

LUST Investigation Field Procedures Workplan

1404 S Webster Avenue – LUST
1404 S Webster Avenue
Green Bay (Village of Allouez), Wisconsin

August 22, 2016
by METCO
WDNR File Reference #: 03-05-560082
PECFA Claim #: 54301-2504-04



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This document was prepared by:

A handwritten signature in black ink, appearing to read "Jason T. Powell", written over a horizontal line.

Jason T. Powell
Staff Scientist

A handwritten signature in black ink, appearing to read "Ronald J. Anderson", written over a horizontal line.

Ronald J. Anderson, P.G.
Senior Hydrogeologist/Project Manager



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709 Gillette St., Ste 3 ♦ La Crosse, WI 54603 ♦ 1-800-552-2932 ♦ Fax (608) 781-8893 Email: rona@metcohq.com ♦ www.metcohq.com

August 22, 2016

WDNR BRRTS#: 03-05-560082
PECFA Claim #: 54301-2504-04

Lee Amundson
6426 Nero Lane
Sobieski, WI 54171

Dear Ms. Amundson,

Enclosed is our "LUST Investigation Field Procedures Workplan" concerning the 1404 S Webster Avenue - LUST site in Green Bay, Wisconsin. This document outlines the procedures and the methods used to conduct such an investigation.

Please note that there is also an ERP case associated with this address (BRRTS #02-05-514372) due to a former dry cleaner operation at the property. The subject of this investigation is the LUST case only.

A copy of this workplan will be sent to the Wisconsin Department of Natural Resources for review.

We appreciate the opportunity to be of service to you on this project. Should you have any questions or require additional information, do not hesitate to contact our La Crosse office.

Sincerely,

Jason T. Powell
Staff Scientist

C: Alex Edler – WDNR

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OBJECTIVES

Requirements of the WDNR

A Site Investigation is required by the Wisconsin Department of Natural Resources (WDNR) by authority of Section 292.11 of the Wisconsin Statutes. According to the WDNR, any soil that tests over 10 ppm Gasoline Range Organics (GRO) or Diesel Range Organics (DRO) requires an investigation. Any soil that tests over the Chapter NR720 Groundwater RCLs, Direct Contact RCLs, or Soil Saturation Values an investigation and possible remediation. Any groundwater that tests over the Preventive Action Limits (PAL) or Enforcement Standards (ES) for compounds listed in Chapter NR140 of the Wisconsin Statutes requires an investigation and possible remediation. For a further explanation of WDNR rules and regulations, see Appendix D.

Requirements of the PECFA Program

According to rules adopted in May 2006, the maximum allowable cost for an initial Site Investigation shall be no more than \$20,000 unless pre-approved by PECFA. All consultant and commodity service costs must not exceed the PECFA Usual and Customary Charges.

Purpose of Document

This document briefly outlines all methods and procedures used by METCO personnel concerning "Site Investigations". These guidelines are strictly followed unless changed by managing personnel, site conditions, or project situations. All changes will be clearly noted.

All work conducted by METCO is undertaken in accordance with approved methods and regulations of the WDNR Bureau for Remediation and Redevelopment.

This document is site specific and will always be on-site during the project.

**LUST Investigation Field Procedures Workplan - METCO
1404 S Webster Avenue - LUST**

INTRODUCTION

Site Name

1404 S Webster Avenue – LUST
BRRTS #03-05-560082

Please note that there is also an ERP case associated with this address (BRRTS #02-05-514372) due to a former dry cleaner operation at the property. The subject of this investigation is the LUST case only.

Site Address

1404 S Webster Avenue
Green Bay (Village of Allouez), Wisconsin

Legal Description

NW ¼, SE ¼, Section 1, Township 23 North, Range 20 East, Brown County

Contact or Client

Lee Amundson
6426 Nero Lane
Sobieski, WI 54171
(920) 639-4141

WDNR Project Manager

Alex Edler
WDNR Northeast Region
2984 Shawano Avenue
Green Bay, WI 54313
(920) 662-5149

Consultant

METCO
Ronald J. Anderson, P.G.
Jason T. Powell
709 Gillette Street, Suite 3
La Crosse, WI 54603
(608) 781-8879

SITE BACKGROUND

Facility

The subject property operated as a gas station from approximately the 1930s until the 1950s. In the late 1970s, two 2,000-gallon gasoline USTs were removed from the subject property. A dry cleaner operated at the subject property from approximately 1972 until 1988. Currently the property is occupied by a tattoo parlor.

