unknown contents of the tanks. In 1998 using Site drawings (see

Appendix B), LFR determined that the tanks previously contained naptha (UST 023), linseed oil (UST 024), and engine oil (UST 025).

In accordance with the IEPA request, LFR collected soil samples from 4 soil borings in 2001 (01-90, 01-91, 01-92, and 01-93) for analysis of VOCs (Table 5), SVOCs (Table 7), Total RCRA metals (Table 8), and SPLP RCRA metals (Table 9). The sample locations are shown on Figure 7. The following is a summary of the results:

- Regarding VOCs, Ethylbenzene (0.362 mg/kg) and Total Xylenes (2.14 mg/kg) were detected in soil boring 01-90. However, neither was found at levels above their respective Tier 1 Remediation Objectives for Residential Properties. No other VOCs were found above their respective method detection limits.
- Regarding SVOCs, none were found in any of the 4 soil borings above their respective method detection limits.
- Regarding Total RCRA metals, none were found above their default background concentrations for Lake County soil, as documented in 35 IAC Part 742.
- Regarding SPLP Metals, none were detected above their respective Groundwater Remediation Objective.

Note that other soil borings are present in the area surrounding this REC. In 1998, LFR installed soil borings IMS-3 and IMS-4 as screening borings to determine whether impacts from this area might be anticipated. No soil samples were collected for analysis, as PID readings were negative and there were no olfactory or visual indications of contamination. A "grab" water sample was collected using a peristaltic pump from the open (unscreened) hole for soil boring IMS-3. The water sample was submitted to the laboratory for analysis of VOCs and PNAs. No VOCs were detected above their respective method detection limits. The following PNAs were detected: BAA (0.00083 mg/l), BAP (0.00011 mg/l), Benzo(b)fluoranthene (0.0001 mg/l), and Benzo(g,h,i)perylene (0.00016 mg/l). BAA was the only PNA found to be slightly above its Class I Groundwater Remediation Objective of 0.00013 mg/l. Based upon the lack of any soil impacts, the method of water sample collection (using an unscreened soil boring through which to collect a water sample), and the very low concentrations overall, actual dissolved-phase PNA impacts to groundwater are not considered likely and should not be considered further.

Based upon the soil sample results, no additional work is proposed for this REC.

5.12 REC 12: Solvent Recovery Room

5.12.1 REC History

As discussed in the section on REC 4 (1989 UST Excavation 4), the Solvent Recovery Room (SRR) was used to condense vapor-phase Enjay back into liquid form. Vapor-phase Enjay entered the room via piping through the roof, where it was subsequently condensed in large vessels, then piped below grade to 2 tanks identified as A-14 and A-15 on Figure 5. The liquid Enjay was then pumped from these tanks via the "Return Lines shown on Figure 13 back to the USTs located on the south side of Building A. There are concerns that a release of Enjay may have occurred when plant personnel repaired one of the transmission lines immediately south of the SRR and odors were noted. Those same plant personnel notified LFR of this issue during the initial due diligence efforts in 1998.

As with REC 4, the contaminant of concern is Toluene, the main component of Enjay. Therefore, while some initial analyses were completed using the full VOC scan, subsequent samples were analyzed for BTEX only.

Based upon results from initial soil sampling conducted beneath the floor of the SRR on June 21, 2000 (SR-SB-01 through SR-SB-14), a soil vapor extraction (SVE) system was installed and operated under an IEPA-approved air permit from January 8, 2001 to April 20, 2001. Six SVE wells were installed beneath the floor and connected to the SVE blower system. The system was dismantled during Phase III Demolition. To date, it has not been re-installed. Based upon air sampling data, approximately 6,300 pounds of total petroleum hydrocarbons, including 1,100 pounds of Toluene were removed from the subsurface.

5.12.2 Soil Sample Collection and Analysis

Interpretation of the soil sample results for the SRR can be misleading, especially when being compared to PID/FID readings from samples screened in the field. Prior to building demolition and floor slab removal, soil borings installed through the concrete floor within the area south of the SRR showed very high PID deflection with field screening (greater than 1,000 ppmv). However, subsequent laboratory results did not reflect what was identified through field screening. For example, the soil sample collected between 8 and 10 feet below the slab from monitoring well UMW-25 exhibited "greater than 1,000" on the FID. However, the results from the laboratory analysis did not show any VOCs at significant concentration (the highest was Total Xylenes at 0.35 mg/kg). Initially, it was thought that this was due to volatilization during sample preparation. However, this situation was repeated several times during separate sampling events. Furthermore, when the equipment in the SRR was removed during Phase II demolition and access below the concrete floor slab was possible, high concentrations of Toluene were detected in the laboratory from soil samples collected

from beneath the floor; results which were consistent with field screening. Lastly, groundwater flow from the SRR has been determined to be towards the southeast, or beneath the Building A floor slab. With the presence of very dry, fine to medium grained sand from beneath the floor slab down to the level of the water table (roughly 8 feet below the floor), it is likely that volatilization of Toluene from the groundwater surface, as well as from the adjacent SRR soils caused an accumulation of vapors in the pore spaces of the dry sand beneath the slab. This vapor phase was detected in field screening; however, only a small volume of actual contaminant was adsorbed onto these soils. Therefore, the laboratory results did not reflect the field screening. Once the slabs were removed, soil samples, such as those collected along the Return Transmission Lines (see 01-126 through 01-129), showed low to moderately elevated VOCs during vadose-zone field screening, and the laboratory analyses were more reflective of these results. Conversely, the saturated zone in these borings did show highly elevated field screening results, reflective of the flow of impacted groundwater from the SRR towards the southeast.

Figure 16 depicts the approximate extent of Toluene-impacted soil in association with the SRR. Although the data from SR-SB-01 (382 mg/kg), SR-SB-02 (1,230 mg/kg), SR-SB-05 (175 mg/kg), SR-SB-04 (0.012 mg/kg), and SR-SB-07 (0.017 mg/kg) were collected before operation of the SVE system, the data from East (20.1 mg/kg), West (2,770 mg/kg), Center (27.4 mg/kg), and 01-132 (2,040 mg/kg) were collected after operation. Additionally, PID screening of the vadose zone in soil borings installed after removal of the floor slab from within Building A provided additional support in determining the extent of soil impact.

5.12.3 Groundwater Analysis

5.12.3.1 Groundwater Hydrology

Preliminary data from permanent monitoring wells in the southern area of the Site indicated that groundwater in the area of the SRR may be flowing towards the southeast, which was generally contrary to the anticipated flow northward to the Pumping Lagoon or eastward towards Lake Michigan. To verify this initial finding, 11 piezometers were installed (02-12 through 02-22) and surveyed to determine the elevation of groundwater. Subsequent to the piezometer installation, 2 permanent monitoring wells were added (UMW-29 and UMW-30) to verify flow conditions. Figure 17 depicts the groundwater flow map in association with the SRR. As can be seen from the map, groundwater flow is towards the southeast at an approximate hydraulic gradient of 0.0024 feet per foot.

5.12.3.2 Groundwater Quality

As Table 13 shows, groundwater impacts from Toluene have been detected in association with the SRR. The highest concentration detected is in UMW-30 at 207

mg/l on August 1, 2002. To determine the extent of contamination, groundwater samples have also been collected from the piezometers and other permanent monitoring wells in the area. Piezometers 02-12, 02-15, and 02-16 did not detect Toluene above its method detection limit. Before it was destroyed as a result of demolition, UMW-25 was sampled twice for VOCs. Toluene was detected at 0.088 mg/l and 0.0075 mg/l, both well below the Class I Groundwater Remediation Objective of 1 mg/l. A "grab" water sample from soil boring A-2 was collected using a peristaltic pump in 1998; that sample did not detect Toluene, but did detect Benzene (0.013 mg/l), Chlorobenzene (0.005 mg/l), Ethylbenzene (0.84 mg/l), and Total Xylenes (0.99 mg/l). UMW-27 has been sampled twice for VOCs; although several were present in the results, none were detected at levels exceeding their respective Class I Groundwater Remediation Objectives. Finally, UMW-29, located 225 feet downgradient from the SRR was non-detect for Toluene on August 1, 2002.

5.12.4 Conclusions and Recommendations

5.12.4.1 Impacts to Soil

The data show that Toluene impacts are present in soils located immediately beneath and adjacent to the SRR. Comparing the data from SR-SB-02 and SR-SB-05 (before SVE) with that collected from Center and East (after SVE) shows that significant reductions in concentration have occurred. However, current levels in certain areas of the SRR still exceed the Tier 1 Inhalation and Soil Component of the Groundwater Migration Standards for Residential Property and Class I Groundwater, respectively. In addition, current levels also exceed the Tier 1 soil saturation limit established for Toluene of 650 mg/kg.

Based upon these exceedances, additional remediation will be required. In an effort to determine whether re-activation of the SVE system or limited excavation is a more cost-effective method of remediation, additional detailed soil assessment data collected from beneath the SRR will be submitted in conjunction with a Remediation Objectives Report and Remedial Action Plan for soil. Based upon the data collected to date, these soil samples will be analyzed for BTEX only.

5.12.4.2 Impacts to Groundwater

Toluene-impacted groundwater is present in association with the SRR. Concentrations as high as 207 mg/l have been detected immediately beneath the SRR floor slab. However, downgradient monitoring wells and piezometers have not detected Toluene at levels exceeding its Class I Groundwater Remediation Objective of 1 mg/l.

Preliminary R26 analysis shows that the concentration of Toluene located beneath the SRR would be expected to attenuate to below its Class I Groundwater Remediation

Objective of 1 mg/l within approximately 225 feet downgradient of the SRR. Presently, UMW-29, located 230 feet downgradient of the SRR, is non-detect for Toluene.

The additional analysis required to determine whether remediation of the Toluene impacts to groundwater is necessary will be submitted with the Remediation Objectives Report and Remedial Action Plan. Where appropriate, this may include additional data on the current extent of Toluene-impacted groundwater.

5.13 REC 13: D Transformer - Sanitary Sewer

REC 13 is related to the electrical transformer located between Buildings C and D. On November 17, 1998, an LFR technician collected a composite sample from the soil surrounding the concrete base of the transformer to screen for the possible presence of PCB impacts. The sample, PCB-2, did not detect any PCBs above the method detection limit of 0.050 mg/kg (see Table 10). Therefore, no further investigation was warranted for this issue.

A separate issue arose during Phase III Demolition when the demolition contractor attempted to dismantle the electrical transformer. Omega Demolition demolished the electrical distribution system located above the transformer on May 21, 2001. On May 23, oil was observed in the secondary containment around the transformer and was seen dripping into the sanitary sewer system that was connected to the secondary containment. An overhead horizontal tank that contained oil had been damaged when the electrical distribution system was demolished. The tank was resting in the secondary containment and oil was observed leaking from the tank into the secondary containment for the transformer. The tank was approximately 9 feet in length and 2 feet in diameter (approximate capacity of 200 gallons; no information on whether it had been full). The transformer, with a total oil capacity of 2,860 gallons, had been pumped out on May 7, 2001. In addition, the sanitary sewer system had also been previously plugged with concrete downstream of the transformer on April 10, 2001 to prevent any wash water related to demolition from entering the North Shore Sanitary District sewer system. The potential concern was limited to whether oil, possibly containing PCBs, had been released to subsurface soils after entering the sanitary sewer.

Floating oil was found inside the sanitary manhole located at the release point and in the sanitary manhole located immediately upstream from the release point (50 feet upstream). No other upstream manhole could be accessed as they had been previously plugged and abandoned. The first manhole located downstream (280 feet away) was found to exhibit a heavy sheen, but no free-floating oil. The next downstream manhole (an additional 20 feet downstream), did not exhibit impact.

Samples of oil or water were recovered from the 3 impacted manholes (adjacent to the sewer, upstream, and downstream) and tested for PCBs. No PCBs were detected were detected in any of the samples (see Table 18).

The demolition contractor used sorbent pads to soak up the oil found in the manholes and also recovered approximately 850 gallons of water and oil from the sewer. Both were disposed off-Site by the demolition contractor.

To determine whether oil leaked outside the impacted manholes, soil was excavated around the upstream impacted brick manhole, the manhole located adjacent to the transformer, and from around the clay sewer pipe at locations 100 feet and 165 feet east of the transformer (downstream). No oil impacts were visually noted in the soil, therefore, no additional work was conducted. The sanitary sewer line is permanently closed.

No additional work is proposed for this REC.

5.14 REC 14: Tank 30-UST

This former UST was discovered during test pits conducted in December 2001 to determine whether the tank was present. An old plant drawing dating to the 1940s (see Appendix B) was found, indicating that a tank may have been installed. However, it was beneath a brick structure housing a railcar (Tank 056), therefore, it was inaccessible until the overlying structure was removed during demolition. Access to the area was not possible until October 2001.

Once discovered, the tank was removed on July 9, 2002 pursuant to permit and under the supervision of an inspector from the Illinois Office of the State Fire Marshal (OSFM). The OSFM inspector determined that a release had occurred and requested that an Incident Number be obtained (Incident Number 20020977).

Soil samples collected from the excavation for analysis of BTEX and Total Lead were either below the method detection limits (BTEX - see Table 5) or below Lake County Background concentrations (Total Lead - see Table 8). Therefore, no soil impacts from the UST could be documented.

As the base of the excavation was full of shallow groundwater, a grab water sample was collected in lieu of a bottom soil sample. The sample was analyzed for BTEX and Total Lead. As Table 13 shows, Benzene was detected at a concentration of 0.0054 mg/l, which is very slightly above the Class I Groundwater Remediation Objective of 0.005 mg/l. Toluene and Total Xylenes were also detected, however, neither compound was found above its respective Groundwater Remediation Objective. As might be expected from a turbid water sample collected as a "grab" from the base of an excavation, Total Lead was found at an elevated concentration (see Table 16). However, the presence of a naturally-occurring metal in a turbid water collected from the base of an open excavation is neither surprising nor indicative of an actual release, absent other indicators such as elevated organic concentrations.

Immediately adjacent to Tank 030 is REC 5 (1989 UST Excavation 5). This is an open LUST incident with documented impacts to groundwater that will require the use of institutional controls on the Site. These controls will be described in the ROR and RAP.

Given the lack of soil impact in the Tank 030 excavation and the proximity to REC 5, LFR has proposed to the IEPA LUST project manager (via the 45-Day Report) that this incident be closed. A response from IEPA is currently pending.

No further investigation of this REC is proposed. The Benzene concentration in the groundwater has been incorporated into the discussion for REC 5 (above).

5.15 REC 15: Tank 37-AST

Tank 37 was a 12,000 gallon aboveground storage tank (AST) containing "Oleum." Based upon conversations with plant personnel and a sign hung on a pipeline leading from the tank, Oleum appears to be mineral spirits. No MSDS could be found for Oleum, nor were any purchasing records available for review.

The tank was located south of Building R in association with 1989 UST Excavation 5 and Tank 030. Piping from the tank was located only several inches beneath the surface and extended from the western side of the tank straight north to the southern edge of Building R, where it turned 90 degrees to the west until it penetrated the building wall at approximately halfway between Tanks 5 and 6. Figure 5 shows the location of the tank relative to Tanks 5 and 6, both with reported releases and discussed previously under the section on REC 5 (UST Excavation 5).

The concrete foundation for the tank was intact upon demolition, however, olfactory evidence (mineral spirit odor) indicated that the transmission line may have released mineral spirits to the soil. However, based upon the proximity of the line to Tanks 5 and 6, it is not possible nor practicable to separate whether Tank 37 had a unique and isolated contribution to the general impact in the area. Therefore, it can be considered only a potential contributor to the contamination in the vicinity of Tanks 5 and 6. All further consideration of impacts in this area will be documented as part of REC 5 (1989 UST Excavation 5).

5.16 REC 16: Building E Kerosene Pits

5.16.1 REC History

REC 16 is defined in association with the Kerosene pits previously described as part of REC 2 (1989 UST Excavation 2). Technically not part of the UST system, numerous concrete-lined pits were uncovered and removed during Phase III Demolition. Although all kerosene-impacted soil within the pits was removed and disposed off-Site in accordance with the Bid Specification for Phase III Demolition, of concern was whether

kerosene impacts were present in soils located outside the pits. Although when the pits were removed during demolition, impacts were not noted based upon visual and olfactory screening, approximately 20 soil borings were installed in the general vicinity of the pits after demolition was completed. Figure 7 shows the locations of the soil borings.

Soil samples were collected continuously and screened for the presence of organic contamination using a PID. Generally, soil samples from those borings exhibiting the highest PID readings were selected for laboratory analysis. These were soil samples from borings 01-13, 01-16, 01-18, 01-19, 01-20, and 01-37. Soil samples were analyzed for VOCs (some for BTEX only) and PNAs as the appropriate indicator contaminants for Kerosene.

5.16.2 Soil Sample Results

Table 5 shows the results from the 6 soil samples submitted to the laboratory for VOC and BTEX analysis conducted within REC 16. The data show that the soil samples from soil borings 01-13 and 01-18 exhibited some concentrations of Acetone (maximum of 0.0481 mg/kg), Benzene (maximum of 0.007 mg/kg), Ethylbenzene (maximum of 0.0059 mg/kg), MEK (maximum of 0.0122 mg/kg), Toluene (maximum of 0.0166 mg/kg), and Total Xylenes (maximum of 0.0119 mg/kg). However, none were present above the most stringent Remediation Objectives for Residential Properties.

Table 6 shows the results from the 6 soil samples submitted to the laboratory for analysis of PNAs. While PNAs were detected in several of the samples, none were found at levels exceeding the most stringent Remediation Objectives for Residential Property. This includes a soil sample collected prior to demolition from Pit "B" (TP-B), which was found to exhibit a kerosene odor. As a precautionary measure, all soil was excavated from Pit "B" and disposed off-Site at the Onyx Landfill in Zion, Illinois.

5.16.3 Conclusions and Recommendations

Based upon the soil sample results, no additional work is proposed for this REC.

5.17 REC 17: Building H Material

The Building H material is defined by the presence of a white, granular material in the area surrounding Building H. It was first encountered when drilling soil boring H-1 through the Building H floor slab. Based upon the use of the Site for the manufacture of asbestos building products, the initial assumption was that it could be "off-spec" waste material that contained asbestos.

Subsequent analysis showed that the soil recovered in boring H-1 did not contain asbestos (see Table 12). Furthermore, analysis of the material at the JM laboratory in

Littleton, Colorado showed that the material was essentially dolomitic lime and quartz, which are the raw materials used in manufacturing lightweight insulation. It appeared that the material was accumulated in the area surrounding Building H before asbestos was added to the product. It is not clear why the material is so widespread in this area of the site; it is possible that it was used to fill in low lying areas when the plant was initially developed in the early 1920s.

Subsequent to the concern that the material contained asbestos, the Waukegan Park District (who has proposed the building of a sports complex on the Site) expressed a concern that the material may contain other potential contaminants and also, may be unsuitable from a geotechnical perspective for their construction requirements. As such, a soil investigation was conducted, with the installation of soil borings V-1 through V-32. Three soil samples of the white material were submitted to the laboratory for analysis of VOCs, SVOCs, and Total RCRA metals.

The initial analyses showed that, with the possible exception of Trichloroethene (TCE), no organic chemicals were present at levels exceeding the most stringent Remediation Objectives for Residential Property. TCE was found in all 3 of the initial samples at similar concentrations (approximately 0.3 mg/kg). However, the consultant for the Waukegan Park District, who split samples for duplicate analyses, did not find TCE in their results. Further complicating the issue was the fact that the 3 sample locations (V-9, V-13, and V-32) were located hundreds of feet apart, therefore, it seemed unlikely that similar concentrations of TCE should be found 3 to 5 feet below the surface at such widely varying locations.

To confirm the presence of TCE in this area of the Site, 2 additional soil borings were subsequently installed, 01-147 and 01-148. One sample of the white material from each boring was submitted to 2 different analytical laboratories for analysis of VOCs (4 samples total; duplicates of each). None of the samples detected any VOCs above their respective detection limit, including TCE (see Table 5). Additionally, the soil sample from 01-147 was submitted to the laboratory for analysis of SVOCs. As noted in the initial round of sampling (V-borings), no SVOCs were detected above their respective method detection limits.

Several metals were detected in the initial round of analyses, however, as Table 8 shows, with the possible exception of Arsenic, none were found at levels exceeding the most stringent Remediation Objectives for Residential Property. Arsenic was not detected, however, the detection limit was 2.5 mg/kg, which is above the Ingestion Standard of 0.4 mg/kg. However, please note that the Lake County Background concentration for Arsenic is 13 mg/kg. Therefore, there is no reason to suspect that Arsenic is present as a result of an unintended release to the environment.

Based upon the laboratory analysis conducted to date, no further work is proposed for this REC.

5.18 REC 18: Building J Transformers

REC 18 is related to the electrical transformers located between south of Building J. On November 17, 1998, an LFR technician collected a composite sample from the soil surrounding the concrete base of the transformer to screen for the possible presence of PCB impacts. The sample, PCB-1, did not detect any PCBs above the method detection limit of 0.050 mg/kg (see Table 10). Therefore, no further investigation was warranted for this issue.

A separate issue arose when the demolition contractor was moving the transformers along the south side of Building J in preparation for transportation off-Site. According to the contractor, all the oil had been removed from the transformers prior to attempting to move them. While moving transformers number 41 and 42, each having a capacity of 413 gallons of oil, one was damaged. The bottom drain pipe was broken and oil spilled onto the concrete driveway. It is estimated that approximately 50-100 gallons of oil were released to the pavement. The oil traveled to the stormwater trough on the south side of J building and accumulated. The demolition contractor put sand over the oil to soak it up and the sand was stockpiled for disposal off-Site at the Onyx Landfill in Zion, Illinois. No free floating oil entered a catch basin in the stormwater trough.

The demolition contractor subsequently removed and stockpiled the oil-stained concrete, along with approximately 3 feet of subsurface soil from directly beneath the transformer spill area. The excavation area was approximately 24 feet north-south by 25 feet east-west. The excavated material was stockpiled on poly and covered with polyethylene sheeting.

Following completion of the excavation, 3 sidewall soil samples of the excavation were collected and analyzed for BTEX, PNAs, and PCBs. Figure 18 shows the location of the soil samples. No BTEX (see Table 5), PNAs (see Table 6), or PCBs (see Table 10) were detected at levels exceeding their most stringent Tier 1 Remediation Objective for Residential Property.

A total of 3 loads of stockpiled concrete and soil were disposed off-Site at the Onyx Landfill in Zion, Illinois.

Based upon the above analysis, no further work is proposed for this REC.

5.19 REC 19: Tank 57-AST

Tank 57 was a 300,000-gallon aboveground storage tank used to store Number 6 Fuel Oil for use in the adjacent power house (Building P). Piping from the tank was exposed at grade and extended from the tank west to the edge of the former coal pit, then south

into the Power House. The piping crossed the roadway north of the Power House inside a concrete pipe chase that was covered with steel sheeting.

The tank was removed during Phase II Demolition. The concrete foundation beneath the tank was intact and did not exhibit evidence of release. Additionally, no surficial evidence for release was found in association with the piping when it was removed. Number 6 fuel oil is not highly mobile and therefore, evidence for release would be present at the surface, give the construction details of the tank system.

Based upon the above analysis, no further work is proposed for this REC.

5.20 REC 20: Fog Tunnels

5.20.1 REC History

During Phase III Demolition, a solvent odor was noticed by JM personnel while removing the concrete slab near the Fog Tunnels in the western sections of Building E. The name Fog Tunnel refers to the area immediately above the floor slab; no subgrade tunnels were constructed in this area. The tunnels were used to cure asbestos-building materials. According to facility personnel, solvents were not used in this area of the Site, however, based upon the proximity of the odor to the Fog Tunnels, the REC was so named.

The odor was transient in nature, and did not persist after the concrete slab was removed. Subsequent test pits using a shovel were also unable to re-establish the location of the odor. To determine whether the odors were indicative of soil contamination, 8 soil borings were installed in the general area surrounding the discovery of the odor.

5.20.2 Soil Sample Results

None of the field screening conducted on the soil samples collected from the area of the Fog Tunnels exhibited elevated levels using the PID. Therefore, no soil samples were submitted to the laboratory for specific analysis related to this REC. Note that REC 16 (Building E Kerosene Pits) is located immediately adjacent to this REC. None of the samples for laboratory analysis from REC 16 exhibited the type of impact that might be expected from a volatile solvent present in soil.

5.20.3 Conclusions and Recommendations

The solvent odor was not noted during installation of the borings. Therefore, lacking any evidence for soil impact, it is concluded that the odor was transient in nature and does not warrant any further investigation.

No additional work is proposed for this REC.

5.21 REC 21: Still Room

The Still Room was located at the eastern end of Building D. It was used to process hot asphalt in the manufacture of asphalt roofing products. During Phase III Demolition, some tarry materials were noted beneath the surface of the concrete floor slab after it was removed. These materials were collected and disposed off-Site at the Onyx Landfill in Zion, Illinois. To determine whether impacts from these hydrocarbons extended beyond the visual impacts removed during demolition, 3 soil borings were installed (01-50, 01-52, and 01-53) in the vicinity of the Still Room.

None of the 3 soil borings exhibited visual impacts from asphalt or other hydrocarbons. Soil boring 01-53 did exhibit elevated PID readings in the vadose zone (600 ppmv), however, this was likely due to its proximity to REC 5 (1989 UST Excavation 5) and not from any impacts resulting from the Still Room. Soil samples from soil borings 01-52 and 01-53 were submitted to the laboratory for analysis of BTEX and PNAs.

Neither of the samples exhibited any BTEX compounds above their respective detection limits. The PNAs Benzo(a)anthracene, Naphthalene, and Pyrene were noted in the sample from 01-53, however, none were present above their most stringent Remediation Objectives for Residential Property. No PNAs were found in the sample submitted from soil boring 01-52.

Based upon the soil sample results, no further work is proposed for this REC.

5.22 REC 22: Coal Tar Saturator

The Coal Tar Saturator was located near the northeastern corner of Building D. It was so named based upon anecdotal evidence from former plant employees that coal tar was perhaps used in the manufacture of roofing products in this area of the building. No actual written records exist that document the use of coal tar in this saturator. The saturator was approximately 10-foot square and 5-feet deep. It was steel-lined within a concrete vault below the surface of the concrete floor slab. At the time of Phase III Demolition, the saturator was found to be filled with sand and capped with concrete. No records exist as to when it was taken out of service.

Upon removal of the concrete slab, petroleum-contaminated soil was found inside the lined saturator, presumably when it was originally taken out of service by backfilling the saturator without first removing all the petroleum in the bottom. In accordance with the Bid Specification for Phase III Demolition, all petroleum contaminated soil was removed from the saturator and disposed off-Site at the Onyx Landfill in Zion, Illinois.

Following removal of the contaminated soil from the saturator, the concrete walls were removed from the subsurface. Following demolition, 3 soil borings (01-42, 01-43, and 01-44) were installed in the area surrounding the former location of the saturator to determine whether soil impacts were present outside the limits of the former saturator. No visual, olfactory, or field screening (with a PID) evidence was noted in any of the soil borings. One soil sample from soil boring 01-44 was submitted to the laboratory for analysis of BTEX and PNAs.

No BTEX or PNA compounds were noted in the soil sample above their respective method detection limits. Therefore, no further work is proposed for this REC.

5.23 REC 23: Building B - Tank 26

Tank 26 was a 30,000-gallon aboveground fuel oil storage tank located on the eastern end of the north side of Building B. Fuel oil was used as a backup fuel supply in a large oven used to cure asbestos building products in the eastern end of Building B. The tank was removed during Phase II Demolition. When the floor slab and building foundation adjacent to the former tank location were removed during Phase III Demolition, some transient fuel oil odors were noted beneath the slab. To determine whether soil contamination might be present that resulted from Tank 26, 4 soil borings (01-158 through 01-161) were installed.

None of the soil borings exhibited any visual, olfactory, or field screening (using a PID) evidence of any impact to Site soil. PID readings were all 0 ppmv. Lacking any evidence that a release of petroleum had occurred, no samples were submitted to the analytical laboratory.

Based upon the lack of any evidence of a release of petroleum, no further work is proposed for this REC.

5.24 REC 24: Building T Tar Pit

The Building T Tar Pit was located approximately mid-way along the southern side of Building T. Building T was used to off-load rail cars of heated asphalt into adjacent aboveground storage tanks. The "Tar Pit" was a concrete-lined pit located below grade that was used as part of an asphalt overflow collection system inside the building. The pit was roughly 15 feet long, 6 feet wide, and 6 feet deep. When it was removed during Phase III Demolition, it was full of hardened tar; no liquids were present in the pit. In accordance with the Bid Specification for Phase III Demolition, all materials inside the pit were removed and disposed off-Site at the Onyx Landfill in Zion, Illinois. However, to confirm whether petroleum may have migrated outside the pit, 1 soil boring (01-41) was installed in the area immediately adjacent to the pit. The soil sample from 2 to 4 feet below grade was submitted to the laboratory for analysis of BTEX and PNAs.

No BTEX compounds were detected above their respective detection limits. The PNAs Benzo(a)anthracene (0.011 mg/kg), Benzo(b)fluoranthene (0.014 mg/kg), Benzo(k)fluoranthene (0.011 mg/kg), and Naphthalene (0.034 mg/kg) were detected, however, none were present at a concentration exceeding the most stringent Remediation Objective for Residential Property.

Based upon the soil sample results, no further work is proposed for this REC.

5.25 REC 25: Building D Saturators

Located immediately west of the Still Room, the Building D Saturators were concrete and steel lined sub-floor asphalt saturators used in the manufacture of asphalt-impregnated rolled roofing products (e.g., tar paper). Similar to the Coal Tar Saturator, they had been closed several years before demolition by filling them with sand and finishing the surface with concrete to match the surrounding floor. When the saturators were uncovered for removal during demolition, the sand present within the bottom of the saturators exhibited a hydrocarbon odor and therefore, was removed and disposed off-Site at the Onyx Landfill in Zion, Illinois.

To determine whether petroleum may have migrated outside the saturators, 6 soil borings (01-45, 01-46, 01-47, 01-48, 01-49, and 01-51) were installed in the area immediately adjacent to the former saturators. Soil samples from 3 of the borings (01-45, 01-46, and 01-47) were submitted to the laboratory for analysis of BTEX and PNAs.

No BTEX compounds were noted in any of the samples. The PNAs Benzo(b)fluoranthene (0.012 mg/kg) and Benzo(k)fluoranthene (0.011 mg/kg) were noted in the sample from soil boring 01-46; however, neither concentration exceeded the most stringent Remediation Objective for Residential Property. Note that prior to removal of the saturators, test pit TP-N was installed into 1 of the saturators. A soil sample submitted to the laboratory from that test pit found Fluoranthene (0.025 mg/kg) and Pyrene (0.009 mg/kg). However, neither was present above its most stringent Remediation Objective for Residential Property.

Based upon the soil sample results, no further work is proposed for this REC.

5.26 REC 26: Tank 053 UST: Building D Old Gasoline

This former UST was discovered during test pits conducted in December 2001 to determine whether the tank was present. An old plant drawing (see Appendix B) was found, indicating that up to 3 USTs may have been installed in the area located on the western side of "Front Street" across from Building D. Only 1 tank was discovered during the test pits; it was designated as Tank 053.

Once discovered, the tank was removed on July 9, 2002 pursuant to permit and under the supervision of an inspector from the Illinois Office of the State Fire Marshal (OSFM). The OSFM inspector determined that a release had occurred and requested that an Incident Number be obtained (Incident Number 20020976).

Soil samples collected from the excavation for analysis of BTEX and Total Lead were either below the method detection limits (BTEX - see Table 5) or below Lake County Background concentrations (Total Lead - see Table 8). Therefore, no soil impacts from the UST could be documented.

As the base of the excavation was full of shallow groundwater, a grab water sample was collected in lieu of a bottom soil sample. The sample was analyzed for BTEX and Total Lead. BTEX compounds were not detected above their respective method detection limits (see Table 13). As might be expected from a turbid water sample collected as a "grab" from the base of an excavation, Total Lead was found at an elevated concentration (see Table 16). However, the presence of a naturally-occurring metal in a turbid water collected from the base of an open excavation is neither surprising nor indicative of an actual release, absent other indicators such as elevated organic compounds.

Given the lack of soil or groundwater impact in the Tank 053 excavation, LFR has proposed to the IEPA LUST project manager (via the 45-Day Report) that this incident be closed. A response from IEPA is currently pending.

No further investigation of this REC is proposed.

5.27 REC 27: Coal Pit

REC 27, the former Coal Pit, is located north of Building P. In anticipation of filling it with clean fill at the conclusion of Phase III Demolition, 4 samples (CP-NC, CP-NE, CP-NW, and CP-SE) were collected using a clean hand shovel from the residual sediment in the bottom of the Coal Pit on July 19, 2001. Figure The coal pit is constructed with a concrete bottom and foundation walls and contained between 1 and 2 feet of sediment (mixture of residual coal chips and soil) on top of the concrete. The surface of the concrete bottom is approximately 6 feet below grade. As part of the contractor's responsibilities, the concrete bottom was to be punctured every 50 square feet (to allow for future drainage), then backfilled with clean fill. The intention was to leave the existing sediment in the bottom of the pit, thus the samples were collected to assess whether these remaining sediments contained any contaminants above regulatory limits. The samples were analyzed for VOCs (see Table 5), PNAs (see Table 6), Total RCRA Metals (see Table 8), SPLP Lead (see Table 9), and PCBs (see Table 10).

The results showed the following exceedances of the Tier 1 Remediation Objectives for Residential Property:

- The PNA Benzo(a)pyrene was present in 2 of the 4 samples exceeding the Residential Ingestion limit of 0.09 mg/kg.
- The PNA Dibenzo(a,h)anthracene was present in 1 of the 4 samples exceeding the Residential Ingestion limit of 0.09 mg/kg.
- SPLP Lead was found in CP-NW at a concentration of 0.0297 mg/L, which exceeds the Class I Groundwater Standard of 0.0075 mg/L.

No other compounds were present at levels exceeding the most stringent Tier 1 Remediation Objectives for Residential Property.

Based upon the future placement of 3 feet of clean cover over the area of the Coal Pit, no further sampling for PNAs was conducted. It is therefore assumed that all sediments within the limits of the Coal Pit may exhibit an exceedance of the Residential Ingestion Remediation Objective for the 2 PNAs that were detected.

Regarding the SPLP Lead, sample CP-NW showed that sediments in the northwest corner of the Coal Pit could potentially leach low levels of lead into the groundwater at concentrations slightly above the Class I Groundwater Standard at some future date. Although a site-wide restriction on the use of groundwater would possibly eliminate this potential exposure route from consideration, more samples were collected to delineate the aerial extent of sediments impacted with SPLP Lead.

Figure 19 depicts the limit of SPLP Lead found to exceed the Class I Groundwater Remediation Objective for Lead of 0.0075 mg/l, but not the RCRA characteristic of hazardous wastes.

The SPLP-Lead impacted material located in the (roughly) southwest corner of the Coal Pit was subsequently removed and placed in 11 30-cubic yard roll-off boxes and disposed at the Onyx Zion Landfill from September 19 to 28, 2001. The Coal Pit was subsequently backfilled with clean clay to grade.

The PNA-related impacts will be addressed through the placement of a 3-foot thick clean soil cover or equivalent barrier (such as paved roads and parking lots) that will be described in a subsequent Remediation Objectives Report (ROR) and Remedial Action Plan (RAP), as required by the Site Remediation Program (SRP).

No additional investigation work is proposed for this REC.

5.28 REC 28: Subsurface Asbestos-Containing Materials

As part of the 1998 drilling program, an investigation was conducted within the Building Area to determine the vertical and horizontal distribution of suspect ACM in subsurface soil. To determine the soil boring locations, a 100 foot by 100 foot sample grid was overlain on the Building Area, creating approximately 400 potential sample

locations. Any portion of the Building Area located outside the footprint of the original manufacturing buildings (as constructed in the early 1920s) was considered to potentially exhibit asbestos-containing building products. This included areas located beneath the floor slabs of newer buildings that may have been constructed over asbestos-containing building materials. Soil samples were collected from within 99 of the grid squares, representing approximately 25 percent of the study area. The soil borings can be identified as having a "-G" annotation, thus denoting the "grid" location.

Of the 99 grid square tested, asbestos-containing building materials consisting primarily of asphalt-based and transite cement products were noted in 51 squares, or roughly one-half of the tested areas. These areas were generally confined to the east and north of the former manufacturing buildings. Although based upon experience, asbestos-containing building materials are fairly easily recognized visually, some samples were submitted for confirmation in the laboratory using either polarized light microscopy (PLM) or transmission electron microscopy (TEM). These results are presented in Table 12.

Subsequent to the 1998 investigation, the foundations and floor slabs for the former manufacturing buildings were removed during Phase III Demolition. Based upon visual observation, significant areas located beneath the buildings were impacted with pieces of asbestos-containing materials, again, most commonly asphalt roofing or Transite-cement products.

Based upon the evidence gathered to date, a significant portion of the former manufacturing area contains some degree of impact from asbestos-containing building materials. With the approval of IEPA and USEPA, JM has placed mulch material on significant areas of the Site in order to prevent wind-blown migration of the asbestos material prior to final cover being installed. Long-term corrective action in the form of a 3-foot thick clean soil cover or equivalent barrier (such as paved roads and parking lots) is planned for the entire Remediation Site, obviating the need for conducting additional sampling for asbestos in the soil. All remedial work done within the Site during placement of the clean cover, excavation of utilities, and installation of foundations that penetrate below the clean cover, etc... will be completed as if asbestos-containing materials will be encountered.

The next step for this Site-wide REC will be submittal of a Remedial Action Plan designed for placement of the 3-foot thick clean soil cover or equivalent barrier (such as paved roads and parking lots). Given that the entire Site is considered impacted, no further assessment for asbestos is planned.

5.29 REC 29: C-West Tanks

A Factory Mutual Fire Insurance map dated October 4, 1972 shows the presence of 3 tanks (subsequently designated as 034, 035, and 036) of unspecified use in the area located west of Building C, on the west side of Front Street. A JM maintenance staff

had a vague recollection that USTs may have been present that contained paint thinner. There were however, no plant drawings for Building C that indicated that paint thinner was ever used or stored in this area of the plant.

The 1965 Sanborn Map showed the presence of 3 propane tanks in the area.

To investigate whether the tanks may have been USTs and still present, 11 excavations were conducted in the area surrounding test pit TP-C-1 in December 1998 throughout the area in an attempt to locate the tanks. Prior to excavating, a metal detector was also used in an effort to locate the tanks.

Neither the metal detector nor the excavations revealed any evidence that tanks were present. Neither was any piping connection found inside the western end of Building C.

As added confirmation of the lack of any evidence for the tank, a "grab" water sample was collected for 1 of the test pits for analysis of PNAs (TP-C1). No PNAs were detected above their respective detection limits.

Based upon the above analysis, it is concluded that the tanks, if present, were aboveground and likely contained propane.

No further work is proposed for this REC.

5.30 REC 30: Tank 033

Tank 033 was noted on an old plant drawing as an "oil" tank in what is now the northeastern corner of former Building J. Prior to constructing Building J, multiple rail lines were present in this area of the site, and the tank was most likely an aboveground rail car. No other plant drawings were found that describe the possible use or presence of this tank.

To investigate whether any impact to Site soil was present in the vicinity of the apparent tank location, soil boring J-3 was advanced in this area of the Site. The soil boring encountered some blackened fill in the upper 2 feet, then brown sand to its terminus at 12 feet below grade. No evidence of petroleum contamination was noted, therefore, no soil samples were retained for laboratory analysis.

No further work for this REC is proposed.

5.31 REC 31: Locomotive

This REC is located east of Building D in an area where a locomotive used by the adjacent Commonwealth Edison (ComEd) power station to re-route coal cars (on the ComEd property) was left to idle and remain when not needed at the power plant. Oil

staining of the surficial sand was evident after the locomotive was permanently removed from the Site prior to demolition.

To investigate whether significant impacts to Site soil and/or groundwater are present, 2 soil borings were advanced in the area, RR-SB-01 and RR-SB-02. Soil samples were collected from each boring and analyzed for the presence of BTEX and PNAs. In addition, a "grab" water sample was collected from RR-SB-01 using a peristaltic pump and analyzed for BTEX and PNAs.

Regarding the soil sample results, Benzene was detected in RR-SB-02 at a concentration of 0.0063 mg/kg, which is below the most stringent Remediation Objective for Residential Property or Class I Groundwater. No other BTEX compounds were detected. Several PNA compounds were detected in both soil samples. Of these, Benzo(a)pyrene (maximum concentration of 0.83 mg/kg) and Benzo(b)fluoranthene (maximum concentration of 1 mg/kg) were detected at levels above their respective Tier 1 Residential Remediation Objection for Ingestion. No other exceedances of Residential Remediation Objectives were noted.

Regarding the water sample results, BTEX compounds were not detected above their method detection limits. For PNAs, Naphthalene was detected at a concentration of 0.05 mg/l, which is above the Class I Groundwater Remediation Objective of 0.025 mg/l. No other PNAs were detected.

Regarding residual soil impacts, the data show that soil impacted by Benzo(a)pyrene and Benzo(b)fluoranthene is present at levels above their respective Residential Ingestion Standard. No additional soil investigation is anticipated or warranted. The impact noted will be addressed through the placement of a 3-foot thick clean soil cover or equivalent barrier (such as paved roads and parking lots) that will be described in a subsequent Remediation Objectives Report (ROR) and Remedial Action Plan (RAP), as required by the Site Remediation Program (SRP).

Regarding potential groundwater impacts as evidenced by the "grab" water sample from soil boring RR-SB-02, groundwater impacted by Naphthalene may be present. Leaving aside the issue of whether a "grab" groundwater sample is representative of actual aquifer conditions, subsequent analysis to be presented in the ROR/RAP (using equation R26) will show that any potential impact to the groundwater will attenuate to its respective Groundwater Remediation Objective within 130 feet of the sample location, well before reaching any downgradient receptors (in this case, the surface water of the Pumping Lagoon, located approximately 1,000 feet to the north). Furthermore, with the placement of a deed restriction eliminating any future use of groundwater on the Site, this potential impact will need not be addressed beyond documentation in the ROR/RAP to be issued for the Site. No further investigation of the groundwater is anticipated or warranted.

5.32 REC 32: Tank 031

Tank 031 was identified as a crude oil tank on the Sanborn Maps. In 1998, no evidence of the tank was present at the surface. Test Pit TP-3 was excavated in the area where it was shown on the Sanborn Maps. Clean, fine to medium grained sand was present down to the surface of the water table. No evidence of groundwater impact was visually apparent.

One soil sample was collected above the surface of the water table at a depth of 5 feet below grade and analyzed in the laboratory of VOCs and PNAs. No VOCs were detected above their method detection limits (see Table 5). The PNAs Acenaphthene (0.24 mg/kg) and Naphthalene (6.2 mg/kg) were found; however, neither was present above its most stringent Remediation Objective for Residential Property.

A "grab" water sample was obtained from the base of the excavation and analyzed for VOCs and PNAs. No VOCs were detected above their respective detection limits. Seven PNAs were detected above their respective Class I Groundwater Remediation Objective, including Benzo(a)anthracene (0.0046 mg/l), Benzo(a)pyrene (0.0044 mg/l), Benzo(b)fluoranthene (0.0042 mg/l), Benzo(k)fluoranthene (0.0027 mg/l), Chrysene (0.0026 mg/l), Dibenzo(a,h)anthracene (0.00068 mg/l), and Indeno(1,2,3-cd)pyrene (0.0038 mg/l).

Regarding potential groundwater impacts as evidenced by the "grab" water sample from test pit TP-3, groundwater impacted by multiple PNAs may be present. Leaving aside the issue of whether a "grab" groundwater sample is representative of actual aquifer conditions, subsequent analysis to be presented in the ROR/RAP (using equation R26) will show that any potential impact to the groundwater will attenuate to its respective Groundwater Remediation Objective within 500 feet of the sample location, well before reaching any downgradient receptors (in this case, the surface water of the Pumping Lagoon, located approximately 800 feet to the north). Furthermore, with the placement of institutional controls on the Site, this potential impact will need not be addressed beyond documentation in the ROR/RAP to be issued for the Site.

No further investigation of the groundwater is anticipated or warranted.

5.33 REC 33: Tank 032

Tank 032 is shown on multiple Sanborn and Fire Insurance Maps as present in the area west of Building T and east of Building L. As of LFR's initial Site inspection in 1998, the no surficial evidence for the tank was present. It is also not known whether the tank was located above or below ground. The tank apparently contained crude oil.

To investigate whether the tank or residual soil and/or groundwater impact from the tank was present, 2 soil borings, 01-1 and T51-1 were advanced in the area. Neither boring contained visual or olfactory signs of contamination. Field screening with a PID did not reveal evidence of impact. As discussed in REC 2, 01-1 was analyzed for BTEX and PNAs. No compounds were detected above their respective detection limits.

In addition, monitoring well UMW-03 is located immediately adjacent to this area. In a water sample collected by LFR on November 13, 1998, no BTEX or PNA compounds were detected above their respective method detection limits.

No further work on this REC is proposed.

5.34 REC 34: Tank 027

Tank 027 is shown on all Sanborn Maps as an "underground" tank containing oil. The tank is not shown on any plant drawings, or on any other Fire Insurance Maps. A surficial inspection conducted by LFR did not reveal any evidence of a tank; furthermore, with the immediate proximity of utilities in the area, there did not appear to be any physical space available for the tank. Based upon the location of rail lines in the area, the "tank" was mostly likely an old rail car that may have contained oil that was located on the earliest Sanborn Map that was subsequently never updated. Therefore, reference to the tank persisted.

To investigate whether the tank or impact from a release from the tank was present, soil borings AB-1 (1998) and 01-157 (2001) were located in the anticipated location of the tank. Both soil borings exhibited elevated PID readings, which are attributed to their direct proximity to the Solvent Recovery Room (REC 12). No soil samples from either boring were submitted for laboratory analysis.

A "grab" water sample was collected from soil boring AB-1 and submitted for analysis of VOCs and PNAs. Ethylbenzene and Total Xylenes were detected at concentrations below their respective Class I Groundwater Remediation Objectives. The only PNA detected was Benzo(g,h,i)perylene at a concentration of 0.00022 mg/l. This compound has no published Groundwater Remediation Objective.

If the tank had ever been present, contained and subsequently released oil to soil and/or groundwater, visual evidence of oil impact (staining, discoloration) should have been present on the soil samples. Based upon a previous discussion for the Solvent Recovery Room, the elevated levels of VOCs as detected in the field screening is understandable, given the nearby proximity of that REC. Finally, the lack of PNA-impacted groundwater is a further indicator that "oil" was not release to the subsurface.

No further work is proposed for this REC.

5.35 REC 35: Building A Transformer

REC 35 is related to the electrical transformer located between located on the north side, west end of Building A. On November 17, 1998, an LFR technician collected a composite sample from the soil surrounding the concrete base of the transformer to screen for the possible presence of PCB impacts. The sample, PCB-4, did not detect any PCBs above the method detection limit of 0.050 mg/kg (see Table 10). Based upon the data developed to date, no further investigation is warranted.

5.36 REC 36: Building P Transformer

REC 36 is related to the electrical transformer bank located on the south side, west end of Building P. On November 17, 1998, an LFR technician collected a composite sample from the soil surrounding the concrete base of the transformer to screen for the possible presence of PCB impacts. The sample, PCB-3, did not detect any PCBs above the method detection limit of 0.050 mg/kg (see Table 10). Based upon the data developed to date, no further investigation is warranted.

5.37 REC 37: Tank 039

On April 27, 2000, the remaining active 2,000-gallon gasoline UST was removed from the subsurface. The UST is identified as Tank 039 on the Site's tank inventory included with this report; the OSFM Tank Number is 26. The inspector from the Illinois Office of the State Fire Marshal did not observe a release of petroleum, therefore, no incident was reported for this tank removal. The location of Tank 039 is shown on Figure 5.

Soil samples were collected from the excavation sidewalls and analyzed for BTEX. Benzene and Toluene were detected in all samples; however, none were found at a concentration exceeding the most stringent Remediation Objective for Residential Property.

A water sample was collected from the base of the excavation and analyzed for BTEX. Benzene was detected at a concentration of 0.25 mg/l, which is above the Class I Remediation Objective of 0.005 mg/l. However, this result is attributed to the Benzene plume identified as part of REC 3 (1989 UST Excavation 3) and not from Tank 039.

No further work is proposed for this REC.

6.0 SUMMARY AND CONCLUSION

A comprehensive investigation has been completed at the Site. This CSIR presents a complete history of the former manufacturing facility and the results from the installation of approximately 350 soil borings, 16 test pits, 11 piezometers, and 29 monitoring wells were installed and sampled. The investigation included laboratory analysis of:

- 133 soil samples for volatile organic compounds (VOCs)
- 79 soil samples for polynuclear aromatic hydrocarbons (PNAs)
- 14 soil samples for semivolatile organic compounds (SVOCs)
- 29 soil samples for Resource Conservation and Recovery Act (RCRA) metals
- 25 soil samples for SPLP Lead
- 12 soil samples for PCBs
- over 2500 materials samples for asbestos
- 15 soil samples for asbestos
- 170 groundwater samples for VOCs
- 58 groundwater samples for PNAs
- 9 groundwater samples for total Lead

Table 19 contains a summary and recommendations for each of the 37 RECs discussed at the Site. Of these:

- Six of the RECs had been previously closed by the IEPA. No further action is warranted for these RECs.
- Twenty-two of the RECs are documented as complete in this CSIR. No further assessment or remedial action (cleanup) is warranted for these RECs.
- Nine of the RECs will require submission of the next series of reports specified by the SRP, which include the Remediation Objectives Report (ROR) and Remedial Action Plan (RAP).

For seven of the nine remaining RECs, the ROR and RAP will describe the placement of a 3-foot thick clean soil cover or equivalent barrier (such as paved roads and parking lots) over the entire Site to address various soil contamination issues, including the presence of asbestos-containing materials found beneath the soil's surface following demolition. In addition, minor impacts to groundwater that are not expected to migrate off-Site will be addressed by first, modeling to confirm that off-Site migration is not expected to occur, and second, developing institutional controls for the Site.

Based upon the data developed to date, it appears the further corrective action will be necessary to mitigate residual impacts to soil and/or groundwater from the final two RECs (REC 3 and REC 12). REC 3 (1989 UST Excavation 3) is related to the removal of a gasoline underground storage tank from the west side of Building D in 1989. REC 12 (Solvent Recovery Room) is related to operation of a solvent recovery system in Building A.

In both cases (REC 3 and REC 12), contaminated soil will likely be excavated and disposed off-Site at a landfill licensed to accept these materials. In addition, contaminated groundwater associated with REC 3 will likely require remediation to concentrations below applicable TACO residential cleanup objectives. Contaminated groundwater associated with REC 12 is not expected to migrate off-Site, therefore, pending modeling as confirmation of this expectation, the use of institution controls will prevent unwanted exposure to future users of the property. All remediation activities will be described in additional detail in the ROR and RAP. Finally, upon completing remediation, documentation of the work will be presented in the Remedial Action Completion Report (RACR), which the last report to be filed prior to IEPA issuing the NFR letter.

TABLES

T. 1
Storage Tank Inventory
Johns Manville, Waukegan, Illinois

Tank ID	UST/AST	Located exterior/interior when in use	Building	Location (exterior description or column locator)	Size dimensions or gallons	References for age, location, contents, etc.	Removal Date/Status	Historical Contents (from available records)	Comments
001	UST	Exterior	N	UST Excavation #1; north side of site near pump house	10,000	Photographs, 1989 removal report	1989	Diesel fuel	
002	UST	Exterior	E	UST Excavation #2; between D & E buildings	10,000	Photographs, 1989 removal report	1989	Kerosene	
003	UST	Exterior	D	UST Excavation #3; west of D building	2,000	Photographs, 1989 removal report	1989	Gasoline	
004	UST	Exterior	A	UST Excavation #4; south of A building	1,000	Photographs, 1989 removal report	1989	Diesel fuel	
005	UST	Exterior	D	UST Excavation #5; between C and D buildings; near MWs 11 and 12	10,000	Photographs, 1989 removal report; 1st evidence on 1924 Sanborn	1989	Mineral spirits and other hydrcarbons	
006	UST	Exterior	D	UST Excavation #5; between C and D buildings; near MWs 11 and 12	10,000	Photographs, 1989 removal report; 1st evidence on 1924 Sanborn	1989	Methanol and other hydrocarbons	
007	UST	Exterior	A	UST Excavation #4; south of A building	9,750	Photographs, 1989 removal report	1989	Naptha; Enjay	
008	UST	Exterior	A	UST Excavation #4; south of A building	9,750	Photographs, 1989 removal report	1989	Naptha; Enjay	
009	UST	Exterior	A	UST Excavation #4; south of A building	7,500	Photographs, 1989 removal report	1989	Methyl ethyl ketone; Enjay	
010	UST	Exterior	A	UST Excavation #4; south of A building	7,500	Photographs, 1989 removal report	1989	Methyl ethyl ketone; Enjay	
011	UST	Exterior	A	UST Excavation #4; south of A building	10,000	Photographs, 1989 removal report	1989	Naptha; Enjay	
012	UST	Exterior	A	UST Excavation #4; south of A building	10,000	Photographs, 1989 removal report	1989	Naptha; Enjay	
013	UST	Exterior	P	UST Excavation #6; appears to be between the coal pit and the Power House; see 1936 map	6,000	Photographs, 1989 removal report	1989	Number 6 fuel oil	
014	UST	Exterior	P	UST Excavation #6; appears to be between the coal pit and the Power House; see 1936 map	6,000	Photographs, 1989 removal report	1989	Number 6 fuel oil	
015	UST	Exterior	P	UST Excavation #6; appears to be between the coal pit and the Power House; see 1936 map	6,000	Photographs, 1989 removal report	1989	Number 6 fuel oil	
016	UST	Exterior	P	UST Excavation #7; tentatively located just SW of the water tower	12000; CCJM calls it 6,000	Photographs, 1989 removal report	1989	Number 6 fuel oil	
017	UST	Exterior	F	UST Excavation #8; along north side of west wall of F building (Cement)	10,000	Photographs, 1989 removal report	1989	Sodium silicate	
018	UST	Exterior	F	UST Excavation #8; along north side of west wall of F building (Cement)	10,000	Photographs, 1989 removal report	1989	Sodium silicate	
019	UST	Exterior	P	UST Excavation #9; outside south wall of C building	2,500	Photographs, 1989 removal report	1989	Mineral spirits	
020	UST	Exterior	Q	UST Excavation #10; north side of Mastic building	10,000	Photographs, 1989 removal report	1989	Methanol	
021	UST	Exterior	E	UST Excavation #2; between D & E buildings	1,000	Photographs, 1989 removal report	1989	Kerosene; also shown as "Micorelease oil"	
022	UST	Exterior	E	UST Excavation #2; between D & E buildings	500	Photographs, 1989 removal report	1989	Kerosene	

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023	UST	Exterior	H	UST Excavation #11; North side of Building H	10,000	1955 Factory Insurance Association map; 1936 Johnson & Higgins map; not shown on any plant maps	1989	Naptha	
024	UST	Exterior	H	UST Excavation #11; North side of Building H	1,000	1955 Factory Insurance Association map; 1936 Johnson & Higgins map; not shown on any plant maps	1989	Linseed oil	
025	UST	Exterior	H	UST Excavation #11; North side of Building H	1,000	1955 Factory Insurance Association map; 1936 Johnson & Higgins map; not shown on any plant maps	1989	Engine oil	
026	AST	Exterior	B	Between B and Cement building	30,000	On 1924, 1929, 1949, and 1965 Sanborns and various plant drawings.	Removed during Phase II Demolition	Fuel oil for Building B	
027	May have been a railcar on tracks - no evidence for being UST	Exterior	A	Between A and B buildings; may have been a railcar	Unknown	On 1924, 1929, 1949, and 1965 Sanborns as "underground tank"; not shown on ANY plant drawings.	Tank no longer visible, if AST, then it's gone	"oil"	As of 1998, no visible evidence of UST being present in this area. Tank may have actually been a railcar - was in location of tracks in 1924. No apparent need for heat source in this area either.
028	UST	Exterior	D	South side of D building; just west of paint shop west wall	10,000	Many plant drawings; 1st evidence on 1924 Sanborn	Pre-1989	Oil; "benzine", crude oil; etc...	Tank was inside concrete vault used as settling basin for roofing slate.
029	UST	Exterior	D	South side of D building; outside the paint shop	10,000	Many plant drawings; 1st evidence on 1924 Sanborn	Pre-1989	Oil; "benzine", crude oil; etc...	Tank was inside concrete vault used as settling basin for roofing slate.
030	UST	Exterior	D	East of "crude oil" tanks south of D building; possible beneath Tank 056	2,000	Plant drawing dated 12/29/43; revised on 4/12/44; drawing coded as "7690"; Factory Insurance Assoc. map dated 1/14/55; Factory Mutual Fire Insurance map dated 10/4/72.	Removed 07/09/02	Gasoline; observed on "proposed drawing"	Based upon old drawing, tank was beneath brick structure house tank 056. Tank exposed during test pits installed during November 2001 after Tank 056 structure was demolished and access was possible.
031	May have been a railcar on tracks - no evidence for being UST	Exterior	D	East end, south side of Tank car house - shown on all Sanborns	Unknown	On 1924, 1929, 1949, and 1965 Sanborns as "crude oil"; not shown on ANY plant drawings. Other tanks in area shown on plant drawings.	No longer present; removal date unknown	"Crude oil"	Test pit installed (Test Pit 3) to examine whether UST is present. No evidence for tank; pit installed in sand to the water table (approximately 7 feet;). No hydrocarbon odor or staining in sandy fill or groundwater.

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Johns Manville, Waukegan, Illinois

Tank ID	UST/AST	Located Exterior/Interior when in use	Building #	Location (exterior description or column locator)	Size dimensions or gallons	References for age, location, contents, etc.	Removal Date/Status	Historical Contents (from available records)	Comments
032	UST; may have been only partially buried.	Exterior	D	Just off west end of asphalt ASTs near Tank Car house; shown on Sanborns	100,000	On 1949 and 1965 Sanborns; on 1955 Factory Insurance Assoc. Map;	No longer present; removal date unknown	"Tar/asphalt" tank on Sanborns; "fuel unloading" tank on 1955 Factory In. Assoc. Map	MW-3 installed in tank location; no surficial evidence for a tank.
033	May have been a railcar on tracks - no evidence for being UST	Exterior	J	Transite pipe building; Column F-G 27	Unknown		No longer present; removal date unknown	"Oil"	Tank shown on old drawing before Building J was expanded over the location. Probably a railcar; boring J-3 showed no evidence of release.
034	UST	Exterior	C	West of C building	2,000	Factory Mutual Fire Insurance Map dated 10/4/72; not shown on any plant drawings.	No longer present; removal date unknown	Unknown. One JM maintenance staff thought tanks contained paint thinner	Unknown; multiple test pits installed in parking area did not reveal any evidence of tanks or contamination. Assume no longer present. May have been aboveground propane tanks as shown on Sanborn map.
035	UST	Exterior	C	West of C building	2,000	Factory Mutual Fire Insurance Map dated 10/4/72; not shown on any plant drawings.	No longer present; removal date unknown	Unknown. One JM maintenance staff thought tanks contained paint thinner	Unknown; multiple test pits installed in parking area did not reveal any evidence of tanks or contamination. Assume no longer present. May have been aboveground propane tanks as shown on Sanborn map.
036	UST	Exterior	C	West of C building	2,000	Factory Mutual Fire Insurance Map dated 10/4/72; not shown on any plant drawings. 1965 Sanborn map shows 3 propane tanks in this area.	No longer present; removal date unknown	Unknown. One JM maintenance staff thought tanks contained paint thinner	Unknown; multiple test pits installed in parking area did not reveal any evidence of tanks or contamination. Assume no longer present. May have been aboveground propane tanks as shown on Sanborn map.
037	AST	Exterior	R	SE of Paint Shop in R Building	12,000	Factory Mutual Fire Insurance Map dated 10/4/72. Not shown on 1955 Factory Insurance Map	Removed during Phase II	"Oleum"	
038	AST	Exterior	D	West of D building		Propane tanks shown in area as early as 1955 Factory Mutual Insurance Map	Removed during Phase III	Propane	
039	UST	Exterior	D	West of D building	2,000	Installed 4/1/90; removed 4/27/2000	Removed during 2000	Gasoline	Clean closed.
040	AST	Exterior	P	West of western stack - Power House	27,000/11,000	Shown on 1955 Factory Insurance Map as 11,000 fuel oil; need to locate reference for "Pitch for Boilers"	Unknown; tank not present	fuel oil or "Pitch for Boilers"	

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Tank ID	UST/AST	Located exterior/interior when in use	Building	Location (exterior description or column locator)	Size dimensions or gallons	References for age, location, contents, etc.	Removal Date/Status	Historical Contents (from available records)	Comments
041	AST	Exterior	H	North side, eastern end of Rock Wool building; on 1/14/55 Factory Insurance map	5,000	1955 Factory Insurance Association map; 1936 Johnson & Higgins map; not shown on any plant maps	Unknown; tank not present	Fuel oil	IMS-4 showed no evidence of release.
042	AST	Exterior	J	North of Building J - Acid tank	15,000	1955 Factory Insurance Map	Removed during Phase II	Muriatic acid	Former acid tank located on concrete saddle above ground.
043	AST	Exterior	D	South of Building D and west of pipe bridge	12,000	Not on any map; observed by LFR as abandoned railcar in 1998	Removed during Phase II	Unknown	Railcar
044	*AST*	*Exterior*	R	East side, north end of Building R	Boiler	Unknown	Removed during Phase III	Boiler	
045	AST	Exterior	D	South of tank car house	25,000	On 1924 Sanborn	Unknown, tank not present	Oil	
046	AST	Exterior	D	South of tank car house	25,000	On 1924 Sanborn	Removed during Phase II	Oil	
047	AST	Exterior	D	South of tank car house	25,000	On 1924 Sanborn	Removed during Phase II	Oil	
048	AST	Exterior	D	South of tank car house	225,000	On 1924 Sanborn	Removed during Phase II	Asphalt	
049	AST	Exterior	D	South of tank car house	225,000	On 1924 Sanborn	Removed during Phase II	Asphalt	
050	AST	Exterior	D	South and west of tank car house	500,000	On 1924 Sanborn	Removed during Phase II	Asphalt	
051	AST	Exterior	D	South and west of tank car house	500,000	On 1924 Sanborn	Unknown; tank not present	Asphalt	
053	UST	Exterior	D	Near UST basin #3; shown east of fenceline in front of truck repair in D-building	1,000	1955 Factory Insurance Map	1 of 3 tanks present; see comments	Gasoline	UST exposed during test pits conducted to locate the tank in December 2001. Tank removed on July 9, 2002. Release reported (20020976). Identified as Tank 27 to OSFM - do not confuse with Tank 027 on this list.
054	UST	Exterior	D	Near UST basin #3; shown east of fenceline in front of truck repair in D-building	3,000	*1955 Factory Insurance Map*	*1 of 3 tanks* present; see comments	*Gasoline*	*No tank found during test pits in* December 2001. No tank found during removal of Tank 053 during July 2002.
055	UST	Exterior	D	Near UST basin #3; shown east of fenceline in front of truck repair in D-building	3,000	1955 Factory Insurance Map	1 of 3 tanks present; see comments	Gasoline	No tank found during test pits in December 2001. No tank found during removal of Tank 053 during July 2002.
056	AST	Exterior	D	Brick encased tank car south of D Building	10,000	1965 Sanborn is earliest reference on map	Removed during Phase II	Asphalt	

T. 1
Storage Tank Inventory
Johns Manville, Waukegan, Illinois

Tank ID	UST/AST	Located exterior/interior when in use	Building	Location (exterior description or column locator)	Size dimensions or gallons	References (storage location, contents, etc.)	Removal Date/Status	Historical Contents (from available records)	Comments
057	AST	Exterior	P	East end of coal pit	300,000	1924 Sanborn is earliest reference.	Removed during Phase II	Fuel oil #6	No impacts noted in soil surrounding tank after removal.
058	AST	Exterior	D	Slate silo	16'D x 25'H	1924 Sanborn is earliest reference.	Removed during Phase III	Colored slate	
059	AST	Exterior	D	Slate silo	16'D x 25'H	1924 Sanborn is earliest reference.	Removed during Phase III	Colored slate	
060	AST	Exterior	D	Slate silo	16'D x 25'H	1924 Sanborn is earliest reference.	Removed during Phase III	Colored slate	
061	AST	Exterior	D	Slate silo	16'D x 25'H	1924 Sanborn is earliest reference.	Removed during Phase III	Colored slate	
062	AST	Exterior	D	Slate silo	16'D x 25'H	1924 Sanborn is earliest reference.	Removed during Phase III	Colored slate	
063	AST	Exterior	D	Slate silo	16'D x 25'H	1924 Sanborn is earliest reference.	Removed during Phase III	Colored slate	
064	AST	Exterior	R	East side, near loading dock	3'D x 20'L	Unknown	Removed during Phase II	Air tank	
065	AST	Exterior	P	Southeast corner of Building P	10'D x 20'H	1936 Johnson & Higgins Map	Removed during Phase III	Waste ash	1/4 full
066	AST	Exterior	M	North side of building	35'D x 40'H	1955 Factory Insurance Map	Removed during Phase II	"Mag" slurry	3 feet of residue in tank.
A-01	AST	Interior	A	Solvent Recovery Room	11'D x 11'H	1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	
A-02	AST	Interior	A	Solvent Recovery Room	11'D x 11'H	1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	
A-03	AST	Interior	A	Solvent Recovery Room	11'D x 11'H	1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	
A-04	AST	Interior	A	Solvent Recovery Room	11'D x 11'H	1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	
A-05	AST	Interior	A	Solvent Recovery Room	11'D x 11'H	1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	
A-06	AST	Interior	A	Solvent Recovery Room	11'D x 11'H	1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	
A-07	AST	Interior	A	Solvent Recovery Room	11'D x 11'H	1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	
A-08	AST	Interior	A	Solvent Recovery Room	11'D x 11'H	1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	
A-09	AST	Interior	A	Solvent Recovery Room		1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	
A-10	AST	Interior	A	Solvent Recovery Room		1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	
A-11	AST	Interior	A	Solvent Recovery Room		1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	
A-12	AST	Interior	A	Solvent Recovery Room		1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	
A-13	AST	Interior	A	Solvent Recovery Room		1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	
A-14	AST	Interior	A	Solvent Recovery Room	4'Dx4'H	1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	

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Storage Tank Inventory

Johns Manville, Waukegan, Illinois

Tank ID	UST/AST	Located exterior/interior when in use	Building	Location (exterior description or column locator)	Size - dimensions or gallons	References for age, location, contents, etc.	Removal Date/Status	Historical Contents (from available records)	Comments
A-15	AST	Interior	A	Solvent Recovery Room	4'Dx4'H	1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	
A-16	AST	Interior	A	Solvent Recovery Room	4'Dx12'H	1955 Factory Insurance Map	Removed during Phase II	Enjay/Gasoline	
A-17	AST	Interior	A	Solvent Recovery Room		1955 Factory Insurance Map	Removed during Phase II	Hydraulic oil	1/3rd full
A-18	AST	Interior	A	F-12	2,000 gal	Observed by LFR personnel	Removed during Phase III	Oleum	Tank suspended near ceiling
A-19	AST	Interior	A	D-21/22 to E-21/22		Observed by LFR personnel	Removed during Phase II		
A-20	AST	Interior	A	D-21/22 to E-21/22		Observed by LFR personnel	Removed during Phase II		
A-21	AST	Exterior	A	Outside east wall of Solvent Recovery Room	8'Dx18'L	Observed by LFR personnel	Removed during Phase III	water	Boilers
A-22	AST	Exterior	A	Outside east wall of Solvent Recovery Room	8'Dx18'L	Observed by LFR personnel	Removed during Phase III	water	Boilers
B-01	AST	Interior	B	T-12 Reactor Area	9'D x 20'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	3 feet
B-02	AST	Interior	B	T-12 Reactor Area	9'D x 20'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	
B-03	AST	Interior	B	T-12 Reactor Area	9'D x 20'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	3 feet
B-04	AST	Interior	B	T-12 Reactor Area	9'D x 20'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	2 feet
B-05	AST	Interior	B	T-12 Reactor Area	9'D x 20'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	1 foot
B-06	AST	Interior	B	T-12 Reactor Area	5'D x 6'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	2 feet
B-07	AST	Interior	B	T-12 Reactor Area	9'D x 20'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	1 foot
B-08	AST	Interior	B	T-12 Reactor Area	9'D x 20'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	2 feet
B-09	AST	Interior	B	T-12 Reactor Area	9'D x 20'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	1 foot
B-10	AST	Interior	B	T-12 Reactor Area	9'D x 20'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	1 foot
B-11	AST	Interior	B	T-12 Reactor Area	11'D x 12'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	
B-12	AST	Interior	B	T-12 Reactor Area	5' x 10'	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	

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Storage Tank Inventory
Johns Manville, Waukegan, Illinois

Tank ID	UST/AST	Located exterior/interior when in use	Building	Location (exterior description or column locator)	Size dimensions or gallons	References for age, location, contents, etc.	Removal Date/Status	Historical Contents (from available records)	Comments
B-13	AST	Interior	B	T-12 Reactor Area	5' x 10'	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	
B-14	AST	Interior	B	T-12 Reactor Area	12'D x 20'L	Observed by LFR personnel	Removed during Phase III	T-12 Raw Materials	Overhead tank
B-15	AST	Interior	B	T-12 Reactor Area	12'D x 20'L	Observed by LFR personnel	Removed during Phase III	T-12 Raw Materials	Overhead tank
B-16	AST	Interior	B	D-20 - D-22	7'D x 30'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	1.5 feet
B-17	AST	Interior	B	D-20 - D-22	7'D x 30'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	
B-18	AST	Interior	B	D-20 - D-22	7'D x 30'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	
B-19	AST	Interior	B	D-20 - D-22	7'D x 30'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	
B-20	AST	Interior	B	Former T-12 Press Area		Observed by LFR personnel	Removed during Phase III	T-12 Raw Materials	
B-21	AST	Interior	B	Batch House	12'D x 40'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	
B-22	AST	Interior	B	Batch House	12'D x 40'H	Observed by LFR personnel	Removed during Phase II	Pumice	2/3rds full; 132,000 pounds on hand
B-23	AST	Interior	B	Batch House	12'D x 35'H	Observed by LFR personnel	Removed during Phase II	Gypsum	2/3rds full; 74,400 pounds on hand
B-24	AST	Interior	B	Batch House	12'D x 35'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	
B-25	AST	Interior	B	Batch House	12'D x 35'H	Observed by LFR personnel	Removed during Phase II	Lime	2/3rds full; 167,989 pounds in B-25 and B-26
B-26	AST	Interior	B	Batch House	12'D x 35'H	Observed by LFR personnel	Removed during Phase II	Lime	1/2 full
B-27	AST	Interior	B	Batch House	10'D x 10'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	
B-28	AST	Interior	B	Batch House	10'D x 35'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	
B-29	AST	Interior	B	Batch House	10'D x 35'H	Observed by LFR personnel	Removed during Phase II	T-12 Raw Materials	
B-30	AST	Interior	B	B-18	7'D x 17'H	Observed by LFR personnel	Removed during Phase III	Asbestos wastewater	

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Storage Tank Inventory
Johns Manville, Waukegan, Illinois

Tank ID	UST/AST	Located exterior/interior when in use	Building	Location (exterior description or column locator)	Size dimensions or gallons	References for age, location, contents, etc.	Removal Date/Status	Historical Contents (from available records)	Comments
B-31	AST	Interior	B	Former T-12 Press Area		Observed by LFR personnel	Removed during Phase III		
B-32	AST	Interior	B	Former T-12 Press Area	5'D x 10'L	Observed by LFR personnel	Removed during Phase III		
C-01	AST	Interior	C	C-22 to D-22		Observed by LFR personnel	Removed during Phase III	Asbestos wastewater	West side of firewall
C-02	AST	Interior	C	C-22 to D-22		Observed by LFR personnel	Removed during Phase III	Asbestos wastewater	West side of firewall
C-03	AST	Interior	C	C-22 to D-22		Observed by LFR personnel	Removed during Phase III	Asbestos wastewater	West side of firewall
C-04	AST	Interior	C	C-22 to D-22		Observed by LFR personnel	Removed during Phase III	Asbestos wastewater	West side of firewall
C-05	AST	Interior	C	C-22 to D-22		Observed by LFR personnel	Removed during Phase III	Asbestos wastewater	West side of firewall
C-06	AST	Interior	C	C-22 to D-22		Observed by LFR personnel	Removed during Phase III	Asbestos wastewater	West side of firewall
C-07	AST	Interior	C	C-22 to D-22		Observed by LFR personnel	Removed during Phase III	Asbestos wastewater	East side of firewall
C-08	AST	Interior	C	C-22 to D-22		Observed by LFR personnel	Removed during Phase III	Asbestos wastewater	East side of firewall
C-09	AST	Interior	C	C-23 to C-24		Observed by LFR personnel	Removed during Phase III	Asbestos wastewater	Silo
C-10	AST	Interior	C	C-23 to C-24		Observed by LFR personnel	Removed during Phase III	Asbestos wastewater	Silo
C-11	AST	Interior	C	F-31			No longer present; removal date unknown	Asbestos wastewater	Mixing tank
D-01	AST	Interior	D	D-18	20'H x 10'D	Observed by LFR personnel	Removed during Phase III	Asphalt product	
D-02	AST	Interior	D	D-18	20'H x 10'D	Observed by LFR personnel	Removed during Phase III	Asphalt product	
D-03	AST	Interior	D	D-18	20'H x 10'D	Observed by LFR personnel	Removed during Phase III	Asphalt product	
D-04	AST	Interior	D	D-20	12'H x 8'D	Observed by LFR personnel	Removed during Phase III	Asphalt product	
D-05	AST	Interior	D	D-20	12'H x 8'D	Observed by LFR personnel	Removed during Phase III	Asphalt product	
D-06	AST	Interior	D	D-20	12'H x 8'D	Observed by LFR personnel	Removed during Phase III	Asphalt product	
D-07	AST	Interior	D	C-17	18'H x 16'D	Observed by LFR personnel	Removed during Phase III	Asphalt product	
D-08	AST	Interior	D	C-19	18'H x 16'D	Observed by LFR personnel	Removed during Phase III	Asphalt product	
D-09	AST	Interior	D	B-18/19	25'H x 20'D	Observed by LFR personnel	Removed during Phase III	Asphalt product	
D-10	AST	Interior	D	B-19 TO C-19	18'H x 16'D	Observed by LFR personnel	Removed during Phase III	Asphalt product	

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Storage Tank Inventory
Johns Manville, Waukegan, Illinois

Tank ID	UST/AST	Located exterior/interior when in use	Building	Location (exterior description or column locator)	Size: dimensions or gallons	References for age, location, contents, etc.	Removal Date/Status	Historical Contents (from available records)	Comments
D-11	AST	Interior	D	B-19	18'H x 16'D	Observed by LFR personnel	Removed during Phase III	Asphalt product	
E-01	AST	Interior	E	D-11	13'H x 12'D	Observed by LFR personnel	Removed during Phase III	Dry building products	Tank located at west end of pump room
E-02	AST	Interior	E	D-11	13'H x 12'D	Observed by LFR personnel	Removed during Phase III	Dry building products	Samples collected from upper materials in tank; contractor to ensure remaining contents are negative.
E-03	AST	Interior	E	E-13	20'H x 10'D	Observed by LFR personnel	Removed during Phase III	Asbestos wastewater	
E-04	AST	Interior	E	E-13	20'H x 10'D	Observed by LFR personnel	Removed during Phase III	Asbestos wastewater	
E-05	AST	Interior	E	E-13	20'H x 10'D	Observed by LFR personnel	Removed during Phase III	Asbestos wastewater	
E-06	AST	Interior	E	E-13	20'H x 13'D	Observed by LFR personnel	Removed during Phase III	Asbestos wastewater	
E-07	AST	Interior	E	A-10; open into building	Autoclaves	Observed by LFR personnel	Removed during Phase II	Asbestos wastewater	
E-08	AST	Interior	E	A-10; open into building	Autoclaves	Observed by LFR personnel	Removed during Phase II	Asbestos wastewater	
E-09	AST	Interior	E	A-10; open into building	Autoclaves	Observed by LFR personnel	Removed during Phase II	Asbestos wastewater	
H-01	AST - inside Building H	Interior	H	G-7 to I-7	12,000	Plant drawing; date unknown	No longer present; removal date unknown	Polystyrene	
H-02	AST - inside Building H	Interior	H	G-7 to I-7	20,000	Plant drawing; date unknown	No longer present; removal date unknown	Polystyrene	
H-03	AST - inside Building H	Interior	H	G-7 to I-7	20,000	Plant drawing; date unknown	No longer present; removal date unknown	Polystyrene	
J-01	AST	Interior	J	H-0 to J-0	Autoclaves	Observed by LFR personnel	Removed during Phase II	Finished asbestos products	
J-02	AST	Interior	J	H-0 to J-0	Autoclaves	Observed by LFR personnel	Removed during Phase II	Finished asbestos products	
J-03	AST	Interior	J	H-0 to J-0	Autoclaves	Observed by LFR personnel	Removed during Phase II	Finished asbestos products	
J-04	AST	Interior	J	H-0 to J-0	Autoclaves	Observed by LFR personnel	Removed during Phase II	Finished asbestos products	
J-05	AST	Interior	J	H-0 to J-0	Autoclaves	Observed by LFR personnel	Removed during Phase II	Finished asbestos products	
J-06	AST	Interior	J	F-23; in open courtyard	Autoclaves	Observed by LFR personnel	Removed during Phase II	Finished asbestos products	
J-07	AST	Interior	J	F-23; in open courtyard	Autoclaves	Observed by LFR personnel	Removed during Phase II	Finished asbestos products	

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Storage Tank Inventory
Johns Manville, Waukegan, Illinois

Tank ID	UST/AST	Located exterior/interior when in use	Building	Location (exterior description or column locator)	Size dimensions or gallons	References for age, location, contents, etc.	Removal Date/Status	Historical Contents (from available records)	Comments
M-01	AST	Interior	M	Oliver filter room		Observed by LFR personnel	Removed during Phase II		
M-02	AST	Interior	M	Oliver filter room		Observed by LFR personnel	Removed during Phase II		
M-03	AST	Interior	M	Oliver filter room		Observed by LFR personnel	Removed during Phase II		
M-04	AST	Interior	M	Oliver filter room		Observed by LFR personnel	Removed during Phase II		
M-05	AST	Interior	M	Western main tank	60'D x 30'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	Tank 1/3rd full - estimate 10 feet of material
M-06	AST	Interior	M	Center main tank	60'D x 24'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	3 feet of residue in tank.
M-07	AST	Interior	M	Eastern main tank	60'D x 20'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	
M-08	AST	Interior	M	Between western and center main tanks	6'D	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	
M-09	AST	Interior	M	Between western and center main tanks	6'D	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	
M-10	AST	Interior	M	Between western and center main tanks	6'D	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	0.5 feet of residue
M-11	AST	Interior	M	Between western and center main tanks	6'D	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	0.5 feet of residue
M-12	AST	Interior	M	South side of building; between center and eastern main tank	6'D	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	2 feet of residue
M-13	AST	Interior	M	Room east of eastern main tank	7'D x 25'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	3' residue
M-14	AST	Interior	M	Room east of eastern main tank	7'D x 25'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	2' residue
M-15	AST	Interior	M	Room east of eastern main tank	7'D x 25'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	4' residue
M-16	AST	Interior	M	Room east of eastern main tank	7'D x 25'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	2' residue
M-17	AST	Interior	M	Room east of eastern main tank	7'D x 25'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	2.5' residue
M-18	AST	Interior	M	Room east of eastern main tank	7'D x 25'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	
M-19	AST	Interior	M	Room east of eastern main tank	7'D x 25'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	5' residue
M-20	AST	Interior	M	Room east of eastern main tank	7'D x 25'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	5' residue
M-21	AST	Interior	M	Room east of eastern main tank	7'D x 25'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	4' residue
M-22	AST	Interior	M	Room east of eastern main tank	7'D x 25'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	1' residue
M-23	AST	Interior	M	Room east of eastern main tank	7'D x 25'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	4' residue
M-24	AST	Interior	M	Room east of eastern main tank	7'D x 25'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	
M-25	AST	Interior	M	Room east of eastern main tank	7'D x 15'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	

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Storage Tank Inventory
Johns Manville, Waukegan, Illinois

Tank ID	UST/AST	Located exterior/interior when in use	Building	Location (exterior, description or column locator)	Size dimensions or gallons	References for age, location, contents, etc.	Removal Date/Status	Historical Contents (from available records)	Comments
M-26	AST	Interior	M	Room east of eastern main tank	7'D x 15'H	Observed by LFR personnel	Removed during Phase II	Calcium carbonate	
P-01	AST	Interior	P	Overhead at west end of boiler room		Observed by LFR personnel	Removed during Phase III	Water	
P-02	AST	Interior	P	East end of boiler room	5'D x 8'H	Observed by LFR personnel	Removed during Phase III	Water	Softener tank - 2/3rds full
P-03	AST	Interior	P	East end of boiler room	5'D x 8'H	Observed by LFR personnel	Removed during Phase III	Water	Softener tank - 2/3rds full
P-04	AST	Interior	P	East end of boiler room	5'D x 8'H	Observed by LFR personnel	Removed during Phase III	Water	De-alkalizer tank - 2/3rds full
P-05	AST	Interior	P	East end of boiler room	5'D x 8'H	Observed by LFR personnel	Removed during Phase III	Water	De-alkalizer tank - 2/3rds full
P1-01	AST	Interior	P-1	Main area of building	16'D x 20'H	Observed by LFR personnel	Removed during Phase III	Water	Water treatment

Table 2
Recognized Environmental Conditions
Johns Manville, Waukegan, Illinois

ID	Recognized Environmental Condition	Building #	Location	Material	Description	Status
1	1989 UST Excavation 1	Pump House	West of Pump House	Diesel fuel	Tank 1 removed in 1989. 5/9/91 IEPA Letter indicating that no remedial action is necessary.	Complete
2	1989 UST Excavation 2	Building E	South side of Building E; immediately east of Building L	Kerosene	Tanks 2, 21, and 22 removed in 1989. Incident number 891724 assigned. Currently open.	Data to be written up and closed under SRP.
3	1989 UST Excavation 3	Building D	West side; along front street	Gasoline	Tank 3 removed in 1989. Transferred from Part 731 to Part 732 in 1995. LUST incident number 951826 still open.	Additional assessment required. Impacts may require remedial action.
4	1989 UST Excavation 4	Building A	South side of Building A	Enjay, gasoline, naphtha, MEK	Tanks 4, 7, 8, 9, 10, 11, and 12 removed in 1989. LUST incident number 891724 still open.	Data to be written up and closed under SRP.
5	1989 UST Excavation 5	Building D	South side of Building D	Mineral spirits; methanol	Tanks 5 and 6 removed in 1989. LUST incident number 891724 still open.	Data to be written up and closed under SRP.
6	1989 UST Excavation 6	Building P	North exterior of Building P	No. 6 fuel oil	Tanks 13, 14, and 15 removed in 1989. 5/9/91 IEPA Letter indicating that no remedial action is necessary.	Complete
7	1989 UST Excavation 7	Building P	North of east wall of Building P-1	No. 6 fuel oil	Tank 16 removed in 1989. Project complete. 5/9/91 IEPA Letter indicating that no remedial action is necessary.	Complete
8	1989 UST Excavation 8	Building F	West side, south end of Building F	Sodium silicate	Tanks 17 and 18 removed in 1989. 5/9/91 IEPA Letter indicating that no remedial action is necessary.	Complete

Table 2
Recognized Environmental Conditions
Johns Manville, Waukegan, Illinois

ID	Recognized Environmental Condition	Building #	Location	Material	Description	Status
9	1989 UST Excavation 9	Building P	North of former natural gas meter house along south side of Building C	Fuel oil	Tank 19 removed in 1989. 5/9/91 IEPA Letter indicating that no remedial action is necessary.	Complete
10	1989 UST Excavation 10	Building Q	North side of Building Q	Methanol	Tank 20 removed in 1989. 5/9/91 IEPA Letter indicating that no remedial action is necessary.	Complete
11	1989 UST Excavation 11	Building H	North side of Building H annex	Naphtha, linseed oil; engine oil	Tanks 23, 24, and 25 removed in 1989. LUST incident number 891724 still open.	Data to be written up and closed under SRP.
12	Solvent Recovery Room	Building A	North side of Building A	Enjay (toluene base); naphtha	Former solvent recovery system for sheeter system in Building A.	Assessment complete. Impacts may require remedial action.
13	D Transformer-Sanitary Sewer	Between Buildings C and D	South of transformer area	Non-pcb transformer oil	Inadvertent release of oil to sanitary sewer during demolition.	Complete. Data to be written up and closed under SRP.
14	Tank 30-UST	Building D; exterior	South of D building; possible beneath Tank 056	Gasoline	Tank discovered during December 2001 test pits. Tank removed on July 9, 2002.	45-Day report submitted to IEPA LUST section on August 22, 2002. 5.6 ppb Benzene noted in water sample. LUST to be transferred to SRP and closed.
15	Tank 37-AST	Building D; exterior	Adjacent to tank 056	Oleum	Above-ground tank containing mineral spirits. Same product as contained in Tank 005, a UST with a release (891724). No way to distinguish whether soil impacts in the area are from Tank 005 or Tank 37.	To be closed in conjunction with Excavation 5 and Tank 30 UST release. No further reference to this tank.

Table 2
Recognized Environmental Conditions
Johns Manville, Waukegan, Illinois

ID	Recognized Environmental Condition	Building #	Location	Material	Description	Status
16	Building E Kerosene Pits	Building E	Various pits in Press Pit area	Kerosene	Kerosene was supplied from tanks in Tank Pit 2 (tanks 2, 21, and 22) for use in the manufacture of flexboard. The kerosene was used to keep press platens and divider sheets from sticking to the product. Overspray resulted in impacts to the walls and floor of the pits.	Complete. Data to be written up and closed under SRP.
17	Building H Material	Building H	Beneath Building H	Manufacturing materials - calcium carbonate and quartz; non-asbestos	Granular, white materials were found beneath the foundation slab and in the subsurface in the area south of Building H. Primary concern was whether material contained asbestos.	Complete. Data to be written up and closed under SRP.
18	Building J Transformers	Building J	South side of Building J	Transformer oil; PCBs less than 50 ppm	Inadvertent release of oil to concrete driveway during demolition.	Complete. Data to be written up and closed under SRP.
19	Tank 57-AST	Building P; exterior	Northeast side of Building P; east end of coal pit	Fuel oil	Tank supplied heavy fuel oil (#6) to Power House.	No visual impacts noted during tank removal. Complete.
20	Fog Tunnels	Building E	Beneath Fog Tunnels in Building E	Unknown - solvent odor.	Odor encountered during slab removal. No visual evidence of impact.	Complete. Data to be written up and closed under SRP.
21	Still Room	Building D	Former Still Room within Building D	Tar; asphalt	Room contained tanks used in manufacture of asphalt-based asbestos roofing products. Tar was observed on foundation sand upon removal of concrete slab during Phase III Demolition.	Complete. Data to be written up and closed under SRP.

Table 2
Recognized Environmental Conditions
Johns Manville, Waukegan, Illinois

ID	Recognized Environmental Condition	Building #	Location	Material	Description	Status
22	Coal Tar Saturator	Building D	North side of building interior -	Purportedly coal tar was used in the saturator	Saturator used in the manufacture of asphalt-based roof products. Saturator was steel lined and beneath the floor of the northern end of Building D. Oil contaminated sand was located in the bottom of the saturator; assessment is required to determine whether impacts extended beyond limits of saturator. All contaminated sand in saturator removed for off-site disposal.	Complete. Data to be written up and closed SRP.
23	Building B - Tank 26	Building B Interior	Northeast corner of building.	Fuel oil	AST used for generating heat in the former T-12 ovens located in east end of Building B. Petroleum odor noted during slab removal during Phase III Demolition.	Complete. Data to be written up and closed under SRP.
24	Building T Tar Pit	Building T	Middle of building interior, south side.	Asphalt	Overflow asphalt pit in Building T removed during Phase III demolition. No impacts noted outside pit during removal.	Complete. Data to be written up and closed under SRP.
25	Building D Saturators	Building D	South side, column B-15, approx.	Asphalt	Four asphalt roofing saturators used in the manufacture of asphalt-based roof products were located in the eastern end of Building D. Fuel oil contaminated sand was located in the bottom of the saturators; assessment required to determine whether impacts extended beyond limits of saturators. All contaminated sand in saturators removed for off-site disposal.	Complete. Data to be written up and closed under SRP.
26	Tank 053 UST: Building D Old Gasoline	Building D	West side of front street	Gasoline	One of three possible gasoline tanks located along Front Street, based upon 1955 Fire Insurance Map. Test pits after demolition showed only one tank - which was removed in July 9, 2002. Based upon the location of the tank, it is identified as Tank 053 (on JM database) and Tank 27 to the OSFM.	Closure anticipated under LUST program.

Table 2
Recognized Environmental Conditions
Johns Manville, Waukegan, Illinois

ID	Recognized Environmental Condition	Building #	Location	Material	Description	Status
27	Coal Pit	Coal Pit	North of Building P	Residual coal	Between 0.5 and 2 feet of sediment located in coal pit. Upon sampling, TCLP lead exceedances noted in the western end of the pit.	Complete. Data to be written up and closed under SRP.
28	Subsurface Asbestos-containing Materials	Site wide	Site wide	Asbestos	Unknown impacts of asbestos-containing building materials to the subsurface as a result of 65-plus years of asbestos-products manufacturing.	Complete. Data to be written up and closed under SRP.
29	C-West Tanks	Building C	West side of Front Street fence	Probably propane	Tanks shown on 1972 Factory Insurance Map and 1965 Sanborn Map. Plant personnel indicated they contained "paint thinner" - Fire Insurance Maps stated propane.	Complete. Data to be written up and closed under SRP.
30	Tank 033	Building J	Eastern end of Building J	Oil	Shown on an old plant drawing before Building J was constructed.	Complete. Data to be written up and closed under SRP.
31	Locomotive	Building R	400 feet east of Building R	Diesel fuel and grease	Surficially stained soil from beneath idling locomotive on railroad siding during late 1990s.	Complete. Data to be written up and closed under SRP.
32	Tank 031	Building T	Outside south side, east end of Building T	Crude oil	Shown on Sanborn Maps	Complete. Data to be written up and closed under SRP.
33	Tank 032	Building T	Outside west end, east of Building L	Tar/asphalt	Sanborn and other Fire Insurance maps	Complete. Data to be written up and closed under SRP.
34	Tank 027	Building A	North of Building A; column line 16	Oil	On 1924, 1929, 1949, and 1965 Sanborns as "underground tank"; not shown on ANY plant drawings.	Complete. Data to be written up and closed under SRP.
35	Building A Transformer	Building A	Outside north side; west end	Transformer oil; PCB concern	Transformers did historically contain PCBs	Complete. Data to be written up and closed under SRP.
36	Building P Transformer	Building P	Outside south side, east end	Transformer oil; PCB concern	Unknown whether transformers historically contained PCBs	Complete. Data to be written up and closed under SRP.
37	Tank 039	Building D	West of Front Street	Gasoline	UST removed in 2000	Complete. Clean closed; no release reported.

Table 3
Monitoring Well/Piezometer
Information

Johns Manville
Waukegan, Illinois

Location ID	Date Installed	Ground Elevation	Top of Casing	Top of Screen	Base of Screen	Base of Exploration	Current Status
02-12 (P)	12-Jun-02		589.74	2.00	12.00	12.00	Active
02-13 (P)	12-Jun-02		590.78	2.00	12.00	12.00	Active
02-14 (P)	12-Jun-02		590.90	2.00	12.00	12.00	Active
02-15 (P)	12-Jun-02		592.25	2.00	12.00	12.00	Active
02-16 (P)	12-Jun-02		591.67	2.00	12.00	12.00	Active
02-17 (P)	12-Jun-02		592.92	2.00	12.00	12.00	Active
02-18 (P)	12-Jun-02		590.02	2.00	7.00	8.00	Active
02-19 (P)	12-Jun-02		592.37	2.00	7.00	8.00	Active
02-20 (P)	12-Jun-02		593.10	2.00	12.00	12.00	Active
02-21 (P)	12-Jun-02		589.54	1.00	11.00	11.00	Active
02-22 (P)	12-Jun-02		589.62	0.00	10.00	10.00	Active
UMW-01	03-Jan-90	590.75	593.06	6.00	11.00	11.00	Active
UMW-01A	07-May-96	589.98	589.66	4.00	9.00	30.00	Active
UMW-02	03-Jan-90	590.30	592.81	5.50	10.50	10.50	Active
UMW-02A	07-May-96	588.83	588.51	3.50	8.50	10.00	Active
UMW-03	03-Jan-90	590.54	592.66	5.50	10.50	10.50	Active
UMW-03A	07-May-96	587.85	587.47	3.50	8.50	15.00	Active
UMW-04	03-Jan-90	590.28	592.67	5.00	10.00	10.00	Active
UMW-05	03-Jan-90	590.29	592.89	5.50	10.50	10.50	Active
UMW-06	04-Jan-90	590.04	592.07	5.00	10.00	10.00	Active
UMW-07	04-Jan-90	590.10	592.79	4.00	9.00	9.00	Active
UMW-08	04-Jan-90	587.63	589.89	2.50	7.50	7.50	Active
UMW-09	04-Jan-90	589.49	591.95	5.50	10.50	10.50	Active
UMW-10	04-Jan-90	589.63	592.34	5.00	10.00	10.00	Active
UMW-11	05-Jan-90		593.36	4.00	9.00	9.00	Destroyed
UMW-12	05-Jan-90	590.02	589.85	4.00	9.00	10.00	Destroyed
UMW-13	29-Oct-91	587.96	590.20	4.00	9.50	9.50	Active
UMW-14	30-Oct-91	589.81	589.53	5.00	9.50	9.50	Active
UMW-15	31-Oct-91	590.36	593.34	5.00	10.00	10.00	Destroyed
UMW-16	28-Oct-91	589.43	591.59	4.50	9.50	10.00	Active
UMW-17	29-Oct-91	590.87	593.00	4.00	9.00	9.00	Destroyed
UMW-18	28-Oct-91		592.73	9.00	14.00	14.00	Destroyed
UMW-19	31-Oct-91	590.72	593.79	4.00	9.00	9.00	Destroyed
UMW-20	31-Oct-91	590.74	590.48	7.00	12.00	13.00	Active
UMW-21	29-Oct-91		590.73	7.50	12.50	13.00	Destroyed
UMW-22	29-Oct-91	590.41	590.19	8.00	13.00	13.00	Active
UMW-23	31-Oct-91	589.82	592.65	7.00	12.00	12.50	Active
UMW-24	17-Dec-98	593.92	593.54	4.50	14.50	14.50	Destroyed

Blank: not measured
(P): piezometer

Table 3
Monitoring Well/Piezometer
Information

Johns Manville
Waukegan, Illinois

Location ID	Date Installed	Ground Elevation	Top of Casing	Top of Screen	Base of Screen	Base of Exploration	Current Status
UMW-25	17-Dec-98	594.02	593.65	7.00	17.00	17.00	Destroyed
UMW-26	18-Dec-98	590.08	589.75	5.00	15.00	15.00	Active
UMW-27	18-Dec-98	590.21	592.50	3.00	13.00	13.00	Active
UMW-29	22-Jul-02		592.26	1.50	11.50	11.50	Active
UMW-30	22-Jul-02		592.65	1.60	11.60	11.60	Active
SMW-01	24-Oct-88	587.82	589.57	8.60	13.60	15.00	Active
SMW-02	25-Oct-88	587.45	589.45	27.30	32.30	36.00	Active
SMW-03	26-Oct-88	589.21	591.71	13.30	17.80	18.50	Active
SMW-04	26-Oct-88	586.06	587.63	9.00	13.50	15.00	Active
SWM-05	28-Oct-88						Replaced by SMW-05A
SMW-05A	01-Dec-89	592.79	594.46	9.90	14.90	15.00	Active
SMW-06	28-Oct-88	592.18	593.04	35.10	39.60	40.00	Active
SMW-07	28-Oct-88						Replaced by SMW-07A
SMW-07A	30-Nov-89	591.80	593.85	8.20	13.20	13.50	Active
SMW-08	28-Oct-88						Replaced by SMW-08A
SMW-08A	30-Nov-89	591.76	593.27	8.30	13.30	13.50	Active
SMW-09	28-Oct-88	591.38	592.55	35.40	39.90	40.50	Active
SMW-10	29-Oct-88						Replaced by SMW-10A
SMW-10A	30-Nov-89	590.63	592.47	8.60	13.60	13.60	Active
SMW-11	29-Oct-88						Replaced by SMW-11A
SMW-11A	29-Nov-89	590.45	592.20	33.70	38.70	39.50	Active
SMW-12	29-Oct-88	589.23	591.47	8.40	12.90	15.00	Active
SMW-13	29-Oct-88	588.89	590.79	33.70	38.20	39.00	Active
SMW-W	06-Oct-98	586.67	589.69	10.00	19.00	19.00	Active
SMW-X	18-Sep-84	586.51	588.64	8.00	13.00	14.00	Active
SMW-Y	19-Sep-84	587.74	589.71	8.00	13.00	14.00	Active
SMW-Z	19-Sep-84	586.37	587.14	8.00	13.00	14.00	Active
RIMW-01	19-Sep-84		591.16	8.00	13.00	14.00	Destroyed
RIMW-05	19-Sep-84		588.00	10.00	15.00	15.00	Destroyed
PM-E (P)	21-Jun-00	594.69	598.67	11.00	16.00	16.00	Active
PM-M (P)	21-Jun-00	591.14	594.12	7.00	12.00	12.00	Active
PM-W (P)	21-Jun-00	591.21	594.99	6.00	11.00	12.00	Active

Blank: not measured
(P): piezometer

Table 4
Water Level Measurements

Johns Manville
Waukegan, Illinois

Monitoring Location	Date	Depth to Water (feet)	Water Elevation (feet)
UMW-01	6/26/91	9.00	584.06
UMW-01	2/1/92	8.80	584.26
UMW-01	10/28/92	9.05	584.01
UMW-01	4/12/93	7.34	585.72
UMW-01	8/11/93	7.28	585.78
UMW-01	6/1/94	8.83	584.23
UMW-01	11/13/98	8.12	584.94
UMW-01	10/30/00	8.31	584.75
UMW-01	10/17/01	6.00	587.06
UMW-01A	11/12/98	5.39	584.27
UMW-01A	10/30/00	5.48	584.18
UMW-01A	10/17/01	3.60	586.06
UMW-01A	8/1/02	5.42	584.24
UMW-02	6/26/91	8.35	584.46
UMW-02	2/1/92	8.29	584.52
UMW-02	10/28/92	8.43	584.38
UMW-02	4/12/93	6.80	586.01
UMW-02	8/11/93	6.79	586.02
UMW-02	6/1/94	8.22	584.59
UMW-02	11/13/98	7.61	585.20
UMW-02	10/30/00	7.82	584.99
UMW-02	10/17/01	5.49	587.32
UMW-02A	11/12/98	4.35	584.16
UMW-02A	10/30/00	4.49	584.02
UMW-02A	10/17/01	2.92	585.59
UMW-02A	8/1/02	4.63	583.88
UMW-03	6/26/91	8.30	584.36
UMW-03	2/1/92	8.18	584.48
UMW-03	10/28/92	8.36	584.30
UMW-03	4/12/93	6.65	586.01
UMW-03	8/11/93	6.68	585.98
UMW-03	6/1/94	8.15	584.51
UMW-03	11/13/98	7.20	585.46
UMW-03	10/30/00	7.69	584.97
UMW-03	10/17/01	5.42	587.24
UMW-03A	11/12/98	3.20	584.27
UMW-03A	10/30/00	3.41	584.06
UMW-03A	10/17/01	1.95	585.52
UMW-04	6/26/91	7.50	585.17

Table 4
Water Level Measurements

Johns Manville
Waukegan, Illinois

Monitoring Location	Date	Depth to Water (feet)	Water Elevation (feet)
UMW-04	2/1/92	7.45	585.22
UMW-04	10/28/92	7.82	584.85
UMW-04	4/12/93	5.80	586.87
UMW-04	8/11/93	6.72	585.95
UMW-04	6/1/94	7.72	584.95
UMW-04	11/12/98	7.10	585.57
UMW-04	10/30/00	7.13	585.54
UMW-04	10/17/01	5.58	587.09
UMW-04	6/28/02	6.00	586.67
UMW-04	8/1/02	7.32	585.35
UMW-05	6/26/91	7.60	585.29
UMW-05	2/1/92	7.64	585.25
UMW-05	6/1/94	7.85	585.04
UMW-05	10/30/00	7.32	585.57
UMW-05	10/17/01	5.82	587.07
UMW-05	6/28/02	6.29	586.60
UMW-05	8/1/02	7.51	585.38
UMW-06	6/26/91	7.30	584.77
UMW-06	2/1/92	6.85	585.22
UMW-06	10/28/92	7.20	584.87
UMW-06	4/12/93	5.37	586.70
UMW-06	8/11/93	6.04	586.03
UMW-06	6/1/94	6.94	585.13
UMW-06	11/12/98	6.44	585.63
UMW-06	10/30/00	6.41	585.66
UMW-06	10/17/01	4.71	587.36
UMW-06	6/28/02	5.22	586.85
UMW-06	8/1/02	6.43	585.64
UMW-07	6/26/91	6.80	585.99
UMW-07	11/8/91	7.74	585.05
UMW-07	2/1/92	7.35	585.44
UMW-07	10/28/92	7.75	585.04
UMW-07	4/12/93	5.92	586.87
UMW-07	8/11/93	6.55	586.24
UMW-07	6/1/94	7.49	585.30
UMW-07	11/12/98	7.17	585.62
UMW-07	10/30/00	7.12	585.67
UMW-07	10/17/01	5.34	587.45
UMW-07	6/28/02	5.89	586.90

Table 4
Water Level Measurements

Johns Manville
Waukegan, Illinois

Monitoring Location	Date	Depth to Water (feet)	Water Elevation (feet)
UMW-07	8/1/02	7.15	585.64
UMW-08	6/26/91	6.75	583.14
UMW-08	2/1/92	6.14	583.75
UMW-08	10/28/92	6.63	583.26
UMW-08	4/12/93	4.65	585.24
UMW-08	8/11/93	5.03	584.86
UMW-08	6/1/94	6.72	583.17
UMW-08	11/12/98	5.74	584.15
UMW-08	10/30/00	5.94	583.95
UMW-08	10/17/01	4.54	585.35
UMW-08	8/1/02	6.26	583.63
UMW-08	8/29/02	5.61	584.28
UMW-09	6/26/91	8.55	583.40
UMW-09	2/1/92	8.64	583.31
UMW-09	4/12/93	6.52	585.43
UMW-09	8/11/93	6.25	585.70
UMW-09	6/1/94	9.94	582.01
UMW-09	11/12/98	7.56	584.39
UMW-09	10/30/00	7.71	584.24
UMW-09	10/17/01	6.05	585.90
UMW-09	8/1/02	7.77	584.18
UMW-10	6/26/91	9.85	582.49
UMW-10	2/1/92	8.13	584.21
UMW-10	10/28/92	8.60	583.74
UMW-10	4/12/93	6.63	585.71
UMW-10	8/11/93	6.92	585.42
UMW-10	6/1/94	10.05	582.29
UMW-10	11/12/98	7.70	584.64
UMW-10	10/30/00	8.07	584.27
UMW-10	10/17/01	6.29	586.05
UMW-10	8/1/02	8.04	584.30
UMW-11	6/26/91	8.70	584.66
UMW-11	10/28/92	8.23	585.13
UMW-11	11/13/98	7.14	586.22
UMW-11	3/5/99	6.69	586.67
UMW-12	6/26/91	5.30	584.55
UMW-12	11/8/91	8.80	581.05
UMW-12	10/28/92	5.57	584.28
UMW-12	6/1/94	5.30	584.55

Table 4
Water Level Measurements

Johns Manville
Waukegan, Illinois

Monitoring Location	Date	Depth to Water (feet)	Water Elevation (feet)
UMW-12	11/13/98	4.44	585.41
UMW-12	10/30/00	4.50	585.35
UMW-13	2/1/92	6.34	583.86
UMW-13	10/28/92	6.48	583.72
UMW-13	4/12/93	6.44	583.76
UMW-13	8/11/93	5.40	584.80
UMW-13	6/1/94	6.53	583.67
UMW-13	11/12/98	5.80	584.40
UMW-13	10/30/00	8.98	581.22
UMW-13	10/17/01	4.77	585.43
UMW-14	2/1/92	4.35	585.18
UMW-14	10/28/92	4.82	584.71
UMW-14	4/12/93	3.90	585.63
UMW-14	8/11/93	3.60	585.93
UMW-14	6/1/94	4.83	584.70
UMW-14	11/12/98	3.99	585.54
UMW-14	10/30/00	3.42	586.11
UMW-14	10/17/01	2.39	587.14
UMW-15	11/8/91	8.43	584.91
UMW-15	2/1/92	8.39	584.95
UMW-15	10/28/92	8.60	584.74
UMW-15	4/12/93	7.25	586.09
UMW-15	8/11/93	7.45	585.89
UMW-15	6/1/94	8.24	585.10
UMW-15	11/12/98	7.86	585.48
UMW-15	10/30/00	7.83	585.51
UMW-16	11/8/91	6.80	584.79
UMW-16	2/1/92	7.38	584.21
UMW-16	10/28/92	7.50	584.09
UMW-16	4/12/93	5.65	585.94
UMW-16	8/11/93	6.51	585.08
UMW-16	6/1/94	7.37	584.22
UMW-16	11/12/98	6.56	585.03
UMW-16	10/30/00	6.71	584.88
UMW-16	10/17/01	5.81	585.78
UMW-17	11/8/91	7.84	585.16
UMW-17	2/1/92	8.40	584.60
UMW-17	10/28/92	8.94	584.06
UMW-17	4/12/93	6.89	586.11

Table 4
Water Level Measurements

Johns Manville
Waukegan, Illinois

Monitoring Location	Date	Depth to Water (feet)	Water Elevation (feet)
UMW-17	8/11/93	7.51	585.49
UMW-17	6/1/94	8.31	584.69
UMW-17	11/12/98	7.41	585.59
UMW-17	10/30/00	6.18	586.82
UMW-18	11/8/91	6.63	586.10
UMW-18	2/1/92	8.15	584.58
UMW-18	10/28/92	8.26	584.47
UMW-18	4/12/93	6.65	586.08
UMW-18	8/11/93	7.37	585.36
UMW-18	6/1/94	7.95	584.78
UMW-18	11/12/98		
UMW-19	11/8/91	8.10	585.69
UMW-19	2/1/92	8.26	585.53
UMW-19	10/28/92	8.52	585.27
UMW-19	4/12/93	6.79	587.00
UMW-19	6/1/94	8.52	585.27
UMW-19	11/12/98		
UMW-19	10/30/00	8.28	585.51
UMW-19	10/17/01	6.92	586.87
UMW-20	11/8/91	5.77	584.71
UMW-20	2/1/92	5.80	584.68
UMW-20	10/28/92	6.05	584.43
UMW-20	4/12/93	4.20	586.28
UMW-20	8/11/93	4.20	586.28
UMW-20	6/1/94	5.96	584.52
UMW-20	11/12/98	5.22	585.26
UMW-20	10/30/00	5.43	585.05
UMW-20	10/17/01	3.77	586.71
UMW-21	11/8/91	7.42	583.31
UMW-21	2/1/92	6.78	583.95
UMW-21	10/28/92	7.45	583.28
UMW-21	4/12/93	4.90	585.83
UMW-21	8/11/93	4.86	585.87
UMW-21	6/1/94	7.75	582.98
UMW-21	11/12/98		
UMW-22	11/8/91	7.65	582.54
UMW-22	2/1/92	7.04	583.15
UMW-22	10/28/92	7.80	582.39
UMW-22	4/12/93	5.30	584.89

Table 4
Water Level Measurements

Johns Manville
Waukegan, Illinois

Monitoring Location	Date	Depth to Water (feet)	Water Elevation (feet)
UMW-22	8/11/93	5.34	584.85
UMW-22	6/1/94	7.79	582.40
UMW-22	11/12/98		
UMW-22	10/30/00	7.18	583.01
UMW-22	10/17/01	5.20	584.99
UMW-23	11/8/91	9.89	582.76
UMW-23	2/1/92	9.48	583.17
UMW-23	10/28/92	10.24	582.41
UMW-23	4/12/93	8.85	583.80
UMW-23	8/11/93	8.08	584.57
UMW-23	6/1/94	10.44	582.21
UMW-23	11/12/98	9.61	583.04
UMW-23	10/30/00	9.82	582.83
UMW-23	10/17/01	8.32	584.33
UMW-23	8/29/02	8.92	583.73
UMW-23	8/30/02	8.71	583.94
UMW-23	9/3/02	8.85	583.80
UMW-23	9/4/02	8.63	584.02
UMW-23	9/5/02	8.70	583.95
UMW-23	9/6/02	8.88	583.77
UMW-23	9/9/02	9.27	583.38
UMW-23	9/10/02	9.28	583.37
UMW-23	9/11/02	9.30	583.35
UMW-23	9/12/02	9.30	583.35
UMW-23	9/13/02	9.27	583.38
UMW-23	9/16/02	9.43	583.22
UMW-23	9/17/02	9.25	583.40
UMW-23	9/18/02	9.26	583.39
UMW-23	9/19/02	9.43	583.22
UMW-23	9/20/02	9.51	583.14
UMW-23	9/23/02	9.61	583.04
UMW-23	9/24/02	9.55	583.10
UMW-23	9/25/02	9.45	583.20
UMW-23	9/26/02	9.39	583.26
UMW-23	9/27/02	9.48	583.17
UMW-23	9/30/02	9.55	583.10
UMW-23	10/1/02	9.26	583.39
UMW-23	10/2/02	9.19	583.46
UMW-24	1/12/99	9.07	584.47

Table 4
Water Level Measurements

Johns Manville
Waukegan, Illinois

Monitoring Location	Date	Depth to Water (feet)	Water Elevation (feet)
UMW-24	3/5/99	8.34	585.20
UMW-24	10/30/00	8.24	585.30
UMW-25	1/12/99	8.95	584.70
UMW-25	3/5/99	7.91	585.74
UMW-25	10/30/00	8.01	585.64
UMW-26	1/12/99	6.00	583.75
UMW-26	3/5/99	5.31	584.44
UMW-26	10/30/00	5.40	584.35
UMW-26	10/17/01	3.41	586.34
UMW-26	8/1/02	5.23	584.52
UMW-27	1/12/99	7.75	584.75
UMW-27	3/5/99	6.82	585.68
UMW-27	10/30/00	6.85	585.65
UMW-27	10/17/01	5.45	587.05
UMW-27	6/28/02	5.95	586.55
UMW-27	8/1/02	6.88	585.62
UMW-29	8/1/02	7.24	585.02
UMW-30	8/1/02	7.09	585.56
02-12	6/13/02	3.28	586.46
02-12	6/28/02	3.45	586.29
02-12	8/1/02	4.40	585.34
02-12	8/29/02	3.60	586.14
02-13	6/13/02	3.57	587.21
02-13	6/28/02	3.73	587.05
02-13	8/1/02	4.71	586.07
02-14	6/13/02	4.10	586.80
02-14	6/28/02	4.43	586.47
02-14	8/1/02	5.54	585.36
02-15	6/13/02	5.93	586.32
02-15	6/28/02	6.18	586.07
02-15	8/1/02	7.25	585.00
02-16	6/13/02	5.21	586.46
02-16	6/28/02	5.60	586.07
02-16	8/1/02	6.61	585.06
02-17	6/13/02	5.06	587.86
02-17	6/28/02	5.58	587.34
02-17	8/1/02	6.71	586.21
02-18	6/13/02	3.15	586.87
02-18	6/28/02	3.40	586.62

Table 4
Water Level Measurements

Johns Manville
Waukegan, Illinois

Monitoring Location	Date	Depth to Water (feet)	Water Elevation (feet)
02-18	8/1/02	4.40	585.62
02-19	6/13/02	4.87	587.50
02-19	6/28/02	5.17	587.20
02-19	8/1/02	6.15	586.22
02-20	6/13/02	5.69	587.41
02-20	6/28/02	6.07	587.03
02-20	8/1/02	7.01	586.09
02-21	6/13/02	3.36	586.18
02-21	6/28/02	3.60	585.94
02-21	8/1/02	4.70	584.84
02-22	6/13/02	3.57	586.05
02-22	6/28/02	3.85	585.77
02-22	8/1/02	4.85	584.77
SMW-01	10/17/01	4.16	585.41
SMW-02	10/17/01	4.05	585.40
SMW-03	10/17/01	10.13	581.58
SMW-04	10/17/01	6.02	581.61
SMW-05A	10/17/01	11.84	582.62
SMW-06	10/17/01	10.48	582.56
SMW-07A	10/17/01	10.74	583.11
SMW-08A	10/17/01	10.71	582.56
SMW-09	10/17/01	10.04	582.51
SMW-10A	10/17/01	10.79	581.68
SMW-11A	10/17/01	10.55	581.65
SMW-12	10/17/01	7.40	584.07
SMW-13	10/17/01	6.72	584.07
SMW-W	10/17/01	8.91	580.78
SMW-X	10/17/01	6.85	581.79
SMW-Y	10/17/01	7.87	581.84
SMW-Z	10/17/01	7.29	579.85
PM-W	10/17/01	12.13	582.86
PM-E	10/17/01	15.97	582.70
PM-M	10/17/01	11.38	582.74