On December 19, 2012, Omni Associates conducted a WDNR lead investigation in the area of the subject property. During the investigation, four Geoprobe borings were completed in the area of the subject property with four groundwater samples collected for VOC analysis. Petroleum compounds were detected in the groundwater sample from B-4, which was conducted along S Webster Avenue and adjacent to the subject property. Based on the levels of petroleum contamination found in the groundwater sample from B-4, the WDNR opened a LUST case (BRRTS #03-05-560082) at the 1404 S Webster Avenue property on February 11, 2013.

An open ERP case also exists at the subject property (BRRTS #02-05-514372) concerning the former dry cleaner that operated on the property. A closed LUST site, Knothole Bookstore (BRRTS #03-05-002199), exists approximately 80 feet to the east of the subject property, across S Webster Avenue. The Knothole Bookstore LUST site was closed in January 2006 with residual soil and groundwater contamination. Based on the results of the Knothole Bookstore investigation, it appears that the 1404 S Webster Avenue and the Knothole Bookstore sites may potentially have commingled groundwater contamination plumes for the petroleum related compounds.

Potential Risks and Impacts

The subject property and surrounding properties are all served by the Village of Allouez municipal water system. The primary water supply for the Village of Allouez comes from the City of Manitowoc. However, the Village of Allouez has two emergency back up wells, the closest being located approximately 3,900 feet to the east-southeast of the subject property.

The village has knowledge of only one private well within the village limits. This well is located on the Schroeder's Flowers property and is located at least 650 feet to the south of the subject property. However, the well at Schroeder's Flowers is a non potable well that is used for watering flowers in the greenhouses. Schroeder's Flowers is connected to the municipal water supply for its potable water supply.

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METCO is not currently aware of any other impacts, receptors, risks, or local problems associated with the subject property.

SITE CONDITIONS

Topography

According to the USGS Hydrologic Atlas, Allouez is located in the eastern portion of the Fox-Wolf River Basin. This area is characterized by relatively flat plains with some generally north-south ridges. The topography and drainage of this area is controlled by the topography of the bedrock surface, and modified by glacial erosion and deposition.

The elevation of the site is approximately 630 feet above Mean Sea Level (MSL). See Appendix A for site location.

Geology

Native unconsolidated materials in this area generally consist of inter-bedded sand and clay (glacial lake deposits). The unconsolidated materials are underlain by dolomite bedrock at approximately 50 to 100 feet below ground surface.

Hydrology

The nearest surface water is the Fox River, which exists approximately 1,700 feet to the west of the subject property.

Hydrogeology

Based on data collected from the nearby Knothole Bookstore LUST site, groundwater is expected to exist at approximately 20 to 25 feet below ground surface. Local groundwater flow is expected to be generally toward the north to slightly northwest.

SCOPE OF WORK

LUST Investigation

An investigation consists of collecting samples of soil and groundwater for analysis by a laboratory for compounds related to petroleum products. The WDNR requires that the investigation determine the degree and extent of contaminants in these mediums, which is commonly referred to as "defining the contaminant plume". Further background information will also be collected to

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assist in the investigation.

Drilling Project

METCO has proposed 14 to 16 boreholes to be completed on/off site. METCO has also proposed 6 to 8 monitoring wells to be installed on/off site.

The goal of the Drilling Project is to complete the following:

1. Determine general subsurface geotechnical characteristics.
2. Verify, through sampling, the horizontal and vertical extent of soil and groundwater contamination.
3. Install monitoring wells in an arrangement that fully defines the horizontal and vertical extent of groundwater contamination.
4. Develop the monitoring wells.
5. Collect at least two rounds of groundwater samples from the monitoring wells.
6. If conditions warrant, perform slug tests on at least one monitoring well.

Report Preparation

The final report, prepared by METCO, will include background information, observations, procedures, methods, field data, laboratory analysis, site maps, data analysis, risk assessment, conclusions, and recommendations concerning all activities conducted for this project. This report will be submitted to the client and the WDNR for review and discussion.

METCO PROCEDURES AND METHODS

Drilling

Drilling is conducted with a track or truck mounted hollow stem auger/direct push drill rig. To penetrate any unconsolidated materials, work is conducted in accordance with ASTM D-1452 "Soil Investigation and Sampling by Auger Boring". If bedrock is encountered and cannot be penetrated with auger boring, an accepted air-rotary drilling procedure will be used.