Table 5
Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 02: UST Excavation 2 Pit2-01-1 (2-4 ft)	REC 02: UST Excavation 2 Pit2-01-2 (3-4 ft)	REC 02: UST Excavation 2 Pit2-01-3 (3-4 ft)	REC 02: UST Excavation 2 Pit2-01-4 (3-4 ft)	REC 02: UST Excavation 2 Pit2-01-5 (5-7 ft)	REC 02: UST Excavation 2 Pit2-01-6 (4-6 ft)	REC 02: UST Excavation 2 Pit2-01-7 (4-6 ft)	REC 02: UST Excavation 2 Pit2-01-8 (7-8 ft)	REC 02: UST Excavation 2 Pit2-01-9 (6-8 ft)	REC 02: UST Excavation 2 Pit2-01-10 (3-5 ft)
1,1,1-Trichloroethane	2		1200					U (0.005)					
1,1,2,2-Tetrachloroethane	---	---	---					U (0.005)					
1,1,2-Trichloroethane	0.02	310	1800					U (0.005)					
1,1-Dichloroethane	23	7800	1300					U (0.005)					
1,1-Dichloroethene	0.06	700	1500					U (0.005)					
1,2-Dichloroethane	0.02	7	0.4					U (0.005)					
1,2-Dichloropropane	0.03	9	15					U (0.005)					
2-Chloroethyl Vinyl Ether	---	---	---										
2-Hexanone	---	---	---					U (0.01)					
4-Methyl-2-Pentanone	---	---	---					U (0.01)					
Acetone	16	7800	100000					U (0.01)					
Benzene	0.03	22	0.8	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.005)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Bromodichloromethane	0.6	10	3000					U (0.005)					
Bromoform	0.8	81	53					U (0.005)					
Bromomethane	---	---	---					U (0.01)					
Carbon Disulfide	32	7800	720					U (0.005)					
Carbon Tetrachloride	0.07	5	0.3					U (0.005)					
Chlorobenzene	1	1600	130					U (0.005)					
Chlorodibromomethane	0.4	1600	1300					U (0.005)					
Chloroethane	---	---	---					U (0.01)					
Chloroform	0.6	100	0.3					U (0.005)					
Chloromethane	---	---	---					U (0.01)					
cis-1,2-Dichloroethene	0.4	780	1200					U (0.005)					
cis-1,3-Dichloropropene	---	---	---					U (0.005)					
Dibromochloromethane	---	---	---										
Ethylbenzene	13	7800	400	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Methanol													
Methylene Chloride	0.02	85	13					U (0.005)					
Methyl Ethyl Ketone	---	---	---					U (0.01)					
Styrene	4	16000	1500					U (0.005)					
Tetrachloroethene	0.06	12	11					U (0.005)					
Toluene	12	16000	650	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
trans-1,2-Dichloroethene	0.7	1600	3100					U (0.005)					
trans-1,3-Dichloropropene	---	---	---					U (0.005)					
Trichlorfluoromethane													
Trichloroethene	0.06	58	5					U (0.005)					
Trichlorofluoromethane	---	---	---										
Vinyl Acetate	170	78000	1000					U (0.01)					
Vinyl Chloride	0.01	0.3	0.03					U (0.01)					
Xylenes, Total	150	160000	410	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 5
Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 02: UST Excavation 2 Pit2 Pipe 01-11 (4-6 ft)	REC 02: UST Excavation 2 Pit2 Pipe 01-12 (8-10 ft)	REC 02: UST Excavation 2 TP-4 (5-5 ft)	REC 03: UST Excavation 3 T-039-SB-01 (2-3 ft)	REC 03: UST Excavation 3 T-039-SB-02 (5-6 ft)	REC 03: UST Excavation 3 T-039-SB-03 (5-6 ft)	REC 03: UST Excavation 3 T-039-SB-04 (5-6 ft)	REC 03: UST Excavation 3 T-039-SB-05 (5-6 ft)	REC 03: UST Excavation 3 T-039-SB-06 (3-4 ft)	REC 03: UST Excavation 3 T-039-SB-07 (3-4 ft)
1,1,1-Trichloroethane	2		1200			U (0.005)							
1,1,2,2-Tetrachloroethane	---	---	---			U (0.005)							
1,1,2-Trichloroethane	0.02	310	1800			U (0.005)							
1,1-Dichloroethane	23	7800	1300			U (0.005)							
1,1-Dichloroethene	0.06	700	1500			U (0.005)							
1,2-Dichloroethane	0.02	7	0.4			U (0.005)							
1,2-Dichloropropane	0.03	9	15			U (0.005)							
2-Chloroethyl Vinyl Ether	---	---	---			U (0.01)							
2-Hexanone	---	---	---			U (0.01)							
4-Methyl-2-Pentanone	---	---	---			U (0.01)							
Acetone	16	7800	100000			U (0.025)							
Benzene	0.03	22	0.8	U (0.002)	U (0.002)	U (0.005)	0.017	0.057	0.199	0.067	0.034	0.0075	0.0053
Bromodichloromethane	0.6	10	3000			U (0.005)							
Bromoform	0.8	81	53			U (0.005)							
Bromomethane	---	---	---			U (0.005)							
Carbon Disulfide	32	7800	720			U (0.005)							
Carbon Tetrachloride	0.07	5	0.3			U (0.005)							
Chlorobenzene	1	1600	130			U (0.005)							
Chlorodibromomethane	0.4	1600	1300										
Chloroethane	---	---	---			U (0.005)							
Chloroform	0.6	100	0.3			U (0.005)							
Chloromethane	---	---	---			U (0.005)							
cis-1,2-Dichloroethene	0.4	780	1200			U (0.005)							
cis-1,3-Dichloropropene	---	---	---			U (0.005)							
Dibromochloromethane	---	---	---			U (0.005)							
Ethylbenzene	13	7800	400	U (0.005)	U (0.005)	U (0.005)	0.037	0.171	1.15	0.286	0.046	U (0.0058)	U (0.0051)
Methanol													
Methylene Chloride	0.02	85	13			U (0.005)							
Methyl Ethyl Ketone	---	---	---			U (0.01)							
Styrene	4	16000	1500			U (0.005)							
Tetrachloroethene	0.06	12	11			U (0.005)							
Toluene	12	16000	650	U (0.005)	U (0.005)	U (0.005)	U (0.0052)	0.502	3.25	0.403	0.022	0.015	0.011
trans-1,2-Dichloroethene	0 7	1600	3100			U (0.005)							
trans-1,3-Dichloropropene	---	---	---			U (0.005)							
Trichlorfluoromethane													
Trichloroethene	0.06	58	5			U (0.005)							
Trichlorofluoromethane	---	---	---			U (0.005)							
Vinyl Acetate	170	78000	1000			U (0.01)							
Vinyl Chloride	0.01	0.3	0.03			U (0.005)							
Xylenes, Total	150	160000	410	U (0.005)	U (0.005)	U (0.005)	12.4	1.28	12.6	2.33	0.088	U (0.0174)	U (0.0154)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 5
Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 03: UST Excavation 3 T-039-SB-08 (3-4 ft)	REC 03: UST Excavation 3 TA3-02-01 (2-4 ft)	REC 03: UST Excavation 3 TA3-02-02 (4-6 ft)	REC 03: UST Excavation 3 TA3-02-03 (2-4 ft)	REC 03: UST Excavation 3 TA3-02-04 (5-7 ft)	REC 03: UST Excavation 3 TA3-02-05 (5-7 ft)	REC 03: UST Excavation 3 TA3-02-06 (3-5 ft)	REC 03: UST Excavation 3 TA3-02-07 (2-4 ft)	REC 03: UST Excavation 3 TA3-02-08 (2-4 ft)	REC 03: UST Excavation 3 TA3-02-09 (2-4 ft)
1,1,1-Trichloroethane	2		1200										
1,1,2,2-Tetrachloroethane	---	---	---										
1,1,2-Trichloroethane	0.02	310	1800										
1,1-Dichloroethane	23	7800	1300										
1,1-Dichloroethene	0.06	700	1500										
1,2-Dichloroethane	0.02	7	0.4										
1,2-Dichloropropane	0.03	9	15										
2-Chloroethyl Vinyl Ether	---	---	---										
2-Hexanone	---	---	---										
4-Methyl-2-Pentanone	---	---	---										
Acetone	16	7800	100000										
Benzene	0.03	22	0.8	U (0.0059)	U (0.002)	U (0.002)	U (0.100)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Bromodichloromethane	0.6	10	3000										
Bromoform	0.8	81	53										
Bromomethane	---	---	---										
Carbon Disulfide	32	7800	720										
Carbon Tetrachloride	0.07	5	0.3										
Chlorobenzene	1	1600	130										
Chlorodibromomethane	0.4	1600	1300										
Chloroethane	---	---	---										
Chloroform	0.6	100	0.3										
Chloromethane	---	---	---										
cis-1,2-Dichloroethene	0.4	780	1200										
cis-1,3-Dichloropropene	---	---	---										
Dibromochloromethane	---	---	---										
Ethylbenzene	13	7800	400	U (0.0059)	U (0.005)	U (0.005)	U (0.100)	U (0.005)	U (0.005)	0.357	U (0.005)	U (0.005)	U (0.005)
Methanol													
Methylene Chloride	0.02	85	13										
Methyl Ethyl Ketone	---	---	---										
Styrene	4	16000	1500										
Tetrachloroethene	0.06	12	11										
Toluene	12	16000	650	0.011	U (0.005)	U (0.005)	U (0.100)	U (0.005)	U (0.005)	0.0051	U (0.005)	U (0.005)	U (0.005)
trans-1,2-Dichloroethene	0.7	1600	3100										
trans-1,3-Dichloropropene	---	---	---										
Trichlorfluoromethane													
Trichloroethene	0.06	58	5										
Trichlorofluoromethane	---	---	---										
Vinyl Acetate	170	78000	1000										
Vinyl Chloride	0.01	0.3	0.03										
Xylenes, Total	150	160000	410	U (0.0178)	U (0.005)	U (0.005)	13.4	U (0.005)	U (0.005)	0.702	U (0.005)	U (0.005)	U (0.005)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 5
Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 03: UST Excavation 3 TA3-02-11 (2-4 ft)	REC 03: UST Excavation 3 GT-1 (7-8 ft)	REC 03: UST Excavation 3 GT-2 (6-8 ft)	REC 03: UST Excavation 3 TA3-3 (6-7 ft)	REC 03: UST Excavation 3 TA3-4 (8-9 ft)	REC 03: UST Excavation 3 TA3-5 (10-12 ft)	REC 03: UST Excavation 3 TA3-7 (10-12 ft)	REC 04: UST Excavation 4 STF-01-94 (2-3 ft)	REC 04: UST Excavation 4 STF-01-95 (2-3 ft)	REC 04: UST Excavation 4 STF-01-96 (2-3 ft)
1,1,1-Trichloroethane	2		1200		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,1,2,2-Tetrachloroethane	---	---	---		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,1,2-Trichloroethane	0.02	310	1800		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,1-Dichloroethane	23	7800	1300		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,1-Dichloroethene	0.06	700	1500		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,2-Dichloroethane	0.02	7	0.4		0.0069	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,2-Dichloropropane	0.03	9	15		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
2-Chloroethyl Vinyl Ether	---	---	---		U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)			
2-Hexanone	---	---	---		U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
4-Methyl-2-Pentanone	---	---	---		U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Acetone	16	7800	100000		U (0.025)	U (0.025)	U (0.025)	U (0.025)	U (0.025)	U (0.025)	U (0.01)	U (0.01)	U (0.01)
Benzene	0.03	22	0.8	U (0.002)	0.35	0.026	0.016	U (0.005)	0.041	0.33	U (0.005)	U (0.005)	U (0.005)
Bromodichloromethane	0.6	10	3000		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Bromoform	0.8	81	53		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Bromomethane	---	---	---		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.01)	U (0.01)	U (0.01)
Carbon Disulfide	32	7800	720		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Carbon Tetrachloride	0.07	5	0.3		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Chlorobenzene	1	1600	130		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Chlorodibromomethane	0.4	1600	1300								U (0.005)	U (0.005)	U (0.005)
Chloroethane	---	---	---		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.01)	U (0.01)	U (0.01)
Chloroform	0.6	100	0.3		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Chloromethane	---	---	---		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.01)	U (0.01)	U (0.01)
cis-1,2-Dichloroethene	0.4	780	1200		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
cis-1,3-Dichloropropene	---	---	---		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Dibromochloromethane	---	---	---		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)			
Ethylbenzene	13	7800	400	U (0.005)	U (0.005)	U (0.005)	U (0.005)	0.480	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Methanol													
Methylene Chloride	0.02	85	13		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Methyl Ethyl Ketone	---	---	---		U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Styrene	4	16000	1500		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Tetrachloroethene	0.06	12	11		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Toluene	12	16000	650	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
trans-1,2-Dichloroethene	0.7	1600	3100		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
trans-1,3-Dichloropropene	---	---	---		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Trichlorfluoromethane													
Trichloroethene	0.06	58	5		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Trichlorofluoromethane	---	---	---		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)			
Vinyl Acetate	170	78000	1000		U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Vinyl Chloride	0.01	0.3	0.03		U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.01)	U (0.01)	U (0.01)
Xylenes, Total	150	160000	410	U (0.005)	U (0.005)	U (0.005)	0.03	0.13	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 5
Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 04: UST Excavation 4 STF-01-97 (2-3 ft)	REC 04: UST Excavation 4 STF-01-98 (2-3 ft)	REC 04: UST Excavation 4 STF-01-99 (6-7 ft)	REC 04: UST Excavation 4 STF-01-100 (6-6 ft)	REC 04: UST Excavation 4 STF-01-101 (5-6 ft)	REC 04: UST Excavation 4 STF-01-102 (5-6 ft)	REC 04: UST Excavation 4 STF-01-103 (5-7 ft)	REC 04: UST Excavation 4 STF-01-104 (5-6 ft)	REC 04: UST Excavation 4 STF-01-105 (5-6 ft)	REC 04: UST Excavation 4 STF-01-106 (5-6 ft)
1,1,1-Trichloroethane	2		1200	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,1,2,2-Tetrachloroethane	---	---	---	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,1,2-Trichloroethane	0.02	310	1800	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,1-Dichloroethane	23	7800	1300	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,1-Dichloroethene	0.06	700	1500	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,2-Dichloroethane	0.02	7	0.4	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,2-Dichloropropane	0.03	9	15	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
2-Chloroethyl Vinyl Ether	---	---	---										
2-Hexanone	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
4-Methyl-2-Pentanone	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Acetone	16	7800	100000	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Benzene	0.03	22	0.8	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Bromodichloromethane	0.6	10	3000	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Bromoform	0.8	81	53	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Bromomethane	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Carbon Disulfide	32	7800	720	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Carbon Tetrachloride	0.07	5	0.3	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Chlorobenzene	1	1600	130	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Chlorodibromomethane	0.4	1600	1300	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Chloroethane	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Chloroform	0.6	100	0.3	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Chloromethane	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
cis-1,2-Dichloroethene	0.4	780	1200	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
cis-1,3-Dichloropropene	---	---	---	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Dibromochloromethane	---	---	---										
Ethylbenzene	13	7800	400	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Methanol													
Methylene Chloride	0.02	85	13	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Methyl Ethyl Ketone	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Styrene	4	16000	1500	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Tetrachloroethene	0.06	12	11	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Toluene	12	16000	650	U (0.005)	0.0064	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
trans-1,2-Dichloroethene	0.7	1600	3100	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
trans-1,3-Dichloropropene	---	---	---	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Trichlorfluoromethane													
Trichloroethene	0.06	58	5	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Trichlorofluoromethane	---	---	---										
Vinyl Acetate	170	78000	1000	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Vinyl Chloride	0.01	0.3	0.03	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Xylenes, Total	150	160000	410	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)

U: Undetected: PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 5
Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 04: UST Excavation 4 STF-01-107 (5-6 ft)	REC 04: UST Excavation 4 STF-01-108 (4-5 ft)	REC 04: UST Excavation 4 STF-01-126 (5-6 ft)	REC 04: UST Excavation 4 STF-01-127 (5-6 ft)	REC 04: UST Excavation 4 STF-01-128 (5-6 ft)	REC 04: UST Excavation 4 STF-01-129 (5-6 ft)	REC 04: UST Excavation 4 Exc. 4, P-1 (1-2 ft)	REC 04: UST Excavation 4 Exc. 4, P-2 (1-2 ft)	REC 04: UST Excavation 4 Exc. 4, P-3 (1-2 ft)	REC 04: UST Excavation 4 Exc. 4, P-4 (1-2 ft)
1,1,1-Trichloroethane	2		1200	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,1,2,2-Tetrachloroethane	---	---	---	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,1,2-Trichloroethane	0.02	310	1800	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,1-Dichloroethane	23	7800	1300	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,1-Dichloroethene	0.06	700	1500	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,2-Dichloroethane	0.02	7	0.4	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
1,2-Dichloropropane	0.03	9	15	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
2-Chloroethyl Vinyl Ether	---	---	---										
2-Hexanone	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
4-Methyl-2-Pentanone	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Acetone	16	7800	100000	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Benzene	0.03	22	0.8	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Bromodichloromethane	0.6	10	3000	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Bromoform	0.8	81	53	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Bromomethane	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Carbon Disulfide	32	7800	720	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Carbon Tetrachloride	0.07	5	0.3	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Chlorobenzene	1	1600	130	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Chlorodibromomethane	0.4	1600	1300	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Chloroethane	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Chloroform	0.6	100	0.3	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Chloromethane	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
cis-1,2-Dichloroethene	0.4	780	1200	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
cis-1,3-Dichloropropene	---	---	---	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Dibromochloromethane	---	---	---										
Ethylbenzene	13	7800	400	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Methanol													
Methylene Chloride	0.02	85	13	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Methyl Ethyl Ketone	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Styrene	4	16000	1500	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Tetrachloroethene	0.06	12	11	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Toluene	12	16000	650	0.0062	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
trans-1,2-Dichloroethene	0.7	1600	3100	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
trans-1,3-Dichloropropene	---	---	---	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Trichlorfluoromethane													
Trichloroethene	0.06	58	5	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Trichlorofluoromethane	---	---	---										
Vinyl Acetate	170	78000	1000	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Vinyl Chloride	0.01	0.3	0.03	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Xylenes, Total	150	160000	410	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 5
Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 04: UST Excavation 4 Exc. 4, P-5 (1-2 ft)	REC 04: UST Excavation 4 STF-1 (6-7 ft)	REC 04: UST Excavation 4 STF-3 (7-8 ft)	REC 05: UST Excavation 5 D-7 (6-8 ft)	REC 05: UST Excavation 5 Pit5-01-73 (2-4 ft)	REC 05: UST Excavation 5 Pit5-01-77 (2-4 ft)	REC 05: UST Excavation 5 TP-1 (6-6 ft)	REC 05: UST Excavation 5 TP-2 (5-5 ft)	REC 05: UST Excavation 5 TP-7 (5-5 ft)	REC 11: UST Excavation 11 H-01-90 (2-4 ft)
1,1,1-Trichloroethane	2		1200	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
1,1,2,2-Tetrachloroethane	---	---	---	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
1,1,2-Trichloroethane	0.02	310	1800	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
1,1-Dichloroethane	23	7800	1300	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
1,1-Dichloroethene	0.06	700	1500	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
1,2-Dichloroethane	0.02	7	0.4	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
1,2-Dichloropropane	0.03	9	15	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
2-Chloroethyl Vinyl Ether	---	---	---		U (0.1)	U (0.01)	U (0.01)			U (0.01)	U (0.1)	U (0.1)	
2-Hexanone	---	---	---	U (0.01)	U (0.1)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.1)	U (0.1)	U (0.01)
4-Methyl-2-Pentanone	---	---	---	U (0.01)	U (0.1)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.1)	U (0.1)	U (0.01)
Acetone	16	7800	100000	U (0.01)	U (0.25)	U (0.025)	U (0.025)	U (0.01)	U (0.01)	U (0.025)	U (0.25)	U (0.25)	U (0.01)
Benzene	0.03	22	0.8	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
Bromodichloromethane	0.6	10	3000	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
Bromoform	0.8	81	53	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
Bromomethane	---	---	---	U (0.01)	U (0.05)	U (0.005)	U (0.005)	U (0.01)	U (0.01)	U (0.005)	U (0.05)	U (0.05)	U (0.01)
Carbon Disulfide	32	7800	720	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
Carbon Tetrachloride	0.07	5	0.3	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
Chlorobenzene	1	1600	130	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
Chlorodibromomethane	0.4	1600	1300	U (0.005)			U (0.005)	U (0.005)	U (0.005)				U (0.005)
Chloroethane	---	---	---	U (0.01)	U (0.05)	U (0.005)	U (0.005)	U (0.01)	U (0.01)	U (0.005)	U (0.05)	U (0.05)	U (0.01)
Chloroform	0.6	100	0.3	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
Chloromethane	---	---	---	U (0.01)	U (0.05)	U (0.005)	U (0.005)	U (0.01)	U (0.01)	U (0.005)	U (0.05)	U (0.05)	U (0.01)
cis-1,2-Dichloroethene	0.4	780	1200	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
cis-1,3-Dichloropropene	---	---	---	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
Dibromochloromethane	---	---	---		U (0.05)	U (0.005)				U (0.005)	U (0.05)	U (0.05)	
Ethylbenzene	13	7800	400	U (0.005)	18	U (0.005)	0.63	0.0563	0.362	0.14	0.32	3.8	0.362
Methanol								U (0.1)	U (0.1)				
Methylene Chloride	0.02	85	13	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
Methyl Ethyl Ketone	---	---	---	U (0.01)	U (0.1)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.1)	U (0.1)	U (0.01)
Styrene	4	16000	1500	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
Tetrachloroethene	0.06	12	11	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
Toluene	12	16000	650	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
trans-1,2-Dichloroethene	0.7	1600	3100	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
trans-1,3-Dichloropropene	---	---	---	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
Trichlorfluoromethane													
Trichloroethene	0.06	58	5	U (0.005)	U (0.05)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.05)	U (0.005)
Trichlorofluoromethane	---	---	---		U (0.05)	U (0.005)	U (0.005)			U (0.005)	U (0.05)	U (0.05)	
Vinyl Acetate	170	78000	1000	U (0.01)	U (0.1)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.1)	U (0.1)	U (0.01)
Vinyl Chloride	0.01	0.3	0.03	U (0.01)	U (0.05)	U (0.005)	U (0.005)	U (0.01)	U (0.01)	U (0.005)	U (0.05)	U (0.05)	U (0.01)
Xylenes, Total	150	160000	410	U (0.005)	8	U (0.005)	0.56	0.0435	2.14	0.054	0.23	1.8	2.14

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 5
Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 11: UST Excavation 11 H-01-91 (2-4 ft)	REC 11: UST Excavation 11 H-01-92 (2-4 ft)	REC 11: UST Excavation 11 H-01-93 (2-4 ft)	REC 12: Solvent Recovery Room A-2 (6-8 ft)	REC 12: Solvent Recovery Room UMW-25 (8-10 ft)	REC 12: Solvent Recovery Room UMW-27 (3-5 ft)	REC 12: Solvent Recovery Room SR-SB-01 (1-2 ft)	REC 12: Solvent Recovery Room SR-SB-02 (1-2 ft)	REC 12: Solvent Recovery Room SR-SB-04 (2-3 ft)	REC 12: Solvent Recovery Room SR-SB-05 (2-3 ft)
1,1,1-Trichloroethane	2		1200	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
1,1,2,2-Tetrachloroethane	---	---	---	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
1,1,2-Trichloroethane	0.02	310	1800	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
1,1-Dichloroethane	23	7800	1300	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
1,1-Dichloroethene	0.06	700	1500	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
1,2-Dichloroethane	0.02	7	0.4	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
1,2-Dichloropropane	0.03	9	15	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
2-Chloroethyl Vinyl Ether	---	---	---				U (0.01)	U (0.01)	U (0.01)				
2-Hexanone	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)				
4-Methyl-2-Pentanone	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)				
Acetone	16	7800	100000	U (0.01)	U (0.01)	U (0.01)	U (0.025)	0.130A	0.63A				
Benzene	0.03	22	0.8	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.124)	U (1.34)	U (0.0054)	U (0.164)
Bromodichloromethane	0.6	10	3000	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
Bromoform	0.8	81	53	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
Bromomethane	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.005)	U (0.005)	U (0.005)				
Carbon Disulfide	32	7800	720	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
Carbon Tetrachloride	0.07	5	0.3	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
Chlorobenzene	1	1600	130	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
Chlorodibromomethane	0.4	1600	1300	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
Chloroethane	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.005)	U (0 005)	U (0.005)				
Chloroform	0.6	100	0.3	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
Chloromethane	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.005)	U (0.005)	U (0.005)				
cis-1,2-Dichloroethene	0.4	780	1200	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
cis-1,3-Dichloropropene	---	---	---	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
Dibromochloromethane	---	---	---										
Ethylbenzene	13	7800	400	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	1.24	U (12.3)	U (0.0054)	U (1.54)
Methanol													
Methylene Chloride	0.02	85	13	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
Methyl Ethyl Ketone	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	0.029	U (0.01)				
Styrene	4	16000	1500	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
Tetrachloroethene	0.06	12	11	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
Toluene	12	16000	650	U (0.005)	U (0.005)	U (0.005)	U (0.005)	0.02	0.0057	382	1230	0.012	175
trans-1,2-Dichloroethene	0.7	1600	3100	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
trans-1,3-Dichloropropene	---	---	---	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
Trichlorfluoromethane													
Trichloroethene	0.06	58	5	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)				
Trichlorofluoromethane	---	---	---				U (0.005)	U (0.005)	U (0.005)				
Vinyl Acetate	170	78000	1000	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)				
Vinyl Chloride	0.01	0.3	0.03	U (0.01)	U (0.01)	U (0.01)	U (0.005)	U (0.005)	U (0.005)				
Xylenes, Total	150	160000	410	U (0.005)	U (0.005)	U (0.005)	1	0.35	0.014	13.4	U (36.9)	U (0.0163)	7.71

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 5
Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 12: Solvent Recovery Room SR-SB-07 (6-7 ft)	REC 12: Solvent Recovery Room "West" (3-4 ft)	REC 12: Solvent Recovery Room "East" (3-4 ft)	REC 12: Solvent Recovery Room "Center" (3-4 ft)	REC 12: Solvent Recovery Room SR-01-132 (3-4 ft)	REC 14: Tank 30 UST T28-E (3-4 ft)	REC 14: Tank 30 UST T28-W (3-4 ft)	REC 14: Tank 30 UST T28-N (3-4 ft)	REC 14: Tank 30 UST T28-S (3-4 ft)
1,1,1-Trichloroethane	2		1200					U (1.0)				
1,1,2,2-Tetrachloroethane	---	---	---					U (1.0)				
1,1,2-Trichloroethane	0.02	310	1800					U (1.0)				
1,1-Dichloroethane	23	7800	1300					U (1.0)				
1,1-Dichloroethene	0.06	700	1500					U (1.0)				
1,2-Dichloroethane	0.02	7	0.4					U (1.0)				
1,2-Dichloropropane	0.03	9	15					U (1.0)				
2-Chloroethyl Vinyl Ether	---	---	---									
2-Hexanone	---	---	---					U (1.0)				
4-Methyl-2-Pentanone	---	---	---					U (1.0)				
Acetone	16	7800	100000					U (1.0)				
Benzene	0.03	22	0.8	0.0075	6.66	U (0.025)	U (0.025)	U (1.0)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Bromodichloromethane	0.6	10	3000					U (1.0)				
Bromoform	0.8	81	53					U (1.0)				
Bromomethane	---	---	---					U (1.0)				
Carbon Disulfide	32	7800	720					U (1.0)				
Carbon Tetrachloride	0.07	5	0.3					U (1.0)				
Chlorobenzene	1	1600	130					U (1.0)				
Chlorodibromomethane	0.4	1600	1300					U (1.0)				
Chloroethane	---	---	---					U (1.0)				
Chloroform	0.6	100	0.3					U (1.0)				
Chloromethane	---	---	---					U (1.0)				
cis-1,2-Dichloroethene	0.4	780	1200					U (1.0)				
cis-1,3-Dichloropropene	---	---	---					U (1.0)				
Dibromochloromethane	---	---	---									
Ethylbenzene	13	7800	400	U (0.0051)	22.4	0.338	0.57	55.5	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Methanol												
Methylene Chloride	0.02	85	13					U (1.0)				
Methyl Ethyl Ketone	---	---	---					U (1.0)				
Styrene	4	16000	1500					U (1.0)				
Tetrachloroethene	0.06	12	11					U (1.0)				
Toluene	12	16000	650	0.017	2770	20.1	27.4	2040	U (0.005)	U (0.005)	U (0.005)	U (0.005)
trans-1,2-Dichloroethene	0.7	1600	3100					U (1.0)				
trans-1,3-Dichloropropene	---	---	---					U (1.0)				
Trichlorfluoromethane												
Trichloroethene	0.06	58	5					U (1.0)				
Trichlorofluoromethane	---	---	---									
Vinyl Acetate	170	78000	1000					U (1.0)				
Vinyl Chloride	0.01	0.3	0.03					U (1.0)				
Xylenes, Total	150	160000	410	U (0.0153)	666	2.32	3.14	238	U (0.005)	U (0.005)	U (0.005)	U (0.005)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 5
Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 16: Bldg E Kero Pits E-01-13 (4-6 ft)	REC 16: Bldg E Kero Pits E-01-16 (4-6 ft)	REC 16: Bldg E Kero Pits E-01-18 (4-6 ft)	REC 16: Bldg E Kero Pits E-01-19 (4-6 ft)	REC 16: Bldg E Kero Pits E-01-20 (4-6 ft)	REC 16: Bldg E Kero Pits E-01-37 (4-6 ft)	REC 16: Bldg E Kero Pits NBT-1 (10-11 ft)	REC 16: Bldg E Kero Pits TP-B (7-9 ft)	REC 17: Bldg H Material V-13 (3-4 ft)	REC 17: Bldg H Material V-32 (3-5 ft)
1,1,1-Trichloroethane	2		1200	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
1,1,2,2-Tetrachloroethane	---	---	---	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
1,1,2-Trichloroethane	0.02	310	1800	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
1,1-Dichloroethane	23	7800	1300	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
1,1-Dichloroethene	0.06	700	1500	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
1,2-Dichloroethane	0.02	7	0.4	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
1,2-Dichloropropane	0.03	9	15	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
2-Chloroethyl Vinyl Ether	---	---	---							U (0.01)	U (0.1)		
2-Hexanone	---	---	---	U (0.01)		U (0.01)			U (0.01)	U (0.01)	U (0.1)	U (0.5)	U (0.5)
4-Methyl-2-Pentanone	---	---	---	U (0.01)		U (0.01)			U (0.01)	U (0.01)	U (0.1)	U (0.5)	U (0.5)
Acetone	16	7800	100000	0.0481		U (0.01)			U (0.01)	U (0.025)	U (0.25)	U (1.25)	U (1.25)
Benzene	0.03	22	0.8	0.007	U (0.002)	0.0064	U (0.002)	U (0.002)	U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
Bromodichloromethane	0.6	10	3000	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
Bromoform	0.8	81	53	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
Bromomethane	---	---	---	U (0.01)		U (0.01)			U (0.01)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
Carbon Disulfide	32	7800	720	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
Carbon Tetrachloride	0.07	5	0.3	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
Chlorobenzene	1	1600	130	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
Chlorodibromomethane	0.4	1600	1300	U (0.005)		U (0.005)			U (0.005)			U (0.25)	U (0.25)
Chloroethane	---	---	---	U (0.01)		U (0.01)			U (0.01)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
Chloroform	0.6	100	0.3	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
Chloromethane	---	---	---	U (0.01)		U (0.01)			U (0.01)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
cis-1,2-Dichloroethene	0.4	780	1200	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
cis-1,3-Dichloropropene	---	---	---	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
Dibromochloromethane	---	---	---							U (0.005)	U (0.05)		
Ethylbenzene	13	7800	400	0.0059	U (0.005)	0.0056	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
Methanol													
Methylene Chloride	0.02	85	13	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	0.558
Methyl Ethyl Ketone	---	---	---	0.0122		U (0.01)			U (0.01)	U (0.01)	U (0.1)	U (0.5)	U (0.5)
Styrene	4	16000	1500	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
Tetrachloroethene	0.06	12	11	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
Toluene	12	16000	650	0.0166	U (0.005)	0.0153	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
trans-1,2-Dichloroethene	0.7	1600	3100	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
trans-1,3-Dichloropropene	---	---	---	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
Trichlorfluoromethane												U (0.25)	U (0.25)
Trichloroethene	0.06	58	5	U (0.005)		U (0.005)			U (0.005)	U (0.005)	U (0.05)	0.258	0.257
Trichlorofluoromethane	---	---	---							U (0.005)	U (0.05)		
Vinyl Acetate	170	78000	1000	U (0.01)		U (0.01)			U (0.01)	U (0.01)	U (0.1)	U (0.5)	U (0.5)
Vinyl Chloride	0.01	0.3	0.03	U (0.01)		U (0.01)			U (0.01)	U (0.005)	U (0.05)	U (0.25)	U (0.25)
Xylenes, Total	150	160000	410	0.0113	U (0.005)	0.0119	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.05)	U (0.25)	U (0.25)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 5
Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 17: Bldg H Material V-9 (3-4 ft)	REC 17: Bldg H Material H-01-147 (2-4 ft)	REC 17: Bldg H Material H-01-147-GLA (2-4 ft)	REC 17: Bldg H Material H-01-148 (2-3 ft)	REC 17: Bldg H Material H-01-148-GLA (2-3 ft)	REC 18: Bldg J Transformer West End (0-1 ft)	REC 18: Bldg J Transformer South End (0-1 ft)	REC 18: Bldg J Transformer East End (0-1 ft)	REC 21: Still Room D-01-52 (2-4 ft)	REC 21: Still Room D-01-53 (2-4 ft)
1,1,1-Trichloroethane	2		1200	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
1,1,2,2-Tetrachloroethane	---	---	---	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
1,1,2-Trichloroethane	0.02	310	1800	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
1,1-Dichloroethane	23	7800	1300	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
1,1-Dichloroethene	0.06	700	1500	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
1,2-Dichloroethane	0.02	7	0.4	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
1,2-Dichloropropane	0.03	9	15	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
2-Chloroethyl Vinyl Ether	---	---	---										
2-Hexanone	---	---	---	U (0.5)	U (0.01)	U (0.01)	U (0.01)	U (0.01)					
4-Methyl-2-Pentanone	---	---	---	U (0.5)	U (0.01)	U (0.01)	U (0.01)	U (0.01)					
Acetone	16	7800	100000	U (1.25)	U (0.01)	U (0.01)	U (0.01)	U (0.01)					
Benzene	0.03	22	0.8	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	0.00182	0.00259	0.0023	U (0.002)	U (0.002)
Bromodichloromethane	0.6	10	3000	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
Bromoform	0.8	81	53	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
Bromomethane	---	---	---	U (0.25)	U (0.01)	U (0.01)	U (0.01)	U (0.01)					
Carbon Disulfide	32	7800	720	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
Carbon Tetrachloride	0.07	5	0.3	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
Chlorobenzene	1	1600	130	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
Chlorodibromomethane	0.4	1600	1300	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
Chloroethane	---	---	---	U (0.25)	U (0.01)	U (0.01)	U (0.01)	U (0.01)					
Chloroform	0.6	100	0.3	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
Chloromethane	---	---	---	U (0.25)	U (0.01)	U (0.01)	U (0.01)	U (0.01)					
cis-1,2-Dichloroethene	0.4	780	1200	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
cis-1,3-Dichloropropene	---	---	---	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
Dibromochloromethane	---	---	---										
Ethylbenzene	13	7800	400	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Methanol													
Methylene Chloride	0.02	85	13	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
Methyl Ethyl Ketone	---	---	---	U (0.5)	U (0.01)	U (0.01)	U (0.01)	U (0.01)					
Styrene	4	16000	1500	0.254	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
Tetrachloroethene	0.06	12	11	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
Toluene	12	16000	650	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	0.00587	U (0.005)	U (0.005)	U (0.005)
trans-1,2-Dichloroethene	0.7	1600	3100	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
trans-1,3-Dichloropropene	---	---	---	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
Trichlorfluoromethane				U (0.25)									
Trichloroethene	0.06	58	5	0.326	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
Trichlorofluoromethane	---	---	---			U (0.005)		U (0.005)					
Vinyl Acetate	170	78000	1000	U (0.5)	U (0.01)	U (0.01)	U (0.01)	U (0.01)					
Vinyl Chloride	0.01	0.3	0.03	U (0.25)	U (0.01)	U (0.01)	U (0.01)	U (0.01)					
Xylenes, Total	150	160000	410	U (0.25)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 5
Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 22: Bldg D Coal Tar Sat T-01-44 (4-6 ft)	REC 24: Bldg T Tar Pit T-01-41 (2-4 ft)	REC 25: Bldg D Saturators TP-N (6-8 ft)	REC 25: Bldg Saturators D-01-45 (2-4 ft)	REC 25: Bldg Saturators D-01-46 (2-4 ft)	REC 25: Bldg Saturators D-01-47 (2-4 ft)	REC 26: Tank 053 T27-S (3-4 ft)	REC 26: Tank 053 T27-E (3-4 ft)	REC 26: Tank 053 T27-W (3-4 ft)	REC 26: Tank 053 T27-N (3-4 ft)
1,1,1-Trichloroethane	2		1200			U (0.005)							
1,1,2,2-Tetrachloroethane	---	---	---			U (0.005)							
1,1,2-Trichloroethane	0.02	310	1800			U (0.005)							
1,1-Dichloroethane	23	7800	1300			U (0.005)							
1,1-Dichloroethene	0.06	700	1500			U (0.005)							
1,2-Dichloroethane	0.02	7	0.4			U (0.005)							
1,2-Dichloropropane	0.03	9	15			U (0.005)							
2-Chloroethyl Vinyl Ether	---	---	---			U (0.01)							
2-Hexanone	---	---	---			U (0.01)							
4-Methyl-2-Pentanone	---	---	---			U (0.01)							
Acetone	16	7800	100000			U (0.025)							
Benzene	0.03	22	0.8	U (0.002)	U (0.002)	U (0.005)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Bromodichloromethane	0.6	10	3000			U (0.005)							
Bromoform	0.8	81	53			U (0.005)							
Bromomethane	---	---	---			U (0.005)							
Carbon Disulfide	32	7800	720			U (0.005)							
Carbon Tetrachloride	0.07	5	0.3			U (0.005)							
Chlorobenzene	1	1600	130			U (0.005)							
Chlorodibromomethane	0.4	1600	1300			U (0.005)							
Chloroethane	---	---	---			U (0.005)							
Chloroform	0.6	100	0.3			U (0.005)							
Chloromethane	---	---	---			U (0.005)							
cis-1,2-Dichloroethene	0.4	780	1200			U (0.005)							
cis-1,3-Dichloropropene	---	---	---			U (0.005)							
Dibromochloromethane	---	---	---										
Ethylbenzene	13	7800	400	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
Methanol													
Methylene Chloride	0.02	85	13			U (0.005)							
Methyl Ethyl Ketone	---	---	---			U (0.01)							
Styrene	4	16000	1500			U (0.005)							
Tetrachloroethene	0.06	12	11			U (0.005)							
Toluene	12	16000	650	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)
trans-1,2-Dichloroethene	0.7	1600	3100			U (0.005)							
trans-1,3-Dichloropropene	---	---	---			U (0.005)							
Trichlorfluoromethane													
Trichloroethene	0.06	58	5			U (0.005)							
Trichlorofluoromethane	---	---	---			U (0.005)							
Vinyl Acetate	170	78000	1000			U (0.01)							
Vinyl Chloride	0.01	0.3	0.03			U (0.005)							
Xylenes, Total	150	160000	410	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.005)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 5
Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 27: Coal Pit CP-NC (0-1 ft)	REC 27: Coal Pit CP-NE (0-1 ft)	REC 27: Coal Pit CP-NW (0-1 ft)	REC 27: Coal Pit CP-SE (0-1 ft)	REC 31: Locomotive RR-SB-01 (2-3 ft)	REC 31: Locomotive RR-SB-02 (0-1 ft)	REC 32: Tank 031 TP-3 (5-5 ft)	REC 37: UST Excavation 039 JM-039-NW (3-4 ft)	REC 37: UST Excavation 039 JM-039-SW (3-4 ft)
1,1,1-Trichloroethane	2		1200	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
1,1,2,2-Tetrachloroethane	---	---	---	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
1,1,2-Trichloroethane	0.02	310	1800	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
1,1-Dichloroethane	23	7800	1300	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
1,1-Dichloroethene	0.06	700	1500	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
1,2-Dichloroethane	0.02	7	0.4	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
1,2-Dichloropropane	0.03	9	15	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
2-Chloroethyl Vinyl Ether	---	---	---							U (0.01)		
2-Hexanone	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)			U (0.01)		
4-Methyl-2-Pentanone	---	---	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)			U (0.01)		
Acetone	16	7800	100000	0.0951	0.165	0.0761	0.238			U (0.025)		
Benzene	0.03	22	0.8	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.006)	0.0063	U (0.005)	0.0056	0.0075
Bromodichloromethane	0.6	10	3000	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
Bromoform	0.8	81	53	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
Bromomethane	---	---	---	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
Carbon Disulfide	32	7800	720	0.00718	0.021	U (0.005)	0.0297			U (0.005)		
Carbon Tetrachloride	0.07	5	0.3	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
Chlorobenzene	1	1600	130	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
Chlorodibromomethane	0.4	1600	1300	U (0.005)	U (0.005)	U (0.005)	U (0.005)					
Chloroethane	---	---	---	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
Chloroform	0.6	100	0.3	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
Chloromethane	---	---	---	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
cis-1,2-Dichloroethene	0.4	780	1200	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
cis-1,3-Dichloropropene	---	---	---	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
Dibromochloromethane	---	---	---							U (0.005)		
Ethylbenzene	13	7800	400	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.006)	U (0.0063)	U (0.005)	U (0.0053)	U (0.0064)
Methanol												
Methylene Chloride	0.02	85	13	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
Methyl Ethyl Ketone	---	---	---	U (0.01)	0.0277	U (0.01)	0.0418			U (0.01)		
Styrene	4	16000	1500	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
Tetrachloroethene	0.06	12	11	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
Toluene	12	16000	650	U (0.005)	0.00851	U (0.005)	U (0.005)	U (0.006)	U (0.0063)	U (0.005)	0.012	0.014
trans-1,2-Dichloroethene	0.7	1600	3100	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
trans-1,3-Dichloropropene	---	---	---	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
Trichlorfluoromethane												
Trichloroethene	0.06	58	5	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
Trichlorofluoromethane	---	---	---	U (0.005)	U (0.005)	U (0.005)	0.0122			U (0.005)		
Vinyl Acetate	170	78000	1000	U (0.01)	U (0.01)	U (0.01)	U (0.01)			U (0.01)		
Vinyl Chloride	0.01	0.3	0.03	U (0.005)	U (0.005)	U (0.005)	U (0.005)			U (0.005)		
Xylenes, Total	150	160000	410	U (0.005)	U (0.005)	U (0.005)	U (0.005)	U (0.0179)	U (0.0189)	U (0.005)	U (0.0159)	U (0.0192)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 5
Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 37: UST Excavation 039 JM-039-WW (3-4 ft)	REC 37: UST Excavation 039 JM-039-EW (3-4 ft)	South of Pumping Lagoon ICS-1 (6-7 ft)	Bldg C - East End C-3 (6-8 ft)	Building B B-2 (6-8 ft)
1,1,1-Trichloroethane	2		1200			U (0.005)	U (0.005)	U (0.05)
1,1,2,2-Tetrachloroethane	---	---	---			U (0.005)	U (0.005)	U (0.05)
1,1,2-Trichloroethane	0.02	310	1800			U (0.005)	U (0.005)	U (0.05)
1,1-Dichloroethane	23	7800	1300			U (0.005)	U (0.005)	U (0.05)
1,1-Dichloroethene	0.06	700	1500			U (0.005)	U (0.005)	U (0.05)
1,2-Dichloroethane	0.02	7	0.4			U (0.005)	U (0.005)	U (0.05)
1,2-Dichloropropane	0.03	9	15			U (0.005)	U (0.005)	U (0.05)
2-Chloroethyl Vinyl Ether	---	---	---			U (0.01)	U (0.01)	U (0.1)
2-Hexanone	---	---	---			U (0.01)	U (0.01)	U (0.1)
4-Methyl-2-Pentanone	---	---	---			U (0.01)	U (0.01)	U (0.1)
Acetone	16	7800	100000			U (0.025)	U (0.025)	U (0.25)
Benzene	0.03	22	0.8	0.0061	0.0055	U (0.005)	U (0.005)	U (0.05)
Bromodichloromethane	0.6	10	3000			U (0.005)	U (0.005)	U (0.05)
Bromoform	0.8	81	53			U (0.005)	U (0.005)	U (0.05)
Bromomethane	---	---	---			U (0.005)	U (0.005)	U (0.05)
Carbon Disulfide	32	7800	720			U (0.005)	U (0.005)	U (0.05)
Carbon Tetrachloride	0.07	5	0.3			U (0.005)	U (0.005)	U (0.05)
Chlorobenzene	1	1600	130			U (0.005)	U (0.005)	U (0.05)
Chlorodibromomethane	0.4	1600	1300					U (0.005)
Chloroethane	---	---	---			U (0.005)	U (0.005)	U (0.05)
Chloroform	0.6	100	0.3			U (0.005)	U (0.005)	U (0.05)
Chloromethane	---	---	---			U (0.005)	U (0.005)	U (0.05)
cis-1,2-Dichloroethene	0.4	780	1200			U (0.005)	U (0.005)	U (0.05)
cis-1,3-Dichloropropene	---	---	---			U (0.005)	U (0.005)	U (0.05)
Dibromochloromethane	---	---	---			U (0.005)	U (0.005)	U (0.05)
Ethylbenzene	13	7800	400	U (0.0058)	U (0.0053)	U (0.005)	U (0.005)	U (0.05)
Methanol								
Methylene Chloride	0.02	85	13			U (0.005)	U (0.005)	U (0.05)
Methyl Ethyl Ketone	---	---	---			U (0.01)	U (0.01)	U (0.1)
Styrene	4	16000	1500			U (0.005)	U (0.005)	U (0.05)
Tetrachloroethene	0.06	12	11			U (0.005)	U (0.005)	U (0.05)
Toluene	12	16000	650	0.011	0.01	U (0.005)	U (0.005)	U (0.05)
trans-1,2-Dichloroethene	0.7	1600	3100			U (0.005)	U (0.005)	U (0.05)
trans-1,3-Dichloropropene	---	---	---			U (0.005)	U (0.005)	U (0.05)
Trichlorfluoromethane								
Trichloroethene	0.06	58	5			U (0.005)	U (0.005)	U (0.05)
Trichlorofluoromethane	---	---	---			U (0.005)	U (0.005)	U (0.05)
Vinyl Acetate	170	78000	1000			U (0.01)	U (0.01)	U (0.1)
Vinyl Chloride	0.01	0.3	0.03			U (0.005)	U (0.005)	U (0.05)
Xylenes, Total	150	160000	410	U (0.0175)	U (0.0160)	U (0.005)	U (0.005)	U (0.05)

U. Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 02: UST Excavation 2 Pit2-01-1 (2-4 ft)	REC 02: UST Excavation 2 Pit2-01-2 (3-4 ft)	REC 02: UST Excavation 2 Pit2-01-3 (3-4 ft)	REC 02: UST Excavation 2 Pit2-01-4 (3-4 ft)	REC 02: UST Excavation 2 Pit2-01-5 (5-7 ft)
Acenaphthene	570	4700	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Acenaphthylene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Anthracene	12000	23000	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Benzo(a)anthracene	2	0.9	---	U (0.087)	0.022	0.079	0.156	0.056
Benzo(a)pyrene	8	0.09	---	U (0.015)	0.041	0.1	0.226	0.084
Benzo(b)fluoranthene	5	0.9	---	U (0.011)	0.05	0.092	0.226	0.08
Benzo(g,h,i)perylene	---	---	---	U (0.05)	U (0.05)	0.074	0.127	0.065
Benzo(k)fluoranthene	49	9	---	U (0.011)	0.02	0.074	0.182	0.065
Chrysene	160	88	---	U (0.05)	U (0.05)	0.081	0.191	0.063
Dibenzo(a,h)anthracene	2	0.09	---	U (0.02)	U (0.02)	0.02	0.036	U (0.02)
Fluoranthene	4300	3100	---	U (0.05)	U (0.05)	0.138	0.37	0.09
Fluorene	560	3100	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.029)	0.046	0.08	0.138	0.071
Naphthalene	84	3100	---	U (0.025)	U (0.025)	U (0.025)	U (0.025)	U (0.025)
Phenanthrene	---	---	---	U (0.05)	U (0.05)	0.093	0.195	U (0.05)
Pyrene	4200	2300	---	U (0.05)	U (0.05)	0.129	0.35	0.086

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 02: UST Excavation 2 Pit2-01-6 (4-6 ft)	REC 02: UST Excavation 2 Pit2-01-7 (4-6 ft)	REC 02: UST Excavation 2 Pit2-01-8 (7-8 ft)	REC 02: UST Excavation 2 Pit2-01-9 (6-8 ft)	REC 02: UST Excavation 2 Pit2-01-10 (3-5 ft)
Acenaphthene	570	4700	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Acenaphthylene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Anthracene	12000	23000	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Benzo(a)anthracene	2	0.9	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)
Benzo(a)pyrene	8	0.09	---	U (0.015)	U (0.015)	U (0.015)	U (0.015)	U (0.015)
Benzo(b)fluoranthene	5	0.9	---	U (0.011)	U (0.011)	U (0.011)	U (0.011)	U (0.011)
Benzo(g,h,i)perylene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Benzo(k)fluoranthene	49	9	---	U (0.011)	U (0.011)	U (0.011)	U (0.011)	U (0.011)
Chrysene	160	88	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Dibenzo(a,h)anthracene	2	0.09	---	U (0.02)	U (0.02)	U (0.02)	U (0.02)	U (0.02)
Fluoranthene	4300	3100	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Fluorene	560	3100	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.029)	U (0.029)	U (0.029)	U (0.029)	U (0.029)
Naphthalene	84	3100	---	U (0.025)	U (0.025)	U (0.025)	U (0.025)	U (0.025)
Phenanthrene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Pyrene	4200	2300	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 02: UST Excavation 2 Pit2 Pipe 01-11 (4-6 ft)	REC 02: UST Excavation 2 Pit2 01-12 (8-10 ft)	REC 02: UST Excavation 2 TP-4 (5-5 ft)	REC 03: UST Excavation 3 GT-1 (7-8 ft)	REC 03: UST Excavation 3 GT-2 (6-8 ft)
Acenaphthene	570	4700	---	U (0.05)	U (0.05)	U (0.0087)	U (0.0087)	U (0.0087)
Acenaphthylene	---	---	---	U (0.05)	U (0.05)	U (0.2)	U (0.2)	U (0.2)
Anthracene	12000	23000	---	U (0.05)	U (0.05)	U (0.0087)	U (0.0087)	U (0.0087)
Benzo(a)anthracene	2	0.9	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)
Benzo(a)pyrene	8	0.09	---	U (0.015)	U (0.015)	U (0.0087)	U (0.0087)	U (0.0087)
Benzo(b)fluoranthene	5	0.9	---	U (0.011)	U (0.011)	U (0.0087)	U (0.0087)	U (0.0087)
Benzo(g,h,i)perylene	---	---	---	U (0.05)	U (0.05)	U (0.0087)	U (0.0087)	U (0.0087)
Benzo(k)fluoranthene	49	9	---	U (0.011)	U (0.011)	U (0.0087)	U (0.0087)	U (0.0087)
Chrysene	160	88	---	U (0.05)	U (0.05)	U (0.0087)	U (0.0087)	U (0.0087)
Dibenzo(a,h)anthracene	2	0.09	---	U (0.02)	U (0.02)	U (0.0087)	U (0.0087)	U (0.0087)
Fluoranthene	4300	3100	---	U (0.05)	U (0.05)	U (0.0087)	U (0.0087)	U (0.0087)
Fluorene	560	3100	---	U (0.05)	U (0.05)	U (0.0087)	U (0.0087)	U (0.0087)
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.029)	U (0.029)	U (0.0087)	U (0.0087)	U (0.0087)
Naphthalene	84	3100	---	U (0.025)	U (0.025)	U (0.0087)	U (0.0087)	U (0.0087)
Phenanthrene	---	---	---	U (0.05)	U (0.05)	U (0.0087)	U (0.0087)	U (0.0087)
Pyrene	4200	2300	---	U (0.05)	U (0.05)	U (0.0087)	U (0.0087)	U (0.0087)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 03: UST Excavation 3 TA3-3 (6-7 ft)	REC 03: UST Excavation 3 TA3-4 (8-9 ft)	REC 03: UST Excavation 3 TA3-5 (10-12 ft)	REC 03: UST Excavation 3 TA3-7 (10-12 ft)	REC 04: UST Excavation 4 STF-01-94 (2-3 ft)
Acenaphthene	570	4700	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.05)
Acenaphthylene	---	---	---	U (0.2)	U (0.2)	U (0.2)	U (0.2)	U (0.05)
Anthracene	12000	23000	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.05)
Benzo(a)anthracene	2	0.9	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)
Benzo(a)pyrene	8	0.09	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.015)
Benzo(b)fluoranthene	5	0.9	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.011)
Benzo(g,h,i)perylene	---	---	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.05)
Benzo(k)fluoranthene	49	9	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.011)
Chrysene	160	88	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.05)
Dibenzo(a,h)anthracene	2	0.09	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.02)
Fluoranthene	4300	3100	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.05)
Fluorene	560	3100	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.05)
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.029)
Naphthalene	84	3100	---	0.0093	U (0.0087)	U (0.0087)	0.1	U (0.025)
Phenanthrene	---	---	---	U (0.0087)	U (0.0087)	U (0.0087)	0.009	U (0.05)
Pyrene	4200	2300	---	U (0.0087)	U (0.0087)	U (0.0087)	0.01	U (0.05)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 04: UST Excavation 4 STF-01-95 (2-3 ft)	REC 04: UST Excavation 4 STF-01-96 (2-3 ft)	REC 04: UST Excavation 4 STF-01-97 (2-3 ft)	REC 04: UST Excavation 4 STF-01-98 (2-3 ft)	REC 04: UST Excavation 4 STF-01-99 (6-7 ft)
Acenaphthene	570	4700	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Acenaphthylene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Anthracene	12000	23000	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Benzo(a)anthracene	2	0.9	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)
Benzo(a)pyrene	8	0.09	---	U (0.015)	U (0.015)	U (0.015)	U (0.015)	U (0.015)
Benzo(b)fluoranthene	5	0.9	---	U (0.011)	U (0.011)	U (0.011)	U (0.011)	U (0.011)
Benzo(g,h,i)perylene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Benzo(k)fluoranthene	49	9	---	U (0.011)	U (0.011)	U (0.011)	U (0.011)	U (0.011)
Chrysene	160	88	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Dibenzo(a,h)anthracene	2	0.09	---	U (0.02)	U (0.02)	U (0.02)	U (0.02)	U (0.02)
Fluoranthene	4300	3100	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Fluorene	560	3100	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.029)	U (0.029)	U (0.029)	U (0.029)	U (0.029)
Naphthalene	84	3100	---	U (0.025)	U (0.025)	U (0.025)	U (0.025)	U (0.025)
Phenanthrene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Pyrene	4200	2300	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 04: UST Excavation 4 STF-01-100 (6-6 ft)	REC 04: UST Excavation 4 STF-01-101 (5-6 ft)	REC 04: UST Excavation 4 STF-01-102 (5-6 ft)	REC 04: UST Excavation 4 STF-01-103 (5-7 ft)	REC 04: UST Excavation 4 STF-01-104 (5-6 ft)
Acenaphthene	570	4700	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Acenaphthylene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Anthracene	12000	23000	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Benzo(a)anthracene	2	0.9	---	U (0.0087)	U (0.0087)	U (0.0087)	0.159	0.01
Benzo(a)pyrene	8	0.09	---	U (0.015)	U (0.015)	U (0.015)	0.198	U (0.015)
Benzo(b)fluoranthene	5	0.9	---	U (0.011)	U (0.011)	U (0.011)	0.146	0.011
Benzo(g,h,i)perylene	---	---	---	U (0.05)	U (0.05)	U (0.05)	0.112	U (0.05)
Benzo(k)fluoranthene	49	9	---	U (0.011)	U (0.011)	U (0.011)	0.156	U (0.011)
Chrysene	160	88	---	U (0.05)	U (0.05)	U (0.05)	0.153	U (0.05)
Dibenzo(a,h)anthracene	2	0.09	---	U (0.02)	U (0.02)	U (0.02)	0.039	U (0.02)
Fluoranthene	4300	3100	---	U (0.05)	U (0.05)	U (0.05)	0.236	U (0.05)
Fluorene	560	3100	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.029)	U (0.029)	U (0.029)	0.132	U (0.029)
Naphthalene	84	3100	---	U (0.025)	U (0.025)	U (0.025)	U (0.025)	U (0.025)
Phenanthrene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Pyrene	4200	2300	---	U (0.05)	U (0.05)	U (0.05)	0.25	U (0.05)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 04: UST Excavation 4 STF-01-105 (5-6 ft)	REC 04: UST Excavation 4 STF-01-106 (5-6 ft)	REC 04: UST Excavation 4 STF-01-107 (5-6 ft)	REC 04: UST Excavation 4 STF-01-108 (4-5 ft)	REC 04: UST Excavation 4 STF-01-126 (5-6 ft)
Acenaphthene	570	4700	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Acenaphthylene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Anthracene	12000	23000	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Benzo(a)anthracene	2	0.9	---	U (0.0087)	U (0.0087)	U (0.0087)	0.014	U (0.0087)
Benzo(a)pyrene	8	0.09	---	U (0.015)	U (0.015)	U (0.015)	U (0.015)	U (0.015)
Benzo(b)fluoranthene	5	0.9	---	U (0.011)	U (0.011)	U (0.011)	0.015	U (0.011)
Benzo(g,h,i)perylene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Benzo(k)fluoranthene	49	9	---	U (0.011)	U (0.011)	U (0.011)	0.011	U (0.011)
Chrysene	160	88	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Dibenzo(a,h)anthracene	2	0.09	---	U (0.02)	U (0.02)	U (0.02)	U (0.02)	U (0.02)
Fluoranthene	4300	3100	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Fluorene	560	3100	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.029)	U (0.029)	U (0.029)	U (0.029)	U (0.029)
Naphthalene	84	3100	---	U (0.025)	U (0.025)	U (0.025)	U (0.025)	U (0.025)
Phenanthrene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Pyrene	4200	2300	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 04: UST Excavation 4 STF-01-127 (5-6 ft)	REC 04: UST Excavation 4 STF-01-128 (5-6 ft)	REC 04: UST Excavation 4 STF-01-129 (5-6 ft)	REC 04: UST Excavation 4 STF-1 (6-7 ft)	REC 04: UST Excavation 4 STF-3 (7-8 ft)
Acenaphthene	570	4700	---	U (0.05)	U (0.05)	U (0.05)	U (0.087)	U (0.087)
Acenaphthylene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (2)	U (2)
Anthracene	12000	23000	---	U (0.05)	U (0.05)	U (0.05)	U (0.087)	U (0.087)
Benzo(a)anthracene	2	0.9	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.087)	U (0.087)
Benzo(a)pyrene	8	0.09	---	U (0.015)	U (0.015)	U (0.015)	U (0.087)	U (0.087)
Benzo(b)fluoranthene	5	0.9	---	U (0.011)	U (0.011)	U (0.011)	U (0.087)	U (0.087)
Benzo(g,h,i)perylene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.087)	U (0.087)
Benzo(k)fluoranthene	49	9	---	U (0.011)	U (0.011)	U (0.011)	U (0.087)	U (0.087)
Chrysene	160	88	---	U (0.05)	U (0.05)	U (0.05)	U (0.087)	U (0.087)
Dibenzo(a,h)anthracene	2	0.09	---	U (0.02)	U (0.02)	U (0.02)	U (0.087)	U (0.087)
Fluoranthene	4300	3100	---	U (0.05)	U (0.05)	U (0.05)	U (0.087)	U (0.087)
Fluorene	560	3100	---	U (0.05)	U (0.05)	U (0.05)	U (0.087)	U (0.087)
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.029)	U (0.029)	U (0.029)	U (0.087)	U (0.087)
Naphthalene	84	3100	---	U (0.025)	U (0.025)	U (0.025)	U (0.087)	U (0.087)
Phenanthrene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.087)	U (0.087)
Pyrene	4200	2300	---	U (0.05)	U (0.05)	U (0.05)	U (0.087)	U (0.087)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 05: UST Excavation 5 D-7 (6-8 ft)	REC 05: UST Excavation 5 Pit5-01-73 (2-4 ft)	REC 05: UST Excavation 5 Pit5-01-77 (2-4 ft)	REC 05: UST Excavation 5 TP-1 (6-6 ft)	REC 05: UST Excavation 5 TP-2 (5-5 ft)
Acenaphthene	570	4700	---	0.23	0.258	0.084	U (0.087)	U (0.087)
Acenaphthylene	---	---	---	U (0.2)	U (0.05)	U (0.05)	U (2)	U (2)
Anthracene	12000	23000	---	U (0.0087)	0.122	0.131	U (0.087)	U (0.087)
Benzo(a)anthracene	2	0.9	---	U (0.0087)	0.2	0.195	U (0.087)	U (0.087)
Benzo(a)pyrene	8	0.09	---	U (0.0087)	0.173	0.22	U (0.087)	U (0.087)
Benzo(b)fluoranthene	5	0.9	---	U (0.0087)	0.166	0.11	U (0.087)	U (0.087)
Benzo(g,h,i)perylene	---	---	---	U (0.0087)	0.09	0.211	U (0.087)	U (0.087)
Benzo(k)fluoranthene	49	9	---	U (0.0087)	0.119	0.063	U (0.087)	U (0.087)
Chrysene	160	88	---	U (0.0087)	0.193	0.386	U (0.087)	U (0.087)
Dibenzo(a,h)anthracene	2	0.09	---	U (0.0087)	0.022	0.038	U (0.087)	U (0.087)
Fluoranthene	4300	3100	---	U (0.0087)	0.679	0.184	U (0.087)	U (0.087)
Fluorene	560	3100	---	0.11	0.189	0.096	U (0.087)	0.087
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.0087)	0.081	0.072	U (0.087)	U (0.087)
Naphthalene	84	3100	---	1.1	1.27	2.54	0.14	0.21
Phenanthrene	---	---	---	0.011	0.332	0.306	U (0.087)	U (0.087)
Pyrene	4200	2300	---	U (0.0087)	0.82	1.54	U (0.087)	U (0.087)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 05: UST Excavation 5 TP-7 (5-5 ft)	REC 12: Solvent Recovery Room A-2 (6-8 ft)	REC 12: Solvent Recovery Room UMW-25 (8-10 ft)	REC 12: Solvent Recovery Room UMW-27 (3-5 ft)	REC 12: Solvent Recovery Room SR-01-132 (3-4 ft)
Acenaphthene	570	4700	---	U (0.0087)	U (0.0087)	U (0.0087)	0.039	U (0.05)
Acenaphthylene	---	---	---	U (0.2)	U (0.2)	U (0.2)	U (0.2)	U (0.05)
Anthracene	12000	23000	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.05)
Benzo(a)anthracene	2	0.9	---	U (0.0087)	U (0.0087)	U (0.0087)	0.009	0.015
Benzo(a)pyrene	8	0.09	---	U (0.0087)	U (0.0087)	U (0.0087)	0.0093	U (0.048)
Benzo(b)fluoranthene	5	0.9	---	U (0.0087)	0.016	U (0.0087)	0.012	0.023
Benzo(g,h,i)perylene	---	---	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	0.056
Benzo(k)fluoranthene	49	9	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	0.031
Chrysene	160	88	---	U (0.0087)	U (0.0087)	U (0.0087)	0.013	U (0.05)
Dibenzo(a,h)anthracene	2	0.09	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	0.021
Fluoranthene	4300	3100	---	U (0.0087)	U (0.0087)	U (0.0087)	0.076	U (0.05)
Fluorene	560	3100	---	U (0.0087)	U (0.0087)	U (0.0087)	0.013	U (0.05)
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.029)
Naphthalene	84	3100	---	U (0.0087)	0.11	0.024	0.056	0.487
Phenanthrene	---	---	---	U (0.0087)	0.009	U (0.0087)	0.017	U (0.05)
Pyrene	4200	2300	---	U (0.0087)	U (0.0087)	U (0.0087)	0.023	U (0.05)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 16: Bldg E Kero Pits E-01-13 (4-6 ft)	REC 16: Bldg E Kero Pits E-01-16 (4-6 ft)	REC 16: Bldg E Kero Pits E-01-18 (4-6 ft)	REC 16: Bldg E Kero Pits E-01-19 (4-6 ft)	REC 16: Bldg E Kero Pits E-01-20 (4-6 ft)
Acenaphthene	570	4700	---	0.188	U (0.05)	0.105	U (0.05)	0.114
Acenaphthylene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Anthracene	12000	23000	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	0.051
Benzo(a)anthracene	2	0.9	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	0.059
Benzo(a)pyrene	8	0.09	---	U (0.015)	U (0.015)	U (0.015)	U (0.015)	0.075
Benzo(b)fluoranthene	5	0.9	---	U (0.011)	U (0.011)	U (0.011)	U (0.011)	0.028
Benzo(g,h,i)perylene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Benzo(k)fluoranthene	49	9	---	U (0.011)	U (0.011)	U (0.011)	U (0.011)	0.014
Chrysene	160	88	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	0.237
Dibenzo(a,h)anthracene	2	0.09	---	U (0.02)	U (0.02)	U (0.02)	U (0.02)	U (0.02)
Fluoranthene	4300	3100	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Fluorene	560	3100	---	0.265	U (0.05)	U (0.05)	U (0.05)	0.288
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.029)	U (0.029)	U (0.029)	U (0.029)	U (0.029)
Naphthalene	84	3100	---	0.164	U (0.025)	0.062	U (0.025)	0.156
Phenanthrene	---	---	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	0.176
Pyrene	4200	2300	---	U (0.05)	U (0.05)	U (0.05)	U (0.05)	0.092

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 16: Bldg E Kero Pits E-01-37 (4-6 ft)	REC 16: Bldg E Kero Pits NBT-1 (10-11 ft)	REC 16: Bldg E Kero Pits TP-B (7-9 ft)	REC 18: Bldg J Transformer West End (0-1 ft)	REC 18: Bldg J Transformer South End (0-1 ft)
Acenaphthene	570	4700	---	U (0.05)	U (0.0087)	0.029	U (0.1)	U (0.1)
Acenaphthylene	---	---	---	U (0.05)	U (0.2)	U (2)	U (0.2)	U (0.2)
Anthracene	12000	23000	---	U (0.05)	U (0.0087)	U (0.087)	U (0.1)	U (0.1)
Benzo(a)anthracene	2	0.9	---	U (0.0087)	U (0.0087)	0.013	U (0.1)	U (0.1)
Benzo(a)pyrene	8	0.09	---	U (0.015)	U (0.0087)	U (0.087)	U (0.09)	U (0.09)
Benzo(b)fluoranthene	5	0.9	---	U (0.011)	U (0.0087)	U (0.087)	U (0.1)	U (0.1)
Benzo(g,h,i)perylene	---	---	---	U (0.05)	U (0.0087)	U (0.087)	U (0.1)	U (0.1)
Benzo(k)fluoranthene	49	9	---	U (0.011)	U (0.0087)	U (0.087)	U (0.1)	U (0.1)
Chrysene	160	88	---	U (0.05)	U (0.0087)	0.022	U (0.1)	U (0.1)
Dibenzo(a,h)anthracene	2	0.09	---	U (0.02)	U (0.0087)	U (0.087)	U (0.09)	U (0.09)
Fluoranthene	4300	3100	---	U (0.05)	U (0.0087)	U (0.087)	U (0.1)	U (0.1)
Fluorene	560	3100	---	U (0.05)	U (0.0087)	0.05	U (0.1)	U (0.1)
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.029)	U (0.0087)	U (0.087)	U (0.1)	U (0.1)
Naphthalene	84	3100	---	U (0.025)	U (0.0087)	U (0.087)	U (0.1)	U (0.1)
Phenanthrene	---	---	---	U (0.05)	U (0.0087)	0.069	U (0.1)	U (0.1)
Pyrene	4200	2300	---	U (0.05)	U (0.0087)	0.02	U (0.1)	U (0.1)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 18: Bldg J Transformer East End (0-1 ft)	REC 21: Still Room D-01-52 (2-4 ft)	REC 21: Still Room D-01-53 (2-4 ft)	REC 22: Bldg D Coal Tar Sat T-01-44 (4-6 ft)	REC 24: Bldg T Tar Pit T-01-41 (2-4 ft)
Acenaphthene	570	4700	---	U (0.1)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Acenaphthylene	---	---	---	U (0.2)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Anthracene	12000	23000	---	U (0.1)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Benzo(a)anthracene	2	0.9	---	U (0.1)	U (0.0087)	0.011	U (0.0087)	0.011
Benzo(a)pyrene	8	0.09	---	U (0.09)	U (0.015)	U (0.015)	U (0.015)	U (0.015)
Benzo(b)fluoranthene	5	0.9	---	U (0.1)	U (0.011)	U (0.011)	U (0.011)	0.014
Benzo(g,h,i)perylene	---	---	---	U (0.1)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Benzo(k)fluoranthene	49	9	---	U (0.1)	U (0.011)	U (0.011)	U (0.011)	0.011
Chrysene	160	88	---	U (0.1)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Dibenzo(a,h)anthracene	2	0.09	---	U (0.09)	U (0.02)	U (0.02)	U (0.02)	U (0.02)
Fluoranthene	4300	3100	---	U (0.1)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Fluorene	560	3100	---	U (0.1)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.1)	U (0.029)	U (0.029)	U (0.029)	U (0.029)
Naphthalene	84	3100	---	U (0.1)	U (0.025)	0.134	U (0.025)	0.034
Phenanthrene	---	---	---	U (0.1)	U (0.05)	U (0.05)	U (0.05)	U (0.05)
Pyrene	4200	2300	---	U (0.1)	U (0.05)	0.087	U (0.05)	U (0.05)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 25: Bldg D Saturators TP-N (6-8 ft)	REC 25: Bldg Saturators D-01-45 (2-4 ft)	REC 25: Bldg Saturators D-01-46 (2-4 ft)	REC 25: Bldg Saturators D-01-47 (2-4 ft)	REC 27: Coal Pit CP-NC (0-1 ft)
Acenaphthene	570	4700	---	U (0.0087)	U (0.05)	U (0.05)	U (0.05)	0.128
Acenaphthylene	---	---	---	U (0.2)	U (0.05)	U (0.05)	U (0.05)	U (0.2)
Anthracene	12000	23000	---	U (0.0087)	U (0.05)	U (0.05)	U (0.05)	U (1.0)
Benzo(a)anthracene	2	0.9	---	U (0.0087)	U (0.0087)	U (0.0087)	U (0.0087)	U (0.1)
Benzo(a)pyrene	8	0.09	---	U (0.0087)	U (0.015)	U (0.015)	U (0.015)	0.121
Benzo(b)fluoranthene	5	0.9	---	U (0.0087)	U (0.011)	0.012	U (0.011)	0.138
Benzo(g,h,i)perylene	---	---	---	U (0.0087)	U (0.05)	U (0.05)	U (0.05)	U (0.1)
Benzo(k)fluoranthene	49	9	---	U (0.0087)	U (0.011)	0.011	U (0.011)	U (0.1)
Chrysene	160	88	---	U (0.0087)	U (0.05)	U (0.05)	U (0.05)	0.154
Dibenzo(a,h)anthracene	2	0.09	---	U (0.0087)	U (0.02)	U (0.02)	U (0.02)	U (0.09)
Fluoranthene	4300	3100	---	0.025	U (0.05)	U (0.05)	U (0.05)	0.366
Fluorene	560	3100	---	U (0.0087)	U (0.05)	U (0.05)	U (0.05)	U (0.1)
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.0087)	U (0.029)	U (0.029)	U (0.029)	U (0.1)
Naphthalene	84	3100	---	U (0.0087)	U (0.025)	U (0.025)	U (0.025)	U (0.1)
Phenanthrene	---	---	---	U (0.0087)	U (0.05)	U (0.05)	U (0.05)	0.25
Pyrene	4200	2300	---	0.009	U (0.05)	U (0.05)	U (0.05)	0.403

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 27: Coal Pit CP-NE (0-1 ft)	REC 27: Coal Pit CP-NW (0-1 ft)	REC 27: Coal Pit CP-SE (0-1 ft)	REC 31: Locomotive RR-SB-01 (2-3 ft)	REC 31: Locomotive RR-SB-02 (0-1 ft)
Acenaphthene	570	4700	---	U (0.1)	0.216	U (0.1)	U (0.048)	U (0.05)
Acenaphthylene	---	---	---	U (0.2)	U (0.2)	U (0.2)	U (0.048)	U (0.05)
Anthracene	12000	23000	---	0.176	1.52	U (1.0)	0.073	U (0.05)
Benzo(a)anthracene	2	0.9	---	0.134	0.968	U (0.1)	0.17	0.68
Benzo(a)pyrene	8	0.09	---	0.143	U (0.09)	U (0.09)	0.27	0.83
Benzo(b)fluoranthene	5	0.9	---	0.177	U (0.1)	U (0.1)	0.19	1
Benzo(g,h,i)perylene	---	---	---	U (0.1)	0.643	U (0.1)	0.48	0.68
Benzo(k)fluoranthene	49	9	---	U (0.1)	U (0.1)	U (0.1)	0.086	U (0.05)
Chrysene	160	88	---	0.159	1.21	U (0.1)	0.17	U (0.05)
Dibenzo(a,h)anthracene	2	0.09	---	U (0.09)	0.831	U (0.09)	U (0.048)	U (0.05)
Fluoranthene	4300	3100	---	0.314	4.38	0.193	0.3	1.2
Fluorene	560	3100	---	U (0.1)	U (0.1)	U (0.1)	U (0.048)	U (0.05)
Indeno(1,2,3-cd)pyrene	14	0.9	---	0.131	U (0.1)	U (0.1)	0.3	0.61
Naphthalene	84	3100	---	U (0.1)	U (0.1)	U (0.1)	0.049	U (0.05)
Phenanthrene	---	---	---	0.205	3.29	0.116	0.23	U (0.05)
Pyrene	4200	2300	---	0.383	3.41	0.192	0.24	1.1

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 6
Polynuclear Aromatic Hydrocabons in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 32: Tank 031 TP-3 (5-5 ft)	South of Pumping Lagoon ICS-1 (6-7 ft)	Bldg C - East End C-3 (6-8 ft)	Building B B-2 (6-8 ft)
Acenaphthene	570	4700	---	0.24	U (0.0087)	U (0.0087)	U (0.0087)
Acenaphthylene	---	---	---	U (2)	U (0.2)	U (0.2)	U (0.2)
Anthracene	12000	23000	---	U (0.087)	U (0.0087)	U (0.0087)	U (0.0087)
Benzo(a)anthracene	2	0.9	---	U (0.087)	U (0.0087)	U (0.0087)	U (0.0087)
Benzo(a)pyrene	8	0.09	---	U (0.087)	U (0.0087)	U (0.0087)	U (0.0087)
Benzo(b)fluoranthene	5	0.9	---	U (0.087)	U (0.0087)	U (0.0087)	U (0.0087)
Benzo(g,h,i)perylene	---	---	---	U (0.087)	U (0.0087)	U (0.0087)	U (0.0087)
Benzo(k)fluoranthene	49	9	---	U (0.087)	U (0.0087)	U (0.0087)	U (0.0087)
Chrysene	160	88	---	U (0.087)	U (0.0087)	U (0.0087)	U (0.0087)
Dibenzo(a,h)anthracene	2	0.09	---	U (0.087)	U (0.0087)	U (0.0087)	U (0.0087)
Fluoranthene	4300	3100	---	U (0.087)	U (0.0087)	U (0.0087)	U (0.0087)
Fluorene	560	3100	---	U (0.087)	U (0.0087)	U (0.0087)	U (0.0087)
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.087)	U (0.0087)	U (0.0087)	U (0.0087)
Naphthalene	84	3100	---	6.2	U (0.0087)	U (0.0087)	U (0.0087)
Phenanthrene	---	---	---	U (0.087)	U (0.0087)	U (0.0087)	U (0.0087)
Pyrene	4200	2300	---	U (0.087)	U (0.0087)	U (0.0087)	U (0.0087)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 7
Semi-Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 11: UST Excavation 11 H-01-90 (2-4 ft)	REC 11: UST Excavation 11 H-01-91 (2-4 ft)	REC 11: UST Excavation 11 H-01-92 (2-4 ft)	REC 11: UST Excavation 11 H-01-93 (2-4 ft)
1,2,4-Trichlorobenzene	5	780	3200	U (0.33)	U (0.33)	U (0.33)	U (0.33)
1,2-Dichlorobenzene	17	7000	560	U (0.33)	U (0.33)	U (0.33)	U (0.33)
1,3-Dichlorobenzene	---	---	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
1,4-Dichlorobenzene	2	---	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
2,4,5-Trichlorophenol	270	7800	---	U (0.66)	U (0.66)	U (0.66)	U (0.66)
2,4,6-Trichlorophenol				U (0.33)	U (0.33)	U (0.33)	U (0.33)
2,4-Dichlorophenol	1	230	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
2,4-Dimethylphenol	9	1600	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
2,4-Dinitrophenol				U (1.6)	U (1.6)	U (1.6)	U (1.6)
2,4-Dinitrotoluene	0.0008	0.9	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
2,6-Dintrotoluene				U (0.33)	U (0.33)	U (0.33)	U (0.33)
2-Chloronaphthalene				U (0.33)	U (0.33)	U (0.33)	U (0.33)
2-Chlorophenol	4	390	53000	U (0.33)	U (0.33)	U (0.33)	U (0.33)
2-Methylnaphthalene				U (0.33)	U (0.33)	U (0.33)	U (0.33)
2-Methylphenol	15	3900	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
2-Nitroaniline				U (1.6)	U (1.6)	U (1.6)	U (1.6)
2-Nitrophenol				U (1.6)	U (1.6)	U (1.6)	U (1.6)
3,3-Dichlorobenzidine				U (0.66)	U (0.66)	U (0.66)	U (0.66)
3-Nitroaniline				U (1.6)	U (1.6)	U (1.6)	U (1.6)
4,6-Dinitro-2-methylphenol				U (1.6)	U (1.6)	U (1.6)	U (1.6)
4-Bromophenyl phenyl ether				U (0.33)	U (0.33)	U (0.33)	U (0.33)
4-Chloro-3-methylphenol				U (0.33)	U (0.33)	U (0.33)	U (0.33)
4-Chloroaniline	0.7	310	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
4-Chlorophenyl phenyl ether				U (0.33)	U (0.33)	U (0.33)	U (0.33)
4-Methylphenol				U (0.33)	U (0.33)	U (0.33)	U (0.33)
4-Nitroaniline				U (1.6)	U (1.6)	U (1.6)	U (1.6)
4-Nitrophenol				U (1.6)	U (1.6)	U (1.6)	U (1.6)
Acenaphthene	570	4700	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Acenaphthylene	---	---	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Aniline							
Anthracene	12000	23000	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Benzidine				U (0.33)	U (0.33)	U (0.33)	U (0.33)
Benzo(a)anthracene	2	0.9	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Benzo(a)pyrene	8	0.09	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Benzo(b)fluoranthene	5	0.9	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Benzo(g,h,i)perylene	---	---	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 7
Semi-Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 11: UST Excavation 11 H-01-90 (2-4 ft)	REC 11: UST Excavation 11 H-01-91 (2-4 ft)	REC 11: UST Excavation 11 H-01-92 (2-4 ft)	REC 11: UST Excavation 11 H-01-93 (2-4 ft)
Benzo(k)fluoranthene	49	9	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Benzoic Acid	400	310000	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Benzyl Aclohol				U (0.33)	U (0.33)	U (0.33)	U (0.33)
bis (2-Chloroethoxy) methane				U (0.33)	U (0.33)	U (0.33)	U (0.33)
Bis (2-Chloroethyl) ether				U (0.33)	U (0.33)	U (0.33)	U (0.33)
bis (2-Chloroisopropyl) ether				U (0.33)	U (0.33)	U (0.33)	U (0.33)
bis (2-ethylhexyl) phthalate				U (0.33)	U (0.33)	U (0.33)	U (0.33)
Butyl benzyl phthalate	930	16000	930	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Chrysene	160	88	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Dibenzo(a,h)anthracene	2	0.09	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Dibenzofuran				U (0.33)	U (0.33)	U (0.33)	U (0.33)
Diethylphthalate				U (0.33)	U (0.33)	U (0.33)	U (0.33)
Dimethylphthalate				U (0.33)	U (0.33)	U (0.33)	U (0.33)
Di-n-butylphthalate				U (0.33)	U (0.33)	U (0.33)	U (0.33)
Di-n-octylphthalate				U (0.33)	U (0.33)	U (0.33)	U (0.33)
Fluoranthene	4300	3100	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Fluorene	560	3100	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Hexachlorobenzene	2	0.4	1	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Hexachlorobutadiene	---	---	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Hexachlorocyclopentadiene	400	550	10	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Hexachloroethane	0.5	78	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Isophorone	8	15600	4600	U (0.33)	U (0.33)	U (0.33)	U (0.33)
m,p-Cresols							
Naphthalene	84	3100	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Nitrobenzene	0.1	39	92	U (0.33)	U (0.33)	U (0.33)	U (0.33)
N-Nitrosodimethylamine				U (0.33)	U (0.33)	U (0.33)	U (0.33)
N-Nitroso-di-n-propylamine				U (0.33)	U (0.33)	U (0.33)	U (0.33)
n-Nitrosodiphenylamine	1	130	---	U (0.66)	U (0.66)	U (0.66)	U (0.66)
o-Cresol				U (0.33)	U (0.33)	U (0.33)	U (0.33)
Pentachlorophenol	0.03	3	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Phenanthrene	---	---	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Phenol	100	47000	---	U (1.6)	U (1.6)	U (1.6)	U (1.6)
Pyrene	4200	2300	---	U (0.33)	U (0.33)	U (0.33)	U (0.33)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 7
Semi-Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 17: Bldg H Material H-01-147 (2-4 ft)	REC 17: Bldg H Material H-01-147-GLA (2-4 ft)	REC 17: Bldg H Material V-13 (3-4 ft)	REC 17: Bldg H Material V-32 (3-5 ft)	REC 17: Bldg H Material V-9 (3-4 ft)
1,2,4-Trichlorobenzene	5	780	3200	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
1,2-Dichlorobenzene	17	7000	560	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
1,3-Dichlorobenzene	---	---	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
1,4-Dichlorobenzene	2	---	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
2,4,5-Trichlorophenol	270	7800	---	U (0.66)	U (0.5)	U (0.5)	U (0.5)	U (0.5)
2,4,6-Trichlorophenol				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
2,4-Dichlorophenol	1	230	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
2,4-Dimethylphenol	9	1600	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
2,4-Dinitrophenol				U (1.6)	U (0.5)	U (0.5)	U (0.5)	U (0.5)
2,4-Dinitrotoluene	0.0008	0.9	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
2,6-Dintrotoluene				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
2-Chloronaphthalene				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
2-Chlorophenol	4	390	53000	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
2-Methylnaphthalene				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
2-Methylphenol	15	3900	---	U (0.33)				
2-Nitroaniline				U (1.6)	U (0.5)	U (0.5)	U (0.5)	U (0.5)
2-Nitrophenol				U (1.6)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
3,3-Dichlorobenzidine				U (0.66)	U (0.5)	U (0.5)	U (0.5)	U (0.5)
3-Nitroaniline				U (1.6)	U (0.5)	U (0.5)	U (0.5)	U (0.5)
4,6-Dinitro-2-methylphenol				U (1.6)	U (0.5)	U (0.5)	U (0.5)	U (0.5)
4-Bromophenyl phenyl ether				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
4-Chloro-3-methylphenol				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
4-Chloroaniline	0.7	310	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
4-Chlorophenyl phenyl ether				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
4-Methylphenol				U (0.33)				
4-Nitroaniline				U (1.6)	U (0.5)	U (0.5)	U (0.5)	U (0.5)
4-Nitrophenol				U (1.6)	U (0.5)	U (0.5)	U (0.5)	U (0.5)
Acenaphthene	570	4700	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Acenaphthylene	---	---	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Aniline					U (0.1)	U (0.1)	U (0.1)	U (0.1)
Anthracene	12000	23000	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Benzidine				U (0.33)				
Benzo(a)anthracene	2	0.9	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Benzo(a)pyrene	8	0.09	---	U (0.33)	U (0.058)	U (0.058)	U (0.058)	U (0.058)
Benzo(b)fluoranthene	5	0.9	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Benzo(g,h,i)perylene	---	---	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 7
Semi-Volatile Organic Compounds in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I MIG	ING	INH	REC 17: Bldg H Material H-01-147 (2-4 ft)	REC 17: Bldg H Material H-01-147-GLA (2-4 ft)	REC 17: Bldg H Material V-13 (3-4 ft)	REC 17: Bldg H Material V-32 (3-5 ft)	REC 17: Bldg H Material V-9 (3-4 ft)
Benzo(k)fluoranthene	49	9	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Benzoic Acid	400	310000	---	U (0.33)	U (0.5)	U (0.5)	U (0.5)	U (0.5)
Benzyl Aclohol				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
bis (2-Chloroethoxy) methane				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Bis (2-Chloroethyl) ether				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
bis (2-Chloroisopropyl) ether				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
bis (2-ethylhexyl) phthalate				U (0.33)	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Butyl benzyl phthalate	930	16000	930	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Chrysene	160	88	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Dibenzo(a,h)anthracene	2	0.09	---	U (0.33)	U (0.058)	U (0.058)	U (0.058)	U (0.058)
Dibenzofuran				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Diethylphthalate				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Dimethylphthalate				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Di-n-butylphthalate				U (0.33)	U (0.33)	U (0.33)	U (0.33)	U (0.33)
Di-n-octylphthalate				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Fluoranthene	4300	3100	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Fluorene	560	3100	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Hexachlorobenzene	2	0.4	1	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Hexachlorobutadiene	---	---	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Hexachlorocyclopentadiene	400	550	10	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Hexachloroethane	0.5	78	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Indeno(1,2,3-cd)pyrene	14	0.9	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Isophorone	8	15600	4600	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
m,p-Cresols					U (0.1)	U (0.1)	U (0.1)	U (0.1)
Naphthalene	84	3100	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Nitrobenzene	0.1	39	92	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
N-Nitrosodimethylamine				U (0.33)				
N-Nitroso-di-n-propylamine				U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
n-Nitrosodiphenylamine	1	130	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
o-Cresol					U (0.1)	U (0.1)	U (0.1)	U (0.1)
Pentachlorophenol	0.03	3	---	U (1.6)	U (0.5)	U (0.5)	U (0.5)	U (0.5)
Phenanthrene	---	---	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Phenol	100	47000	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)
Pyrene	4200	2300	---	U (0.33)	U (0.1)	U (0.1)	U (0.1)	U (0.1)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 8
Total Metals in Soil

Johns Manville, Waukegan, Illinois

Analyte Name	Lake County Background	Class I MIG (pH=6.74)	ING	INH	REC 03: UST Excavation 3 TA3-02-01 (2-4 ft)	REC 03: UST Excavation 3 TA3-02-02 (4-6 ft)	REC 03: UST Excavation 3 TA3-02-03 (2-4 ft)	REC 03: UST Excavation 3 TA3-02-04 (5-7 ft)	REC 03: UST Excavation 3 TA3-02-05 (5-7 ft)
Arsenic	13	29	0.4	750					
Barium	110	1600	5500	690000					
Cadmium	0.6	7.5	78	1800					
Chromium	16.2	---	390	270					
Lead	36	---	400	---	1.8	2	3.7	4.9	1.9
Mercury	0.06	2.1	23	10					
Selenium	0.48	5.2	390	---					
Silver	0.55	8.5	390	---					

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 8
Total Metals in Soil

Johns Manville, Waukegan, Illinois

Analyte Name	Lake County Background	Class I MIG (pH=6.74)	ING	INH	REC 03: UST Excavation 3 TA3-02-06 (3-5 ft)	REC 03: UST Excavation 3 TA3-02-07 (2-4 ft)	REC 03: UST Excavation 3 TA3-02-08 (2-4 ft)	REC 03: UST Excavation 3 TA3-02-09 (2-4 ft)	REC 03: UST Excavation 3 TA3-02-11 (2-4 ft)
Arsenic	13	29	0.4	750					
Barium	110	1600	5500	690000					
Cadmium	0.6	7.5	78	1800					
Chromium	16.2	---	390	270					
Lead	36	---	400	---	2.5	2	2.1	2.8	2.8
Mercury	0.06	2.1	23	10					
Selenium	0.48	5.2	390	---					
Silver	0.55	8.5	390	---					

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 8
Total Metals in Soil

Johns Manville, Waukegan, Illinois

Analyte Name	Lake County Background	Class I MIG (pH=6.74)	ING	INH	REC 14: Tank 30 UST T28-E (3-4 ft)	REC 14: Tank 30 UST T28-W (3-4 ft)	REC 14: Tank 30 UST T28-N (3-4 ft)	REC 14: Tank 30 UST T28-S (3-4 ft)	REC 11: UST Excavation 11 H-01-90 (2-4 ft)
Arsenic	13	29	0.4	750					1.3
Barium	110	1600	5500	690000					6.8
Cadmium	0.6	7.5	78	1800					U (0.1)
Chromium	16.2	---	390	270					4.1
Lead	36	---	400	---	8.9	7.2	6.5	19.3	4.3
Mercury	0.06	2.1	23	10					U (0.05)
Selenium	0.48	5.2	390	---					U (0.2)
Silver	0.55	8.5	390	---					U (0.1)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 8
Total Metals in Soil

Johns Manville, Waukegan, Illinois

Analyte Name	Lake County Background	Class I MIG (pH=6.74)	ING	INH	REC 11: UST Excavation 11 H-01-91 (2-4 ft)	REC 11: UST Excavation 11 H-01-92 (2-4 ft)	REC 11: UST Excavation 11 H-01-93 (2-4 ft)	REC 17: Bldg H Material V-9 (3-4 ft)	REC 17: Bldg H Material V-13 (3-4 ft)
Arsenic	13	29	0.4	750	1.1	1.1	1.5	U (2.5)	U (2.5)
Barium	110	1600	5500	690000	4	3.6	9	U (25)	U (25)
Cadmium	0.6	7.5	78	1800	U (0.1)	U (0.1)	U (0.1)	U (0.5)	U (0.5)
Chromium	16.2	---	390	270	4.8	3.7	4.2	0.847	U (0.5)
Lead	36	---	400	---	1.8	1.6	5.1	144	U (1)
Mercury	0.06	2.1	23	10	U (0.05)	U (0.05)	U (0.05)	0.141	0.328
Selenium	0.48	5.2	390	---	U (0.2)	U (0.2)	0.3	U (2.5)	U (2.5)
Silver	0.55	8.5	390	---	U (0.1)	U (0.1)	U (0.1)	U (2.5)	U (2.5)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 8
Total Metals in Soil

Johns Manville, Waukegan, Illinois

Analyte Name	Lake County Background	Class I MIG (pH=6.74)	ING	INH	REC 17: Bldg H Material V-32 (3-5 ft)	REC 26: Tank 053 T27-S (3-4 ft)	REC 26: Tank 053 T27-E (3-4 ft)	REC 26: Tank 053 T27-W (3-4 ft)	REC 26: Tank 053 T27-N (3-4 ft)
Arsenic	13	29	0.4	750	U (2.5)				
Barium	110	1600	5500	690000	127				
Cadmium	0.6	7.5	78	1800	U (0.5)				
Chromium	16.2	---	390	270	13				
Lead	36	---	400	---	76.5	3.7	10.5	2.0	12.5
Mercury	0.06	2.1	23	10	0.202				
Selenium	0.48	5.2	390	---	U (2.5)				
Silver	0.55	8.5	390	---	U (2.5)				

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 8
Total Metals in Soil

Johns Manville, Waukegan, Illinois

Analyte Name	Lake County Background	Class I MIG (pH=6.74)	ING	INH	REC 27: Coal Pit CP-NC (0-1 ft)	REC 27: Coal Pit CP-NE (0-1 ft)	REC 27: Coal Pit CP-NW (0-1 ft)	REC 27: Coal Pit CP-SE (0-1 ft)
Arsenic	13	29	0.4	750	U (2.50)	U (2.50)	U (2.50)	U (2.50)
Barium	110	1600	5500	690000	U (25.0)	39.9	55.2	26.8
Cadmium	0.6	7.5	78	1800	U (0.5)	U (0.5)	U (0.5)	U (0.5)
Chromium	16.2	---	390	270	2.64	3.49	17.3	7.68
Lead	36	---	400	---	26.3	127	220	50.1
Mercury	0.06	2.1	23	10	0.367	0.151	0.0728	0.166
Selenium	0.48	5.2	390	---	U (2.50)	U (2.50)	U (2.50)	U (2.50)
Silver	0.55	8.5	390	---	U (2.50)	U (2.50)	U (2.50)	U (2.50)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 9
SPLP Metals in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I GW Standard	REC 11: UST Excavation 11 H-01-90 (2-4 ft)	REC 11: UST Excavation 11 H-01-91 (2-4 ft)	REC 11: UST Excavation 11 H-01-92 (2-4 ft)	REC 11: UST Excavation 11 H-01-93 (2-4 ft)	REC 27: Coal Pit CP-20E (0-1 ft)	REC 27: Coal Pit CP-20S (0-1 ft)
SPLP Arsenic	0.05	U (0.002)	U (0.002)	U (0.002)	U (0.002)		
SPLP Barium	2.0	U (1)	U (1)	U (1)	U (1)		
SPLP Cadmium	0.005	U (0.001)	U (0.001)	U (0.001)	U (0.001)		
SPLP Chromium	0.1	0.003	0.002	0.002	0.002		
SPLP Mercury	0.002	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0005)		
SPLP Selenium	0.05	U (0.002)	U (0.002)	0.003	U (0.002)		
SPLP Silver	0.05	U (0.001)	U (0.001)	0.002	U (0.001)		
SPLP Lead	0.0075	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.005)	0.0384

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 9
SPLP Metals in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I GW Standard	REC 27: Coal Pit CP-20S/20E (0-1 ft)	REC 27: Coal Pit CP-20S/40E (0-1 ft)	REC 27: Coal Pit CP-40E (0-1 ft)	REC 27: Coal Pit CP-40S (0-1 ft)	REC 27: Coal Pit CP-40S/20E (0-1 ft)	REC 27: Coal Pit CP-40S/40E (0-1 ft)
SPLP Arsenic	0.05						
SPLP Barium	2.0						
SPLP Cadmium	0.005						
SPLP Chromium	0.1						
SPLP Mercury	0.002						
SPLP Selenium	0.05						
SPLP Silver	0.05						
SPLP Lead	0.0075	U (0.005)	U (0.005)	U (0.105)	U (0.005)	0.0282	0.0106

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 9
SPLP Metals in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I GW Standard	REC 27: Coal Pit CP-40S/60E (0-1 ft)	REC 27: Coal Pit CP-60S/20E (0-1 ft)	REC 27: Coal Pit CP-60S/40E (0-1 ft)	REC 27: Coal Pit CP-60S/60E (0-1 ft)	REC 27: Coal Pit CP-60S/80E (0-1 ft)	REC 27: Coal Pit CP60S/85E (0-1 ft)
SPLP Arsenic	*0.05*						
SPLP Barium	2.0						
SPLP Cadmium	0.005						
SPLP Chromium	0.1						
SPLP Mercury	0.002						
SPLP Selenium	0.05						
SPLP Silver	0.05						
SPLP Lead	*0.0075*	*U (0.005)*	*0.00905*	*0.0107*	*0.0168*	*0.00836*	*U (0.005)*

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 9
SPLP Metals in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I GW Standard	REC 27: Coal Pit CP-80S/60E (0-1 ft)	REC 27: Coal Pit CP-80S/80E (0-1 ft)	REC 27: Coal Pit CP-C (0-1 ft)	REC 27: Coal Pit CP-NC (0-1 ft)	REC 27: Coal Pit CP-NE (0-1 ft)	REC 27: Coal Pit CP-NW (0-1 ft)
SPLP Arsenic	0.05						
SPLP Barium	2.0						
SPLP Cadmium	0.005						
SPLP Chromium	0.1						
SPLP Mercury	0.002						
SPLP Selenium	0.05						
SPLP Silver	0.05						
SPLP Lead	0.0075	0.0127	0.00677	U (0.005)	U (0.005)	U (0.005)	0.0297

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 9
SPLP Metals in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	Class I GW Standard	REC 27: Coal Pit CP-SE (0-1 ft)
SPLP Arsenic	0.05	
SPLP Barium	2.0	
SPLP Cadmium	0.005	
SPLP Chromium	0.1	
SPLP Mercury	0.002	
SPLP Selenium	0.05	
SPLP Silver	0.05	
SPLP Lead	0.0075	U (0.005)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 10
PCBs in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	ING	REC 13: Bldg D Transformer PCB-2 (0-1 ft)	REC 18: Bldg J Transformer PCB-1 (0-1 ft)	REC 18: Bldg J Transformer West End (0-1 ft)	REC 18: Bldg J Transformer South End (0-1 ft)	REC 18: Bldg J Transformer East End (0-1 ft)
Arochlor-1016	1.0	U (0.05)	U (0.05)	U (0.025)	U (0.025)	U (0.025)
Arochlor-1221	1.0	U (0.05)	U (0.05)	U (0.025)	U (0.025)	U (0.025)
Arochlor-1232	1.0	U (0.05)	U (0.05)	U (0.025)	U (0.025)	U (0.025)
Arochlor-1242	1.0	U (0.05)	U (0.05)	U (0.025)	U (0.025)	U (0.025)
Arochlor-1248	1.0	U (0.05)	U (0.05)	U (0.025)	U (0.025)	U (0.025)
Arochlor-1254	1.0	U (0.05)	U (0.05)	U (0.025)	U (0.025)	U (0.025)
Arochlor-1260	1.0	U (0.05)	U (0.05)	U (0.025)	U (0.025)	U (0.025)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 10
PCBs in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	ING	REC 25: Bldg D Saturators TP-N (6-8 ft)	REC 27: Coal Pit CP-NC (0-1 ft)	REC 27: Coal Pit CP-NE (0-1 ft)	REC 27: Coal Pit CP-NW (0-1 ft)	REC 27: Coal Pit CP-SE (0-1 ft)
Arochlor-1016	1.0	U (0.05)	U (0.125)	U (0.125)	U (0.125)	U (0.125)
Arochlor-1221	1.0	U (0.05)	U (0.125)	U (0.125)	U (0.125)	U (0.125)
Arochlor-1232	1.0	U (0.05)	U (0.125)	U (0.125)	U (0.125)	U (0.125)
Arochlor-1242	1.0	U (0.05)	U (0.125)	U (0.125)	U (0.125)	U (0.125)
Arochlor-1248	1.0	U (0.05)	U (0.125)	U (0.125)	U (0.125)	U (0.125)
Arochlor-1254	1.0	U (0.05)	U (0.125)	U (0.125)	U (0.125)	U (0.125)
Arochlor-1260	1.0	U (0.05)	U (0.125)	U (0.125)	U (0.125)	U (0.125)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 10
PCBs in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	ING	REC 35: Bldg A Transformer PCB-4 (0-1 ft)	REC 36: Bldg P Transformer PCB-3 (0-1 ft)
Arochlor-1016	1.0	U (0.05)	U (0.05)
Arochlor-1221	1.0	U (0.05)	U (0.05)
Arochlor-1232	1.0	U (0.05)	U (0.05)
Arochlor-1242	1.0	U (0.05)	U (0.05)
Arochlor-1248	1.0	U (0.05)	U (0.05)
Arochlor-1254	1.0	U (0.05)	U (0.05)
Arochlor-1260	1.0	U (0.05)	U (0.05)

U: Undetected; PQL shown in parentheses.
Results in mg/kg.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 11
Total Organic Carbon

Johns Manville
Waukegan, Illinois

Analyte Name	REC 04: UST Excavation 4 STF-01-96 (2-3 ft)	REC 04: UST Excavation 4 STF-01-101 (5-6 ft)	REC 04: UST Excavation 4 STF-3 (7-8 ft)	REC 26: Tank 053 T27-W (3-4 ft)
Organic Carbon (g/g)	0.0023	0.0011	0.0122	0.0033

Table 12
Asbestos in Soil

Johns Manville
Waukegan, Illinois

Analyte Name	BA-1 (2-3 ft)	BA-2 (7-8 ft)	Hummocky Asphalt Area H-10 (0-4 ft)	Hummocky Asphalt Area H-3 (0-4 ft)	Hummocky Asphalt Area H-4 (0-4 ft)
Asbestos	PLM: Amosite & Chrysotile Present	PLM: NAD	PLM: NAD TEM: <1%	PLM: Chry. present TEM: NAD	PLM: Chry. present TEM: NAD

NAD: No asbestos detected
TEM: Transmission Electron Microscopy
PLM: Polarized Light Microscopy
If Result noted as "Present" - assumed to be greater than 1%

Table 12
Asbestos in Soil

Johns Manville
Waukegan, Illinois

Hummocky Asphalt Area H-5 (0-4 ft)	Hummocky Asphalt Area H-6 (0-4 ft)	Hummocky Asphalt Area H-7 (0-4 ft)	Hummocky Asphalt Area HA-5 (4-5 ft)	Hummocky Asphalt Area HA-6 (5-6 ft)	Hummocky Asphalt Area HA-8 (2-3 ft)
PLM: Chry. present TEM: NAD	PLM: NAD TEM: <1%	PLM: NAD TEM: <1%	PLM: Chrysotile & Crocidolite Present	PLM: Chrysotile & Crocidolite Present	PLM: Chrysotile & Crocidolite Present

NAD: No asbestos detected
TEM: Transmission Electron Microscopy
PLM: Polarized Light Microscopy
If Result noted as "Present" - assumed to be greater than 1%

Table 12
Asbestos in Soil

Johns Manville
Waukegan, Illinois

Hummocky Asphalt Area HA-8 (4-5 ft)	REC 03: UST Excavation 3 GT-2 (0-1 ft)	REC 03: UST Excavation 3 TA3-7 (3-4 ft)	REC 17: Bldg H Material H-1 (2-3 ft)	REC 17: Bldg H Material H-1 (7-8 ft)
PLM: Chrysotile & Crocidolite Present	PLM: Chrysotile & Crocidolite Present	PLM: Chrysotile Present	PLM: NAD	PLM: NAD

NAD: No asbestos detected
TEM: Transmission Electron Microscopy
PLM: Polarized Light Microscopy
If Result noted as "Present" - assumed to be greater than 1%

Table 13
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 02: UST Excavation 2 UMW-01 (1/1/90)	REC 02: UST Excavation 2 UMW-01 (3/7/90)	REC 02: UST Excavation 2 UMW-01 (8/29/90)	REC 02: UST Excavation 2 UMW-01 (6/28/91)	REC 02: UST Excavation 2 UMW-01 (10/28/92)	REC 02: UST Excavation 2 UMW-01 (4/12/93)	REC 02: UST Excavation 2 UMW-01 (11/13/98)	REC 02: UST Excavation 2 UMW-02 (1/1/90)	REC 02: UST Excavation 2 UMW-02 (3/7/90)	REC 02: UST Excavation 2 UMW-02 (8/29/90)	REC 02: UST Excavation 2 UMW-02 (6/28/91)
1,1,1-Trichloroethane	0.2	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	0.017	0.099	U (0.001)	0.027
1,1,2,2-Tetrachloroethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
1,1,2-Trichloroethane	0.005							U (0.002)				
1,1-Dichloroethane	0.7	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	0.012	0.0077	U (0.001)	0.001
1,1-Dichloroethene	0.007	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	0.017	U (0.001)	U (0.001)	U (0.001)
1,2-Dichlorobenzene	0.6											
1,2-Dichloroethane	0.005							U (0.002)				
1,2-Dichloroethene	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)
1,2-Dichloropropane	0.005							U (0.002)				
1,3-Dichlorobenzene	---											
1,4-Dichlorobenzene	0.075											
2-Chloroethyl Vinyl Ether	---							U (0.01)				
2-Hexanone	---							U (0.01)				
4-Methyl-2-Pentanone	---							U (0.01)				
Acetone	0.7	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)		U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Benzene	0.005	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Bromodichloromethane	0.00002							U (0.002)				
Bromoform	0.0002							U (0.002)				
Bromomethane	---							U (0.002)				
Carbon Disulfide	0.7							U (0.002)				
Carbon Tetrachloride	0.005							U (0.002)				
Chlorobenzene	0.1							U (0.002)				
Chlorodibromomethane	0.14											
Chloroethane	---							U (0.002)				
Chloroform	0.00002	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Chloromethane	---							U (0.002)				
cis-1,2-Dichloroethane	---	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)		0.034	U (0.001)	U (0.001)	U (0.001)
cis-1,2-Dichloroethene	0.07	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
cis-1,3-Dichloropropene	0.001							U (0.002)				
Dibromochloromethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Dichlorodifluoromethane	1.4*											
Ethylbenzene	0.7	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Methyl Ethyl Ketone	4.2*							U (0.01)				
Methylene Chloride	0.005							U (0.002)				
MTBE	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)		U (0.002)	U (0.002)	U (0.002)	U (0.002)
Styrene	0.1							U (0.002)				
Tetrachloroethene	0.005	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Toluene	1	U (0.001)	0.0072	U (0.001)	0.003	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
trans-1,2-Dichloroethene	0.1							U (0.002)				
trans-1,3-Dichloropropene	0.001							U (0.002)				
Trichloroethane	---	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)		0.0024	U (0.001)	U (0.001)	U (0.001)
Trichloroethene	0.005	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Trichlorofluoromethane	2.1*							U (0.002)				
Vinyl Acetate	7							U (0.002)				
Vinyl Chloride	0.002	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Xylenes, Total	10	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 13
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 02: UST Excavation 2 UMW-02 (5/21/92)	REC 02: UST Excavation 2 UMW-02 (10/28/92)	REC 02: UST Excavation 2 UMW-02 (4/12/93)	REC 02: UST Excavation 2 UMW-02 (11/13/98)	REC 02: UST Excavation 2 UMW-03 (1/1/90)	REC 02: UST Excavation 2 UMW-03 (3/7/90)	REC 02: UST Excavation 2 UMW-03 (8/29/90)	REC 02: UST Excavation 2 UMW-03 (6/28/91)	REC 02: UST Excavation 2 UMW-03 (4/12/93)	REC 02: UST Excavation 2 UMW-03 (11/13/98)	REC 02: UST Excavation 2 E-5 (12/21/98)
1,1,1-Trichloroethane	0.2	0.0073	0.006	0.003	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.002)
1,1,2,2-Tetrachloroethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
1,1,2-Trichloroethane	0.005				U (0.002)						U (0.002)	U (0.002)
1,1-Dichloroethane	0.7	U (0.001)	0.002	U (0.001)	U (0.002)	0.022	0.0024	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.002)
1,1-Dichloroethene	0.007	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.002)
1,2-Dichlorobenzene	0.6											
1,2-Dichloroethane	0.005				U (0.002)						U (0.002)	U (0.002)
1,2-Dichloroethene	---	U (0.002)	U (0.002)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)		
1,2-Dichloropropane	0.005				U (0.002)						U (0.002)	U (0.002)
1,3-Dichlorobenzene	---											
1,4-Dichlorobenzene	0.075											
2-Chloroethyl Vinyl Ether	---				U (0.01)						U (0.01)	U (0.01)
2-Hexanone	---				U (0.01)						U (0.01)	U (0.01)
4-Methyl-2-Pentanone	---				U (0.01)						U (0.01)	U (0.01)
Acetone	0.7	U (0.01)	U (0.01)		U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)		U (0.01)	U (0.01)
Benzene	0.005	U (0.001)	0.004	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.002)
Bromodichloromethane	0.00002				U (0.002)						U (0.002)	U (0.002)
Bromoform	0.0002				U (0.002)						U (0.002)	U (0.002)
Bromomethane	---				U (0.002)						U (0.002)	U (0.002)
Carbon Disulfide	0.7				U (0.002)						U (0.002)	U (0.002)
Carbon Tetrachloride	0.005				U (0.002)						U (0.002)	U (0.002)
Chlorobenzene	0.1				U (0.002)						U (0.002)	U (0.002)
Chlorodibromomethane	0.14											U (0.002)
Chloroethane	---				U (0.002)						U (0.002)	U (0.002)
Chloroform	0.00002	U (0.002)	U (0.002)	U (0.001)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.002)	U (0.002)
Chloromethane	---				U (0.002)						U (0.002)	U (0.002)
cis-1,2-Dichloroethane	---	U (0.001)	U (0.001)	U (0.001)		0.046	U (0.001)	U (0.001)	U (0.001)	U (0.001)		
cis-1,2-Dichloroethene	0.07	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	0.0038	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.002)
cis-1,3-Dichloropropene	0.001				U (0.002)						U (0.002)	U (0.002)
Dibromochloromethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
Dichlorodifluoromethane	1.4*											
Ethylbenzene	0.7	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.002)
Methyl Ethyl Ketone	4.2*				U (0.01)						U (0.01)	U (0.01)
Methylene Chloride	0.005				U (0.002)						U (0.002)	U (0.002)
MTBE	---	U (0.002)	U (0.002)	U (0.002)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)		
Styrene	0.1				U (0.002)						U (0.002)	U (0.002)
Tetrachloroethene	0.005	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Toluene	1	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	0.001	U (0.002)	U (0.002)
trans-1,2-Dichloroethene	0.1				U (0.002)						U (0.002)	U (0.002)
trans-1,3-Dichloropropene	0.001				U (0.002)						U (0.002)	U (0.002)
Trichloroethane	---	U (0.001)	U (0.001)	U (0.001)		0.0012	U (0.001)	U (0.001)	U (0.001)	U (0.001)		
Trichloroethene	0.005	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.002)
Trichlorofluoromethane	2.1*				U (0.002)						U (0.002)	U (0.002)
Vinyl Acetate	7				U (0.002)						U (0.002)	U (0.002)
Vinyl Chloride	0.002	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.002)
Xylenes, Total	10	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	0.003	U (0.001)	U (0.002)	U (0.002)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 13
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 03: UST Excavation 3 UMW-01A (4/15/97)	REC 03: UST Excavation 3 UMW-01A (11/12/98)	REC 03: UST Excavation 3 UMW-01A (8/1/02)	REC 03: UST Excavation 3 UMW-02A (4/15/97)	REC 03: UST Excavation 3 UMW-02A (11/12/98)	REC 03: UST Excavation 3 UMW-02A (8/1/02)	REC 03: UST Excavation 3 UMW-03A (4/15/97)	REC 03: UST Excavation 3 UMW-03A (11/12/98)	REC 03: UST Excavation 3 UMW-08 (1/1/90)	REC 03: UST Excavation 3 UMW-08 (3/7/90)	REC 03: UST Excavation 3 UMW-08 (8/29/90)
1,1,1-Trichloroethane	0.2		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)	U (0.001)	U (0.001)	U (0.001)
1,1,2,2-Tetrachloroethane	---		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)	U (0.002)	U (0.002)	U (0.002)
1,1,2-Trichloroethane	0.005		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)			
1,1-Dichloroethane	0.7		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)	U (0.001)	U (0.001)	U (0.001)
1,1-Dichloroethene	0.007		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)	U (0.001)	U (0.001)	U (0.001)
1,2-Dichlorobenzene	0.6											
1,2-Dichloroethane	0.005		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)			
1,2-Dichloroethene	---									U (0.002)	U (0.002)	U (0.002)
1,2-Dichloropropane	0.005		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)			
1,3-Dichlorobenzene	---											
1,4-Dichlorobenzene	0.075											
2-Chloroethyl Vinyl Ether	---		U (0.01)			U (0.01)			U (0.01)			
2-Hexanone	---		U (0.01)	U (0.01)		U (0.01)	U (0.01)		U (0.01)			
4-Methyl-2-Pentanone	---		U (0.01)	U (0.01)		U (0.01)	U (0.01)		U (0.01)			
Acetone	0.7		U (0.01)	U (0.01)		U (0.01)	U (0.01)		U (0.01)	U (0.01)	U (0.01)	U (0.01)
Benzene	0.005	U (0.001)	U (0.002)	U (0.005)	U (0.001)	U (0.002)	U (0.005)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)
Bromodichloromethane	0.00002		U (0.002)	U (0.001)		U (0.002)	U (0.001)		U (0.002)			
Bromoform	0.0002		U (0.002)	U (0.001)		U (0.002)	U (0.001)		U (0.002)			
Bromomethane	---		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)			
Carbon Disulfide	0.7		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)			
Carbon Tetrachloride	0.005		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)			
Chlorobenzene	0.1		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)			
Chlorodibromomethane	0.14			U (0.001)			U (0.001)					
Chloroethane	---		U (0.002)	U (0.01)		U (0.002)	U (0.01)		U (0.002)			
Chloroform	0.00002		U (0.002)	U (0.001)		U (0.002)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)
Chloromethane	---		U (0.002)	U (0.01)		U (0.002)	U (0.01)		U (0.002)			
cis-1,2-Dichloroethane	---									U (0.001)	U (0.001)	U (0.001)
cis-1,2-Dichloroethene	0.07		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)	U (0.001)	U (0.001)	U (0.001)
cis-1,3-Dichloropropene	0.001		U (0.002)	U (0.001)		U (0.002)	U (0.001)		U (0.002)			
Dibromochloromethane	---		U (0.002)			U (0.002)			U (0.002)	U (0.002)	U (0.002)	U (0.002)
Dichlorodifluoromethane	1.4*											
Ethylbenzene	0.7	U (0.001)	U (0.002)	U (0.005)	U (0.001)	U (0.002)	U (0.005)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)
Methyl Ethyl Ketone	4.2*		U (0.01)	U (0.01)		U (0.01)	U (0.01)		U (0.01)			
Methylene Chloride	0.005		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)			
MTBE	---									U (0.002)	U (0.002)	U (0.002)
Styrene	0.1		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)			
Tetrachloroethene	0.005		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)	U (0.002)	U (0.002)	U (0.002)
Toluene	1	U (0.001)	U (0.002)	U (0.005)	U (0.001)	U (0.002)	U (0.005)	U (0.001)	U (0.002)	0.003	U (0.001)	U (0.001)
trans-1,2-Dichloroethene	0.1		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)			
trans-1,3-Dichloropropene	0.001		U (0.002)	U (0.001)		U (0.002)	U (0.001)		U (0.002)			
Trichloroethane	---									U (0.001)	U (0.001)	U (0.001)
Trichloroethene	0.005		U (0.002)	U (0.005)		U (0.002)	U (0.005)		U (0.002)	U (0.001)	U (0.001)	U (0.001)
Trichlorofluoromethane	2.1*		U (0.002)			U (0.002)			U (0.002)			
Vinyl Acetate	7		U (0.002)	U (0.01)		U (0.002)	U (0.01)		U (0.002)			
Vinyl Chloride	0.002		U (0.002)	U (0.002)		U (0.002)	U (0.002)		U (0.002)	U (0.001)	U (0.001)	U (0.001)
Xylenes, Total	10	U (0.001)	U (0.002)	U (0.005)	U (0.001)	U (0.002)	U (0.005)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 13
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 03: UST Excavation 3 UMW-08 (6/28/91)	REC 03: UST Excavation 3 UMW-08 (10/28/92)	REC 03: UST Excavation 3 UMW-08 (4/14/93)	REC 03: UST Excavation 3 UMW-08 (6/1/94)	REC 03: UST Excavation 3 UMW-08 (4/15/97)	REC 03: UST Excavation 3 UMW-08 (5/6/97)	REC 03: UST Excavation 3 UMW-08 (11/12/98)	REC 03: UST Excavation 3 UMW-08 (8/1/02)	REC 03: UST Excavation 3 UMW-08 (8/29/02)	REC 03: UST Excavation 3 UMW-09 (1/1/90)	REC 03: UST Excavation 3 UMW-09 (3/7/90)
1,1,1-Trichloroethane	0.2	U (0.001)	U (0.001)	U (0.001)				U (0.002)	U (0.005)		U (0.001)	U (0.001)
1,1,2,2-Tetrachloroethane	---	U (0.002)	U (0.002)	U (0.001)				U (0.002)	U (0.005)		U (0.002)	0.3
1,1,2-Trichloroethane	0.005			U (0.001)				U (0.002)	U (0.005)			
1,1-Dichloroethane	0.7	U (0.001)	U (0.001)	U (0.001)				U (0.002)	U (0.005)		U (0.001)	U (0.001)
1,1-Dichloroethene	0.007	U (0.001)	U (0.001)	U (0.001)				U (0.002)	U (0.005)		U (0.001)	U (0.001)
1,2-Dichlorobenzene	0.6			U (0.001)								
1,2-Dichloroethane	0.005			U (0.001)				U (0.002)	U (0.005)			
1,2-Dichloroethene	---	U (0.002)	U (0.002)								U (0.002)	U (0.002)
1,2-Dichloropropane	0.005			U (0.001)				U (0.002)	U (0.005)			
1,3-Dichlorobenzene	---			U (0.001)								
1,4-Dichlorobenzene	0.075			U (0.001)								
2-Chloroethyl Vinyl Ether	---			U (0.001)				U (0.01)				
2-Hexanone	---							U (0.01)	U (0.01)			
4-Methyl-2-Pentanone	---							U (0.01)	U (0.01)			
Acetone	0.7	U (0.01)	U (0.01)					U (0.01)	U (0.01)		U (0.01)	4.1
Benzene	0.005	0.001	U (0.001)	U (0.001)	U (0.001)	0.05	0.016	0.0094	2.28	0.275	5.5	10
Bromodichloromethane	0.00002			U (0.001)				U (0.002)	U (0.001)			
Bromoform	0.0002			U (0.001)				U (0.002)	U (0.001)			
Bromomethane	---			U (0.005)				U (0.002)	U (0.005)			
Carbon Disulfide	0.7							U (0.002)	U (0.005)			
Carbon Tetrachloride	0.005			U (0.001)				U (0.002)	U (0.005)			
Chlorobenzene	0.1			U (0.001)				U (0.002)	U (0.005)			
Chlorodibromomethane	0.14								U (0.001)			
Chloroethane	---			U (0.001)				U (0.002)	U (0.01)			
Chloroform	0.00002	U (0.002)	U (0.002)	U (0.001)				U (0.002)	U (0.001)		U (0.002)	U (0.002)
Chloromethane	---			U (0.005)				U (0.002)	U (0.01)			
cis-1,2-Dichloroethane	---	U (0.001)	U (0.001)								U (0.001)	U (0.001)
cis-1,2-Dichloroethene	0.07	U (0.001)	U (0.001)					U (0.002)	U (0.005)		U (0.001)	U (0.001)
cis-1,3-Dichloropropene	0.001			U (0.001)				U (0.002)	U (0.001)			
Dibromochloromethane	---	U (0.002)	U (0.002)	U (0.001)				U (0.002)			U (0.002)	U (0.002)
Dichlorodifluoromethane	1.4*			U (0.001)								
Ethylbenzene	0.7	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.005)	U (0.005)	5.7	3.6
Methyl Ethyl Ketone	4.2*							U (0.01)	U (0.01)			
Methylene Chloride	0.005			U (0.005)				U (0.002)	U (0.005)			
MTBE	---	U (0.002)	U (0.002)								U (0.002)	U (0.002)
Styrene	0.1							U (0.002)	U (0.005)			
Tetrachloroethene	0.005	U (0.002)	U (0.002)	U (0.001)				U (0.002)	U (0.005)		U (0.002)	U (0.002)
Toluene	1	0.001	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.005)	U (0.005)	30	25
trans-1,2-Dichloroethene	0.1			U (0.001)				U (0.002)	U (0.005)			
trans-1,3-Dichloropropene	0.001			U (0.001)				U (0.002)	U (0.001)			
Trichloroethane	---	U (0.001)	U (0.001)								U (0.001)	U (0.001)
Trichloroethene	0.005	U (0.001)	U (0.001)	U (0.001)				U (0.002)	U (0.005)		U (0.001)	U (0.001)
Trichlorofluoromethane	2.1*			U (0.005)				U (0.002)				
Vinyl Acetate	7							U (0.002)	U (0.01)			
Vinyl Chloride	0.002	U (0.001)	U (0.001)	U (0.005)				U (0.002)	U (0.002)		U (0.001)	U (0.001)
Xylenes, Total	10	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.005)	U (0.005)	62	25.8

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 13
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 03: UST Excavation 3 UMW-09 (8/29/90)	REC 03: UST Excavation 3 UMW-09 (6/28/91)	REC 03: UST Excavation 3 UMW-09 (4/14/93)	REC 03: UST Excavation 3 UMW-09 (8/11/93)	REC 03: UST Excavation 3 UMW-09 (6/24/94)	REC 03: UST Excavation 3 UMW-09 (11/12/98)	REC 03: UST Excavation 3 UMW-09 (8/1/02)	REC 03: UST Excavation 3 UMW-10 (1/1/90)	REC 03: UST Excavation 3 UMW-10 (3/7/90)	REC 03: UST Excavation 3 UMW-10 (8/29/90)	REC 03: UST Excavation 3 UMW-10 (6/28/91)
1,1,1-Trichloroethane	0.2	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.005)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
1,1,2,2-Tetrachloroethane	---	U (0.002)	U (0.002)	U (0.001)	U (0.002)		U (0.002)	U (0.005)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
1,1,2-Trichloroethane	0.005			U (0.001)			U (0.002)	U (0.005)				
1,1-Dichloroethane	0.7	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.005)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
1,1-Dichloroethene	0.007	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.005)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
1,2-Dichlorobenzene	0.6			U (0.001)								
1,2-Dichloroethane	0.005			U (0.001)			U (0.002)	U (0.005)				
1,2-Dichloroethene	---	U (0.002)	U (0.002)		U (0.001)				U (0.002)	U (0.002)	U (0.002)	U (0.002)
1,2-Dichloropropane	0.005			U (0.001)			U (0.002)	U (0.005)				
1,3-Dichlorobenzene	---			U (0.001)								
1,4-Dichlorobenzene	0.075			U (0.001)								
2-Chloroethyl Vinyl Ether	---			U (0.001)			U (0.01)					
2-Hexanone	---						U (0.01)	U (0.01)				
4-Methyl-2-Pentanone	---						U (0.01)	U (0.01)				
Acetone	0.7	U (0.01)	U (0.01)				U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Benzene	0.005	4.4	4.96	2.5	4.575	3.8	2.8	2.82	2.2	6.6	1.9	9.03
Bromodichloromethane	0.00002			U (0.001)			U (0.002)	U (0.001)				
Bromoform	0.0002			U (0.001)			U (0.002)	U (0.001)				
Bromomethane	---			U (0.005)			U (0.002)	U (0.005)				
Carbon Disulfide	0.7						U (0.002)	U (0.005)				
Carbon Tetrachloride	0.005			U (0.001)			U (0.002)	U (0.005)				
Chlorobenzene	0.1			U (0.001)			U (0.002)	U (0.005)				
Chlorodibromomethane	0.14							U (0.001)				
Chloroethane	---			U (0.001)			U (0.002)	U (0.01)				
Chloroform	0.00002	U (0.002)	U (0.002)	U (0.001)	U (0.001)		U (0.002)	U (0.001)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Chloromethane	---			U (0.005)			U (0.002)	U (0.01)				
cis-1,2-Dichloroethane	---	U (0.001)	U (0.001)		U (0.001)				U (0.001)	U (0.001)	U (0.001)	U (0.001)
cis-1,2-Dichloroethene	0.07	U (0.001)	U (0.001)		U (0.001)		U (0.002)	U (0.005)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
cis-1,3-Dichloropropene	0.001			U (0.001)			U (0.002)	U (0.001)				
Dibromochloromethane	---	U (0.002)	U (0.002)	U (0.001)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)	U (0.002)
Dichlorodifluoromethane	1.4*			U (0.001)								
Ethylbenzene	0.7	1.6	1.2	0.34	0.775	U (0.1)	0.42	0.562	0.88	3.1	U (0.001)	5.05
Methyl Ethyl Ketone	4.2*			U (0.001)			U (0.01)	U (0.01)				
Methylene Chloride	0.005			U (0.005)			U (0.002)	U (0.005)				
MTBE	---	U (0.002)	U (0.002)		U (0.002)				U (0.002)	U (0.002)	U (0.002)	U (0.002)
Styrene	0.1						U (0.002)	U (0.005)				
Tetrachloroethene	0.005	U (0.002)	U (0.002)	U (0.001)	U (0.002)		U (0.002)	U (0.005)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Toluene	1	9	8.976	2.9	5.055	1.5	3.8	8.96	3.5	24	0.82	27.41
trans-1,2-Dichloroethene	0.1			U (0.001)			U (0.002)	U (0.005)				
trans-1,3-Dichloropropene	0.001			U (0.001)			U (0.002)	U (0.001)				
Trichloroethane	---	U (0.001)	U (0.001)		U (0.001)				U (0.001)	U (0.001)	U (0.001)	U (0.001)
Trichloroethene	0.005	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.005)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Trichlorofluoromethane	2.1*			U (0.005)			U (0.002)					
Vinyl Acetate	7						U (0.002)	U (0.01)				
Vinyl Chloride	0.002	U (0.001)	U (0.001)	U (0.005)	U (0.001)		U (0.002)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Xylenes, Total	10	10.9	U (0.001)	2.2	5.725	6.3	2.4	1.89	10.8	18.1	2.32	U (0.001)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 13
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 03: UST Excavation 3 UMW-10 (10/28/92)	REC 03: UST Excavation 3 UMW-10 (4/14/93)	REC 03: UST Excavation 3 UMW-10 (9/16/93)	REC 03: UST Excavation 3 UMW-10 (6/24/94)	REC 03: UST Excavation 3 UMW-10 (11/12/98)	REC 03: UST Excavation 3 UMW-10 (8/1/02)	REC 03: UST Excavation 3 UMW-26 (7/12/99)	REC 03: UST Excavation 3 UMW-26 (3/5/99)	REC 03: UST Excavation 3 UMW-26 (10/3/00)	REC 03: UST Excavation 3 UMW-26 (8/1/02)	REC 03: UST Excavation 3 GT-2 (11/9/98)	REC 03: UST Excavation 3 T-039-GW (4/27/00)
1,1,1-Trichloroethane	0.2	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.005)	0.045	U (0.002)	U (0.005)	U (0.005)	U (0.002)	
1,1,2,2-Tetrachloroethane	---	U (0.002)	U (0.001)	U (0.001)		U (0.002)	U (0.005)	U (0.02)	U (0.002)	U (0.005)	U (0.005)	U (0.002)	
1,1,2-Trichloroethane	0.005		U (0.001)	U (0.001)		U (0.002)	U (0.005)	U (0.02)	U (0.002)	U (0.005)	U (0.005)	U (0.002)	
1,1-Dichloroethane	0.7	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.005)	U (0.02)	U (0.002)	U (0.005)	U (0.005)	U (0.002)	
1,1-Dichloroethene	0.007	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.005)	U (0.02)	U (0.002)	U (0.005)	U (0.005)	U (0.002)	
1,2-Dichlorobenzene	0.6		U (0.001)	U (0.001)									
1,2-Dichloroethane	0.005		U (0.001)	U (0.001)		U (0.002)	U (0.005)	U (0.02)	U (0.002)	U (0.005)	U (0.005)	0.042	
1,2-Dichloroethene	---	U (0.002)											
1,2-Dichloropropane	0.005		U (0.001)	U (0.001)		U (0.002)	U (0.005)	U (0.02)	U (0.002)	U (0.005)	U (0.005)	U (0.002)	
1,3-Dichlorobenzene	---		U (0.001)	U (0.001)									
1,4-Dichlorobenzene	0.075		U (0.001)	U (0.001)									
2-Chloroethyl Vinyl Ether	---		U (0.001)	U (0.001)		U (0.01)		U (0.1)	U (0.01)			U (0.01)	
2-Hexanone	---					U (0.01)	U (0.01)	U (0.1)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	
4-Methyl-2-Pentanone	---					U (0.01)	U (0.01)	U (0.1)	U (0.01)	U (0.005)	U (0.01)	U (0.01)	
Acetone	0.7	U (0.01)				U (0.01)	U (0.01)	0.21B	U (0.01)	U (0.01)	U (0.01)	U (0.01)	
Benzene	0.005	0.285	2.6	3.25	1.4	0.73	0.511	4.4	3.2	1.22	3.48	1.7	0.25
Bromodichloromethane	0.00002		U (0.001)	U (0.001)		U (0.002)	U (0.001)	U (0.02)	U (0.002)	U (0.005)	U (0.001)	U (0.002)	
Bromoform	0.0002		U (0.001)	U (0.001)		U (0.002)	U (0.001)	U (0.02)	U (0.002)	U (0.005)	U (0.001)	U (0.002)	
Bromomethane	---		U (0.005)	U (0.001)		U (0.002)	U (0.005)	U (0.02)	U (0.002)	U (0.01)	U (0.005)	U (0.002)	
Carbon Disulfide	0.7					U (0.002)	U (0.005)	U (0.02)	U (0.002)	U (0.005)	U (0.005)	U (0.002)	
Carbon Tetrachloride	0.005		U (0.001)	U (0.001)		U (0.002)	U (0.005)	U (0.02)	U (0.002)	U (0.005)	U (0.005)	U (0.002)	
Chlorobenzene	0.1		U (0.001)	U (0.001)		U (0.002)	U (0.005)	U (0.02)	U (0.002)	U (0.005)	U (0.005)	U (0.002)	
Chlorodibromomethane	0.14						U (0.001)	U (0.02)	U (0.002)	U (0.005)	U (0.001)		
Chloroethane	---		U (0.001)	U (0.001)		U (0.002)	U (0.01)	U (0.02)	U (0.002)	U (0.01)	U (0.01)	U (0.002)	
Chloroform	0.00002	U (0.002)	U (0.001)	U (0.001)		U (0.002)	U (0.001)	U (0.02)	U (0.002)	U (0.005)	U (0.001)	U (0.002)	
Chloromethane	---		U (0.005)	U (0.001)		U (0.002)	U (0.01)	U (0.02)	U (0.002)	U (0.01)	U (0.01)	U (0.002)	
cis-1,2-Dichloroethane	---	U (0.001)											
cis-1,2-Dichloroethene	0.07	U (0.001)				U (0.002)	U (0.005)	U (0.02)	U (0.002)	U (0.005)	U (0.005)	U (0.002)	
cis-1,3-Dichloropropene	0.001		U (0.001)	U (0.001)		U (0.002)	U (0.001)	U (0.02)	U (0.002)	U (0.005)	U (0.001)	U (0.002)	
Dibromochloromethane	---	U (0.002)	U (0.001)	U (0.001)		U (0.002)						U (0.002)	
Dichlorodifluoromethane	1.4*		U (0.001)	U (0.001)									
Ethylbenzene	0.7	U (0.001)	1.3	1.56	U (0.1)	0.81	1.15	0.82	0.88	0.239	0.518	0.024	0.018
Methyl Ethyl Ketone	4.2*		U (0.001)			U (0.01)	U (0.01)	U (0.1)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	
Methylene Chloride	0.005		U (0.005)	U (0.001)		U (0.002)	U (0.005)	U (0.02)	U (0.002)	U (0.005)	U (0.005)	U (0.002)	
MTBE	---	0.118											
Styrene	0.1					U (0.002)	U (0.005)	U (0.02)	U (0.002)	U (0.005)	U (0.005)	U (0.002)	
Tetrachloroethene	0.005	U (0.002)	U (0.001)	U (0.001)		U (0.002)	U (0.005)	U (0.02)	U (0.002)	U (0,002)	U (0.005)	U (0.002)	
Toluene	1	0.387	7.3	5.17	1.9	3.1	2.13	3.2	3.5	0.114	0.106	0.11	0.0048
trans-1,2-Dichloroethene	0.1		U (0.001)	U (0.001)		U (0.002)	U (0.005)	U (0.02)	U (0.002)	U (0.005)	U (0.005)	U (0.002)	
trans-1,3-Dichloropropene	0.001		U (0.001)	U (0.001)		U (0.002)	U (0.001)	U (0.02)	U (0.002)	U (0.005)	U (0.001)	U (0.002)	
Trichloroethane	---	U (0.001)											
Trichloroethene	0.005	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.005)	0.079	U (0.002)	U (0.005)	U (0.005)	U (0.002)	
Trichlorofluoromethane	2.1*		U (0.005)	U (0.001)		U (0.002)		U (0.02)	U (0.002)			U (0.002)	
Vinyl Acetate	7					U (0.002)	U (0.01)	U (0.02)	U (0.002)	U (0.01)	U (0.01)	U (0.002)	
Vinyl Chloride	0.002	U (0.001)	U (0.005)	U (0.001)		U (0.002)	U (0.002)	U (0.02)	U (0.002)	U (0.01)	U (0.002)	U (0.002)	
Xylenes, Total	10	1.137	4.5	7.31	6.4	5.3	3.46	1.7	4.1	0.834	0.811	0.086	0.02

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 13
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 03: UST Excavation 3 TA3-1 (11/4/98)	REC 03: UST Excavation 3 TA3-2 (11/4/98)	REC 03: UST Excavation 3 TA3-3 (11/4/98)	REC 03: UST Excavation 3 TA3-4 (11/4/98)	REC 03: UST Excavation 3 TA3-8 (11/4/98)	REC 03: UST Excavation 3 TA3-9 (11/9/98)	REC 04: UST Excavation 4 STF-3 (11/12/98)	REC 04: UST Excavation 4 UMW-04 (1/1/90)	REC 04: UST Excavation 4 UMW-04 (10/28/92)	REC 04: UST Excavation 4 UMW-04 (3/7/90)	REC 04: UST Excavation 4 UMW-04 (8/29/90)
1,1,1-Trichloroethane	0.2	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
1,1,2,2-Tetrachloroethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
1,1,2-Trichloroethane	0.005	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
1,1-Dichloroethane	0.7	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
1,1-Dichloroethene	0.007	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
1,2-Dichlorobenzene	0.6											
1,2-Dichloroethane	0.005	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
1,2-Dichloroethene	---								U (0.002)	U (0.002)	U (0.002)	U (0.002)
1,2-Dichloropropane	0.005	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
1,3-Dichlorobenzene	---											
1,4-Dichlorobenzene	0.075											
2-Chloroethyl Vinyl Ether	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)				
2-Hexanone	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)				
4-Methyl-2-Pentanone	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)				
Acetone	0.7	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Benzene	0.005	1.8	0.097	0.67	0.084	0.002	U (0.002)	U (0.002)	0.025	0.001	U (0.001)	U (0.001)
Bromodichloromethane	0.00002	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
Bromoform	0.0002	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
Bromomethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
Carbon Disulfide	0.7	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
Carbon Tetrachloride	0.005	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
Chlorobenzene	0.1	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
Chlorodibromomethane	0.14											
Chloroethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
Chloroform	0.00002	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Chloromethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
cis-1,2-Dichloroethane	---								U (0.001)	U (0.001)	U (0.001)	U (0.001)
cis-1,2-Dichloroethene	0.07	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
cis-1,3-Dichloropropene	0.001	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
Dibromochloromethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Dichlorodifluoromethane	1.4*											
Ethylbenzene	0.7	7.6	0.2	0.011	0.0026	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Methyl Ethyl Ketone	4.2*	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)				
Methylene Chloride	0.005	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
MTBE	---								U (0.002)	U (0.002)	U (0.002)	U (0.002)
Styrene	0.1	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
Tetrachloroethene	0.005	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Toluene	1	3.5	0.34	0.0048	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
trans-1,2-Dichloroethene	0.1	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
trans-1,3-Dichloropropene	0.001	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
Trichloroethane	---								U (0.001)	U (0.001)	U (0.001)	U (0.001)
Trichloroethene	0.005	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Trichlorofluoromethane	2.1*	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
Vinyl Acetate	7	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)				
Vinyl Chloride	0.002	U (0.002)	U (0.002)	U (0.002)	U (0.002)	0.0027	U (0.002)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Xylenes, Total	10	5.4	0.93	0.0065	0.003	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 13
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 04: UST Excavation 4 UMW-04 (6/28/91)	REC 04: UST Excavation 4 UMW-04 (4/12/93)	REC 04: UST Excavation 4 UMW-04 (11/16/98)	REC 04: UST Excavation 4 UMW-05 (1/1/90)	REC 04: UST Excavation 4 UMW-05 (3/7/90)	REC 04: UST Excavation 4 UMW-05 (8/29/90)	REC 04: UST Excavation 4 UMW-05 (11/13/98)	REC 04: UST Excavation 4 UMW-06 (1/1/90)	REC 04: UST Excavation 4 UMW-06 (3/7/90)	REC 04: UST Excavation 4 UMW-06 (8/29/90)	REC 04: UST Excavation 4 UMW-06 (6/28/91)
1,1,1-Trichloroethane	0.2	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
1,1,2,2-Tetrachloroethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
1,1,2-Trichloroethane	0.005			U (0.002)				U (0.002)				
1,1-Dichloroethane	0.7	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
1,1-Dichloroethene	0.007	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
1,2-Dichlorobenzene	0.6											
1,2-Dichloroethane	0.005			U (0.002)				U (0.002)				
1,2-Dichloroethene	---	U (0.002)	U (0.001)		U (0.002)	U (0.002)	U (0.002)		U (0.002)	U (0.002)	U (0.002)	U (0.002)
1,2-Dichloropropane	0.005			U (0.002)				U (0.002)				
1,3-Dichlorobenzene	---											
1,4-Dichlorobenzene	0.075											
2-Chloroethyl Vinyl Ether	---			U (0.01)				U (0.01)				
2-Hexanone	---			U (0.01)				U (0.01)				
4-Methyl-2-Pentanone	---			U (0.01)				U (0.01)				
Acetone	0.7	U (0.01)		U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Benzene	0.005	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	0.001
Bromodichloromethane	0.00002			U (0.002)				U (0.002)				
Bromoform	0.0002			U (0.002)				U (0.002)				
Bromomethane	---			U (0.002)				U (0.002)				
Carbon Disulfide	0.7			U (0.002)				U (0.002)				
Carbon Tetrachloride	0.005			U (0.002)				U (0.002)				
Chlorobenzene	0.1			U (0.002)				U (0.002)				
Chlorodibromomethane	0.14			U (0.002)								
Chloroethane	---			U (0.002)				U (0.002)				
Chloroform	0.00002	U (0.002)	U (0.001)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Chloromethane	---			U (0.002)				U (0.002)				
cis-1,2-Dichloroethane	---	U (0.001)	U (0.001)		U (0.001)	U (0.001)	U (0.001)		U (0.001)	U (0.001)	U (0.001)	U (0.001)
cis-1,2-Dichloroethene	0.07	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
cis-1,3-Dichloropropene	0.001			U (0.002)				U (0.002)				
Dibromochloromethane	---	U (0.002)	U (0.002)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Dichlorodifluoromethane	1.4*											
Ethylbenzene	0.7	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	0.0055	U (0.001)	0.066	U (0.001)	0.012
Methyl Ethyl Ketone	4.2*			U (0.01)				U (0.01)				
Methylene Chloride	0.005			U (0.002)				U (0.002)				
MTBE	---	U (0.002)	U (0.002)		U (0.002)	U (0.002)	U (0.002)		U (0.002)	U (0.002)	U (0.002)	U (0.002)
Styrene	0.1			U (0.002)				U (0.002)				
Tetrachloroethene	0.005	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Toluene	1	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	0.018	12	U (0.001)	2.4
trans-1,2-Dichloroethene	0.1			U (0.002)				U (0.002)				
trans-1,3-Dichloropropene	0.001			U (0.002)				U (0.002)				
Trichloroethane	---	U (0.001)	U (0.001)		U (0.001)	U (0.001)	U (0.001)		U (0.001)	U (0.001)	U (0.001)	U (0.001)
Trichloroethene	0.005	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Trichlorofluoromethane	2.1*			U (0.002)				U (0.002)				
Vinyl Acetate	7			U (0.002)				U (0.002)				
Vinyl Chloride	0.002	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Xylenes, Total	10	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	0.32	U (0.001)	U (0.001)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 13
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 04: UST Excavation 4 UMW-06 (10/28/92)	REC 04: UST Excavation 4 UMW-06 (4/12/93)	REC 04: UST Excavation 4 UMW-06 (8/11/93)	REC 04: UST Excavation 4 UMW-06 (9/16/93)	REC 04: UST Excavation 4 UMW-06 (6/1/94)	REC 04: UST Excavation 4 UMW-06 (11/16/98)	REC 04: UST Excavation 4 UMW-07 (1/1/90)	REC 04: UST Excavation 4 UMW-07 (3/7/90)	REC 04: UST Excavation 4 UMW-07 (8/29/90)	REC 04: UST Excavation 4 UMW-07 (6/28/91)	REC 04: UST Excavation 4 UMW-07 (10/28/92)
1,1,1-Trichloroethane	0.2	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
1,1,2,2-Tetrachloroethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
1,1,2-Trichloroethane	0.005				U (0.001)		U (0.002)					
1,1-Dichloroethane	0.7	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
1,1-Dichloroethene	0.007	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
1,2-Dichlorobenzene	0.6				U (0.001)							
1,2-Dichloroethane	0.005				U (0.001)		U (0.002)					
1,2-Dichloroethene	---	U (0.002)	U (0.001)	U (0.001)				U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
1,2-Dichloropropane	0.005				U (0.001)		U (0.002)					
1,3-Dichlorobenzene	---				U (0.001)							
1,4-Dichlorobenzene	0.075				U (0.001)							
2-Chloroethyl Vinyl Ether	---				U (0.001)		U (0.01)					
2-Hexanone	---						U (0.01)					
4-Methyl-2-Pentanone	---						U (0.01)					
Acetone	0.7	U (0.01)					U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Benzene	0.005	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	0.001	0.003
Bromodichloromethane	0.00002				U (0.001)		U (0.002)					
Bromoform	0.0002				U (0.001)		U (0.002)					
Bromomethane	---				U (0.001)		U (0.002)					
Carbon Disulfide	0.7						U (0.002)					
Carbon Tetrachloride	0.005				U (0.001)		U (0.002)					
Chlorobenzene	0.1				U (0.001)		U (0.002)					
Chlorodibromomethane	0.14											
Chloroethane	---				U (0.001)		U (0.002)					
Chloroform	0.00002	U (0.002)	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Chloromethane	---				U (0.001)		U (0.002)					
cis-1,2-Dichloroethane	---	U (0.001)	U (0.001)	U (0.001)				U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
cis-1,2-Dichloroethene	0.07	U (0.001)	U (0.001)	U (0.001)			U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
cis-1,3-Dichloropropene	0.001				U (0.001)		U (0.002)					
Dibromochloromethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Dichlorodifluoromethane	1.4*				U (0.001)							
Ethylbenzene	0.7	U (0.001)	0.001	0.021	0.021	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Methyl Ethyl Ketone	4.2*						U (0.01)					
Methylene Chloride	0.005				U (0.001)		U (0.002)					
MTBE	---	U (0.002)	U (0.002)	U (0.002)				U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Styrene	0.1						U (0.002)					
Tetrachloroethene	0.005	U (0.002)	U (0.002)	U (0.002)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Toluene	1	17.627	0.006	2.51	2.51	U (0.001)	U (0.002)	U (0.001)	200	U (0.001)	0.041	U (0.001)
trans-1,2-Dichloroethene	0.1				U (0.001)		U (0.002)					
trans-1,3-Dichloropropene	0.001				U (0.001)		U (0.002)					
Trichloroethane	---	U (0.001)	U (0.001)	U (0.001)				U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Trichloroethene	0.005	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Trichlorofluoromethane	2.1*				U (0.001)		U (0.002)					
Vinyl Acetate	7						U (0.002)					
Vinyl Chloride	0.002	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Xylenes, Total	10	U (0.001)	0.006	0.086	0.086	U (0.001)	U (0.002)	U (0.001)	2.2	U (0.001)	U (0.001)	U (0.001)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 13
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 04: UST Excavation 4 UMW-07 (4/12/93)	REC 04: UST Excavation 4 UMW-07 (8/11/93)	REC 04: UST Excavation 4 UMW-07 (9/16/93)	REC 04: UST Excavation 4 UMW-07 (6/1/94)	REC 04: UST Excavation 4 UMW-07 (11/13/98)	REC 05: UST Excavation 5 C-1 (11/17/98)	REC 05: UST Excavation 5 C-2 (11/17/98)	REC 05: UST Excavation 5 CD-1 (11/12/98)	REC 05: UST Excavation 5 TP-1 (11/10/98)	REC 05: UST Excavation 5 TP-7 (11/11/98)	REC 05: UST Excavation 5 UMW-11 (1/1/90)
1,1,1-Trichloroethane	0.2	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)
1,1,2,2-Tetrachloroethane	---	U (0.002)	U (0.002)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
1,1,2-Trichloroethane	0.005			U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
1,1-Dichloroethane	0.7	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)
1,1-Dichloroethene	0.007	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)
1,2-Dichlorobenzene	0.6			U (0.001)								
1,2-Dichloroethane	0.005			U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
1,2-Dichloroethene	---	U (0.001)	U (0.001)									U (0.002)
1,2-Dichloropropane	0.005			U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
1,3-Dichlorobenzene	---			U (0.001)								
1,4-Dichlorobenzene	0.075			U (0.001)								
2-Chloroethyl Vinyl Ether	---			U (0.001)		U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	
2-Hexanone	---					U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	
4-Methyl-2-Pentanone	---					U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	
Acetone	0.7					U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)
Benzene	0.005	0.001	U (0.001)	U (0.001)	U (0.001)	U (0.002)	0.011	U (0.002)	0.0033	U (0.002)	0.0069	0.036
Bromodichloromethane	0.00002			U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
Bromoform	0.0002			U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
Bromomethane	---			U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
Carbon Disulfide	0.7					U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
Carbon Tetrachloride	0.005			U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
Chlorobenzene	0.1			U (0.001)		U (0.002)	0.044	0.002	U (0.002)	U (0.002)	U (0.002)	
Chlorodibromomethane	0.14						U (0.002)	U (0.002)				
Chloroethane	---			U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
Chloroform	0.00002	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Chloromethane	---			U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
cis-1,2-Dichloroethane	---	U (0.001)	U (0.001)									U (0.001)
cis-1,2-Dichloroethene	0.07	U (0.001)	U (0.001)			U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)
cis-1,3-Dichloropropene	0.001			U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
Dibromochloromethane	---	U (0.002)	U (0.002)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Dichlorodifluoromethane	1.4*			U (0.001)								
Ethylbenzene	0.7	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.002)	0.055	0.0042	0.1	0.0028	0.1	0.79
Methyl Ethyl Ketone	4.2*					U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	
Methylene Chloride	0.005			U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
MTBE	---	U (0.002)	U (0.002)									U (0.002)
Styrene	0.1					U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
Tetrachloroethene	0.005	U (0.002)	U (0.002)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Toluene	1	0.002	0.018	0.018	U (0.001)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	0.18
trans-1,2-Dichloroethene	0.1			U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
trans-1,3-Dichloropropene	0.001			U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
Trichloroethane	---	U (0.001)	U (0.001)									U (0.001)
Trichloroethene	0.005	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)
Trichlorofluoromethane	2.1*			U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
Vinyl Acetate	7					U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
Vinyl Chloride	0.002	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)
Xylenes, Total	10	0.001	0.001	0.001	0.001	U (0.002)	0.036	0.004	0.31	0.011	0.2	3.9

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 13
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 05: UST Excavation 5 UMW-11 (3/7/90)	REC 05: UST Excavation 5 UMW-11 (8/29/90)	REC 05: UST Excavation 5 UMW-11 (6/28/91)	REC 05: UST Excavation 5 UMW-11 (10/28/92)	REC 05: UST Excavation 5 UMW-11 (11/1/95)	REC 05: UST Excavation 5 UMW-12 (1/1/90)	REC 05: UST Excavation 5 UMW-12 (3/7/90)	REC 05: UST Excavation 5 UMW-12 (8/29/90)	REC 05: UST Excavation 5 UMW-12 (6/28/91)	REC 05: UST Excavation 5 UMW-12 (10/28/92)	REC 05: UST Excavation 5 UMW-12 (6/1/94)
1,1,1-Trichloroethane	0.2	U (0.001)		U (0.001)	U (0.001)		U (0.001)	U (0.001)		U (0.001)	U (0.001)	
1,1,2,2-Tetrachloroethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
1,1,2-Trichloroethane	0.005											
1,1-Dichloroethane	0.7	U (0.001)		U (0.001)	U (0.001)		U (0.001)	U (0.001)		U (0.001)	U (0.001)	
1,1-Dichloroethene	0.007	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	
1,2-Dichlorobenzene	0.6											
1,2-Dichloroethane	0.005											
1,2-Dichloroethene	---	U (0.002)		U (0.002)	U (0.002)		U (0.002)	U (0.002)		U (0.002)	U (0.002)	
1,2-Dichloropropane	0.005											
1,3-Dichlorobenzene	---											
1,4-Dichlorobenzene	0.075											
2-Chloroethyl Vinyl Ether	---											
2-Hexanone	---											
4-Methyl-2-Pentanone	---											
Acetone	0.7	U (0.01)	U (0.01)	U (0.01)	U (0.01)		U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	
Benzene	0.005	U (0.001)		U (0.001)	U (0.001)	0.009	0.028	U (0.001)		U (0.001)	U (0.001)	0.003
Bromodichloromethane	0.00002											
Bromoform	0.0002											
Bromomethane	---											
Carbon Disulfide	0.7											
Carbon Tetrachloride	0.005											
Chlorobenzene	0.1											
Chlorodibromomethane	0.14											
Chloroethane	---											
Chloroform	0.00002	U (0.002)		U (0.002)	U (0.002)		U (0.002)	U (0.002)		U (0.002)	U (0.002)	
Chloromethane	---											
cis-1,2-Dichloroethane	---	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	
cis-1,2-Dichloroethene	0.07	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	
cis-1,3-Dichloropropene	0.001											
Dibromochloromethane	---	U (0.002)		U (0.002)	U (0.002)		U (0.002)	U (0.002)		U (0.002)	U (0.002)	
Dichlorodifluoromethane	1.4*											
Ethylbenzene	0.7			1.9	1.276	0.039	0.84	U (0.001)		U (0.001)	0.158	U (0.001)
Methyl Ethyl Ketone	4.2*											
Methylene Chloride	0.005											
MTBE	---	U (0.002)		U (0.002)	U (0.002)		U (0.002)	U (0.002)		U (0.002)	U (0.002)	
Styrene	0.1											
Tetrachloroethene	0.005	U (0.002)	U (0.002)	U (0.002)	U (0.002)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	
Toluene	1	U (0.001)		2.1	U (0.001)	0.007	0.18	U (0.001)		U (0.001)	0.051	U (0.001)
trans-1,2-Dichloroethene	0.1											
trans-1,3-Dichloropropene	0.001											
Trichloroethane	---	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	
Trichloroethene	0.005	U (0.001)		0.17	U (0.001)		U (0.001)	U (0.001)		U (0.001)	U (0.001)	
Trichlorofluoromethane	2.1*											
Vinyl Acetate	7											
Vinyl Chloride	0.002	U (0.001)		U (0.001)	U (0.001)		U (0.001)	U (0.001)		U (0.001)	U (0.001)	
Xylenes, Total	10	U (0.001)		U (0.001)	16.138	0.164	4	U (0.001)		U (0.001)	1.931	0.005

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 13
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 05: UST Excavation 5 UMW-12 (11/1/95)	REC 05: UST Excavation 5 UMW-24 (1/12/99)	REC 11: UST Excavation 11 IMS-3 (11/9/98)	REC 12: Solvent Recovery Room 02-12 (8/29/02)	REC 12: Solvent Recovery Room 02-15 (8/28/02)	REC 12: Solvent Recovery Room 02-16 (8/28/02)	REC 12: Solvent Recovery Room 02-18 (8/28/02)	REC 12: Solvent Recovery Room A-1 (11/17/98)	REC 12: Solvent Recovery Room A-2 (11/17/98)	REC 12: Solvent Recovery Room UMW-25 (1/12/99)	REC 12: Solvent Recovery Room UMW-25 (3/5/99)
1,1,1-Trichloroethane	0.2		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
1,1,2,2-Tetrachloroethane	---		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
1,1,2-Trichloroethane	0.005		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
1,1-Dichloroethane	0.7		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
1,1-Dichloroethene	0.007		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
1,2-Dichlorobenzene	0.6											
1,2-Dichloroethane	0.005		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
1,2-Dichloroethene	---											
1,2-Dichloropropane	0.005		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
1,3-Dichlorobenzene	---											
1,4-Dichlorobenzene	0.075											
2-Chloroethyl Vinyl Ether	---		U (0.1)	U (0.01)					U (0.01)	U (0.01)	U (0.1)	U (0.01)
2-Hexanone	---		U (0.1)	U (0.01)					U (0.01)	U (0.01)	U (0.1)	U (0.01)
4-Methyl-2-Pentanone	---		U (0.1)	U (0.01)					U (0.01)	U (0.01)	U (0.1)	U (0.01)
Acetone	0.7		U (0.1)	U (0.01)					U (0.01)	U (0.01)	U (0.1)	U (0.01)
Benzene	0.005	U (0.001)	U (0.02)	U (0.002)	U (0.005)	U (0.005)	U (0.005)	0.0424	U (0.002)	0.013	U (0.02)	U (0.002)
Bromodichloromethane	0.00002		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
Bromoform	0.0002		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
Bromomethane	---		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
Carbon Disulfide	0.7		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
Carbon Tetrachloride	0.005		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
Chlorobenzene	0.1		U (0.02)	U (0.002)					U (0.002)	0.005	U (0.02)	U (0.002)
Chlorodibromomethane	0.14		U (0.02)						U (0.002)	U (0.002)	U (0.02)	U (0.002)
Chloroethane	---		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
Chloroform	0.00002		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
Chloromethane	---		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
cis-1,2-Dichloroethane	---											
cis-1,2-Dichloroethene	0.07		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
cis-1,3-Dichloropropene	0.001		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
Dibromochloromethane	---			U (0.002)								
Dichlorodifluoromethane	1.4*											
Ethylbenzene	0.7	0.023	0.029	U (0.002)	U (0.005)	U (0.005)	0.0982	0.181	U (0.002)	0.84	0.12	0.12
Methyl Ethyl Ketone	4.2*		U (0.1)	U (0.01)					U (0.01)	U (0.01)	U (0.1)	U (0.01)
Methylene Chloride	0.005		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
MTBE	---											
Styrene	0.1		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
Tetrachloroethene	0.005		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
Toluene	1	U (0.001)	U (0.02)	U (0.002)	U (0.005)	U (0.005)	U (0.005)	63.9	U (0.002)	U (0.002)	0.088	0.0075
trans-1,2-Dichloroethene	0.1		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
trans-1,3-Dichloropropene	0.001		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
Trichloroethane	---											
Trichloroethene	0.005		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
Trichlorofluoromethane	2.1*		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
Vinyl Acetate	7		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
Vinyl Chloride	0.002		U (0.02)	U (0.002)					U (0.002)	U (0.002)	U (0.02)	U (0.002)
Xylenes, Total	10	0.018	U (0.02)	U (0.002)	0.0158	0.147	0.109	0.579	U (0.002)	0.99	0.96	U (0.002)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 13
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 12: Solvent Recovery Room UMW-27 (1/12/99)	REC 12: Solvent Recovery Room UMW-27 (8/1/02)	REC 12: Solvent Recovery Room UMW-29 (8/1/02)	REC 12: Solvent Recovery Room UMW-30 (8/1/02)	REC 14: Tank 30 UST T-28 (7/9/02)	REC 16: Bldg E Kero Pits J-21-G (12/16/98)	REC 16: Bldg E Kero Pits TP-B (11/19/98)	REC 16: Bldg E Kero Pits UMW-22 (10/28/92)	REC 16: Bldg E Kero Pits UMW-22 (4/12/93)	REC 16: Bldg E Kero Pits UMW-22 (6/1/94)	REC 16: Bldg E Kero Pits UMW-23 (10/28/92)
1,1,1-Trichloroethane	0.2	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)	U (0.001)	U (0.001)		U (0.001)
1,1,2,2-Tetrachloroethane	---	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)	U (0.002)	U (0.002)		U (0.002)
1,1,2-Trichloroethane	0.005	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)				
1,1-Dichloroethane	0.7	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)	0.002	U (0.001)		U (0.001)
1,1-Dichloroethene	0.007	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)	U (0.001)	U (0.001)		U (0.001)
1,2-Dichlorobenzene	0.6											
1,2-Dichloroethane	0.005	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)				
1,2-Dichloroethene	---								U (0.002)	U (0.001)		U (0.002)
1,2-Dichloropropane	0.005	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)				
1,3-Dichlorobenzene	---											
1,4-Dichlorobenzene	0.075											
2-Chloroethyl Vinyl Ether	---	U (0.01)					U (0.01)	U (0.01)				
2-Hexanone	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)		U (0.01)	U (0.01)				
4-Methyl-2-Pentanone	---	U (0.01)	U (0.01)	U (0.01)	U (0.01)		U (0.01)	U (0.01)				
Acetone	0.7	U (0.01)	U (0.01)	U (0.01)	0.132		U (0.01)	U (0.01)	U (0.01)			U (0.01)
Benzene	0.005	U (0.002)	0.0098	U (0.005)	0.115	0.0054	U (0.002)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	0.002
Bromodichloromethane	0.00002	U (0.002)	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.002)				
Bromoform	0.0002	U (0.002)	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.002)				
Bromomethane	---	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)				
Carbon Disulfide	0.7	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)				
Carbon Tetrachloride	0.005	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)				
Chlorobenzene	0.1	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)				
Chlorodibromomethane	0.14	U (0.002)	U (0.001)	U (0.001)	U (0.001)							
Chloroethane	---	U (0.002)	U (0.01)	U (0.01)	U (0.01)		U (0.002)	U (0.002)				
Chloroform	0.00002	U (0.002)	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.002)	U (0.002)	U (0.001)		U (0.002)
Chloromethane	---	U (0.002)	U (0.01)	U (0.01)	U (0.01)		U (0.002)	U (0.002)				
cis-1,2-Dichloroethane	---								U (0.001)	U (0.001)		U (0.001)
cis-1,2-Dichloroethene	0.07	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)	U (0.001)	U (0.001)		U (0.001)
cis-1,3-Dichloropropene	0.001	U (0.002)	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.002)				
Dibromochloromethane	---						U (0.002)	U (0.002)	U (0.002)	U (0.002)		U (0.002)
Dichlorodifluoromethane	1.4*											
Ethylbenzene	0.7	0.01	U (0.005)	U (0.005)	1.08	U (0.005)	U (0.002)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
Methyl Ethyl Ketone	4.2*	U (0.01)	U (0.01)	U (0.01)	U (0.01)		U (0.01)	U (0.01)				
Methylene Chloride	0.005	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)				
MTBE	---								U (0.002)	U (0.002)		U (0.002)
Styrene	0.1	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)				
Tetrachloroethene	0.005	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)	U (0.002)	U (0.002)		U (0.002)
Toluene	1	U (0.002)	U (0.005)	U (0.005)	207	0.052	U (0.002)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)
trans-1,2-Dichloroethene	0.1	U (0.002)	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)				
trans-1,3-Dichloropropene	0.001	U (0.002)	U (0.001)	U (0.001)	U (0.001)		U (0.002)	U (0.002)				
Trichloroethane	---								U (0.001)	U (0.001)		U (0.001)
Trichloroethene	0.005	0.0039	U (0.005)	U (0.005)	U (0.005)		U (0.002)	U (0.002)	U (0.001)	U (0.001)		U (0.001)
Trichlorofluoromethane	2.1*	U (0.002)					U (0.002)	U (0.002)				
Vinyl Acetate	7	U (0.002)	U (0.01)	U (0.01)	U (0.01)		U (0.002)	U (0.002)				
Vinyl Chloride	0.002	U (0.002)	U (0.002)	U (0.002)	U (0.002)		U (0.002)	U (0.002)	U (0.001)	U (0.001)		U (0.001)
Xylenes, Total	10	0.018	U (0.005)	U (0.005)	1.97	0.0344	U (0.002)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 13
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 16: Bldg E Kero Pits UMW-23 (4/12/93)	REC 16: Bldg E Kero Pits UMW-23 (11/12/98)	REC 17: Bldg H Material UMW-16 (10/28/92)	REC 17: Bldg H Material UMW-16 (4/12/93)	REC 17: Bldg H Material UMW-17 (10/28/92)	REC 17: Bldg H Material UMW-17 (5/21/92)	REC 17: Bldg H Material UMW-17 (4/12/93)	REC 17: Bldg H Material UMW-17 (8/11/93)	REC 17: Bldg H Material UMW-17 (6/1/94)	REC 17: Bldg H Material UMW-18 (10/28/92)	REC 28: Tank 053 UST T-27 (7/9/02)
1,1,1-Trichloroethane	0.2	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.001)	
1,1,2,2-Tetrachloroethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)		U (0.002)	
1,1,2-Trichloroethane	0.005		U (0.002)									
1,1-Dichloroethane	0.7	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.001)	
1,1-Dichloroethene	0.007	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.001)	
1,2-Dichlorobenzene	0.6											
1,2-Dichloroethane	0.005		U (0.002)									
1,2-Dichloroethene	---	U (0.001)		0.003	U (0.001)	U (0.002)	U (0.002)	U (0.001)	U (0.001)		U (0.002)	
1,2-Dichloropropane	0.005		U (0.002)									
1,3-Dichlorobenzene	---											
1,4-Dichlorobenzene	0.075											
2-Chloroethyl Vinyl Ether	---		U (0.01)									
2-Hexanone	---		U (0.01)									
4-Methyl-2-Pentanone	---		U (0.01)									
Acetone	0.7		U (0.01)	U (0.01)		U (0.01)	U (0.01)				U (0.01)	
Benzene	0.005	U (0.001)	U (0.002)	0.002	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	0.002	U (0.005)
Bromodichloromethane	0.00002		U (0.002)									
Bromoform	0.0002		U (0.002)									
Bromomethane	---		U (0.002)									
Carbon Disulfide	0.7		U (0.002)									
Carbon Tetrachloride	0.005		U (0.002)									
Chlorobenzene	0.1		U (0.002)									
Chlorodibromomethane	0.14											
Chloroethane	---		U (0.002)									
Chloroform	0.00002	U (0.001)	U (0.002)	U (0.002)	U (0.001)	U (0.002)	U (0.002)	U (0.001)	U (0.001)		U (0.002)	
Chloromethane	---		U (0.002)									
cis-1,2-Dichloroethane	---	U (0.001)		U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.001)	
cis-1,2-Dichloroethene	0.07	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.001)	
cis-1,3-Dichloropropene	0.001		U (0.002)									
Dibromochloromethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)		U (0.002)	
Dichlorodifluoromethane	1.4*											
Ethylbenzene	0.7	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	0.0048	0.005	0.012	U (0.001)	U (0.001)	U (0.005)
Methyl Ethyl Ketone	4.2*		U (0.01)									
Methylene Chloride	0.005		U (0.002)									
MTBE	---	U (0.002)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)		U (0.002)	
Styrene	0.1		U (0.002)									
Tetrachloroethene	0.005	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	0.0012	U (0.002)	U (0.002)		U (0.002)	
Toluene	1	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.005)
trans-1,2-Dichloroethene	0.1		U (0.002)									
trans-1,3-Dichloropropene	0.001		U (0.002)									
Trichloroethane	---	U (0.001)		U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.001)	
Trichloroethene	0.005	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.001)	
Trichlorofluoromethane	2.1*		U (0.002)									
Vinyl Acetate	7		U (0.002)									
Vinyl Chloride	0.002	U (0.001)	U (0.002)	0.002	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)		U (0.001)	
Xylenes, Total	10	U (0.001)	U (0.002)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.005)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Ta. .3
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 31: Locomotive RR-SB-01 (6/21/00)	REC 32: Tank 031 TP-3 (11/11/98)	REC 34: Tank 27 AB-1 (11/12/98)	REC 37: UST Excavation 039 JM-039-GW (4/27/00)	South of Pumping Lagoon N-24-G (12/16/98)	SW Property Corner UMW-14 (10/28/92)	SW Property Corner UMW-14 (11/13/98)	West End of Pumping Lagoon IC-1 (11/2/98)	West End of Pumping Lagoon IC-2 (11/2/98)	Western Property Border UMW-13 (10/28/92)	Western Property Border UMW-13 (4/12/93)
1,1,1-Trichloroethane	0.2		U (0.002)	U (0.002)		U (0.002)	U (0.001)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)
1,1,2,2-Tetrachloroethane	---		U (0.002)	U (0.002)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
1,1,2-Trichloroethane	0.005		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
1,1-Dichloroethane	0.7		U (0.002)	U (0.002)		U (0.002)	U (0.001)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)
1,1-Dichloroethene	0.007		U (0.002)	U (0.002)		U (0.002)	U (0.001)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)
1,2-Dichlorobenzene	0.6											
1,2-Dichloroethane	0.005		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
1,2-Dichloroethene	---						U (0.002)				U (0.002)	U (0.001)
1,2-Dichloropropane	0.005		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
1,3-Dichlorobenzene	---											
1,4-Dichlorobenzene	0.075											
2-Chloroethyl Vinyl Ether	---		U (0.01)	U (0.01)		U (0.01)		U (0.01)	U (0.01)	U (0.01)		
2-Hexanone	---		U (0.01)	U (0.01)		U (0.01)		U (0.01)	U (0.01)	U (0.01)		
4-Methyl-2-Pentanone	---		U (0.01)	U (0.01)		U (0.01)		U (0.01)	U (0.01)	U (0.01)		
Acetone	0.7		U (0.01)	U (0.01)		U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	U (0.01)	
Benzene	0.005	U (0.001)	U (0.002)	U (0.002)	0.25	U (0.002)	U (0.001)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)
Bromodichloromethane	0.00002		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
Bromoform	0.0002		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
Bromomethane	---		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
Carbon Disulfide	0.7		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
Carbon Tetrachloride	0.005		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
Chlorobenzene	0.1		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
Chlorodibromomethane	0.14											
Chloroethane	---		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
Chloroform	0.00002		U (0.002)	U (0.002)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.001)
Chloromethane	---		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
cis-1,2-Dichloroethane	---						U (0.001)				U (0.001)	U (0.001)
cis-1,2-Dichloroethene	0.07		U (0.002)	U (0.002)		U (0.002)	U (0.001)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)
cis-1,3-Dichloropropene	0.001		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
Dibromochloromethane	---		U (0.002)	U (0.002)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Dichlorodifluoromethane	1.4*											
Ethylbenzene	0.7	U (0.001)	U (0.002)	0.44	0.0048	U (0.002)	U (0.001)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)
Methyl Ethyl Ketone	4.2*		U (0.01)	U (0.01)		U (0.01)		U (0.01)	U (0.01)	U (0.01)		
Methylene Chloride	0.005		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
MTBE	---						U (0.002)				U (0.002)	U (0.002)
Styrene	0.1		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
Tetrachloroethene	0.005		U (0.002)	U (0.002)		U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Toluene	1	U (0.001)	U (0.002)	U (0.002)	0.018	U (0.002)	U (0.001)	U (0.002)	U (0.002)	0.0022	U (0.001)	0.001
trans-1,2-Dichloroethene	0.1		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
trans-1,3-Dichloropropene	0.001		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
Trichloroethane	---						U (0.001)				U (0.001)	U (0.001)
Trichloroethene	0.005		U (0.002)	U (0.002)		U (0.002)	U (0.001)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)
Trichlorofluoromethane	2.1*		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
Vinyl Acetate	7		U (0.002)	U (0.002)		U (0.002)		U (0.002)	U (0.002)	U (0.002)		
Vinyl Chloride	0.002		U (0.002)	U (0.002)		U (0.002)	U (0.001)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)
Xylenes, Total	10	U (0.003)	U (0.002)	0.38	0.02	U (0.002)	U (0.001)	U (0.002)	U (0.002)	U (0.002)	U (0.001)	U (0.001)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742
Blank: parameter(s) not tested.

Table 13
Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	Western Property Border UMW-13 (11/13/96)	Eastern Limit of Building Area UMW-19 (10/28/92)	Eastern Limit of Building Area UMW-19 (4/12/93)	NE Corner of Building Area UMW-21 (10/28/92)
1,1,1-Trichloroethane	0.2	U (0.002)	U (0.001)	U (0.001)	U (0.001)
1,1,2,2-Tetrachloroethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)
1,1,2-Trichloroethane	0.005	U (0.002)			
1,1-Dichloroethane	0.7	U (0.002)	U (0.001)	U (0.001)	U (0.001)
1,1-Dichloroethene	0.007	U (0.002)	U (0.001)	U (0.001)	U (0.001)
1,2-Dichlorobenzene	0.6				
1,2-Dichloroethane	0.005	U (0.002)			
1,2-Dichloroethene	---		U (0.002)	U (0.001)	0.002
1,2-Dichloropropane	0.005	U (0.002)			
1,3-Dichlorobenzene	---				
1,4-Dichlorobenzene	0.075				
2-Chloroethyl Vinyl Ether	---	U (0.01)			
2-Hexanone	---	U (0.01)			
4-Methyl-2-Pentanone	---	U (0.01)			
Acetone	0.7	U (0.01)	U (0.01)		U (0.01)
Benzene	0.005	U (0.002)	0.001	U (0.001)	0.003
Bromodichloromethane	0.00002	U (0.002)			
Bromoform	0.0002	U (0.002)			
Bromomethane	---	U (0.002)			
Carbon Disulfide	0.7	U (0.002)			
Carbon Tetrachloride	0.005	U (0.002)			
Chlorobenzene	0.1	U (0.002)			
Chlorodibromomethane	0.14				
Chloroethane	---	U (0.002)			
Chloroform	0.00002	U (0.002)	U (0.002)	U (0.001)	U (0.002)
Chloromethane	---	U (0.002)			
cis-1,2-Dichloroethane	---		U (0.001)	U (0.001)	U (0.001)
cis-1,2-Dichloroethene	0.07	U (0.002)	U (0.001)	U (0.001)	U (0.001)
cis-1,3-Dichloropropene	0.001	U (0.002)			
Dibromochloromethane	---	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Dichlorodifluoromethane	1.4*				
Ethylbenzene	0.7	U (0.002)	U (0.001)	U (0.001)	U (0.001)
Methyl Ethyl Ketone	4.2*	U (0.01)			
Methylene Chloride	0.005	U (0.002)			
MTBE	---		U (0.002)	U (0.002)	U (0.002)
Styrene	0.1	U (0.002)			
Tetrachloroethene	0.005	U (0.002)	U (0.002)	U (0.002)	U (0.002)
Toluene	1	U (0.002)	U (0.001)	0.001	U (0.001)
trans-1,2-Dichloroethene	0.1	U (0.002)			
trans-1,3-Dichloropropene	0.001	U (0.002)			
Trichloroethane	---		U (0.001)	U (0.001)	U (0.001)
Trichloroethene	0.005	U (0.002)	0.001	U (0.001)	U (0.001)
Trichlorofluoromethane	2.1*	U (0.002)			
Vinyl Acetate	7	U (0.002)			
Vinyl Chloride	0.002	U (0.002)	U (0.001)	U (0.001)	U (0.001)
Xylenes, Total	10	U (0.002)	0.009	0.005	U (0.001)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 14
Polynuclear Aromatic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 02 UST Excavation 2 UMW-01 (11/13/98)	REC 02 UST Excavation 2 UMW-02 (11/13/98)	REC 02 UST Excavation 2 UMW-03 (11/13/98)	REC 02 UST Excavation 2 E-5 (12/21/98)	REC 03 UST Excavation 3 GT-2 (11/9/98)
Acenaphthene	0.42	U (0.005)	U (0.0067)	U (0.0065)	0.0058	U (0.007)
Acenaphthylene	---	U (0.004)	U (0.0053)	U (0.0052)	U (0.004)	U (0.0056)
Anthracene	2.1	U (0.0002)	U (0.00027)	U (0.00026)	0.0003	U (0.00028)
Benzo(a)anthracene	0.00013	U (0.00001)	U (0.000013)	U (0.000013)	0.0005	0.00058
Benzo(a)pyrene	0.0002	U (0.00005)	U (0.000013)	U (0.000013)	0.0025	0.00042
Benzo(b)fluoranthene	0.00018	U (0.00002)	U (0.000027)	U (0.000026)	U (0.00002)	0.00067
Benzo(g,h,i)perylene	---	U (0.00006)	U (0.00008)	U (0.000078)	U (0.00006)	0.00046
Benzo(k)fluoranthene	0.00017	U (0.00005)	U (0.000013)	U (0.000013)	U (0.00001)	0.0004
Chrysene	0.0015	U (0.00005)	U (0.000067)	U (0.000065)	U (0.00005)	0.001
Dibenzo(a,h)anthracene	0.0003	U (0.00002)	U (0.000027)	U (0.000026)	U (0.00002)	0.00062
Fluoranthene	0.28	U (0.001)	U (0.0013)	U (0.0013)	0.06	0.0017
Fluorene	0.28	U (0.001)	U (0.0013)	U (0.0013)	0.017	U (0.0014)
Indeno(1,2,3-cd)pyrene	0.00043	U (0.0002)	U (0.00027)	U (0.00026)	U (0.0002)	U (0.00028)
Naphthalene	0.025	U (0.003)	U (0.004)	U (0.0039)	0.014	U (0.0042)
Phenanthrene	---	U (0.0003)	U (0.0004)	U (0.00039)	0.021	0.014
Pyrene	0.21	U (0.001)	U (0.0013)	U (0.0013)	0.001	0.0024

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 14
Polynuclear Aromatic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 03 UST Excavation 3 TA3-2 (11/4/98)	REC 03 UST Excavation 3 TA3-3 (11/6/98)	REC 03 UST Excavation 3 TA3-4 (11/6/98)	REC 03 UST Excavation 3 TA3-8 (11/9/98)	REC 03 UST Excavation 3 TA3-9 (11/9/98)
Acenaphthene	0.42	U (0.005)	U (0.006)	U (0.0064)	U (0.0058)	U (0.007)
Acenaphthylene	---	U (0.004)	U (0.0048)	U (0.0051)	U (0.0046)	U (0.0056)
Anthracene	2.1	U (0.0002)	U (0.00024)	U (0.00026)	U (0.00023)	U (0.00028)
Benzo(a)anthracene	0.00013	0.000026	0.000098	0.00054	0.00031	0.00026
Benzo(a)pyrene	0.0002	U (0.00005)	0.00011	0.00053	0.0004	0.00044
Benzo(b)fluoranthene	0.00018	0.000029	0.00011	0.00062	0.00046	0.00046
Benzo(g,h,i)perylene	---	U (0.00006)	0.000079	0.00039	0.00039	0.00035
Benzo(k)fluoranthene	0.00017	U (0.00005)	0.00067	0.00036	0.00025	0.00031
Chrysene	0.0015	U (0.00005)	U (0.00006)	0.00035	0.00033	0.00024
Dibenzo(a,h)anthracene	0.0003	0.000025	U (0.000024)	0.000061	0.000052	0.000046
Fluoranthene	0.28	U (0.001)	U (0.0012)	0.0034	0.0051	0.0026
Fluorene	0.28	U (0.001)	U (0.0012)	U (0.0013)	U (0.0012)	U (0.0014)
Indeno(1,2,3-cd)pyrene	0.00043	U (0.0002)	U (0.00024)	U (0.00026)	0.00025	U (0.00028)
Naphthalene	0.025	U (0.003)	U (0.0036)	U (0.0038)	U (0.0035)	U (0.0042)
Phenanthrene	---	0.00049	0.0007	0.002	U (0.00035)	0.0012
Pyrene	0.21	U (0.001)	U (0.0012)	0.0027	U (0.0012)	U (0.0014)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 14
Polynuclear Aromatic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 03 UST Excavation 3 UMW-01A (11/12/98)	REC 03 UST Excavation 3 UMW-02A (11/12/98)	REC 03 UST Excavation 3 UMW-03A (11/12/98)	REC 03 UST Excavation 3 UMW-08 (11/12/98)	REC 03 UST Excavation 3 UMW-09 (11/12/98)
Acenaphthene	0.42	U (0.0056)	U (0.005)	U (0.0059)	U (0.0059)	U (0.06)
Acenaphthylene	---	U (0.0044)	U (0.004)	U (0.0047)	U (0.0047)	U (0.048)
Anthracene	2.1	U (0.00022)	U (0.0002)	0.008	U (0.00024)	U (0.0024)
Benzo(a)anthracene	0.00013	U (0.000011)	0.000024	0.0014	0.000018	U (0.00012)
Benzo(a)pyrene	0.0002	U (0.00005)	U (0.00005)	0.0018	U (0.00005)	U (0.00005)
Benzo(b)fluoranthene	0.00018	U (0.000022)	U (0.00002)	0.0019	U (0.000024)	U (0.00002)
Benzo(g,h,i)perylene	---	U (0.000067)	U (0.00006)	0.0008	U (0.000071)	U (0.00072)
Benzo(k)fluoranthene	0.00017	U (0.00005)	U (0.00005)	0.0077	U (0.00005)	U (0.00005)
Chrysene	0.0015	U (0.000056)	U (0.00005)	0.0012	U (0.000059)	U (0.0006)
Dibenzo(a,h)anthracene	0.0003	U (0.000022)	U (0.00002)	0.00025	U (0.000024)	U (0.00024)
Fluoranthene	0.28	U (0.0011)	U (0.001)	U (0.0012)	U (0.0012)	U (0.012)
Fluorene	0.28	U (0.0011)	U (0.001)	U (0.0012)	U (0.0012)	U (0.012)
Indeno(1,2,3-cd)pyrene	0.00043	U (0.00022)	U (0.0002)	0.0011	U (0.00024)	U (0.0024)
Naphthalene	0.025	U (0.0033)	U (0.003)	U (0.0035)	U (0.0035)	0.14
Phenanthrene	---	U (0.00033)	U (0.0003)	0.00052	U (0.00035)	U (0.0036)
Pyrene	0.21	U (0.0011)	U (0.001)	0.0023	U (0.0012)	U (0.012)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 14
Polynuclear Aromatic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 03 UST Excavation 3 UMW-10 (11/12/98)	REC 03 UST Excavation 3 UMW-26 (1/12/99)	REC 04 UST Excavation 4 STF-3 (11/12/98)	REC 04 UST Excavation 4 UMW-04 (11/16/98)	REC 04 UST Excavation 4 UMW-05 (11/13/98)
Acenaphthene	0.42	U (0.06)	U (0.005)	U (0.0059)	U (0.005)	U (0.005)
Acenaphthylene	---	U (0.048)	U (0.004)	U (0.0047)	U (0.004)	U (0.004)
Anthracene	2.1	U (0.0024)	U (0.0002)	U (0.00024)	U (0.0002)	U (0.0002)
Benzo(a)anthracene	0.00013	U (0.00012)	0.00006	0.000081	0.000013	U (0.00001)
Benzo(a)pyrene	0.0002	U (0.00005)	U (0.00001)	0.000011	U (0.00005)	U (0.000012)
Benzo(b)fluoranthene	0.00018	U (0.00002)	U (0.00002)	U (0.000024)	U (0.00002)	U (0.000024)
Benzo(g,h,i)perylene	---	U (0.00072)	U (0.00006)	0.000076	U (0.00006)	U (0.000071)
Benzo(k)fluoranthene	0.00017	U (0.00005)	0.00003	U (0.000012)	U (0.00005)	U (0.000012)
Chrysene	0.0015	U (0.0006)	0.00008	U (0.000059)	U (0.00005)	U (0.000059)
Dibenzo(a,h)anthracene	0.0003	U (0.00024)	U (0.00002)	U (0.000024)	U (0.00002)	U (0.000024)
Fluoranthene	0.28	U (0.012)	U (0.001)	U (0.0012)	U (0.001)	U (0.0012)
Fluorene	0.28	U (0.012)	U (0.001)	U (0.0012)	U (0.001)	U (0.0012)
Indeno(1,2,3-cd)pyrene	0.00043	U (0.0024)	U (0.0002)	U (0.00024)	U (0.0002)	U (0.00024)
Naphthalene	0.025	0.28	0.22	U (0.0035)	U (0.003)	U (0.0035)
Phenanthrene	---	U (0.0036)	U (0.0003)	U (0.00035)	U (0.0003)	U (0.00035)
Pyrene	0.21	U (0.012)	U (0.001)	U (0.0012)	U (0.001)	U (0.0012)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 14
Polynuclear Aromatic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 04 UST Excavation 4 UMW-06 (11/16/98)	REC 04 UST Excavation 4 UMW-07 (11/13/98)	REC 05 UST Excavation 5 C-1 (11/17/98)	REC 05 UST Excavation 5 C-2 (11/17/98)	REC 05 UST Excavation 5 TP-1 (11/11/98)
Acenaphthene	0.42	U (0.005)	U (0.0059)	U (0.009)	U (0.0067)	U (0.06)
Acenaphthylene	---	U (0.004)	U (0.0047)	U (0.0072)	U (0.0053)	U (0.048)
Anthracene	2.1	U (0.0002)	U (0.00024)	U (0.00036)	U (0.00027)	U (0.0024)
Benzo(a)anthracene	0.00013	0.000062	0.00011	U (0.000018)	U (0.000013)	0.0022
Benzo(a)pyrene	0.0002	U (0.00005)	0.00011	U (0.00005)	U (0.000013)	0.0018
Benzo(b)fluoranthene	0.00018	0.000052	0.000089	U (0.000036)	U (0.000027)	U (0.00024)
Benzo(g,h,i)perylene	---	U (0.00006)	0.000081	U (0.000108)	U (0.00008)	0.0013
Benzo(k)fluoranthene	0.00017	U (0.00005)	0.000062	U (0.00005)	U (0.000013)	0.00084
Chrysene	0.0015	0.000069	U (0.000059)	U (0.00009)	U (0.000067)	U (0.0006)
Dibenzo(a,h)anthracene	0.0003	U (0.00002)	U (0.000024)	U (0.000036)	U (0.000027)	0.00075
Fluoranthene	0.28	U (0.001)	U (0.0012)	U (0.0018)	U (0.0013)	U (0.012)
Fluorene	0.28	U (0.001)	U (0.0012)	0.03	U (0.0013)	0.014
Indeno(1,2,3-cd)pyrene	0.00043	U (0.0002)	U (0.00024)	U (0.00036)	U (0.00027)	U (0.0024)
Naphthalene	0.025	U (0.003)	U (0.0035)	U (0.0054)	U (0.004)	0.054
Phenanthrene	---	0.00051	U (0.00035)	U (0.00054)	U (0.0004)	0.0086
Pyrene	0.21	U (0.001)	U (0.0012)	U (0.0018)	U (0.0013)	U (0.012)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 14
Polynuclear Aromatic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 05 UST Excavation 5 TP-7 (11/11/98)	REC 05 UST Excavation 5 UMW-24 (1/12/99)	REC 07 UST Excavation 7 UMW-15 (11/13/98)	REC 10 UST Excavation 10 O-16-G (12/16/98)	REC 10 UST Excavation 10 UMW-20 (11/12/98)
Acenaphthene	0.42	U (0.085)	U (0.005)	U (0.0059)	U (0.005)	U (0.005)
Acenaphthylene	---	U (0.068)	U (0.004)	U (0.0047)	U (0.004)	U (0.004)
Anthracene	2.1	U (0.0034)	U (0.0002)	U (0.00024)	U (0.0002)	U (0.0002)
Benzo(a)anthracene	0.00013	U (0.00017)	0.00003	0.000015	U (0.00001)	U (0.00001)
Benzo(a)pyrene	0.0002	U (0.00005)	U (0.00001)	U (0.000012)	U (0.00001)	U (0.00005)
Benzo(b)fluoranthene	0.00018	U (0.0002)	U (0.00002)	U (0.000024)	U (0.00002)	U (0.00002)
Benzo(g,h,i)perylene	---	U (0.001)	U (0.00006)	U (0.000071)	U (0.00006)	U (0.00006)
Benzo(k)fluoranthene	0.00017	U (0.00005)	U (0.00001)	U (0.000012)	U (0.00001)	U (0.00005)
Chrysene	0.0015	U (0.00085)	U (0.00005)	U (0.000059)	U (0.00005)	U (0.00005)
Dibenzo(a,h)anthracene	0.0003	U (0.00034)	U (0.00002)	U (0.000024)	U (0.00002)	U (0.00002)
Fluoranthene	0.28	U (0.017)	U (0.001)	U (0.0012)	U (0.001)	U (0.001)
Fluorene	0.28	U (0.017)	0.0012	U (0.0012)	U (0.001)	U (0.001)
Indeno(1,2,3-cd)pyrene	0.00043	U (0.0034)	U (0.0002)	U (0.00024)	U (0.0002)	U (0.0002)
Naphthalene	0.025	0.23	0.043	U (0.0035)	U (0.003)	U (0.003)
Phenanthrene	---	U (0.0051)	U (0.0003)	0.00045	U (0.0003)	U (0.0003)
Pyrene	0.21	U (0.017)	U (0.001)	U (0.0012)	U (0.001)	U (0.001)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 14
Polynuclear Aromatic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 11 UST Excavation 11 IMS-3 (11/9/98)	REC 12 Solvent Recovery Room A-1 (11/17/98)	REC 12 Solvent Recovery Room A-2 (11/17/98)	REC 12 Solvent Recovery Room UMW-25 (1/12/99)	REC 12 Solvent Recovery Room UMW-27 (1/12/99)
Acenaphthene	0.42	U (0.0071)	U (0.0072)	U (0.005)	U (0.005)	U (0.005)
Acenaphthylene	---	U (0.0056)	U (0.0057)	0.078	U (0.004)	U (0.004)
Anthracene	2.1	U (0.00028)	U (0.00029)	U (0.0002)	U (0.0002)	U (0.0002)
Benzo(a)anthracene	0.00013	0.00083	U (0.000014)	U (0.00001)	U (0.00001)	0.00002
Benzo(a)pyrene	0.0002	0.00011	U (0.000014)	U (0.00001)	U (0.00001)	U (0.00001)
Benzo(b)fluoranthene	0.00018	0.0001	U (0.000029)	U (0.00002)	U (0.00002)	U (0.00002)
Benzo(g,h,i)perylene	---	0.00016	U (0.000086)	U (0.00006)	U (0.00006)	U (0.00006)
Benzo(k)fluoranthene	0.00017	U (0.0005)	U (0.000014)	U (0.00001)	U (0.00001)	0.00001
Chrysene	0.0015	U (0.000071)	U (0.000072)	U (0.00005)	U (0.00005)	U (0.00005)
Dibenzo(a,h)anthracene	0.0003	U (0.000028)	U (0.000029)	U (0.00002)	U (0.00002)	U (0.00002)
Fluoranthene	0.28	U (0.0014)	U (0.0014)	U (0.001)	U (0.001)	U (0.001)
Fluorene	0.28	U (0.0014)	U (0.0014)	U (0.001)	U (0.001)	U (0.001)
Indeno(1,2,3-cd)pyrene	0.00043	U (0.00028)	U (0.00029)	U (0.0002)	U (0.0002)	U (0.0002)
Naphthalene	0.025	U (0.0042)	U (0.0043)	U (0.003)	U (0.003)	U (0.003)
Phenanthrene	---	U (0.00042)	U (0.00043)	U (0.0003)	U (0.0003)	U (0.0003)
Pyrene	0.21	U (0.0014)	U (0.0014)	U (0.001)	U (0.001)	U (0.001)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 14
Polynuclear Aromatic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 16: Bldg E Kero Pits J-21-G (12/16/98)	REC 16: Bldg E Kero Pits TP-B (11/19/98)	REC 16: Bldg E Kero Pits UMW-23 (11/12/98)	REC 29: C-West Tanks TP-C1 (12/18/98)
Acenaphthene	0.42	U (0.005)	U (0.005)	U (0.0071)	U (0.005)
Acenaphthylene	---	U (0.004)	U (0.004)	U (0.0057)	U (0.004)
Anthracene	2.1	U (0.0002)	U (0.0002)	U (0.00028)	U (0.0002)
Benzo(a)anthracene	0.00013	0.000072	0.00015	0.000022	U (0.00001)
Benzo(a)pyrene	0.0002	U (0.00001)	U (0.00001)	U (0.00005)	U (0.00001)
Benzo(b)fluoranthene	0.00018	U (0.00002)	U (0.00002)	U (0.000028)	U (0.00002)
Benzo(g,h,i)perylene	---	U (0.00006)	0.00065	U (0.000085)	U (0.00006)
Benzo(k)fluoranthene	0.00017	U (0.00001)	0.000058	U (0.00005)	U (0.00001)
Chrysene	0.0015	U (0.00005)	0.00021	U (0.000071)	U (0.00005)
Dibenzo(a,h)anthracene	0.0003	U (0.00002)	0.000057	U (0.000028)	U (0.00002)
Fluoranthene	0.28	U (0.001)	U (0.001)	U (0.0014)	U (0.001)
Fluorene	0.28	U (0.001)	U (0.001)	U (0.0014)	U (0.001)
Indeno(1,2,3-cd)pyrene	0.00043	U (0.0002)	U (0.0002)	U (0.00028)	U (0.0002)
Naphthalene	0.025	U (0.003)	U (0.003)	U (0.0043)	U (0.003)
Phenanthrene	---	U (0.0003)	0.00054	U (0.00043)	U (0.0003)
Pyrene	0.21	U (0.001)	U (0.001)	U (0.0014)	U (0.001)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 14
Polynuclear Aromatic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 31 Locomotive RR-SB-02 (6/21/00)	REC 32 Tank 031 TP-3 (11/11/98)	REC 34 Tank 27 AB-1 (11/12/98)	South of Pumping Lagoon N-24-G (12/16/98)	Western Property Border UMW-13 (11/13/98)
Acenaphthene	0.42	U (0.0013)	U (0.07)	U (0.0072)	U (0.005)	U (0.0077)
Acenaphthylene	---	U (0.0013)	U (0.056)	U (0.0057)	U (0.004)	U (0.0062)
Anthracene	2.1	U (0.005)	U (0.0002)	U (0.00029)	U (0.0002)	U (0.00031)
Benzo(a)anthracene	0.00013	U (0.00016)	0.0046	U (0.000014)	U (0.00001)	U (0.000015)
Benzo(a)pyrene	0.0002	U (0.002)	0.0044	U (0.000014)	U (0.00001)	U (0.000015)
Benzo(b)fluoranthene	0.00018	U (0.00018)	0.0042	U (0.000029)	U (0.00002)	0.000045
Benzo(g,h,i)perylene	---	U (0.005)	0.003	0.00022	U (0.00006)	U (0.000092)
Benzo(k)fluoranthene	0.00017	U (0.00017)	0.0027	U (0.000014)	U (0.00001)	U (0.000015)
Chrysene	0.0015	U (0.005)	0.0026	U (0.000072)	U (0.00005)	U (0.000077)
Dibenzo(a,h)anthracene	0.0003	U (0.003)	0.00068	U (0.000029)	U (0.00002)	U (0.000031)
Fluoranthene	0.28	U (0.005)	U (0.014)	U (0.0014)	U (0.001)	U (0.0015)
Fluorene	0.28	U (0.002)	U (0.014)	U (0.0014)	U (0.001)	U (0.0015)
Indeno(1,2,3-cd)pyrene	0.00043	U (0.003)	0.0038	U (0.00029)	U (0.0002)	U (0.00031)
Naphthalene	0.025	0.05	U (0.042)	U (0.0043)	U (0.003)	U (0.0046)
Phenanthrene	---	U (0.0005)	0.02	U (0.00043)	U (0.0003)	U (0.00046)
Pyrene	0.21	U (0.00063)	U (0.014)	U (0.0014)	U (0.001)	U (0.0015)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 14
Polynuclear Aromatic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	SW Property Corner UMW-14 (11/13/98)	West End of Pumping Lagoon IC-1 (11/2/98)	West End of Pumping Lagoon IC-2 (11/2/98)
Acenaphthene	0.42	U (0.0071)	U (0.0059)	U (0.007)
Acenaphthylene	---	U (0.0056)	U (0.0047)	U (0.005)
Anthracene	2.1	U (0.00028)	U (0.00024)	U (0.00025)
Benzo(a)anthracene	0.00013	0.00018	0.000024	0.0007
Benzo(a)pyrene	0.0002	0.00025	U (0.00005)	0.00081
Benzo(b)fluoranthene	0.00018	0.00022	U (0.000024)	0.00065
Benzo(g,h,i)perylene	---	0.00018	U (0.000071)	0.00058
Benzo(k)fluoranthene	0.00017	0.00013	U (0.00005)	0.00038
Chrysene	0.0015	0.00014	U (0.000059)	0.00096
Dibenzo(a,h)anthracene	0.0003	U (0.000028)	0.000056	0.00015
Fluoranthene	0.28	U (0.0014)	U (0.0012)	0.0016
Fluorene	0.28	U (0.0014)	U (0.0012)	0.0014
Indeno(1,2,3-cd)pyrene	0.00043	U (0.00028)	U (0.00024)	U (0.00025)
Naphthalene	0.025	U (0.0042)	U (0.0035)	0.038
Phenanthrene	---	U (0.00042)	U (0.0035)	0.0018
Pyrene	0.21	U (0.0014)	U (0.0012)	0.0017

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 15
Semi-Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC-12 Solvent Recovery Room UMW-25 (3/5/99)	
1,2,4-Trichlorobenzene	0.07	U	(0.002)
1,2-Dichlorobenzene	0.6	U	(0.002)
1,3-Dichlorobenzene	---	U	(0.002)
1,4-Dichlorobenzene	0.075	U	(0.002)
2,4,5-Trichlorophenol	0.7	U	(0.01)
2,4,6-Trichlorophenol	0.0064	U	(0.002)
2,4-Dichlorophenol	0.021	U	(0.002)
2,4-Dimethylphenol	0.14	0.062	
2,4-Dinitrophenol	0.014	U	(0.01)
2,4-Dinitrotoluene	0.00002	U	(0.002)
2,6-Dintrotoluene	0.0001	U	(0.002)
2-Chloronaphthalene	---	U	(0.002)
2-Chlorophenol	0.035	U	(0.002)
2-Methylnaphthalene	---	U	(0.002)
2-Methylphenol	0.35	0.005	
2-Nitroaniline	---	U	(0.01)
2-Nitrophenol	---	U	(0.002)
3,3-Dichlorobenzidine	0.02	U	(0.01)
3-Nitroaniline	---	U	(0.01)
4,6-Dinitro-2-methylphenol	---	U	(0.01)
4-Bromophenyl phenyl ether	---	U	(0.002)
4-Chloro-3-methylphenol	---	U	(0.002)
4-Chloroaniline	0.028	U	(0.002)
4-Chlorophenyl phenyl ether	---	U	(0.002)
4-Methylphenol	0.035*	0.005	
4-Nitroaniline	---	U	(0.01)
4-Nitrophenol	---	U	(0.01)
Acenaphthene	0.42	U	(0.002)
Acenaphthylene	---	U	(0.002)
Aniline	0.023*	U	(0.002)
Anthracene	2.1	U	(0.002)
Benzo(a)anthracene	0.00013	U	(0.002)
Benzo(a)pyrene	0.0002	U	(0.002)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 15
Semi-Volatile Organic Compounds in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class II Groundwater Standard	REC-12 Solvent Recovery Room UMW-25 (3/5/99)	
Benzo(b)fluoranthene	0.00018	U	(0.002)
Benzo(g,h,i)perylene	---	U	(0.002)
Benzo(k)fluoranthene	0.00017	U	(0.002)
Benzoic Acid	28	U	(0.01)
Benzyl Aclohol	2.1*	U	(0.002)
bis (2-Chloroethoxy) methane	---	U	(0.002)
Bis (2-Chloroethyl) ether	0.01	U	(0.002)
bis (2-Chloroisopropyl) ether	0.28*	U	(0.002)
bis (2-ethylhexyl) phthalate	0.006	U	(0.01)
Butyl benzyl phthalate	1.4	U	(0.002)
Chrysene	0.0015	U	(0.002)
Dibenzo(a,h)anthracene	0.0003	U	(0.002)
Dibenzofuran	---	U	(0.002)
Diethylphthalate	5.6	U	(0.002)
Dimethylphthalate	---	U	(0.002)
Di-n-butylphthalate	---	U	(0.01)
Di-n-octylphthalate	0.14	U	(0.002)
Fluoranthene	0.28	U	(0.002)
Fluorene	0.28	U	(0.002)
Hexachlorobenzene	0.00006	U	(0.002)
Hexachlorobutadiene	0.0014*	U	(0.002)
Hexachlorocyclopentadiene	0.05	U	(0.002)
Hexachloroethane	0.007	U	(0.002)
Indeno(1,2,3-cd)pyrene	0.00043	U	(0.002)
Isophorone	1.4	U	(0.002)
Naphthalene	0.025	U	(0.002)
Nitrobenzene	0.0035	U	(0.002)
N-Nitroso-di-n-propylamine	0.01	U	(0.002)
N-Nitrosodiphenylamine	0.01	U	(0.002)
Pentachlorophenol	0.001	U	(0.01)
Phenanthrene	---	U	(0.002)
Phenol	0.1	U	(0.002)
Pyrene	0.21	U	(0.002)

U: Undetected; PQL shown in parentheses.
Results in mg/l
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 16
Lead (Total) in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC 03 UST Excavation 3 UMW-01A (8/1/02)	REC 03 UST Excavation 3 UMW-02A (8/1/02)	REC 03 UST Excavation 3 UMW-08 (8/1/02)	REC 03 UST Excavation 3 UMW-09 (8/1/02)	REC 03 UST Excavation 3 UMW-10 (8/1/02)	REC 03 UST Excavation 3 UMW-26 (8/1/02)	REC 14 Tank 30 UST T-28 (7/9/02)
Lead (Total)	0.0075	U (0.002)	U (0.002)	U (0.002)	0.027	0.003	U (0.002)	0.863

U: Undetected; PQL shown in parentheses.
Results in mg/l.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 16
Lead (Total) in Water

Johns Manville
Waukegan, Illinois

Analyte Name	Class I Groundwater Standard	REC-26: Tank 053 UST T-27 (7/9/02)
Lead (Total)	0.0075	0.435

U: Undetected; PQL shown in parentheses.
Results in mg/l.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 17
Total Petroleum Hydrocarbons in Water

Johns Manville
Waukegan, Illinois

Analyte Name	REC 05 UST Excavation 5 UMW-11 (12/18/98)	REC 05 UST Excavation 5 UMW-24 (1/12/99)
TPH: High B.P. Hydrocarbons	11,000	7.8
TPH: Low/Medium B.P. Hydrocarbons	450	

U: Undetected; PQL shown in parentheses.
Results in mg/l.
Cleanup objectives from 35 IAC Part 742.
Blank: parameter(s) not tested.

Table 18
PCBs in Oil or Water

Johns Manville
Waukegan, Illinois

Analyte Name	REC 13: Bldg D Transformer D-T-E East Manhole (downgradient of transformer) PCBs in Water (mg/l)		REC 13: Bldg D Transformer D-T-C Center Manhole (at transformer) PCBs in Oil (mg/kg)		REC 13: Bldg D Transformer D-T-W West Manhole (upgradient of transformer) PCBs in Oil (mg/kg)	
Arochlor-1016	U	(0.0005)	U	(3.50)	U	(3.50)
Arochlor-1221	U	(0.0005)	U	(3.50)	U	(3.50)
Arochlor-1232	U	(0.0005)	U	(3.50)	U	(3.50)
Arochlor-1242	U	(0.0005)	U	(3.50)	U	(3.50)
Arochlor-1248	U	(0.0005)	U	(3.50)	U	(3.50)
Arochlor-1254	U	(0.0005)	U	(3.50)	U	(3.50)
Arochlor-1260	U	(0.0005)	U	(3.50)	U	(3.50)

U: Undetected; PQL shown in parentheses.
Units as shown in Sample ID Header
Blank: parameter(s) not tested.

Table 19
REC Summary and Recommendations
Johns Manville, Waukegan, Illinois

ID	Recognized Environmental Condition	Status	Current Impacts Above Tier I Residential Soil or Class I Groundwater?		Additional Assessment Required?	ROR/RAP Required?	Description/Comment
			Soil	Groundwater			
1	1989 UST Excavation 1	Previously closed by IEPA	---	---	---	---	---
2	1989 UST Excavation 2	Ongoing	Yes	Yes	No	Yes	**Soil:** residual BAP impact to be addressed with 3-foot cover. **Groundwater:** modeling to show attenuation of PNA impact.
3	1989 UST Excavation 3	Ongoing	Yes	Yes	No	Yes	**Soil:** limited excavation and/or insitu remediation. **Groundwater:** remediation required.
4	1989 UST Excavation 4	Ongoing	Yes	No	No	Yes	**Soil:** residual BAP impact to be addressed with 3-foot cover.
5	1989 UST Excavation 5	Ongoing	Yes	Yes	No	Yes	**Soil:** residual BAP impact to be addressed with 3-foot cover. **Groundwater:** modeling to show attenuation of PNA impact.
6	1989 UST Excavation 6	Previously closed by IEPA	---	---	---	---	---
7	1989 UST Excavation 7	Previously closed by IEPA	---	---	---	---	---
8	1989 UST Excavation 8	Previously closed by IEPA	---	---	---	---	---
9	1989 UST Excavation 9	Previously closed by IEPA	---	---	---	---	---
10	1989 UST Excavation 10	Previously closed by IEPA	---	---	---	---	---
11	1989 UST Excavation 11	Complete, as documented in CSIR	No	No	No	No	---
12	Solvent Recovery Room	Ongoing	Yes	Yes	Yes	Yes	**Soil:** limited excavation and/or insitu remediation. **Groundwater:** modeling to determine whether remediation is necessary.
13	D Transformer- Sanitary Sewer	Complete, as documented in CSIR	No	No	No	No	---

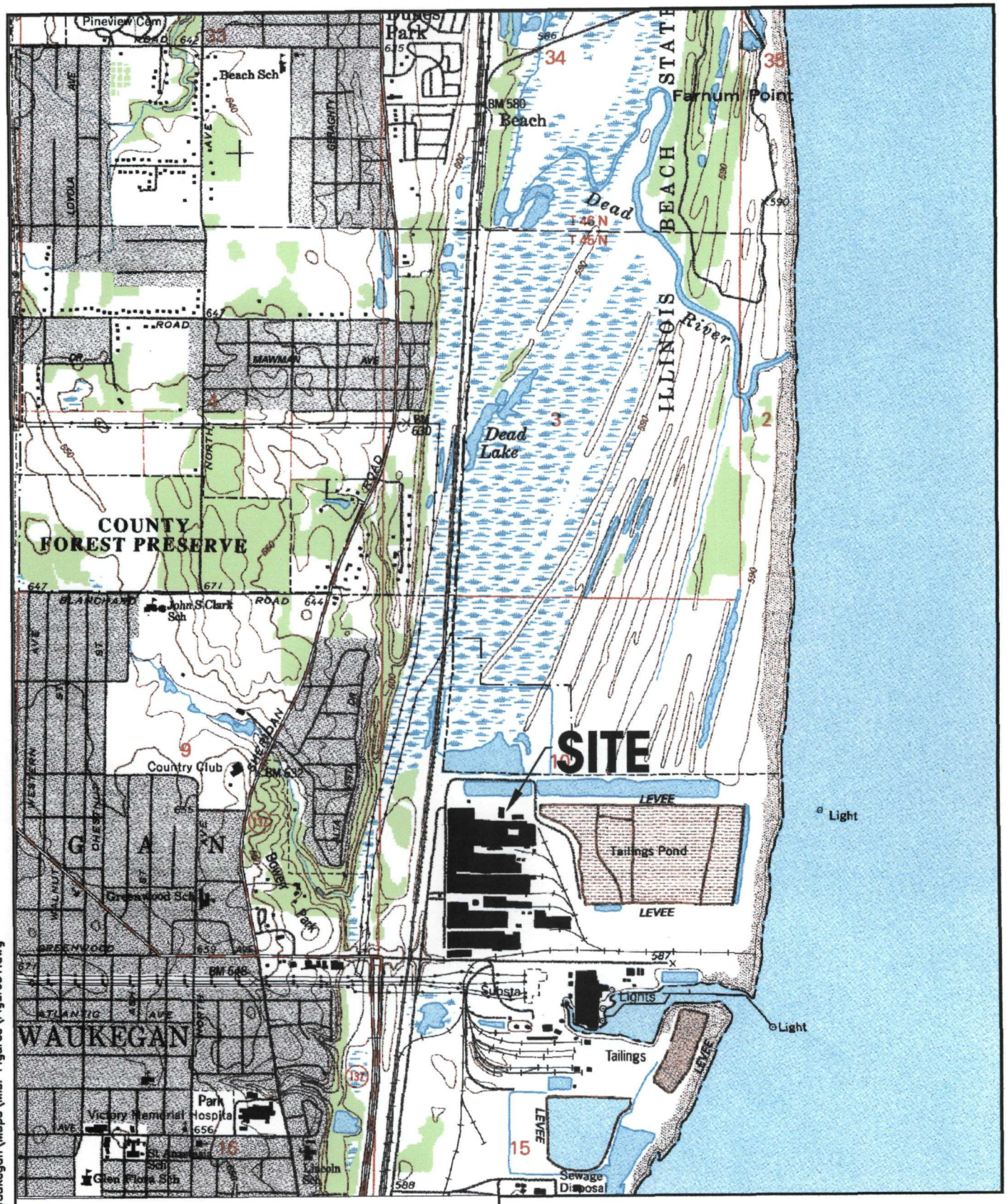
Table 19
REC Summary and Recommendations
Johns Manville, Waukegan, Illinois

ID	Recognized Environmental Condition	Status	Current Impacts Above Tier I Residential Soil or Class I Groundwater?		Additional Assessment Required?	ROR/RAP Required?	Description/Comment
			Soil	Groundwater			
14	Tank 30-UST	Complete, as documented in CSIR	No	No	No	No	Waiting on documentation from IEPA LUST section on closure of LUST incident number.
15	Tank 37-AST	Complete, as documented in CSIR	No	No	No	No	All potential impact from this REC is captured in the data for REC 5 - 1989 UST Excavation 5.
16	Building E Kerosene Pits	Complete, as documented in CSIR	No	No	No	No	---
17	Building H Material	Complete, as documented in CSIR	No	No	No	No	---
18	Building J Transformers	Complete, as documented in CSIR	No	No	No	No	---
19	Tank 57-AST	Complete, as documented in CSIR	No	No	No	No	---
20	Fog Tunnels	Complete, as documented in CSIR	No	No	No	No	---
21	Still Room	Complete, as documented in CSIR	No	No	No	No	---
22	Coal Tar Saturator	Complete, as documented in CSIR	No	No	No	No	---
23	Building B - Tank 26	Complete, as documented in CSIR	No	No	No	No	---
24	Building T Tar Pit	Complete, as documented in CSIR	No	No	No	No	---
25	Building D Saturators	Complete, as documented in CSIR	No	No	No	No	---

Table 19
REC Summary and Recommendations
Johns Manville, Waukegan, Illinois

ID	Recognized Environmental Condition	Status	Current Impacts Above Tier I Residential Soil or Class I Groundwater?		Additional Assessment Required?	ROR/RAP Required?	Description/Comment
			Soil	Groundwater			
26	Tank 053 UST: Building D Old Gasoline	Complete, as documented in CSIR	No	No	No	No	Waiting on documentation from IEPA LUST section on closure of LUST incident number.
27	Coal Pit	Ongoing	Yes	No	No	Yes	**Soil:** residual PNA impact to be addressed with 3-foot cover.
28	Subsurface Asbestos-containing Materials	Ongoing	N/A	N/A	No	Yes	**Soil:** impacts to be addressed with 3-foot cover.
29	C-West Tanks	Complete, as documented in CSIR	No	No	No	No	---
30	Tank 033	Complete, as documented in CSIR	No	No	No	No	---
31	Locomotive	Ongoing	Yes	Yes	No	Yes	**Soil:** residual PNA impact to be addressed with 3-foot cover. **Groundwater:** modeling to show attenuation of PNA impact.
32	Tank 031	Ongoing	No	Yes	No	Yes	**Groundwater:** modeling to show attenuation of PNA impact.
33	Tank 032	Complete, as documented in CSIR	No	No	No	No	---
34	Tank 027	Complete, as documented in CSIR	No	No	No	No	---
35	Building A Transformer	Complete, as documented in CSIR	No	No	No	No	---
36	Building P Transformer	Complete, as documented in CSIR	No	No	No	No	---
37	Tank 039	Complete, as documented in CSIR	No	No	No	No	---

FIGURES



GRAPHIC SCALE
0 1,000' 2,000'

Source:
Zion, Illinois (1993) USGS
7.5 Minute Series
Quadrangle Map

Site Plan Location Map

Johns Manville
1871 North Pershing Road
Waukegan, Illinois

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Figure 1

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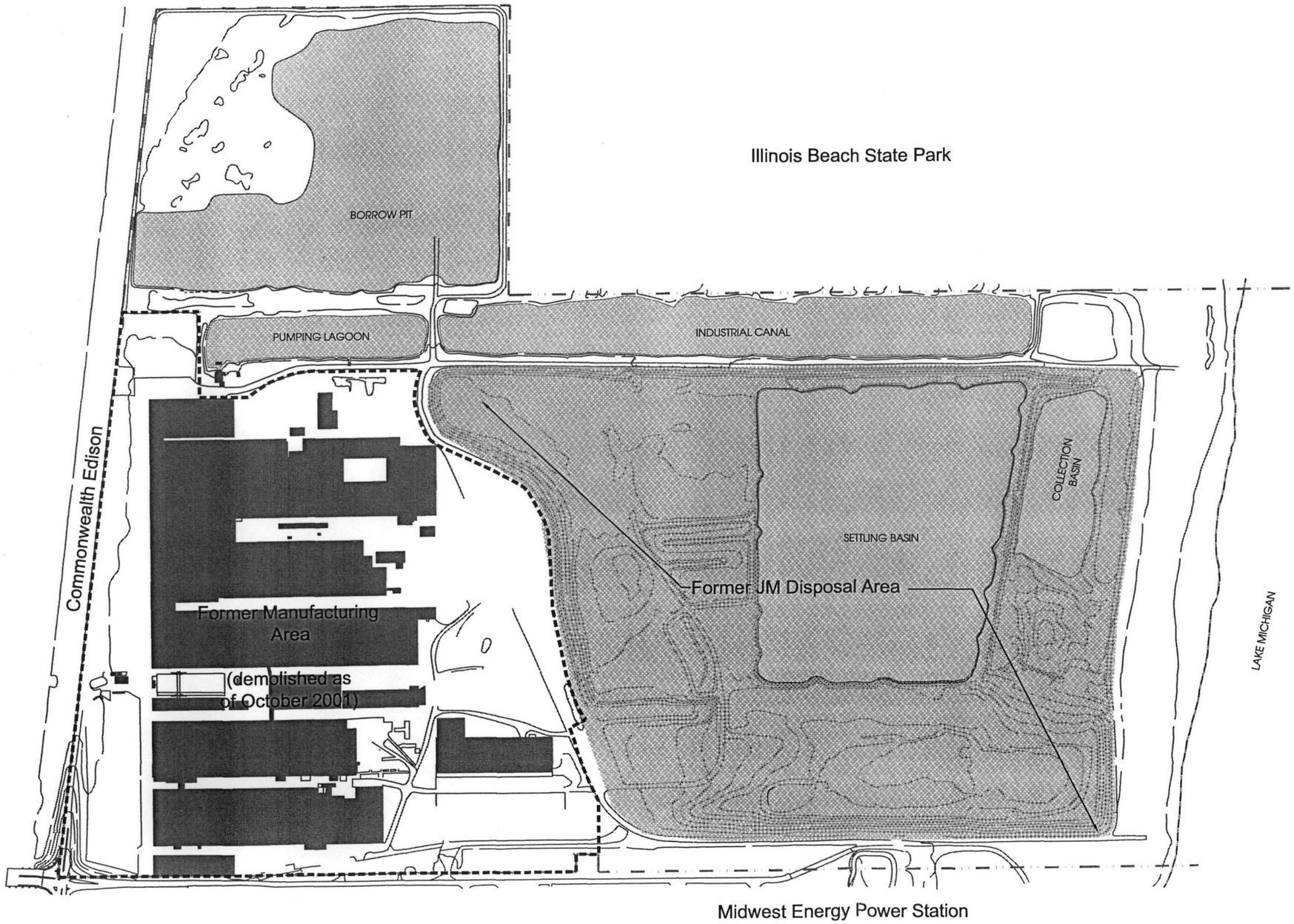

N

250 0 250 500 750
SCALE IN FEET

Property Line
Remediation Site

JOHNS MANVILLE, WAUKEGAN, ILLINOIS

General Property Map and Outline of Former Manufacturing Area

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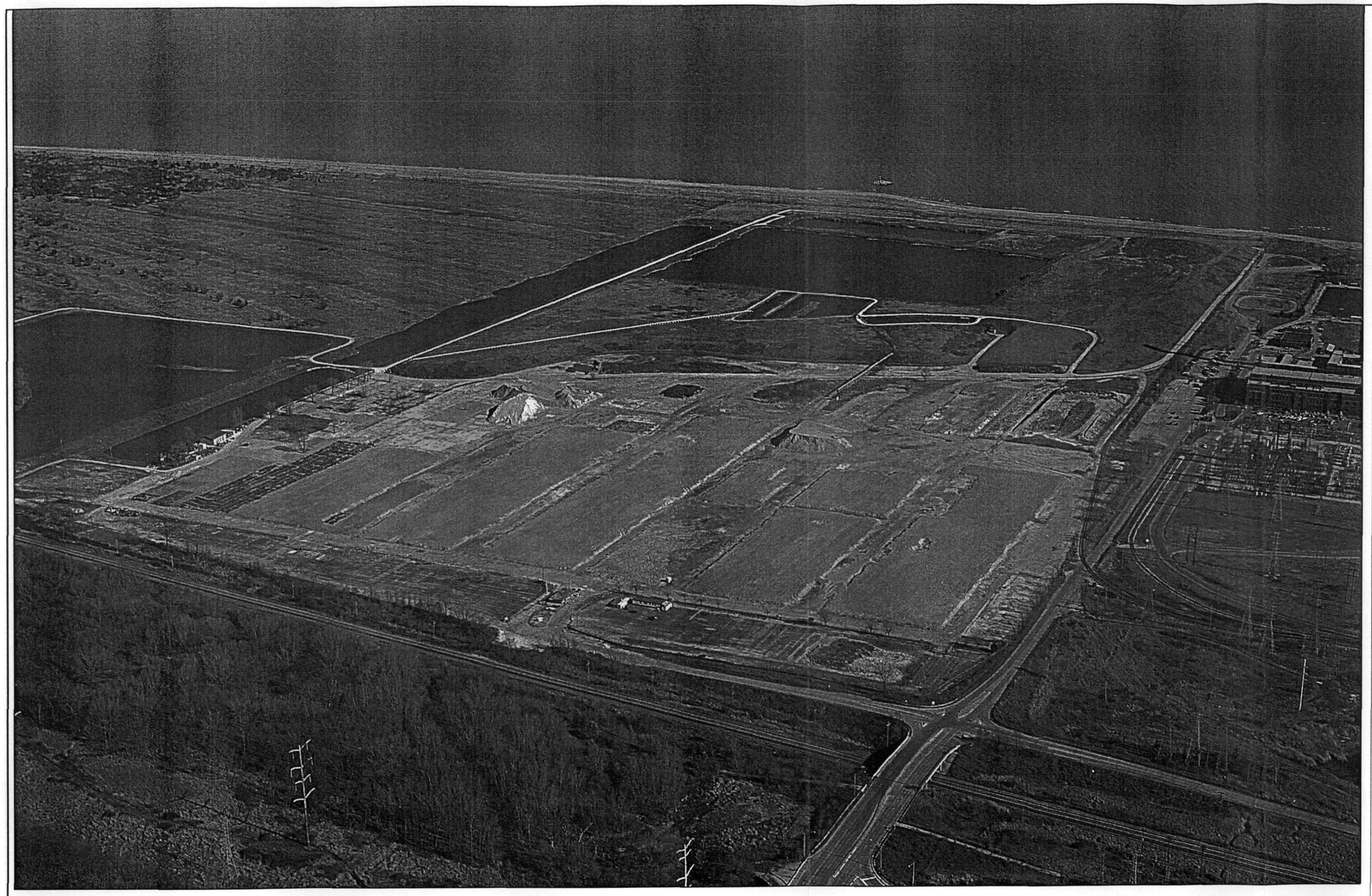
Figure 2



Johns Manville, Waukegan, Illinois

Aerial Photograph
October 2001

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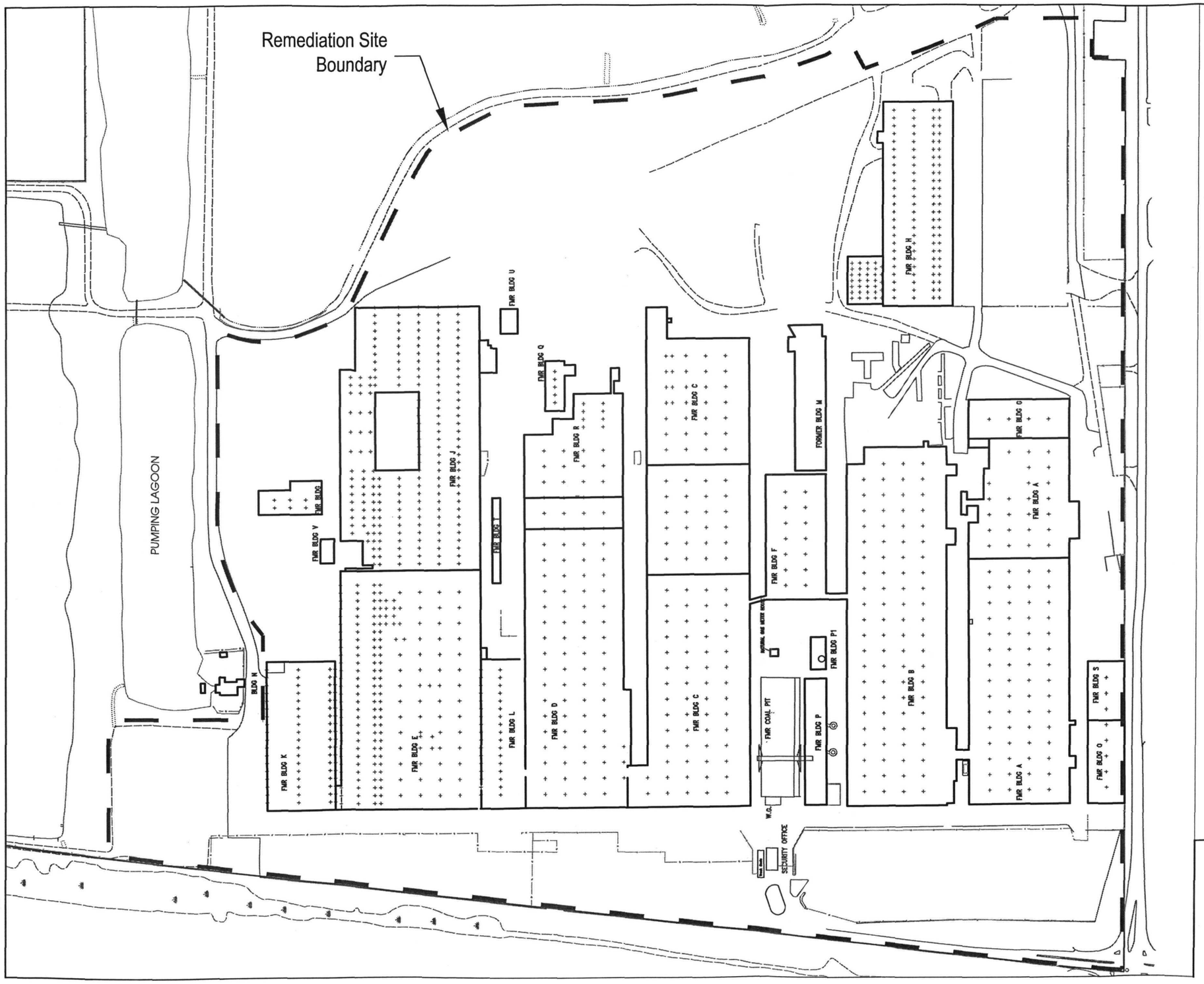
Figure 3



Johns Manville, Waukegan, Illinois

Site Plan Showing Location of Former Manufacturing Buildings

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Figure 4

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FIGURES 5 to 9

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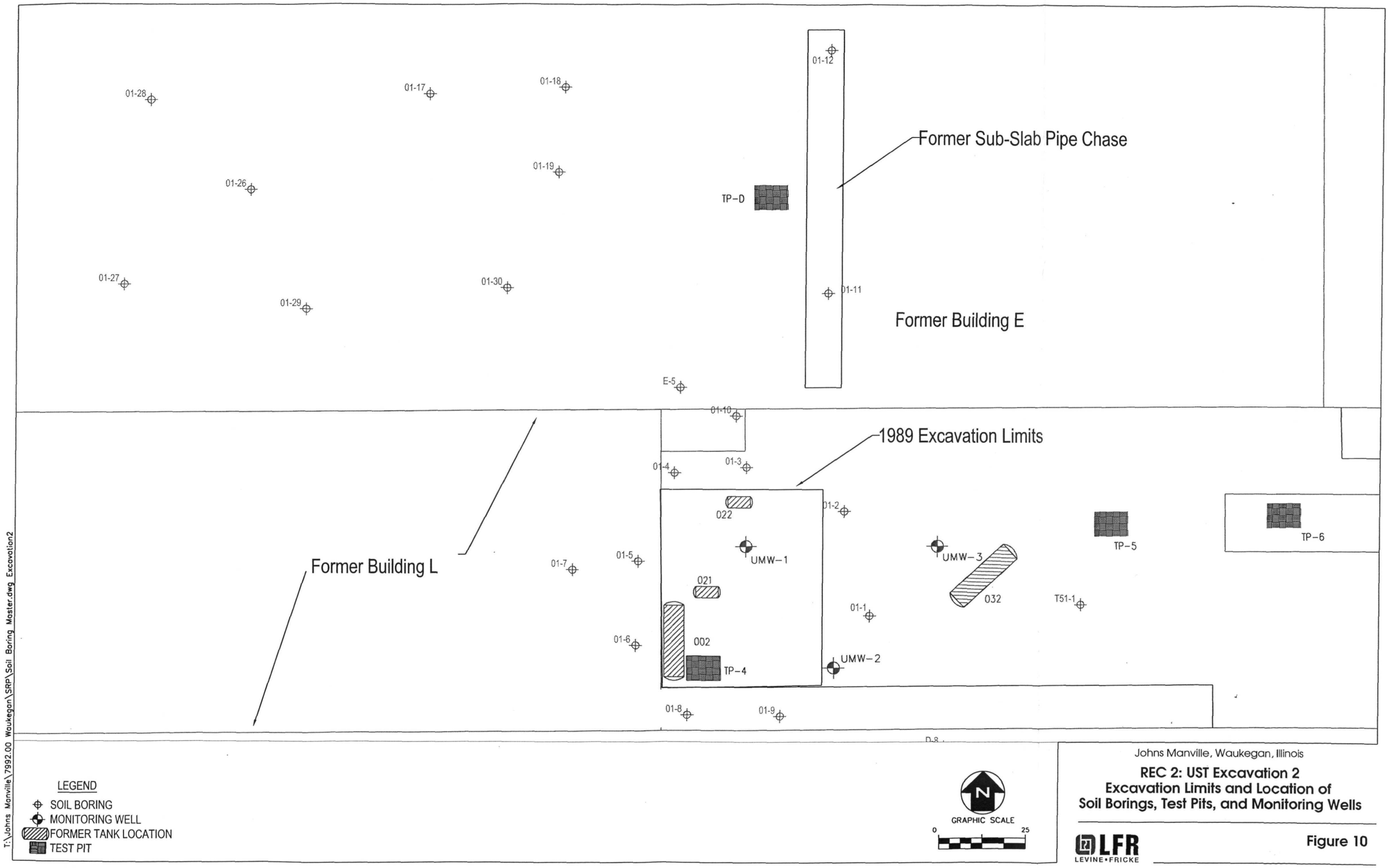

T:\Johns Manville\7992.00 Waukegan\SRP\Soil Boring Master.dwg Excavation2

Johns Manville, Waukegan, Illinois

REC 2: UST Excavation 2
Excavation Limits and Location of Soil Borings, Test Pits, and Monitoring Wells

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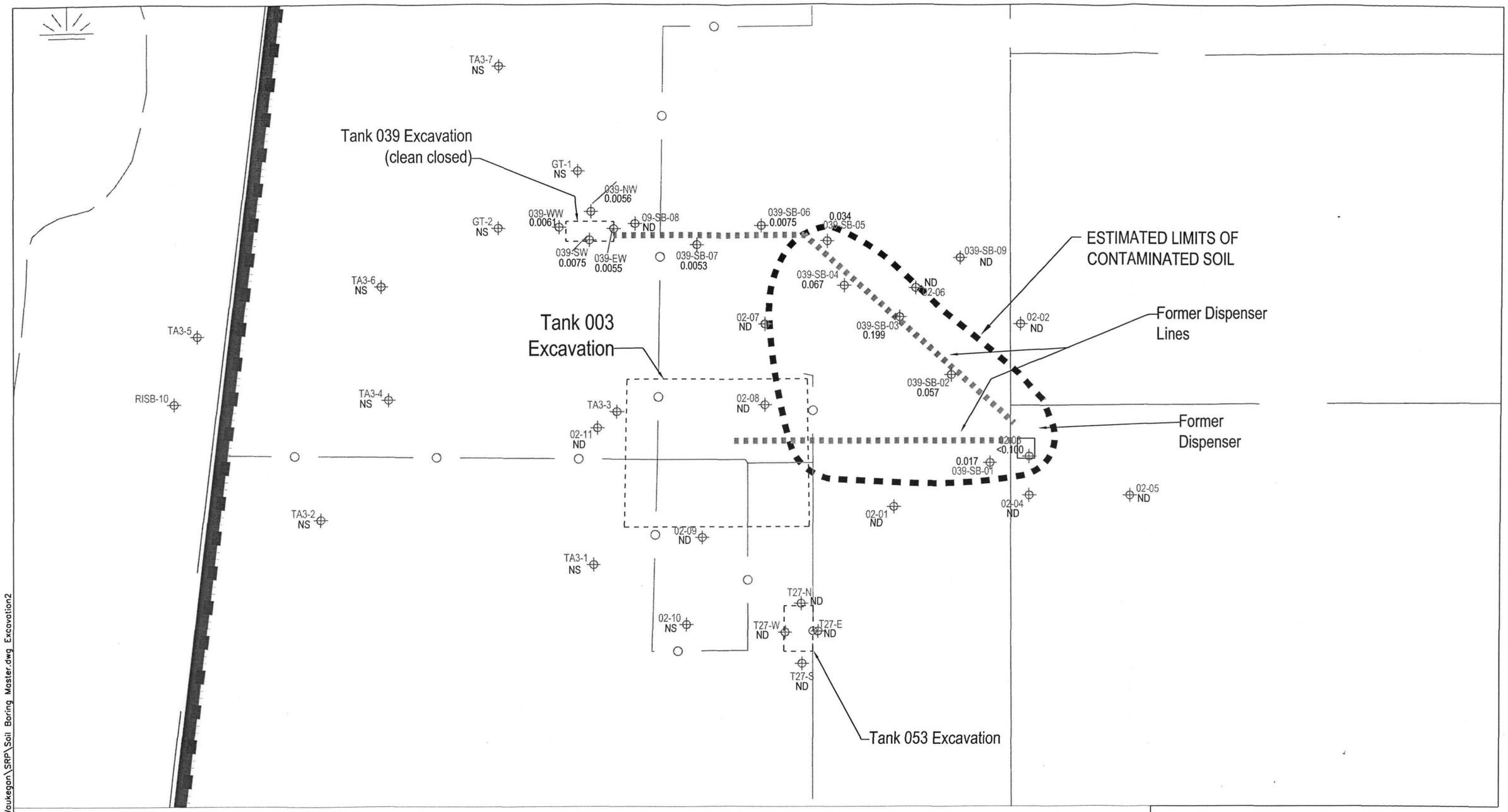
Figure 10



LEGEND
ND - NOT DETECTED ABOVE PQL
NS - NOT SAMPLED ABOVE WATER TABLE
⊕ SOIL BORING

GRAPHIC SCALE
0 30'

Johns Manville, Waukegan, Illinois

Benzene in Soil
REC 3: UST Excavation 3

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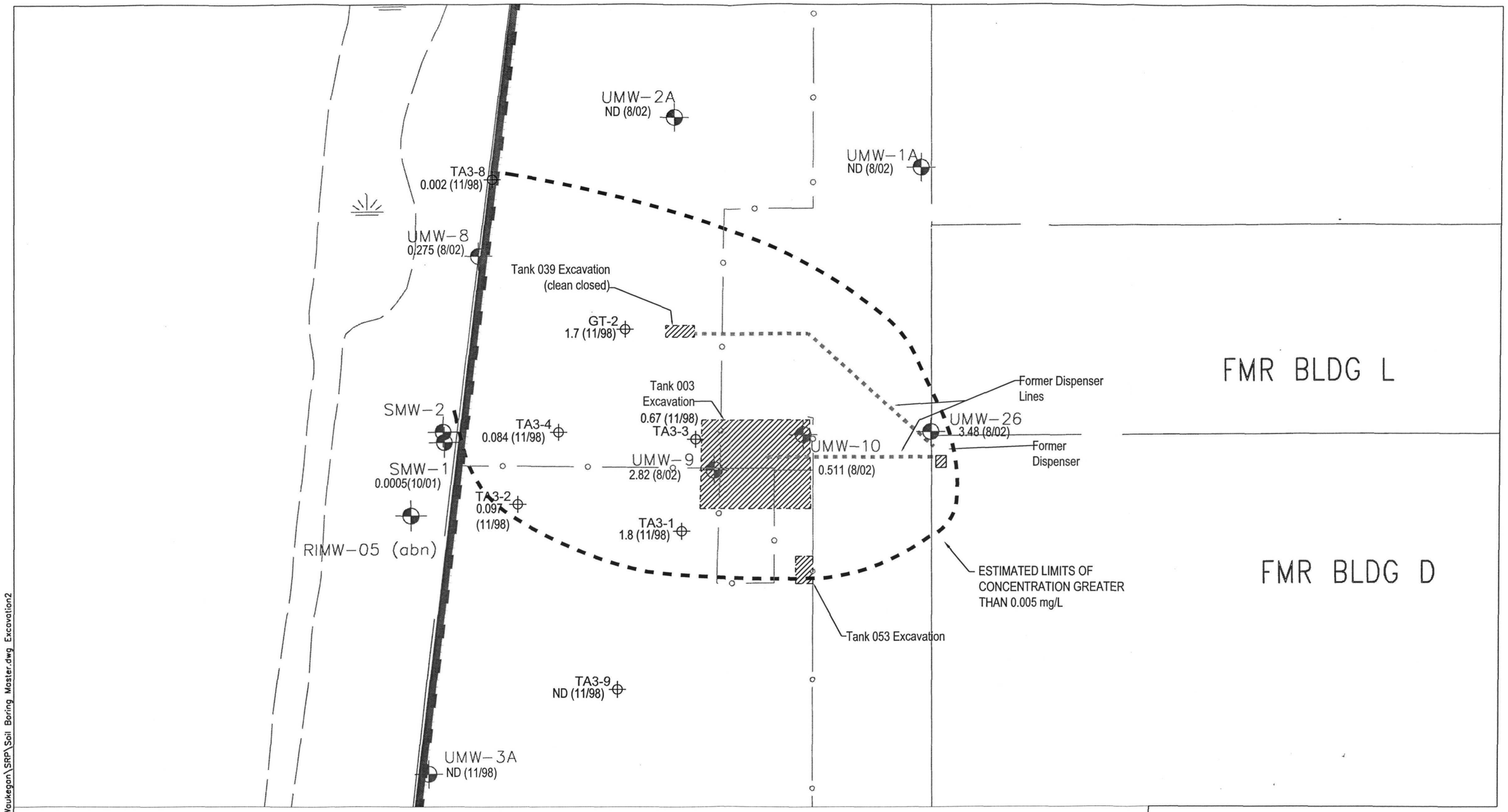
Figure 11

T:\Johns Manville\7992.00 Waukegan\SRP\Soil Boring Master.dwg Excavation2



LEGEND

- SOIL BORING
- MONITORING WELL
- FORMER TANK LOCATION
- TEST PIT

NOTES:
1. LATEST REPORT SHOWN, WITH DATE.
2. ND: NOT DETECTED ABOVE PQL

GRAPHIC SCALE
0 50'

Johns Manville, Waukegan, Illinois

REC 3: UST Excavation 3
Benzene in Groundwater

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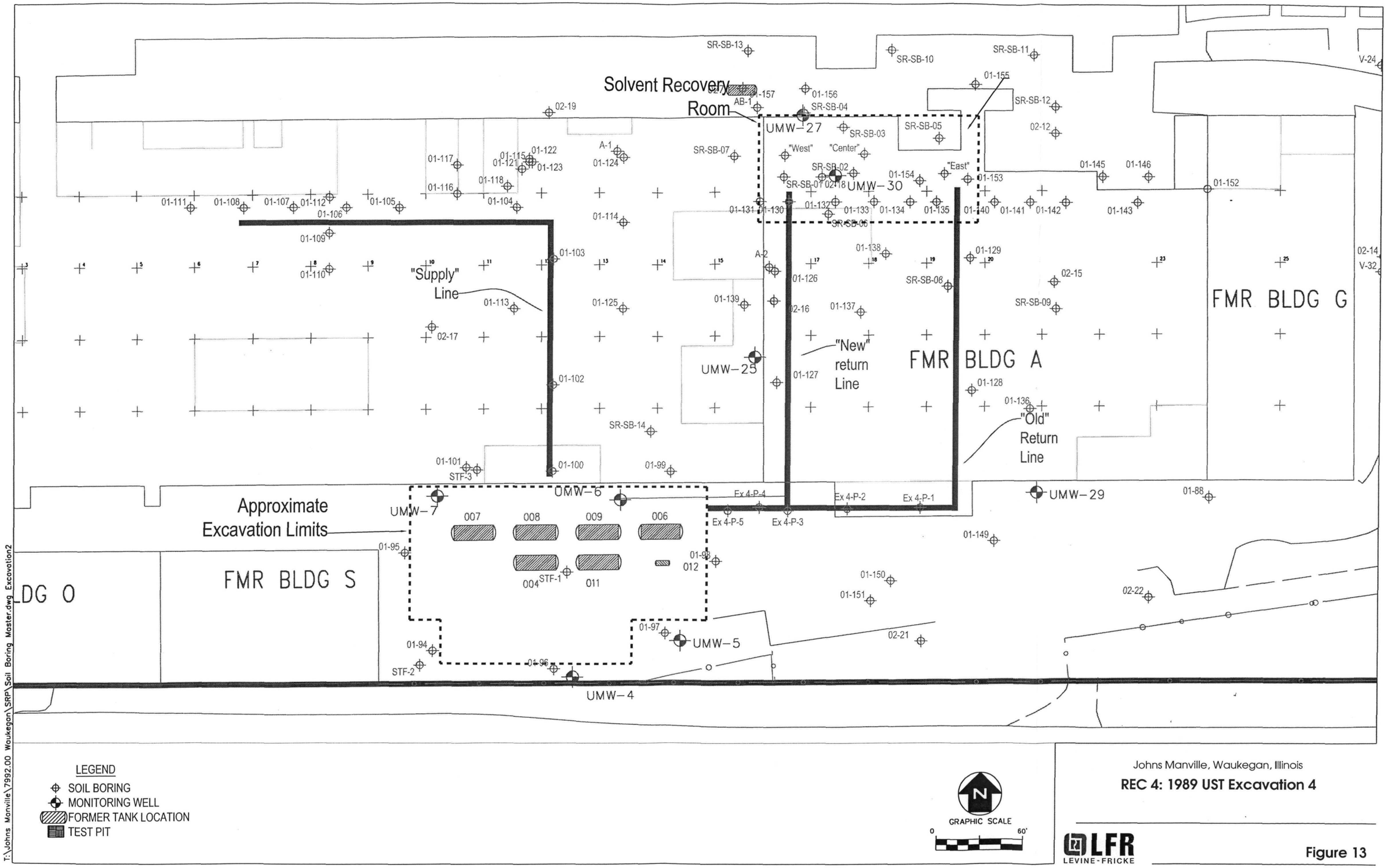
Figure 12

T:\Johns Manville\7992.00 Waukegan\SRP\Soil Boring Master.dwg Excavation2



Johns Manville, Waukegan, Illinois

REC 4: 1989 UST Excavation 4

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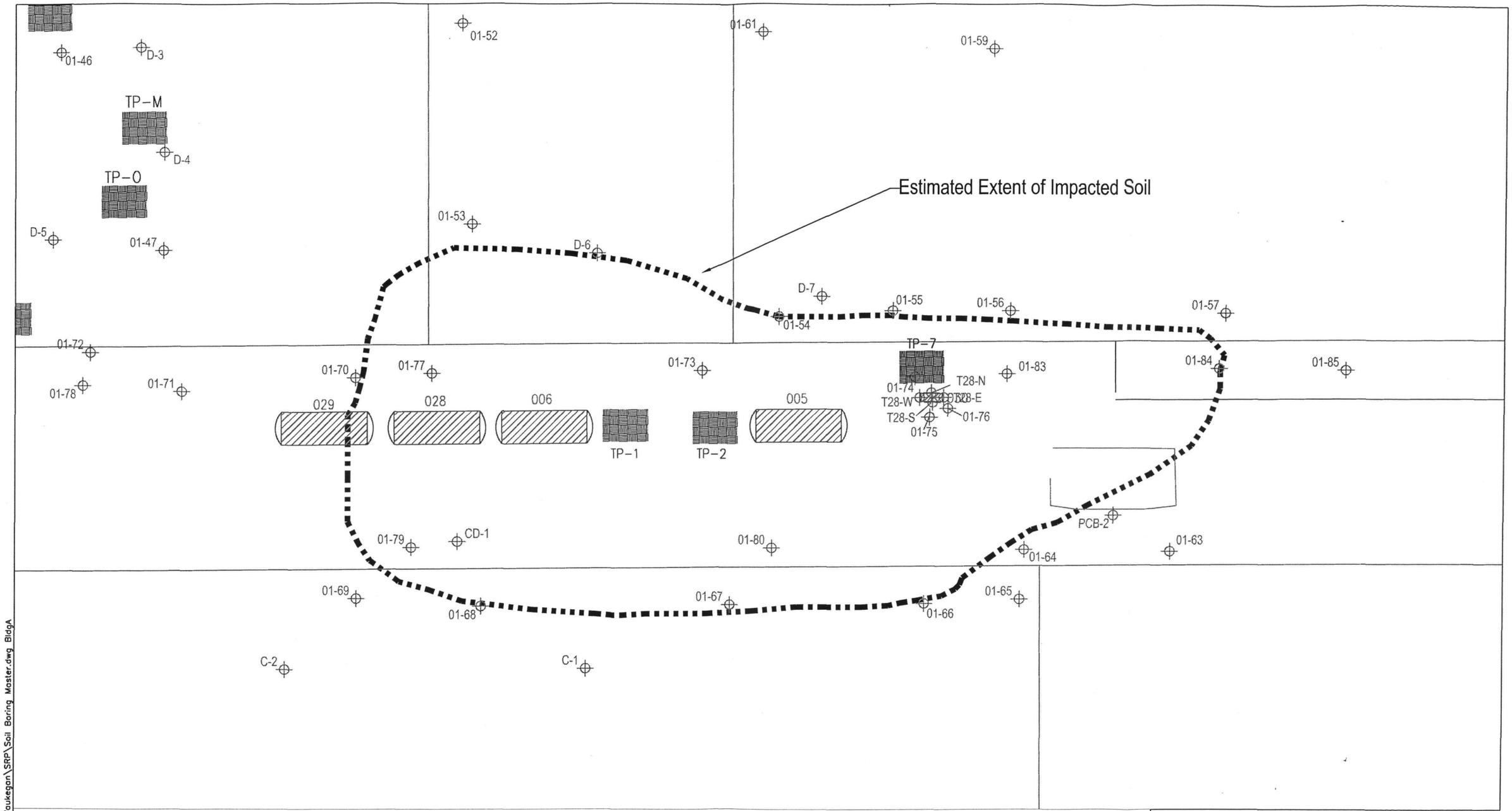
Figure 13

T:\Johns Manville\7992.00 Waukegan\SRP\Soil Boring Master.dwg Excavation2



LEGEND

- SOIL BORING
- MONITORING WELL
- FORMER TANK LOCATION
- TEST PIT

GRAPHIC SCALE

0 25'

Johns Manville, Waukegan, Illinois

REC 5: 1989 UST Excavation 5
Extent of Soil Impact

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Figure 14

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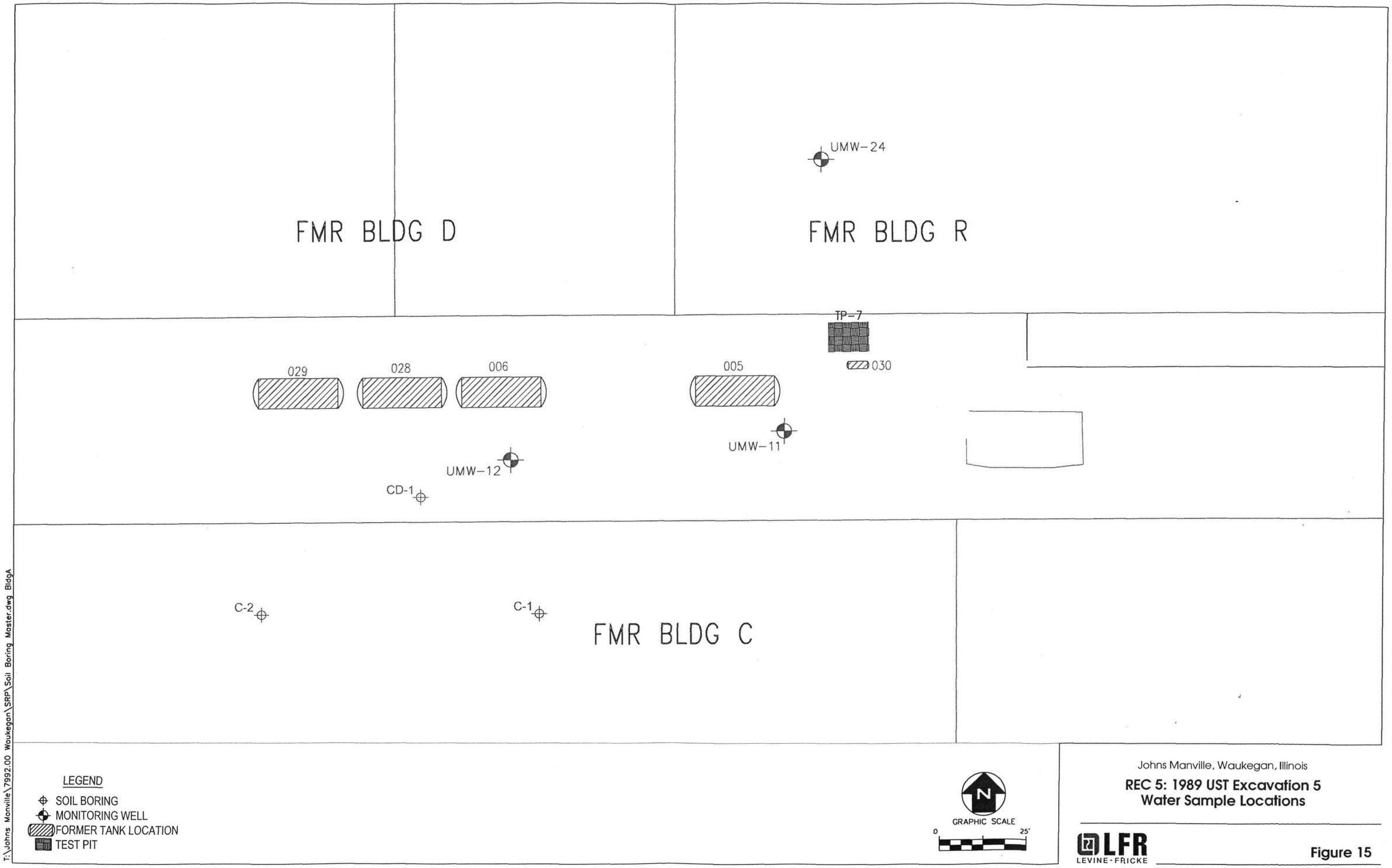

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Johns Manville, Waukegan, Illinois

REC 5: 1989 UST Excavation 5
Water Sample Locations

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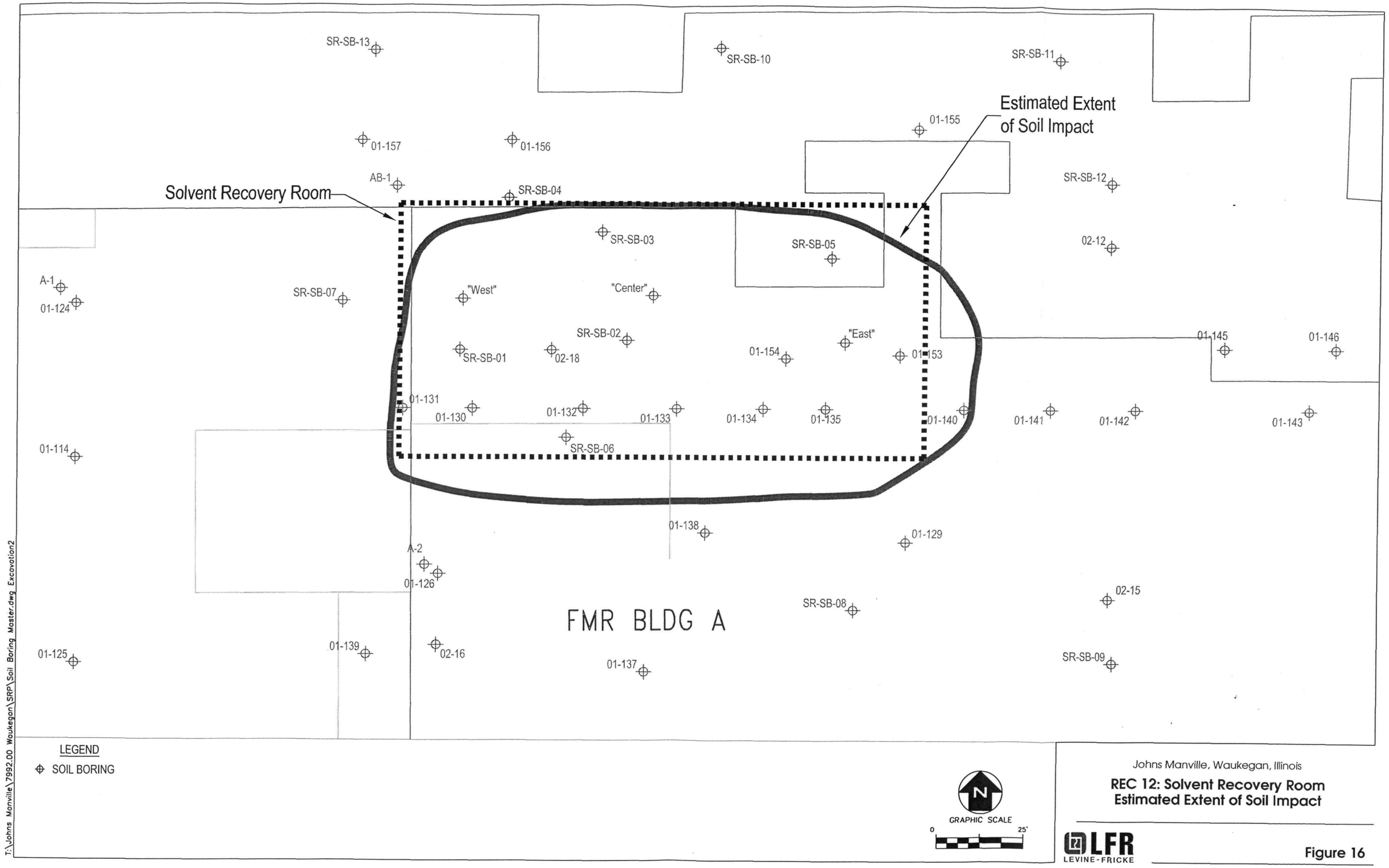
Figure 15



Johns Manville, Waukegan, Illinois

REC 12: Solvent Recovery Room
Estimated Extent of Soil Impact

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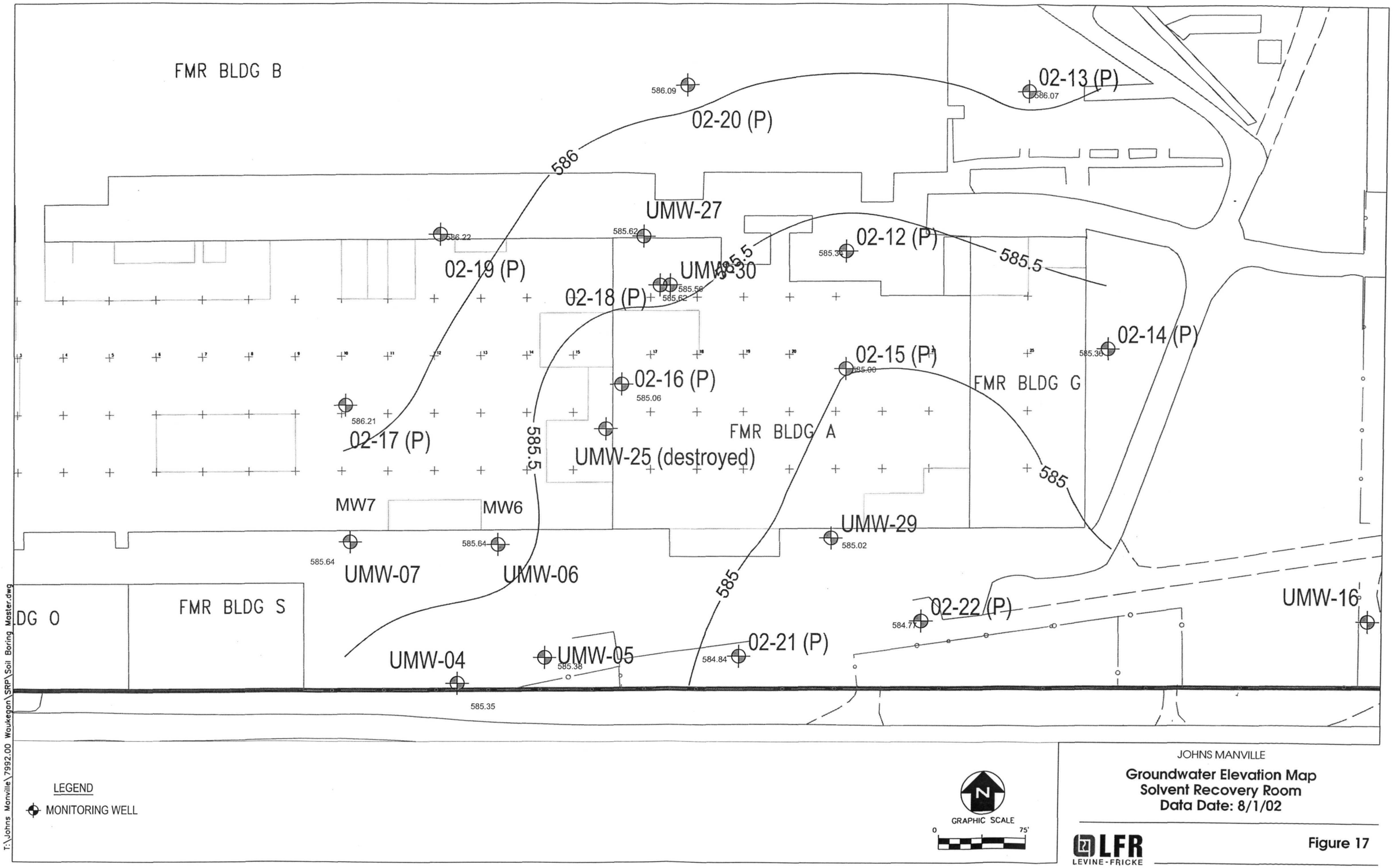
Figure 16



JOHNS MANVILLE

Groundwater Elevation Map
Solvent Recovery Room
Data Date: 8/1/02

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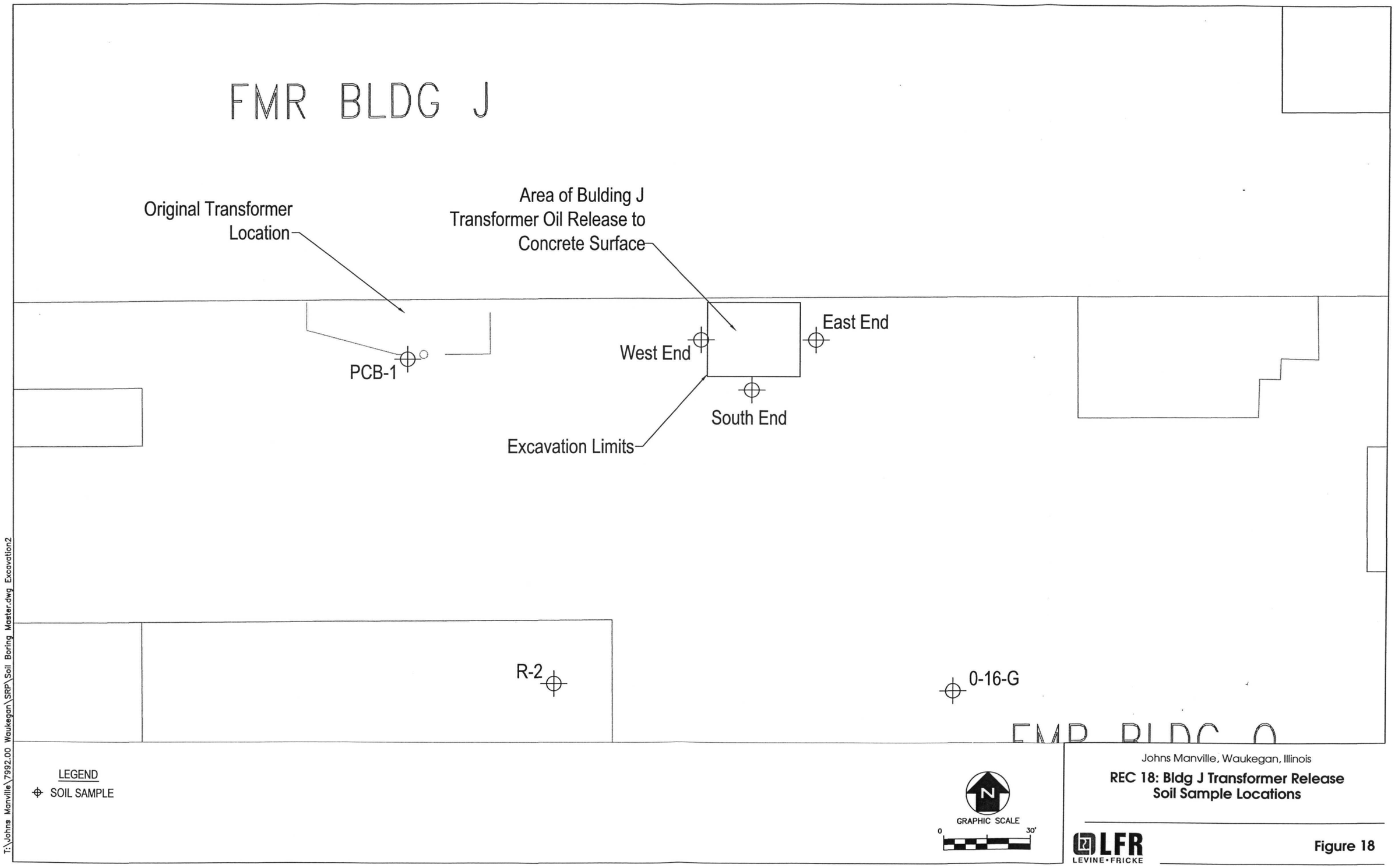
Figure 17



Johns Manville, Waukegan, Illinois

REC 18: Bldg J Transformer Release Soil Sample Locations

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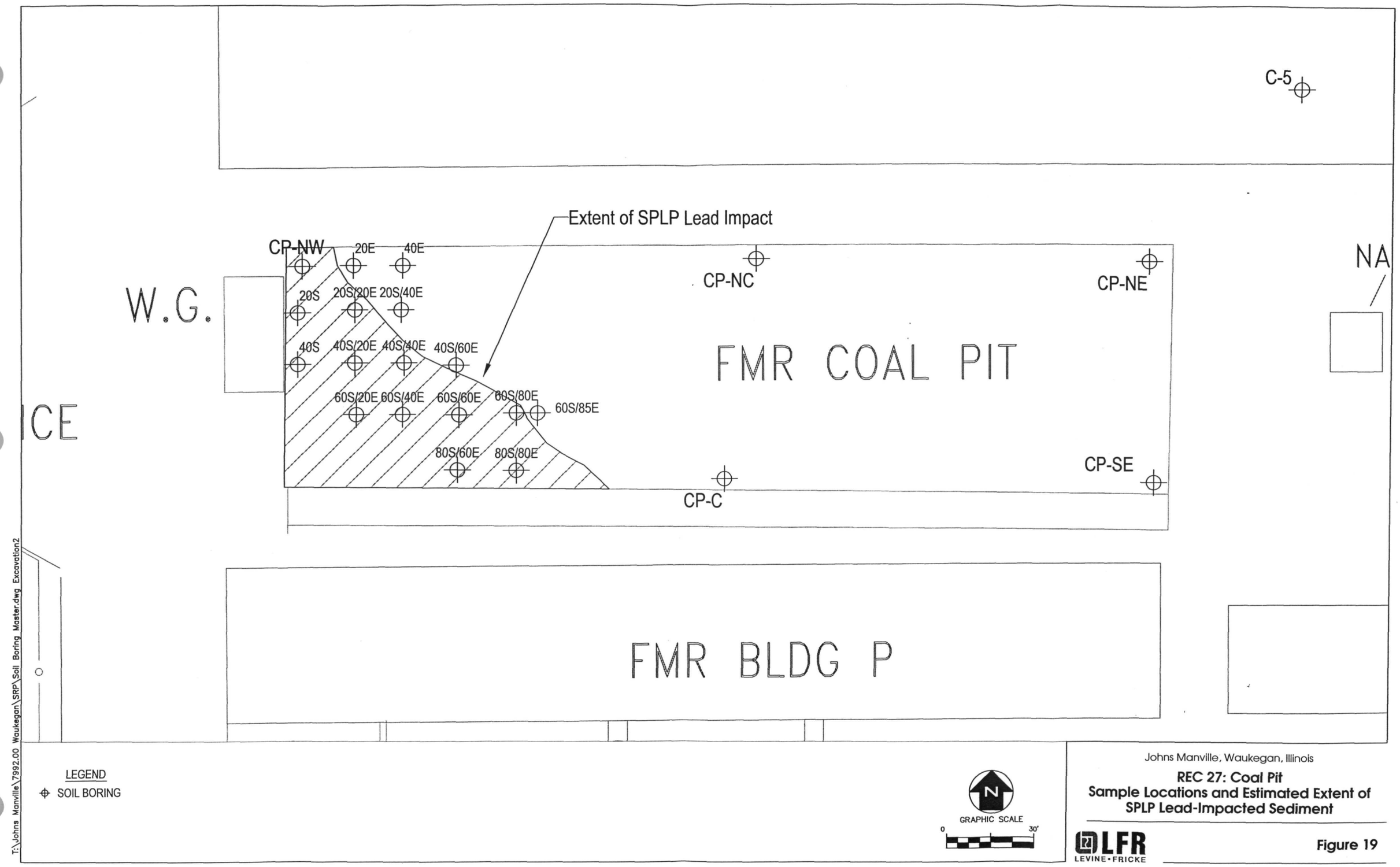
Figure 18



Johns Manville, Waukegan, Illinois

REC 27: Coal Pit
Sample Locations and Estimated Extent of SPLP Lead-Impacted Sediment

LFR LEVINE•FRICKE

Figure 19

Illinois Environmental Protection Agency · P.O. Box 19276, Springfield, IL 62794-9276

217/782-6761

Refer to: 0971905089 -- Lake County
Waukegan/John Manville Sales Corp.
Greenwood Avenue and Sand Street
Incident #891724
LUST/Tech Report File

received 5-20-91

May 9, 1991

Manville Corporation
Attn: Rick Jonas
Post Office Box 228
Waukegan, Illinois 60687

Dear Mr. Jonas:

The Illinois EPA has reviewed the information you submitted dated January, 1991 and which was received by the Agency on April 4, 1991. This information consisted of a Phase I Groundwater Investigation prepared by CCJM Environmental Engineers and Scientist. This investigation is approved, subject to the condition that a viable timetable for this site is submitted to the Agency by June 1, 1991.

The Agency agrees that no further remediation is necessary for excavation one, six, seven, eight, nine, and ten. This is what was meant from the letter dated March 18, 1991.

Should you have any questions or require further assistance do not hesitate to contact Christopher Kohrmann of my staff at 217/782-6761.

Sincerely,

Angela Aye Tin

Angela Aye Tin, Manager
State Sites Unit
Leaking Underground Storage Tank Section
Division of Land Pollution Control

cc: Division File
Maywood Region
Bur Filson
Tod Rowe
Chris Kohrmann

Printed on Recycled Paper

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/782-6762

JUL 29 1997

Mr. Byron Lemonier
Schuller International, Inc.
1871 North Pershing Road
Waukegan, Illinois 60087

Re: LPC # 0971905089 – Lake County
Waukegan / Johns-Mansville Sales Corp.
Greenwood Ave & Sands Street
LUST Incident No. 891724
LUST TECHNICAL FILE

Dear Mr. Lemonier:

The Illinois Environmental Protection Agency (Agency) has reviewed the Corrective Action Completion Report (Report) that was submitted for the above-referenced LUST incident. This information was dated February 26, 1996 and was received by the Agency on October 4, 1996. The Report requested closure of the above referenced incident. The Agency has determined that additional investigation must be conducted and some additional information be submitted to the Agency. In addition, based on the results of the investigation if warranted, a corrective action plan should be developed and submitted to the Agency.

The Agency requests that the following information/investigation be provided:

1. Provide maps of the former locations of the USTs, the limits of the excavation areas, and the locations of the soil samples used to demonstrate closure.

2. Sample the limits of the excavated areas for the appropriate indicator contaminants as noted below:

Excavation #2	BETX and PNAs
Excavation #4	BETX, PNAs, methyl ethyl ketone, volatiles, and base neutrals
Excavation #5	BETX, PNAs, and methanol
Excavation #11	BETX, PNAs, volatiles, base neutrals, and metals (TCLP)

3. Define the extent of remaining soil contamination for the appropriate indicator contaminants as noted above to the Tier 1 remediation objective in 35 Illinois Administrative Code Part 742.

4. Sample all existing monitoring wells for the proper indicator contaminants as indicated in number 2 above. Please provide copies of the lab results as well as chain of custody forms. The Agency also requests that all existing monitoring wells be sampled for asbestos.

5. Based on the results of the investigation requested above a corrective action plan addressing all residual soil and groundwater contamination must be developed and submitted to the Agency.

Submit the above information, results of the continued investigation, and a corrective action plan within ninety (90) days of the date of this letter to:

Illinois Environmental Protection Agency
Bureau of Land
Division of Remediation Management
Leaking Underground Storage Tank Section
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

Please include the "Re:" block at the beginning of this letter on all correspondence. In addition, all correspondence must be submitted in duplicate.

Should you have any questions or require further assistance, do not hesitate to contact Brian Bauer of my staff at 217/782-6762.

Sincerely,

Thomas A. Henninger
Unit Manager
Leaking Underground Storage Tank Section
Division of Remediation Management
Bureau of Land

TH:BB

cc: C.C. Johnson & Malhotra, P.C.

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/782-6762

JUL 29 1997

CERTIFIED MAIL
P344 348 736

Mr. Byron Lemonier
Schuller International, Inc.
1871 North Pershing Road
Waukegan, Illinois 60087

Rec'd Waukegan 8/4/97

Re: LPC # 0971905089 – Lake County
Waukegan / Johns-Mansville Sales Corp.
Greenwood Ave & Sands Street
LUST Incident No. 951826
LUST TECHNICAL FILE

Dear Mr. Lemonier:

The Illinois Environmental Protection Agency has reviewed the Site Classification Completion Report that was submitted for the above-referenced LUST incident. This information was dated June 23, 1997 and was received by the Agency on June 24, 1997. Citations in this letter are from the Illinois Environmental Protection Act (Act) and 35 Illinois Administrative Code (35 IAC).

The Agency is notifying the owner or operator that the site classification is being rejected for the reason(s) listed in Attachment A (Section 57.7(b)(1) of the Act; 35 IAC Sections 732.309(b) and 732.503(b)).

Submit all further correspondence to:

Illinois Environmental Protection Agency
Bureau of Land
Division of Remediation Management
Leaking Underground Storage Tank Section
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

Please include the "Re:" block at the beginning of this letter on all correspondence. In addition, all correspondence must be submitted in duplicate.

The Agency does not require the submission or approval of a budget if the owner or operator will not seek payment of corrective action costs from the Underground Storage Tank Fund.

For purposes of appeal, this constitutes the Agency's final decision regarding the above matters. Please see Appendix 1 for an owner or operator's appeal rights.

Should you have any questions or require further assistance, do not hesitate to contact Brian Bauer of my staff at 217/782-6762.

Sincerely,

Thomas A. Henninger
Unit Manager
Leaking Underground Storage Tank Section
Division of Remediation Management
Bureau of Land

TH:BB

Appendices: 1

cc: C.C. Johnson & Malhotra, P.C.

APPENDIX 1

An underground storage tank owner or operator may appeal this final decision to the Illinois Pollution Control Board ("Board") pursuant to Section 57.8(i) and Section 40 of the Illinois Environmental Protection Act. An owner or operator who seeks to appeal the Agency's decision may, within 35 days of the date of mailing of the Agency's final decision, petition for a hearing before the Board; however, the 35-day period may be extended for a period of time not to exceed 90 days by written notice provided to the Board from the applicant and the Agency within the 35-day initial appeal period.

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

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

Illinois Environmental Protection Agency
Division of Legal Counsel
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276
217/782-5544

BB:ct\961979.WPD

Attachment A

Re: LPC # 0971905089 -- Lake County
Waukegan / Johns-Mansville Sales Corp.
Greenwood Ave & Sands Street
LUST Incident No. 951826
LUST TECHNICAL FILE

NOTE: Citations in this Attachment are from the Illinois Environmental Protection Act (Act) and 35 Illinois Administrative Code (35 IAC).

1. Pursuant to 35 IAC Section 732.307(g), Investigation of Migration Pathways:

   1) The Licensed Professional Engineer shall conduct an investigation either separately or in conjunction with the physical soil classification to identify all potential natural and man-made migration pathways that are on the site, in rights of way attached to the site, or in any area surrounding the site that may be adversely affected as a result of the release of petroleum from the UST system. Once the migration pathways have been identified, the areas along all such pathways shall be further investigated in a manner sufficient to determine whether or not there is evidence that migration of petroleum or vapors along such pathways:

      A) May potentially threaten human health or human safety; or

      B) May cause explosions in basements, crawl spaces, utility conduits, storm or sanitary sewers, vaults or other confined spaces.

   2) The Licensed Professional Engineer shall provide a map of the site and any surrounding areas that may be adversely affected by the release of petroleum from the UST system. At a minimum, the map shall be to scale, oriented with north at the top, and shall show the location of the leaking UST system(s) with any associated piping and all potential natural and man-made pathways that are on the site, in rights-of-way attached to the site, or that are in areas that may be adversely affected as a result of the release of petroleum.

   3) Unless the Agency's review reveals objective evidence to the contrary, the Licensed Professional Engineer shall be presumed correct when certifying whether or not there is evidence that, through natural or man-made pathways, migration of petroleum or vapors:

      A) May potentially threaten human health or human safety; or

      B) May cause explosions in basements, crawl spaces, utility conduits, storm or

sanitary sewers, vaults or other confined spaces.

The report submitted fails to indicate the above requirements have been met and, therefore, it has not been adequately demonstrated whether or not migration of petroleum or vapors threatens human health or safety (57.7(b)(3)(C) of the Act) for the following reason(s): Base on the information submitted to the Agency it appears that there is a potential for contaminated groundwater to migrate through the backfill material of the sewer. This potential migration pathway has not been investigated as required above.

2. The report submitted indicates that the site has been classified as "Low Priority". Pursuant to 35 IAC Section 732.303, sites shall be classified as "Low Priority" if all of the following criteria are satisfied:

   a) The physical soil classification and groundwater investigation procedures confirm the following:

      1) The groundwater quality standard or groundwater objective for any applicable indicator contaminant has not been exceeded at the property boundary line or 200 feet from the UST system, whichever is less; and

      2) "Berg Circular"

         A) The site is located in an area designated A1, A2, A3, A4, A5, AX, B1, B2, BX, C1, C2, C3, C4, or C5 on the Illinois State Geological Survey Circular (1984) entitled, "Potential for Contamination of Shallow Aquifers in Illinois"; and

         B) The site's actual physical soil conditions are verified as consistent with those designated A1, A2, A3, A4, A5, AX, B1, B2, BX, C1, C2, C3, C4, or C5 on the Illinois State Geological Survey Circular (1984) entitled, "Potential for Contamination of Shallow Aquifers in Illinois"; or

      3) The site soil characteristics do not satisfy the criteria of 35 IAC Section 732.307(d)(3);

   b) The UST system is not within the minimum or maximum setback zone of a potable water supply well or regulated recharge area of a potable water supply well;

   c) After completing early action measures in accordance with 35 IAC Part 732 Subpart B, there is no evidence that, through natural or man-made pathways, migration of petroleum or vapors threaten human health or human safety or may cause explosions in basements, crawl spaces, utility conduits, storm or sanitary sewers, vaults or other confined spaces;

d) There is no designated Class III special resource groundwater within 200 feet of the site; and

e) After completing early action measures in accordance with 35 IAC Part 732 Subpart B, there are no surface bodies of water adversely affected by the presence of a visible sheen or free product layer as a result of the release of petroleum.

The report fails to indicate that the site meets the criteria of a Low Priority site as outlined above and in Section 57.7(b)(4) of the Act for the following reasons:

The groundwater quality standard for an applicable indicator contaminant has been exceeded at the property boundary line or 200 feet from the UST system.

It has not been demonstrated that after completing early action measures in accordance with 35 IAC Part 732 Subpart B, there is no evidence that, through natural or man-made pathways, migration of petroleum or vapors threaten human health or human safety or may cause explosions in basements, crawl spaces, utility conduits, storm or sanitary sewers, vaults or other confined spaces.

3. Pursuant to 35 IAC Section 732.310, Indicator Contaminants:

a) For purposes of Part 732, the term "indicator contaminants" shall mean the parameters listed in subsections (b) through (g) below.

b) For gasoline, including but not limited to leaded, unleaded, premium and gasohol, the indicator contaminants shall be benzene, ethylbenzene, toluene and total xylenes. For leaded gasoline, lead shall also be an indicator contaminant.

c) For aviation turbine fuels, jet fuels, diesel fuels, gas turbine fuel oils, heating fuel oils, illuminating oils, kerosene, lubricants, liquid asphalt and dust laying oils, cable oils, crude oil, crude oil fractions, petroleum feedstocks, petroleum fractions and heavy oils, the indicator contaminants shall be benzene, ethylbenzene, toluene, total xylenes, and the polynuclear aromatics listed in Appendix A of Part 732. For leaded aviation turbine fuels, lead shall also be an indicator contaminant.

d) For transformer oils the indicator contaminants shall be benzene, ethylbenzene, toluene, total xylenes, the polynuclear aromatics listed in Appendix B of Part 732 and the polychlorinated biphenyl parameters listed in Appendix B of Part 732.

e) For hydraulic fluids the indicator contaminants shall be benzene, ethylbenzene, toluene, total xylenes and the polynuclear aromatics listed in Appendix B of Part 732 and barium.

f) For petroleum spirits, mineral spirits, stoddard solvents, high-flash aromatic naphthas,

moderately volatile hydrocarbon solvents and petroleum extender oils, the indicator contaminants shall be the volatile, base/neutral and polynuclear aromatic parameters listed in Appendix B of Part 732. The Agency may add degradation products or mixtures of any of the above pollutants in accordance with 35 IAC 620.615.

g) For used oil the indicator contaminants shall be determined by the results of a used oil soil sample analysis. Prior to the submission of a site classification plan the owner or operator shall collect a grab sample from a location representative of soil contaminated by a release from the used oil UST. If an area of contamination cannot be identified, the sample shall be collected from beneath the used oil UST. The sample shall be analyzed for:

1) All volatile, base/neutral, polynuclear aromatic and metal parameters listed at Appendix B of Part 732 and any other parameters the Licensed Professional Engineer suspects may be present based on UST usage. The Agency may add degradation products or mixtures of any of the above pollutants in accordance with 35 IAC 620.615.

2) The used oil indicator contaminants shall be those volatile, base/neutral, polynuclear aromatic and metal parameters listed at Appendix B of Part 732 or as otherwise identified at subsection (a) of this Section that exceed their cleanup objective at Appendix B of Part 732 or as determined by the Agency.

3) If none of the parameters exceed their cleanup objective, the used oil indicator contaminants shall be benzene, BETX and the Polynuclear aromatics listed in Appendix B of 35 IAC Part 732.

The report submitted fails to meet the above requirements for the following reason(s): The UST for the above referenced incident was leaded gasoline. Leaded gasoline requires that TCLP lead also be analyzed for, TCLP lead analysis was not conducted.

APPENDIX B

SDMS US EPA Region V

Imagery Insert Form

Some images in this document may be illegible or unavailable in SDMS.
Please see reason(s) indicated below:

☐ Illegible due to bad source documents. Image(s) in SDMS is equivalent to hard copy.

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Unless otherwise noted, these pages are available in monochrome. The source document page(s) is more legible than the images. The original document is available for viewing at the Superfund Records Center.

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Specify Type of Document(s) / Comments:

APPENDIX B - HISTORICAL SITE & SANBORN MAPS

☐ Document is available at the EPA Region 5 Records Center.

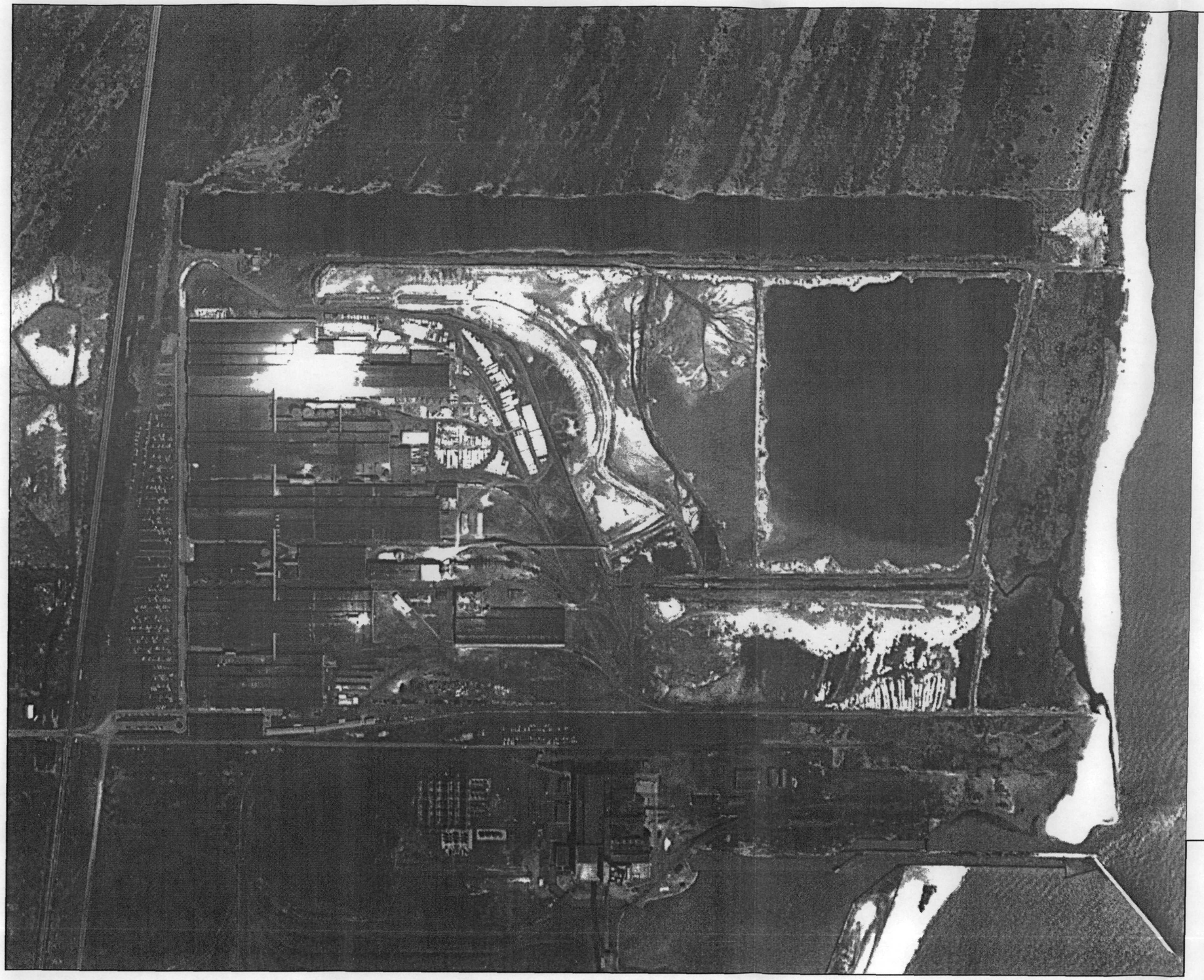
Specify Type of Document(s) / Comments:

APPENDIX C

Johns Manville, Waukegan, Illinois

1946 Aerial Photograph

LFR
LEVINE•FRICKE



Johns Manville, Waukegan, Illinois

1953 Aerial Photograph

LFR
LEVINE•FRICKE

Johns Manville, Waukegan, Illinois

1955 Aerial Photograph

LFR
LEVINE • FRICKE

Johns Manville, Waukegan, Illinois

1972 Aerial Photograph

LFR
LEVINE•FRICKE

Johns Manville, Waukegan, Illinois

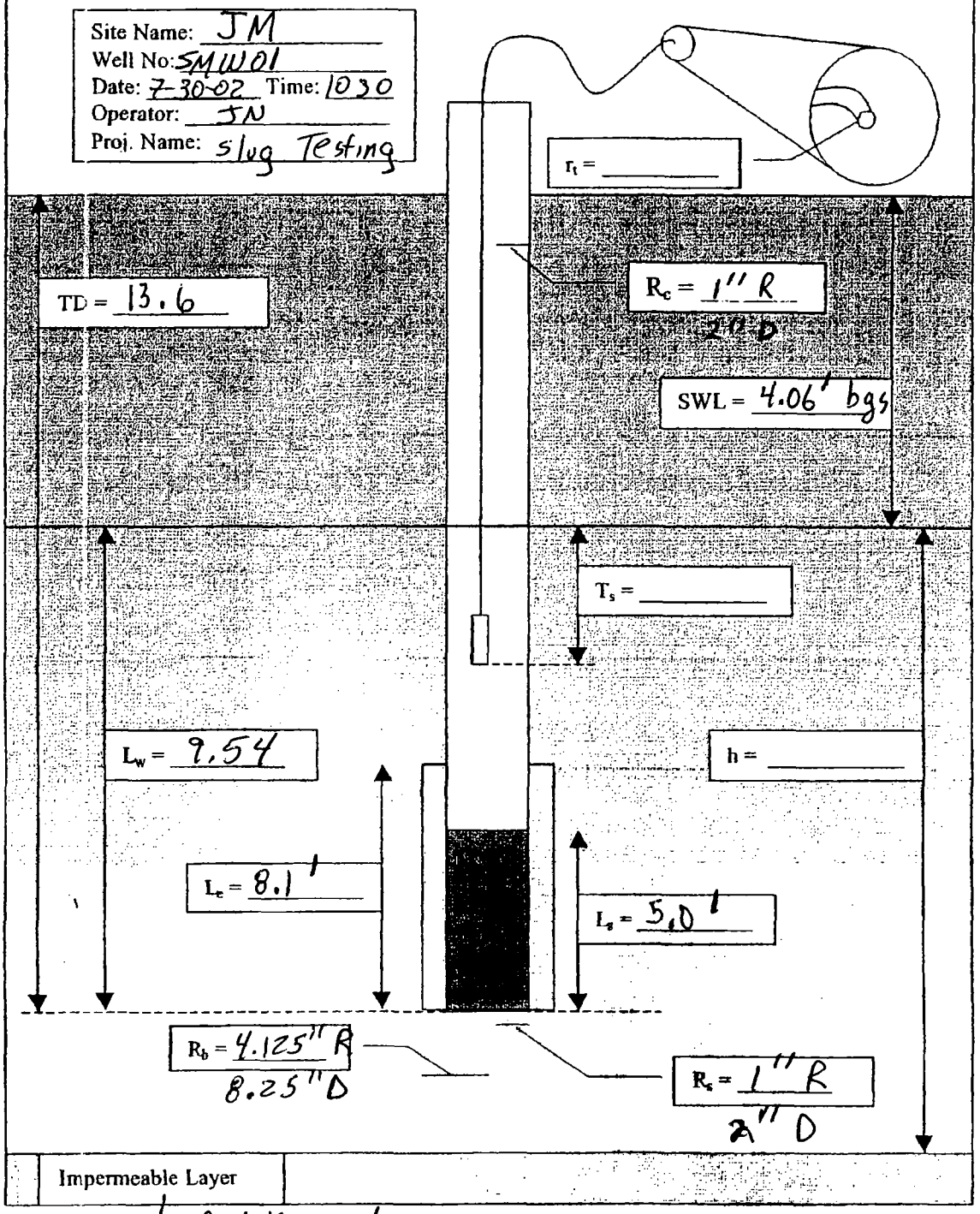
1978 Aerial Photograph

LFR
LEVINE•FRICKE

APPENDIX D

Geoprobe® Slug Test Field Information Form
for
Well Construction / Water Sampler Installation

Site Name: JM
Well No: SMW01
Date: 7-30-02 Time: 1030
Operator: JN
Proj. Name: Slug Testing

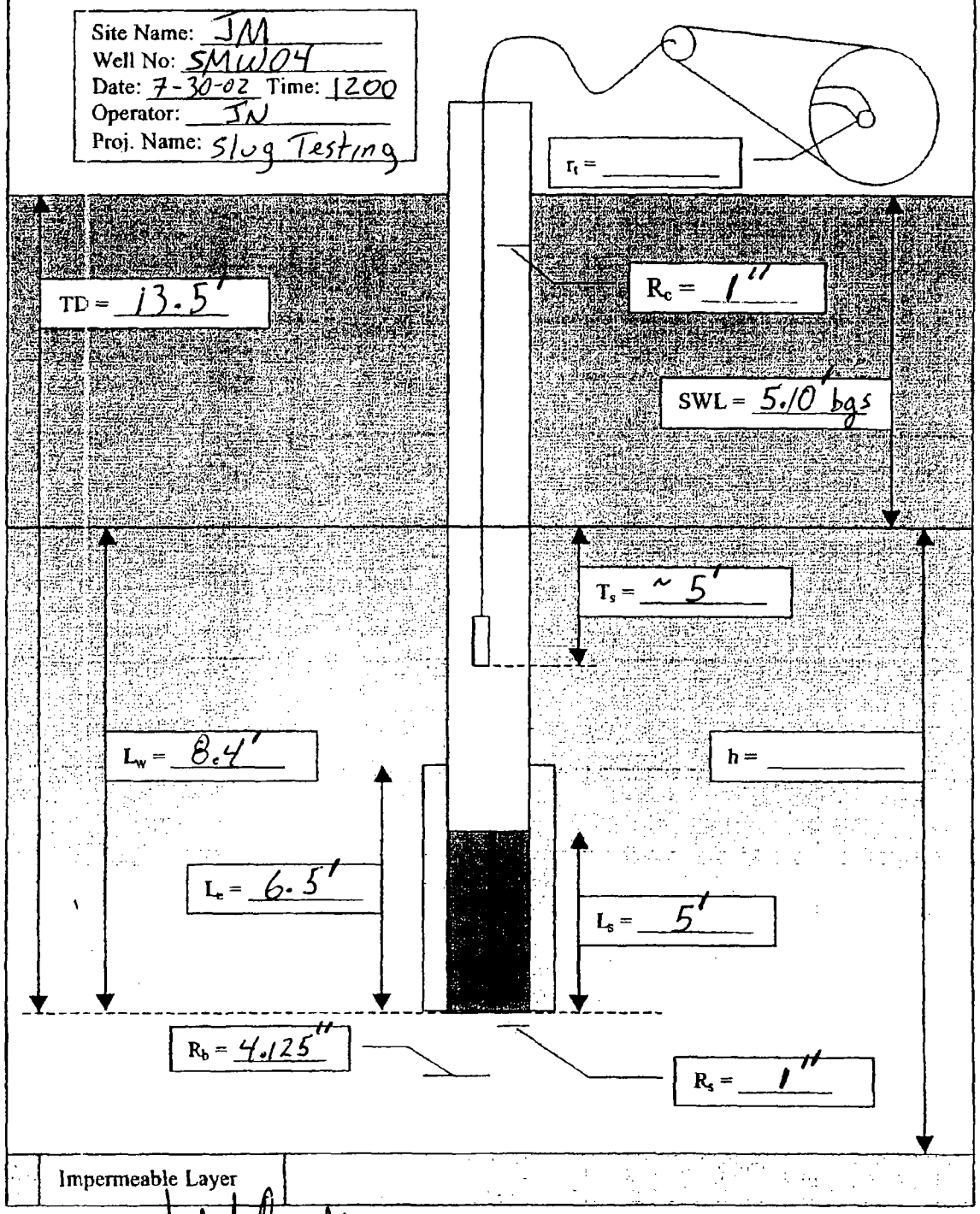


Signature: John Nayek Date: 7-30-02

FIGURE 6.1:
Copy and use this form in the field to record construction and installation parameters for slug testing

Geoprobe® Slug Test Field Information Form
for
Well Construction / Water Sampler Installation

Site Name: JM
Well No: SMW04
Date: 7-30-02 Time: 1200
Operator: JN
Proj. Name: Slug Testing

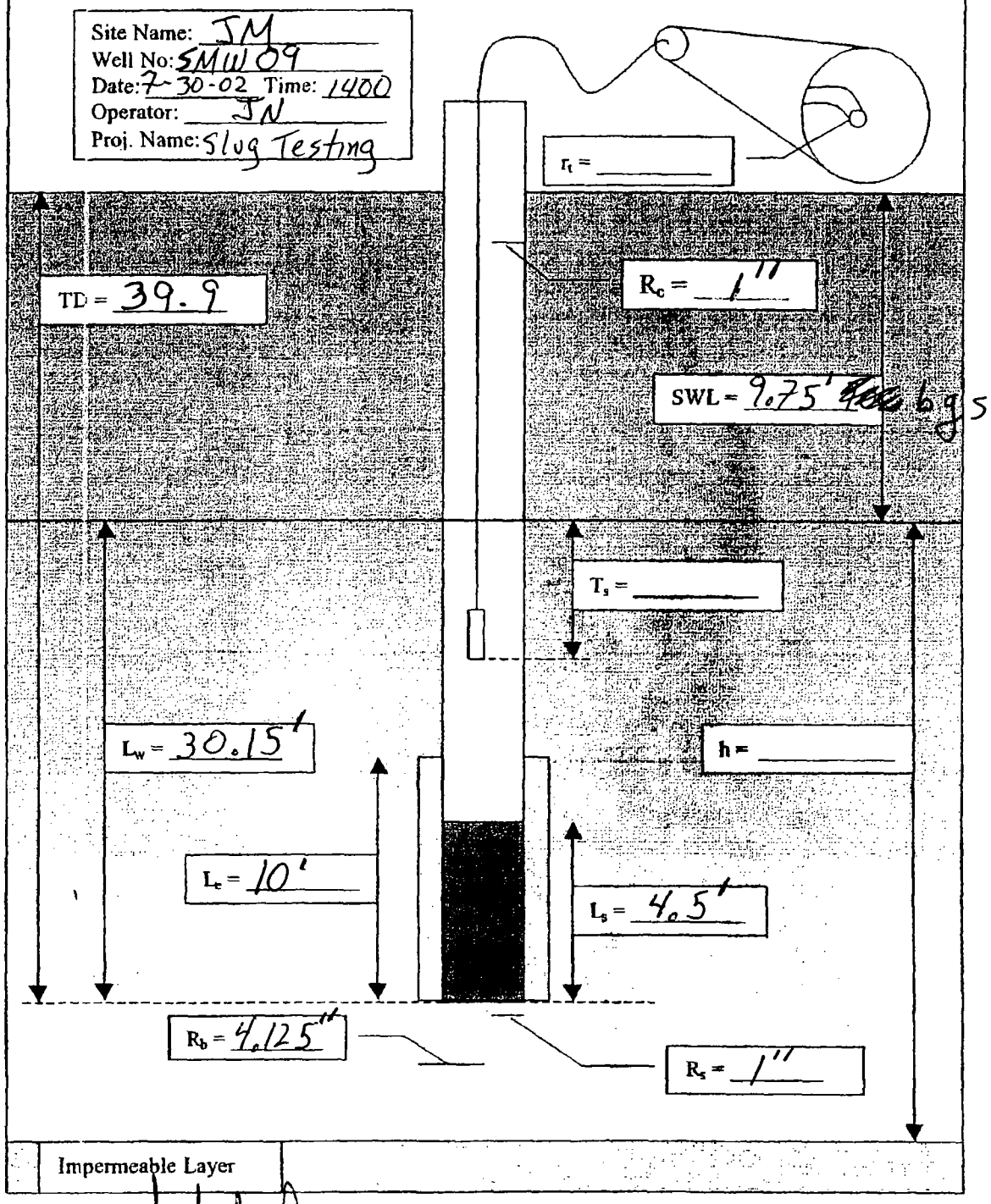


Signature: John Hayes Date: 7-30-02

FIGURE 6.1:
Copy and use this form in the field to record construction and installation parameters for slug testing

Geoprobe® Slug Test Field Information Form
for
Well Construction / Water Sampler Installation

Site Name: JM
Well No: SMW09
Date: 7-30-02 Time: 1400
Operator: JN
Proj. Name: Slug Testing

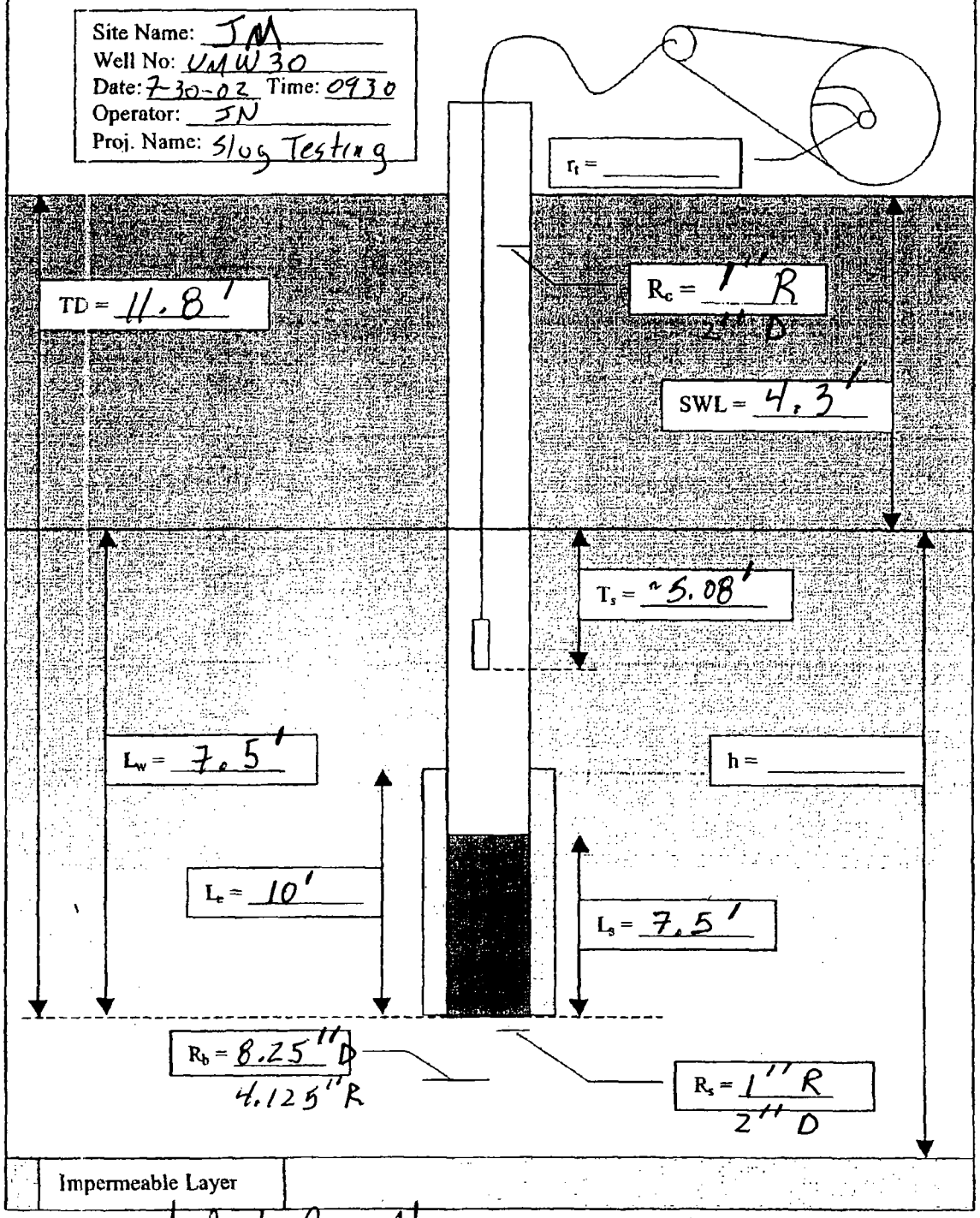


Signature: John Noyes Date: 7-30-02

FIGURE 6.1:
Copy and use this form in the field to record construction and installation parameters for slug testing

Geoprobe® Slug Test Field Information Form
for
Well Construction / Water Sampler Installation

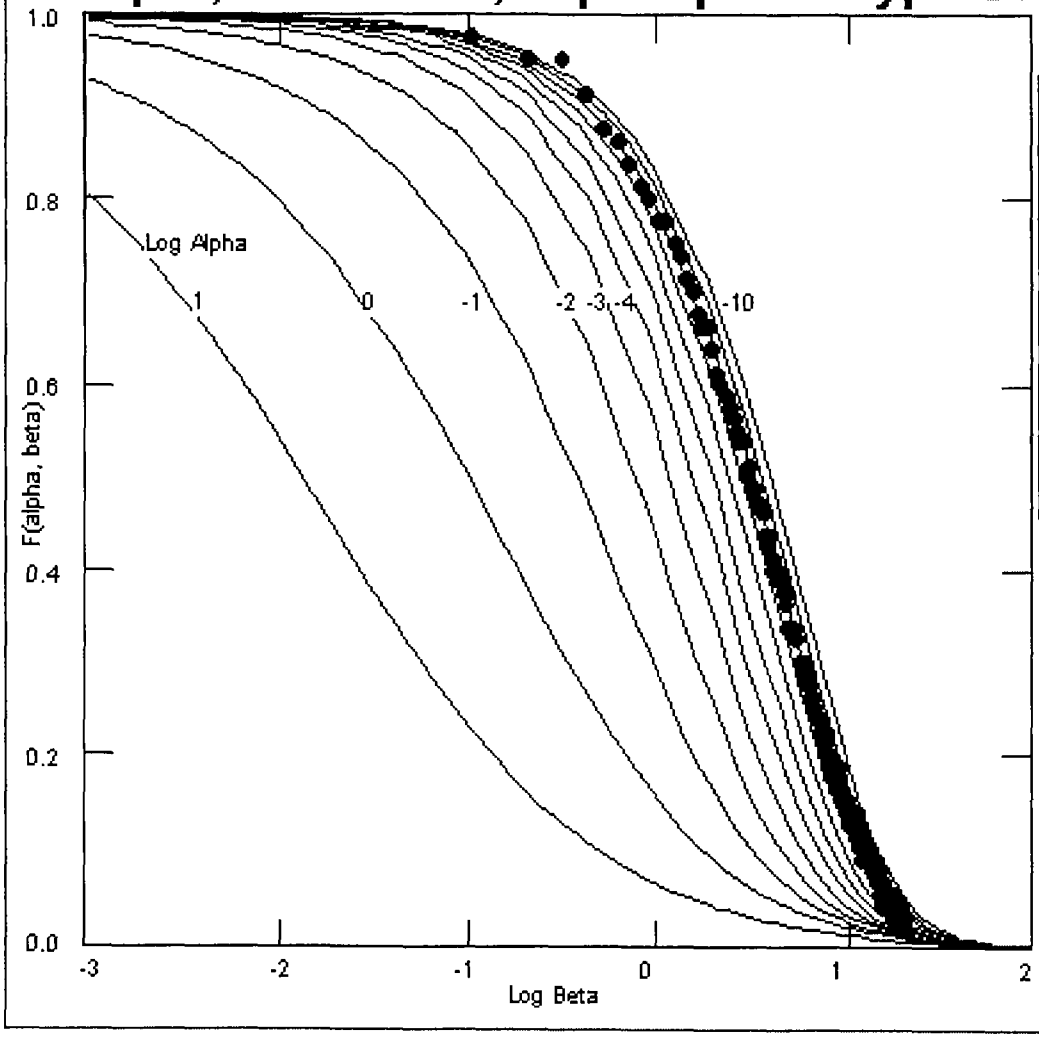
Site Name: JM
Well No: UMW30
Date: 7-30-02 Time: 0930
Operator: JN
Proj. Name: Slug Testing



Signature: John Noyes Date: 7-30-02

FIGURE 6.1:
Copy and use this form in the field to record construction and installation parameters for slug testing

Cooper, Bredehoeft, Papadopulos Type Curve



Well MW-01
"SMW-01"

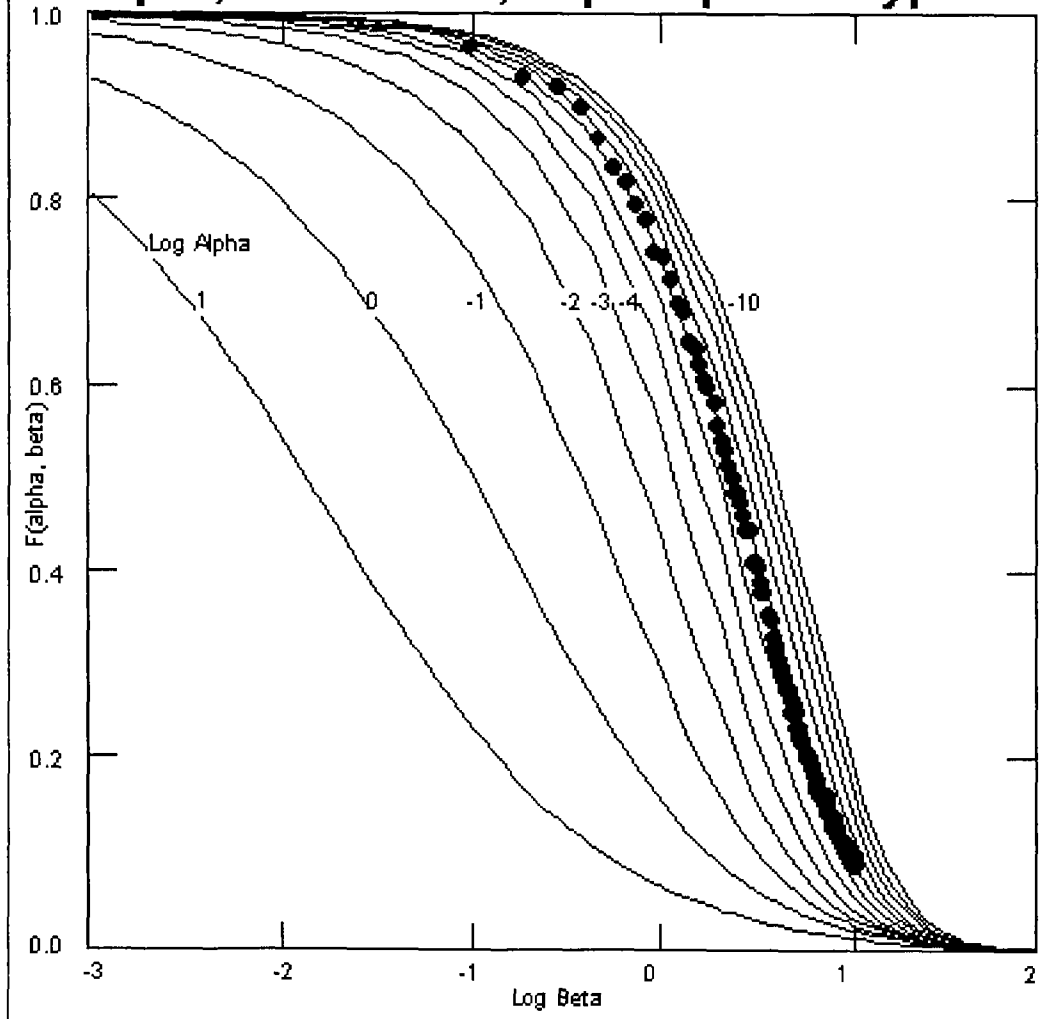
log Beta = 4.
F(alpha, beta) = 0.485

Transmissivity
689 ft2/day

Hydraulic Conductivity
72.5 feet/day
$= 2.6 \times 10^{-2}$ cm/s
log(Alpha) = -8.
Storativity = 5.82e-010

Johns Manville
Waukegan
7/30/2002
Analysis by Eric Nichols
of LFR

Cooper, Bredehoeft, Papadopulos Type Curve



log Beta = 3.95
F(alpha, beta) = 0.503

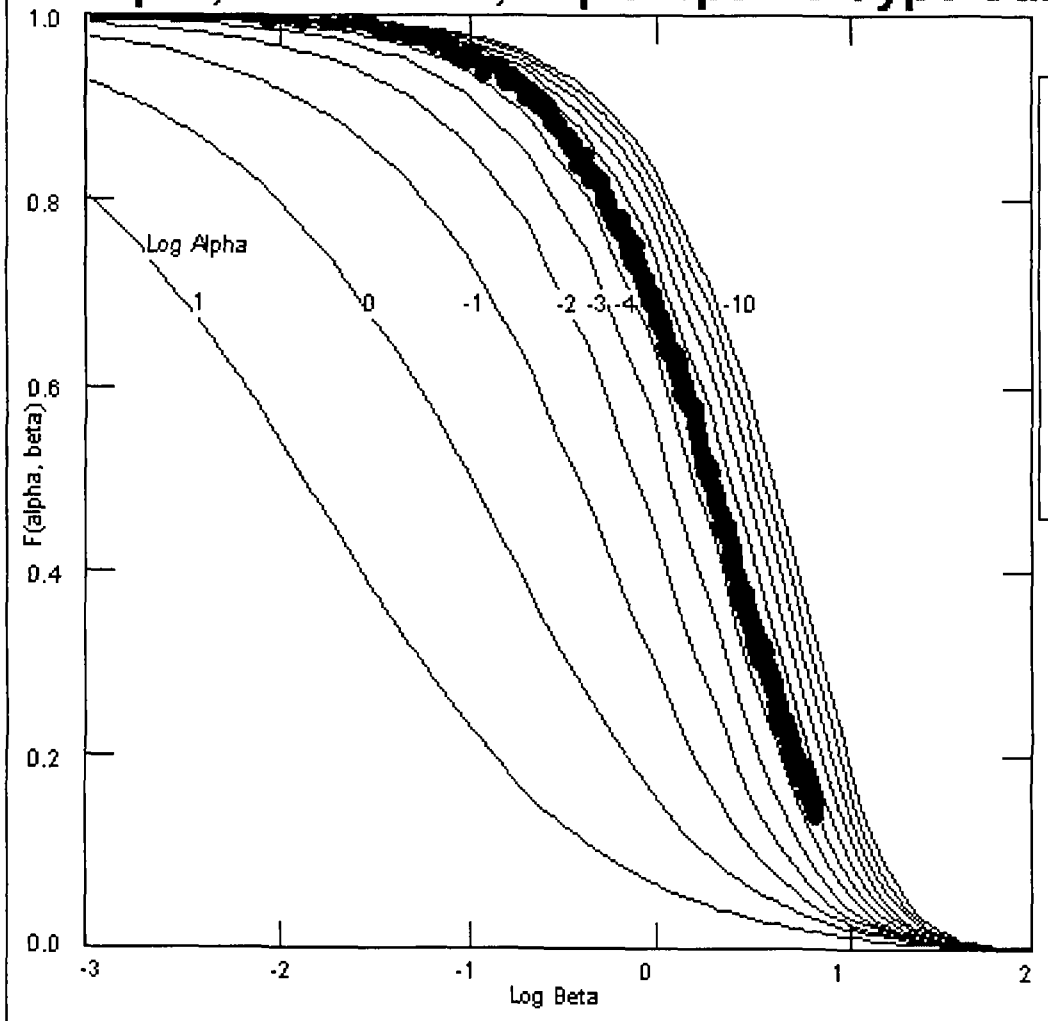
Transmissivity
619 ft2/day

Hydraulic Conductivity
73.7 feet/day
$= 2.6 \times 10^{-2}$ cm/s
log(Alpha) = -6.
Storativity = 5.82e-008

Well MW-04
"SMW-04"

Johns Manville
Waukegan
7/30/2002
Analysis by Eric Nichols
of LFR

Cooper, Bredehoeft, Papadopulos Type Curve



Well MW-09
"SMW-09"

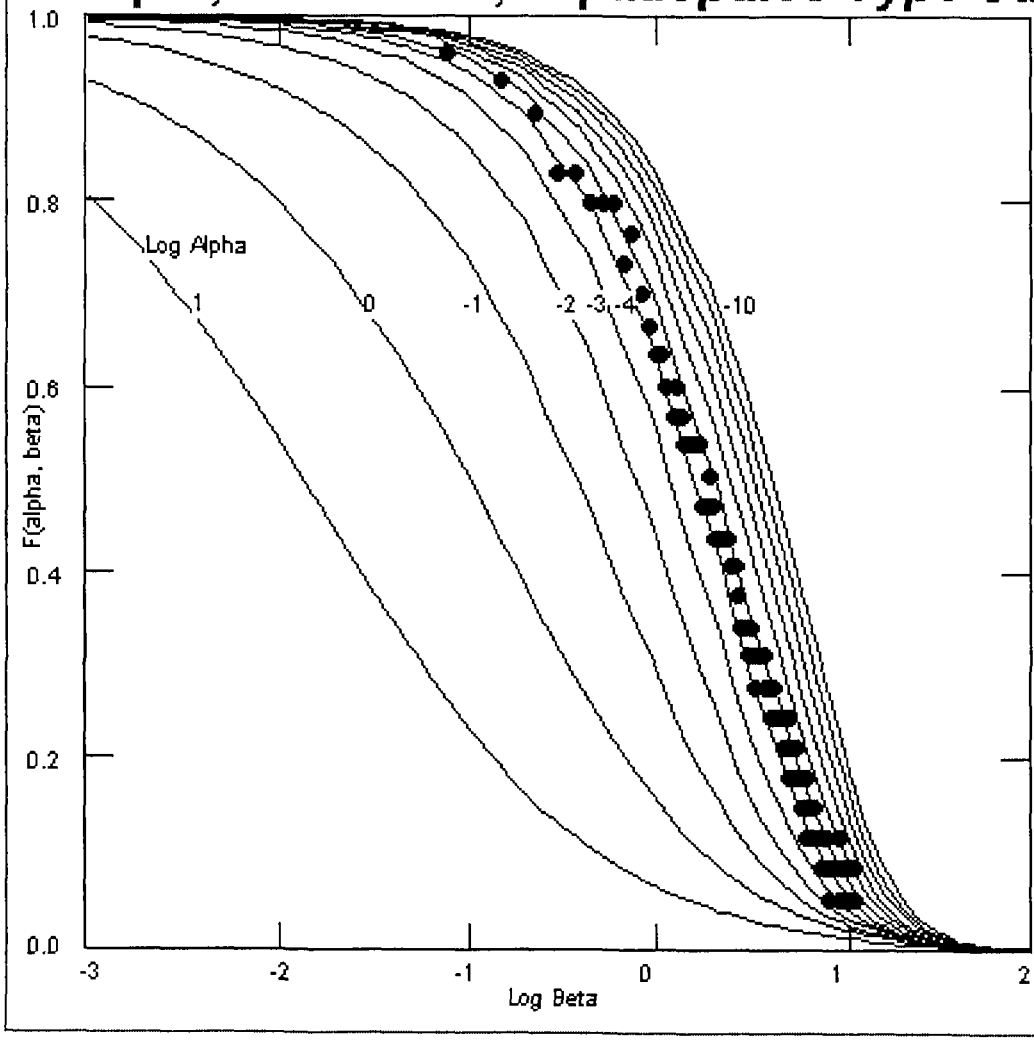
log Beta = 2.61
F(alpha, beta) = 0.577

Transmissivity
27.9 ft2/day

Hydraulic Conductivity
1.86 feet/day
$= 7 \times 10^{-4}$ cm/s
log(Alpha) = -5.
Storativity = 5.82e-007

Johns Manville
Waukegan
7/30/2002
Analysis by Eric Nichols
of LFR

Cooper, Bredehoeft, Papadopulos Type Curve



Well MW-30
"UMW-30"

log Beta = 3.86
F(alpha, beta) = 0.491

Transmissivity
500 ft2/day

Hydraulic Conductivity
66.7 feet/day
$= 2.3 \times 10^{-2}$ cm/s
log(Alpha) = -5.
Storativity = 5.82e-007

Johns Manville
Waukegan
7/30/2002
Analysis by Eric Nichols
of LFR

SMW-01

Johns Manville Raw Slug Testing Data
START DATE: 7/30/2002
START TIME: 10:36 AM
UNITS: ENGLISH
TRANSDUCER NUMBER: 19345 10 PSI
END DATE: 7/30/2002
END TIME: 10:45 AM

Test1	
Elapsed Time (s)	Head (ft)
0	5.34
0.1	5.34
0.2	5.34
0.3	5.34
0.4	5.34
0.5	5.35
0.6	5.34
0.7	5.33
0.8	5.34
0.9	5.34
1	5.34
1.1	5.34
1.2	5.34
1.3	5.35
1.4	5.35
1.5	5.33
1.6	5.34
1.7	5.34
1.8	5.33
1.9	5.33
2	5.35
2.1	5.33
2.2	5.33
2.3	5.25
2.4	5.35
2.5	5.36
2.6	5.33
2.7	5.32
2.8	5.31
2.9	3.90
3	4.33
3.1	4.50
3.2	4.51
3.3	4.49
3.4	4.54
3.5	4.58
3.6	4.61

3.7	4.64
3.8	4.67
3.9	4.68
4	4.69
4.1	4.70
4.2	4.73
4.3	4.73
4.4	4.73
4.5	4.75
4.6	4.77
4.7	4.78
4.8	4.81
4.9	4.82
5	4.83
5.1	4.83
5.2	4.85
5.3	4.86
5.4	4.87
5.5	4.90
5.6	4.89
5.7	4.91
5.8	4.92
5.9	4.92
6	4.94
6.1	4.94
6.2	4.94
6.3	4.96
6.4	4.97
6.5	4.97
6.6	4.98
6.7	5.00
6.8	5.00
6.9	5.01
7	5.02
7.1	5.03
7.2	5.03
7.3	5.04
7.4	5.05
7.5	5.05
7.6	5.07
7.7	5.06
7.8	5.07
7.9	5.07
8	5.07
8.1	5.08
8.2	5.08
8.3	5.11
8.4	5.10
8.5	5.10

8.6	5.11
8.7	5.11
8.8	5.12
8.9	5.12
9	5.13
9.1	5.13
9.2	5.14
9.3	5.15
9.4	5.14
9.5	5.14
9.6	5.14
9.7	5.16
9.8	5.15
9.9	5.16
10	5.17
10.1	5.18
10.2	5.17
10.3	5.18
10.4	5.19
10.5	5.18
10.6	5.19
10.7	5.19
10.8	5.19
10.9	5.20
11	5.19
11.1	5.20
11.2	5.20
11.3	5.20
11.4	5.21
11.5	5.22
11.6	5.22
11.7	5.21
11.8	5.22
11.9	5.23
12	5.21
12.1	5.23
12.2	5.22
12.3	5.24
12.4	5.23
12.5	5.24
12.6	5.24
12.7	5.24
12.8	5.25
12.9	5.24
13	5.24
13.1	5.25
13.2	5.26
13.3	5.25
13.4	5.25

13.5	5.25
13.6	5.25
13.7	5.26
13.8	5.26
13.9	5.25
14	5.26
14.1	5.26
14.2	5.27
14.3	5.26
14.4	5.27
14.5	5.27
14.6	5.27
14.7	5.29
14.8	5.28
14.9	5.28
15	5.27
15.1	5.28
15.2	5.27
15.3	5.28
15.4	5.27
15.5	5.29
15.6	5.28
15.7	5.29
15.8	5.29
15.9	5.29
16	5.30
16.1	5.31
16.2	5.28
16.3	5.29
16.4	5.30
16.5	5.29
16.6	5.29
16.7	5.30
16.8	5.30
16.9	5.30
17	5.29
17.1	5.31
17.2	5.30
17.3	5.30
17.4	5.30
17.5	5.30
17.6	5.30
17.7	5.30
17.8	5.30
17.9	5.30
18	5.30
18.1	5.30
18.2	5.31
18.3	5.30

18.4	5.31
18.5	5.32
18.6	5.32
18.7	5.32
18.8	5.31
18.9	5.32
19	5.31
19.1	5.31
19.2	5.32
19.3	5.32
19.4	5.33
19.5	5.33
19.6	5.32
19.7	5.33
19.8	5.32
19.9	5.32
20	5.32
20.1	5.31
20.2	5.32
20.3	5.32
20.4	5.32
20.5	5.32
20.6	5.31
20.7	5.32
20.8	5.32
20.9	5.32
21	5.32
21.1	5.33
21.2	5.33
21.3	5.32
21.4	5.33
21.5	5.32
21.6	5.33
21.7	5.33
21.8	5.33
21.9	5.33
22	5.32
22.1	5.33
22.2	5.32
22.3	5.33
22.4	5.33
22.5	5.34
22.6	5.34
22.7	5.33
22.8	5.33
22.9	5.33
23	5.33
23.1	5.32
23.2	5.33

23.3	5.32
23.4	5.32
23.5	5.33
23.6	5.33
23.7	5.33
23.8	5.33
23.9	5.34
24	5.33
24.1	5.32
24.2	5.33
24.3	5.34
24.4	5.33
24.5	5.34
24.6	5.34
24.7	5.33
24.8	5.34
24.9	5.34
25	5.33
25.1	5.33
25.2	5.33
25.3	5.33
25.4	5.33
25.5	5.33
25.6	5.34
25.7	5.33
25.8	5.33
25.9	5.33
26	5.33
26.1	5.34
26.2	5.34
26.3	5.33
26.4	5.33
26.5	5.33
26.6	5.33
26.7	5.34
26.8	5.34
26.9	5.34

Test 2

Elapsed Time (s)	Head (ft)
0.0	5.33
0.1	5.33
0.2	5.35
0.3	5.34
0.4	5.34
0.5	5.33
0.6	5.34
0.7	5.34
0.8	5.35

0.9	5.35
1.0	5.35
1.1	5.34
1.2	5.33
1.3	5.27
1.4	5.31
1.5	5.29
1.6	5.36
1.7	5.23
1.8	3.43
1.9	4.46
2.0	4.44
2.1	4.44
2.2	4.40
2.3	4.44
2.4	4.49
2.5	4.53
2.6	4.56
2.7	4.57
2.8	4.59
2.9	4.59
3.0	4.62
3.1	4.65
3.2	4.66
3.3	4.68
3.4	4.70
3.5	4.71
3.6	4.73
3.7	4.73
3.8	4.75
3.9	4.76
4.0	4.78
4.1	4.79
4.2	4.81
4.3	4.82
4.4	4.82
4.5	4.84
4.6	4.86
4.7	4.87
4.8	4.88
4.9	4.89
5.0	4.89
5.1	4.90
5.2	4.91
5.3	4.92
5.4	4.92
5.5	4.95
5.6	4.94
5.7	4.96

5.8	4.96
5.9	4.97
6.0	4.98
6.1	4.98
6.2	5.00
6.3	5.01
6.4	5.00
6.5	5.02
6.6	5.03
6.7	5.03
6.8	5.03
6.9	5.04
7.0	5.04
7.1	5.05
7.2	5.06
7.3	5.05
7.4	5.08
7.5	5.08
7.6	5.08
7.7	5.08
7.8	5.09
7.9	5.09
8.0	5.11
8.1	5.11
8.2	5.11
8.3	5.12
8.4	5.11
8.5	5.11
8.6	5.12
8.7	5.13
8.8	5.13
8.9	5.14
9.0	5.14
9.1	5.15
9.2	5.14
9.3	5.16
9.4	5.16
9.5	5.16
9.6	5.17
9.7	5.17
9.8	5.17
9.9	5.17
10.0	5.17
10.1	5.19
10.2	5.18
10.3	5.19
10.4	5.20
10.5	5.20
10.6	5.20

10.7	5.21
10.8	5.21
10.9	5.21
11.0	5.21
11.1	5.22
11.2	5.22
11.3	5.21
11.4	5.20
11.5	5.22
11.6	5.23
11.7	5.22
11.8	5.23
11.9	5.23
12.0	5.23
12.1	5.23
12.2	5.23
12.3	5.24
12.4	5.23
12.5	5.24
12.6	5.25
12.7	5.25
12.8	5.24
12.9	5.25
13.0	5.25
13.1	5.24
13.2	5.26
13.3	5.24
13.4	5.25
13.5	5.26
13.6	5.26
13.7	5.25
13.8	5.27
13.9	5.26
14.0	5.26
14.1	5.28
14.2	5.27
14.3	5.26
14.4	5.27
14.5	5.27
14.6	5.27
14.7	5.27
14.8	5.27
14.9	5.28
15.0	5.27
15.1	5.28
15.2	5.27
15.3	5.29
15.4	5.29
15.5	5.29

15.6	5.29
15.7	5.29
15.8	5.29
15.9	5.29
16.0	5.28
16.1	5.29
16.2	5.29
16.3	5.30
16.4	5.30
16.5	5.30
16.6	5.30
16.7	5.29
16.8	5.31
16.9	5.30
17.0	5.31
17.1	5.30
17.2	5.30
17.3	5.30
17.4	5.31
17.5	5.32
17.6	5.30
17.7	5.31
17.8	5.32
17.9	5.31
18.0	5.32
18.1	5.31
18.2	5.32
18.3	5.32
18.4	5.31
18.5	5.31
18.6	5.32
18.7	5.31
18.8	5.32
18.9	5.33
19.0	5.33
19.1	5.32
19.2	5.31
19.3	5.32
19.4	5.33
19.5	5.32
19.6	5.33
19.7	5.33
19.8	5.32
19.9	5.33
20.0	5.32
20.1	5.33
20.2	5.32
20.3	5.33
20.4	5.33

20.5	5.34
20.6	5.33
20.7	5.32
20.8	5.32
20.9	5.34
21.0	5.33
21.1	5.33
21.2	5.33
21.3	5.33
21.4	5.33
21.5	5.33
21.6	5.33
21.7	5.33
21.8	5.33
21.9	5.34
22.0	5.33
22.1	5.34
22.2	5.34
22.3	5.33
22.4	5.33
22.5	5.33
22.6	5.33

Test 3

Elapsed Time (s)	Head (ft)
0	5.36
0.1	5.36
0.2	5.37
0.3	5.35
0.4	5.35
0.5	5.36
0.6	5.36
0.7	5.36
0.8	5.38
0.9	5.34
1.0	5.37
1.1	5.15
1.2	3.51
1.3	3.92
1.4	4.21
1.5	4.34
1.6	4.30
1.7	4.37
1.8	4.45
1.9	4.47
2.0	4.49
2.1	4.50
2.2	4.52
2.3	4.54

2.4	4.56
2.5	4.58
2.6	4.60
2.7	4.62
2.8	4.62
2.9	4.65
3.0	4.66
3.1	4.68
3.2	4.69
3.3	4.71
3.4	4.73
3.5	4.73
3.6	4.75
3.7	4.75
3.8	4.76
3.9	4.78
4.0	4.80
4.1	4.80
4.2	4.82
4.3	4.83
4.4	4.84
4.5	4.85
4.6	4.87
4.7	4.88
4.8	4.89
4.9	4.89
5.0	4.90
5.1	4.91
5.2	4.90
5.3	4.93
5.4	4.93
5.5	4.94
5.6	4.95
5.7	4.96
5.8	4.97
5.9	4.98
6.0	4.99
6.1	5.00
6.2	4.99
6.3	5.00
6.4	5.02
6.5	5.03
6.6	5.02
6.7	5.03
6.8	5.05
6.9	5.04
7.0	5.05
7.1	5.06
7.2	5.07

7.3	5.07
7.4	5.08
7.5	5.08
7.6	5.09
7.7	5.09
7.8	5.10
7.9	5.09
8.0	5.11
8.1	5.11
8.2	5.11
8.3	5.12
8.4	5.12
8.5	5.14
8.6	5.12
8.7	5.14
8.8	5.14
8.9	5.13
9.0	5.15
9.1	5.14
9.2	5.16
9.3	5.15
9.4	5.16
9.5	5.17
9.6	5.18
9.7	5.18
9.8	5.19
9.9	5.18
10.0	5.18
10.1	5.19
10.2	5.20
10.3	5.19
10.4	5.21
10.5	5.20
10.6	5.21
10.7	5.21
10.8	5.21
10.9	5.21
11.0	5.21
11.1	5.21
11.2	5.22
11.3	5.22
11.4	5.22
11.5	5.23
11.6	5.22
11.7	5.22
11.8	5.24
11.9	5.22
12.0	5.23
12.1	5.23

12.2	5.23
12.3	5.24
12.4	5.25
12.5	5.24
12.6	5.24
12.7	5.24
12.8	5.25
12.9	5.25
13.0	5.25
13.1	5.25
13.2	5.26
13.3	5.25
13.4	5.27
13.5	5.27
13.6	5.26
13.7	5.26
13.8	5.26
13.9	5.27
14.0	5.27
14.1	5.26
14.2	5.28
14.3	5.27
14.4	5.28
14.5	5.28
14.6	5.28
14.7	5.28
14.8	5.29
14.9	5.29
15.0	5.29
15.1	5.28
15.2	5.29
15.3	5.28
15.4	5.29
15.5	5.28
15.6	5.30
15.7	5.29
15.8	5.30
15.9	5.29
16.0	5.30
16.1	5.29
16.2	5.29
16.3	5.30
16.4	5.30
16.5	5.30
16.6	5.29
16.7	5.30
16.8	5.31
16.9	5.30
17.0	5.32

17.1	5.31
17.2	5.31
17.3	5.31
17.4	5.30
17.5	5.30
17.6	5.32
17.7	5.31
17.8	5.32
17.9	5.33
18.0	5.31
18.1	5.31
18.2	5.31
18.3	5.31
18.4	5.31
18.5	5.32
18.6	5.32
18.7	5.33
18.8	5.32
18.9	5.32
19.0	5.32
19.1	5.33
19.2	5.32
19.3	5.33
19.4	5.33
19.5	5.32
19.6	5.32
19.7	5.32
19.8	5.33
19.9	5.33
20.0	5.33
20.1	5.33
20.2	5.33
20.3	5.33
20.4	5.33
20.5	5.33
20.6	5.33
20.7	5.33
20.8	5.33
20.9	5.33
21.0	5.34
21.1	5.34
21.2	5.33
21.3	5.33
21.4	5.33
21.5	5.33
21.6	5.33
21.7	5.34
21.8	5.34
21.9	5.33

3.7	4.75
3.8	4.76
3.9	4.76
4.0	4.77
4.1	4.79
4.2	4.81
4.3	4.81
4.4	4.83
4.5	4.83
4.6	4.85
4.7	4.85
4.8	4.87
4.9	4.89
5.0	4.89
5.1	4.91
5.2	4.91
5.3	4.92
5.4	4.92
5.5	4.93
5.6	4.94
5.7	4.95
5.8	4.96
5.9	4.97
6.0	4.96
6.1	4.98
6.2	4.99
6.3	5.00
6.4	5.00
6.5	5.01
6.6	5.02
6.7	5.04
6.8	5.04
6.9	5.04
7.0	5.05
7.1	5.07
7.2	5.06
7.3	5.07
7.4	5.07
7.5	5.08
7.6	5.08
7.7	5.09
7.8	5.09
7.9	5.10
8.0	5.11
8.1	5.11
8.2	5.11
8.3	5.11
8.4	5.12
8.5	5.12

8.6	5.13
8.7	5.14
8.8	5.15
8.9	5.15
9.0	5.15
9.1	5.15
9.2	5.17
9.3	5.17
9.4	5.17
9.5	5.17
9.6	5.18
9.7	5.17
9.8	5.18
9.9	5.18
10.0	5.18
10.1	5.20
10.2	5.20
10.3	5.21
10.4	5.20
10.5	5.21
10.6	5.21
10.7	5.22
10.8	5.23
10.9	5.21
11.0	5.22
11.1	5.23
11.2	5.23
11.3	5.23
11.4	5.23
11.5	5.23
11.6	5.23
11.7	5.23
11.8	5.24
11.9	5.24
12.0	5.24
12.1	5.24
12.2	5.25
12.3	5.24
12.4	5.25
12.5	5.25
12.6	5.25
12.7	5.25
12.8	5.25
12.9	5.25
13.0	5.25
13.1	5.27
13.2	5.26
13.3	5.26
13.4	5.27

13.5	5.27
13.6	5.27
13.7	5.27
13.8	5.28
13.9	5.28
14.0	5.28
14.1	5.28
14.2	5.28
14.3	5.28
14.4	5.29
14.5	5.28
14.6	5.29
14.7	5.29
14.8	5.28
14.9	5.30
15.0	5.30
15.1	5.30
15.2	5.30
15.3	5.31
15.4	5.29
15.5	5.29
15.6	5.30
15.7	5.29
15.8	5.31
15.9	5.31
16.0	5.29
16.1	5.30
16.2	5.32
16.3	5.31
16.4	5.32
16.5	5.32
16.6	5.32
16.7	5.31
16.8	5.31
16.9	5.31
17.0	5.31
17.1	5.32
17.2	5.33
17.3	5.33
17.4	5.33
17.5	5.33
17.6	5.33
17.7	5.32
17.8	5.33
17.9	5.32
18.0	5.33
18.1	5.34
18.2	5.33
18.3	5.33

18.4	5.34
18.5	5.33
18.6	5.33
18.7	5.33
18.8	5.33
18.9	5.34
19.0	5.34
19.1	5.34
19.2	5.33
19.3	5.34
19.4	5.33
19.5	5.33
19.6	5.34
19.7	5.35
19.8	5.34
19.9	5.34
20.0	5.34
20.1	5.33
20.2	5.35
20.3	5.34

SMW-04

Johns Manville Raw Slug Testing Data
START DATE: 7/30/2002
START TIME: 12:07 PM
TRANSDUCER NUMBER: 19345 10 PSI
END DATE: 7/30/2002
END TIME: 12:19 PM

Test1

Elapsed Time (s)	Head (ft)
0	5.07
0.1	5.07
0.2	5.07
0.3	5.07
0.4	5.07
0.5	5.07
0.6	5.07
0.7	5.08
0.8	5.07
0.9	5.08
1	5.04
1.1	4.12
1.2	1.62
1.3	2.09
1.4	3.24
1.5	3.56
1.6	3.86
1.7	3.75
1.8	3.91
1.9	3.96
2	4.00
2.1	4.01
2.2	4.04
2.3	4.08
2.4	4.12
2.5	4.14
2.6	4.17
2.7	4.19
2.8	4.23
2.9	4.24
3	4.27
3.1	4.30
3.2	4.31
3.3	4.35
3.4	4.36
3.5	4.38
3.6	4.40
3.7	4.41

3.8	4.43
3.9	4.46
4	4.48
4.1	4.49
4.2	4.51
4.3	4.53
4.4	4.55
4.5	4.55
4.6	4.56
4.7	4.58
4.8	4.60
4.9	4.60
5	4.64
5.1	4.64
5.2	4.65
5.3	4.67
5.4	4.68
5.5	4.68
5.6	4.71
5.7	4.72
5.8	4.72
5.9	4.74
6	4.75
6.1	4.76
6.2	4.77
6.3	4.78
6.4	4.79
6.5	4.80
6.6	4.81
6.7	4.81
6.8	4.82
6.9	4.84
7	4.83
7.1	4.84
7.2	4.84
7.3	4.86
7.4	4.86
7.5	4.87
7.6	4.88
7.7	4.88
7.8	4.89
7.9	4.90
8	4.90
8.1	4.90
8.2	4.90
8.3	4.91
8.4	4.91
8.5	4.92
8.6	4.92

8.7	4.93
8.8	4.94
8.9	4.94
9	4.94
9.1	4.95
9.2	4.96
9.3	4.95
9.4	4.96
9.5	4.96
9.6	4.95
9.7	4.97
9.8	4.97
9.9	4.97
10	4.97
10.1	4.99
10.2	4.98
10.3	4.99
10.4	4.99
10.5	4.98
10.6	4.99
10.7	4.99
10.8	5.00
10.9	4.99
11	5.01
11.1	5.01
11.2	5.01
11.3	5.01
11.4	5.01
11.5	5.01
11.6	5.01
11.7	5.03
11.8	5.02
11.9	5.02
12	5.03
12.1	5.02
12.2	5.03
12.3	5.02
12.4	5.03
12.5	5.04
12.6	5.03
12.7	5.04
12.8	5.04
12.9	5.03

Test 2

Elapsed Time (s)	Head (ft)
0	5.12
0.1	5.12
0.2	5.13

0.3	5.12
0.4	5.12
0.5	5.13
0.6	5.13
0.7	5.13
0.8	5.11
0.9	5.12
1	5.12
1.1	5.12
1.2	5.13
1.3	5.08
1.4	4.74
1.5	3.61
1.6	4.33
1.7	4.47
1.8	4.34
1.9	4.41
2	4.48
2.1	4.51
2.2	4.53
2.3	4.55
2.4	4.57
2.5	4.58
2.6	4.58
2.7	4.60
2.8	4.62
2.9	4.64
3	4.65
3.1	4.67
3.2	4.67
3.3	4.70
3.4	4.72
3.5	4.73
3.6	4.73
3.7	4.75
3.8	4.75
3.9	4.75
4	4.78
4.1	4.78
4.2	4.80
4.3	4.81
4.4	4.82
4.5	4.83
4.6	4.83
4.7	4.84
4.8	4.85
4.9	4.87
5	4.87
5.1	4.87

5.2	4.88
5.3	4.88
5.4	4.89
5.5	4.89
5.6	4.91
5.7	4.90
5.8	4.91
5.9	4.93
6	4.93
6.1	4.94
6.2	4.96
6.3	4.96
6.4	4.95
6.5	4.96
6.6	4.96
6.7	4.96
6.8	4.96
6.9	4.96
7	4.98
7.1	4.98
7.2	4.98
7.3	4.98
7.4	4.98
7.5	5.00
7.6	5.00
7.7	5.00
7.8	5.01
7.9	5.00
8	5.02
8.1	5.02
8.2	5.02
8.3	5.02
8.4	5.03
8.5	5.02
8.6	5.03
8.7	5.03
8.8	5.02
8.9	5.03
9	5.03
9.1	5.03
9.2	5.04
9.3	5.05
9.4	5.04
9.5	5.04
9.6	5.06
9.7	5.05
9.8	5.05
9.9	5.06
10	5.05

10.1	5.06
10.2	5.06
10.3	5.07
10.4	5.07
10.5	5.06
10.6	5.07
10.7	5.07
10.8	5.06
10.9	5.08
11	5.06
11.1	5.08
11.2	5.07
11.3	5.09
11.4	5.07
11.5	5.09
11.6	5.08
11.7	5.08
11.8	5.09
11.9	5.09
12	5.08
12.1	5.09
12.2	5.08
12.3	5.09
12.4	5.09
12.5	5.09
12.6	5.09
12.7	5.10
12.8	5.09
12.9	5.09
13	5.09
13.1	5.09
13.2	5.10
13.3	5.10
13.4	5.10
13.5	5.10
13.6	5.11
13.7	5.11
13.8	5.11
13.9	5.10
14	5.10

UMW-30

START DATE: 7/30/2002
START TIME: 9:42 AM
TRANSDUCER NUMBER: 19345 10 PSI
END DATE: 7/30/2002
END TIME: 9:51 AM

Test 1

Elapsed Time (s)	Head (ft)
0	5.05
0.10	5.06
0.20	5.05
0.30	5.05
0.40	5.05
0.50	5.05
0.60	5.05
0.70	5.05
0.80	5.02
0.90	4.29
1.00	4.64
1.10	4.67
1.20	4.75
1.30	4.76
1.40	4.77
1.50	4.78
1.60	4.80
1.70	4.80
1.80	4.81
1.90	4.81
2.00	4.81
2.10	4.83
2.20	4.82
2.30	4.84
2.40	4.85
2.50	4.86
2.60	4.86
2.70	4.87
2.80	4.88
2.90	4.87
3.00	4.88
3.10	4.89
3.20	4.89
3.30	4.89
3.40	4.89
3.50	4.91
3.60	4.91
3.70	4.90
3.80	4.91

3.90	4.92
4.00	4.92
4.10	4.92
4.20	4.92
4.30	4.92
4.40	4.93
4.50	4.93
4.60	4.93
4.70	4.94
4.80	4.94
4.90	4.95
5.00	4.95
5.10	4.96
5.20	4.96
5.30	4.95
5.40	4.96
5.50	4.96
5.60	4.97
5.70	4.96
5.80	4.96
5.90	4.96
6.00	4.96
6.10	4.97
6.20	4.97
6.30	4.97
6.40	4.98
6.50	4.98
6.60	4.97
6.70	4.98
6.80	4.98
6.90	4.98
7.00	4.98
7.10	4.98
7.20	4.99
7.30	4.99
7.40	4.98
7.50	4.99
7.60	4.98
7.70	5.00
7.80	4.98
7.90	5.00
8.00	5.00
8.10	4.99
8.20	5.00
8.30	5.00
8.40	4.99
8.50	5.00
8.60	5.01
8.70	5.00

8.80	5.00
8.90	5.01
9.00	5.01
9.10	5.01
9.20	5.01
9.30	5.00
9.40	5.02
9.50	5.01
9.60	5.01
9.70	5.01
9.80	5.02
9.90	5.02
10.00	5.01
10.10	5.01
10.20	5.02
10.30	5.02
10.40	5.02
10.50	5.02
10.60	5.02
10.70	5.02
10.80	5.02
10.90	5.02
11.00	5.03
11.10	5.03
11.20	5.03
11.30	5.02
11.40	5.02
11.50	5.03
11.60	5.03
11.70	5.02
11.80	5.03
11.90	5.03
12.00	5.03
12.10	5.04
12.20	5.03
12.30	5.03
12.40	5.03
12.50	5.03
12.60	5.03
12.70	5.03
12.80	5.03
12.90	5.03
13.00	5.04
13.10	5.03
13.20	5.02
13.30	5.03
13.40	5.04
13.50	5.03
13.60	5.03

13.70	5.03
13.80	5.04
13.90	5.03
14.00	5.04
14.10	5.03
14.20	5.04
14.30	5.04
14.40	5.03
14.50	5.03
14.60	5.03
14.70	5.03
14.80	5.04
14.90	5.04
15.00	5.04
15.10	5.03
15.20	5.03
15.30	5.03
15.40	5.04

Test 2

Elapsed Time (s)	Head (ft)
0	5.06
0.10	5.06
0.20	5.07
0.30	5.07
0.40	5.07
0.50	5.06
0.60	5.07
0.70	5.06
0.80	5.06
0.90	5.05
1.00	4.60
1.10	3.20
1.20	3.98
1.30	4.02
1.40	4.04
1.50	4.18
1.60	4.26
1.70	4.33
1.80	4.32
1.90	4.34
2.00	4.37
2.10	4.38
2.20	4.40
2.30	4.43
2.40	4.45
2.50	4.45
2.60	4.47
2.70	4.49

2.80	4.51
2.90	4.52
3.00	4.53
3.10	4.55
3.20	4.56
3.30	4.58
3.40	4.60
3.50	4.59
3.60	4.61
3.70	4.63
3.80	4.63
3.90	4.63
4.00	4.64
4.10	4.67
4.20	4.67
4.30	4.68
4.40	4.69
4.50	4.70
4.60	4.72
4.70	4.72
4.80	4.72
4.90	4.74
5.00	4.74
5.10	4.74
5.20	4.76
5.30	4.77
5.40	4.77
5.50	4.78
5.60	4.79
5.70	4.80
5.80	4.81
5.90	4.81
6.00	4.81
6.10	4.82
6.20	4.82
6.30	4.83
6.40	4.84
6.50	4.84
6.60	4.85
6.70	4.85
6.80	4.86
6.90	4.85
7.00	4.86
7.10	4.86
7.20	4.88
7.30	4.87
7.40	4.88
7.50	4.90
7.60	4.90

7.70	4.91
7.80	4.89
7.90	4.90
8.00	4.91
8.10	4.92
8.20	4.92
8.30	4.91
8.40	4.91
8.50	4.93
8.60	4.92
8.70	4.94
8.80	4.94
8.90	4.92
9.00	4.94
9.10	4.94
9.20	4.94
9.30	4.95
9.40	4.94
9.50	4.95
9.60	4.95
9.70	4.96
9.80	4.96
9.90	4.96
10.00	4.96
10.10	4.96
10.20	4.97
10.30	4.97
10.40	4.97
10.50	4.98
10.60	4.98
10.70	4.97
10.80	4.97
10.90	4.98
11.00	4.98
11.10	4.98
11.20	4.98
11.30	4.98
11.40	4.99
11.50	4.99
11.60	4.99
11.70	4.99
11.80	4.98
11.90	5.00
12.00	4.99
12.10	4.99
12.20	4.99
12.30	4.99
12.40	5.00
12.50	5.00

12.60	5.00
12.70	5.00
12.80	5.01
12.90	5.01
13.00	5.00
13.10	5.00
13.20	5.01
13.30	5.01
13.40	5.01
13.50	5.00
13.60	5.01
13.70	5.01
13.80	5.01
13.90	5.01
14.00	5.02
14.10	5.01
14.20	5.01
14.30	5.02
14.40	5.01
14.50	5.01
14.60	5.02
14.70	5.03
14.80	5.03
14.90	5.02
15.00	5.03
15.10	5.02
15.20	5.03
15.30	5.03
15.40	5.03
15.50	5.03
15.60	5.03
15.70	5.02
15.80	5.03
15.90	5.03
16.00	5.03
16.10	5.03
16.20	5.03
16.30	5.03
16.40	5.03
16.50	5.03
16.60	5.03
16.70	5.03
16.80	5.04
16.90	5.03
17.00	5.04
17.10	5.04
17.20	5.03
17.30	5.04
17.40	5.03

17.50	5.04
17.60	5.04
17.70	5.03
17.80	5.04
17.90	5.05
18.00	5.05
18.10	5.03
18.20	5.03
18.30	5.03
18.40	5.04
18.50	5.04
18.60	5.03
18.70	5.03
18.80	5.04
18.90	5.04
19.00	5.04
19.10	5.04
19.20	5.05
19.30	5.04

Test 3

Elapsed Time (s)	Head (ft)
0	5.06
0.10	5.07
0.20	5.07
0.30	5.06
0.40	5.08
0.50	5.06
0.60	5.07
0.70	5.07
0.80	5.07
0.90	5.07
1.00	5.07
1.10	5.07
1.20	5.07
1.30	5.07
1.40	5.08
1.50	5.07
1.60	5.08
1.70	5.07
1.80	5.07
1.90	4.93
2.00	4.20
2.10	3.73
2.20	4.18
2.30	4.18
2.40	4.13
2.50	4.25
2.60	4.30

2.70	4.32
2.80	4.34
2.90	4.36
3.00	4.37
3.10	4.40
3.20	4.42
3.30	4.43
3.40	4.46
3.50	4.47
3.60	4.48
3.70	4.50
3.80	4.51
3.90	4.53
4.00	4.54
4.10	4.56
4.20	4.57
4.30	4.58
4.40	4.59
4.50	4.61
4.60	4.64
4.70	4.63
4.80	4.64
4.90	4.66
5.00	4.66
5.10	4.67
5.20	4.67
5.30	4.69
5.40	4.70
5.50	4.71
5.60	4.72
5.70	4.73
5.80	4.73
5.90	4.74
6.00	4.74
6.10	4.75
6.20	4.77
6.30	4.77
6.40	4.78
6.50	4.79
6.60	4.79
6.70	4.81
6.80	4.81
6.90	4.81
7.00	4.82
7.10	4.82
7.20	4.82
7.30	4.83
7.40	4.82
7.50	4.84

7.60	4.84
7.70	4.86
7.80	4.85
7.90	4.86
8.00	4.86
8.10	4.87
8.20	4.88
8.30	4.88
8.40	4.88
8.50	4.88
8.60	4.89
8.70	4.90
8.80	4.89
8.90	4.91
9.00	4.91
9.10	4.91
9.20	4.91
9.30	4.92
9.40	4.91
9.50	4.93
9.60	4.93
9.70	4.93
9.80	4.94
9.90	4.94
10.00	4.94
10.10	4.94
10.20	4.94
10.30	4.94
10.40	4.96
10.50	4.96
10.60	4.95
10.70	4.95
10.80	4.96
10.90	4.95
11.00	4.96
11.10	4.95
11.20	4.96
11.30	4.96
11.40	4.97
11.50	4.97
11.60	4.98
11.70	4.98
11.80	4.98
11.90	4.98
12.00	4.98
12.10	4.98
12.20	4.97
12.30	4.98
12.40	4.98

12.50	4.99
12.60	4.98
12.70	4.98
12.80	4.99
12.90	5.00
13.00	4.99
13.10	4.99
13.20	4.99
13.30	5.00
13.40	5.01
13.50	5.00
13.60	4.99
13.70	5.01
13.80	5.00
13.90	5.00
14.00	5.00
14.10	5.00
14.20	5.01
14.30	5.00
14.40	5.00
14.50	5.02
14.60	5.02
14.70	5.00
14.80	5.01
14.90	5.01
15.00	5.01
15.10	5.00
15.20	5.02
15.30	5.01
15.40	5.02
15.50	5.02
15.60	5.01
15.70	5.01
15.80	5.02
15.90	5.03
16.00	5.02
16.10	5.03
16.20	5.02
16.30	5.02
16.40	5.01
16.50	5.01
16.60	5.03
16.70	5.02
16.80	5.03
16.90	5.02
17.00	5.02
17.10	5.03
17.20	5.02
17.30	5.02

17.40	5.02
17.50	5.02
17.60	5.01
17.70	5.03
17.80	5.02
17.90	5.02
18.00	5.03
18.10	5.03
18.20	5.02
18.30	5.04
18.40	5.03
18.50	5.02
18.60	5.03
18.70	5.02
18.80	5.03
18.90	5.03
19.00	5.03
19.10	5.04
19.20	5.03
19.30	5.03
19.40	5.03
19.50	5.03
19.60	5.03
19.70	5.04
19.80	5.03
19.90	5.03
20.00	5.04
20.10	5.04
20.20	5.03
20.30	5.03
20.40	5.03
20.50	5.03
20.60	5.03
20.70	5.03
20.80	5.03
20.90	5.03
21.00	5.04
21.10	5.03
21.20	5.04
21.30	5.05
21.40	5.04
21.50	5.04
21.60	5.03
21.70	5.04
21.80	5.03
21.90	5.03
22.00	5.04
22.10	5.04
22.20	5.04

	5.03
22.30	5.04
22.40	5.03
22.50	5.04
22.60	5.04
22.70	