Sampling unconsolidated materials is done using hydraulically driven unit that advances 2-inch diameter, 4 or 5-foot long, stainless steel rods into the subsurface. At desired depths, either a soil or water sample can be collected. A 4-foot or 5-foot long, ½ or 1-inch diameter soil sampler is advanced to the sampling location. Continuous soil samples are collected and brought to the

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surface for analysis.

All borings are properly abandoned to ground level using bentonite clay.

PID Screening

Each of the samples, for headspace analysis, are placed in a clean, clear, plastic Ziploc bag. These containers are to be filled ¼ full. All containers are the same size and filled to the same volume. The containers are then sealed.

Once collected and sealed, samples are shaken for 30 seconds to break apart soil clods. They are then allowed to establish headspace. The following table is used to determine headspace equilibration time.

Outside temperature / Time to establish headspace

- <40 deg. F 40 minutes
- 41-55 deg. F 20 minutes
- 56-69 deg. F 10 minutes
- >70 deg. F 5 minutes

To take readings, the PID probe is inserted into the plastic bag halfway between the sample and the highest meter response recorded. The samples are screened with a Model DL-102 HNU Meter equipped with a 10.6 eV lamp. Metered calibration is done at the beginning of each workday. Other notes taken are as follows:

1. Temperature and weather conditions.
2. Date of last factory calibration.
3. Field calibration gas used and concentration.
4. Date and time of last calibration.
5. Instrument gain setting.
6. Erratic instrument readings.
7. Cleaning or repairs performed in the field.
8. Sample moisture (saturated, wet, moist, damp, dry).
9. Petroleum odors or staining of samples.
10. Any instrument quenching.
11. Other relevant information.

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Monitoring Wells

Groundwater monitoring well installations are completed under the direction of a METCO hydrogeologist and in accordance with Wisconsin Department of Natural Resources Chapter NR141, "Groundwater Monitoring Well Requirements." The monitoring wells are constructed of flush-threaded, two-inch inside diameter schedule 40 or 80 polyvinyl chloride (PVC) piping. Ten-foot well screens with 0.010-inch slots are installed approximately 5 to 6 feet into the watertable. A uniform washed sand is installed around the well screens to serve as a filter pack. Granular bentonite is used above the filter pack to provide a surface seal. Steel, locking protective well casings are cemented in at each well. Any variances from NR141 will be reported to the WDNR.

Each well is developed by alternately surging and purging with a clean polyethylene bailer for 20 to 30 minutes to remove fines from the well screen, after which ten well volumes are removed using a submersible pump.

Groundwater level measurements are obtained using an electronic water level indicator. All measurements are recorded to the nearest 0.01-foot. The probe is thoroughly washed between measurements.

At least two rounds of samples are collected using a bottom loading, disposable, polyethylene bailer and disposable polyethylene cord. Approximately four well volumes are purged from each well before collecting samples.

Depending on site conditions and groundwater sampling results, slug tests may be conducted on at least one of the monitoring wells to determine hydrogeologic parameters (hydraulic conductivity, transmissivity, and flow velocity). During the slug test, groundwater in a monitoring well is displaced using a solid plastic slug, while water levels are recorded using a transducer and data logger. Water levels are recorded until the water level in the well returns to equilibrium. Slug test data is evaluated using the Bouwer and Rice method.

Well Elevation Survey

All wells are surveyed to the nearest 0.01-foot MSL by a qualified surveying company.

Sample Analysis

Environmental samples are collected to minimize both soil disturbance and exposure of the sample to the air.

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Field observations such as soil characteristics, petroleum odors, product sheens, and staining associated with the samples are continuously noted throughout sampling.

The amount of sample taken, the size of the container used, and the type of sample preservation used, will depend on the laboratory contracted and for which parameters the soil samples are analyzed. See Appendix C for LUST Sample Guidelines.

All collected samples are stored in a cooler that maintains a temperature of, at most, 4 degrees Celsius. The coolers are accompanied by a complete chain of custody and are delivered to the laboratory within two days of sampling.

The WDNR document, "LUST Analytical and Quality Assurance Guidance, July 1993" is referenced in determining what parameters in which the soil and water samples will be analyzed, and the amount of duplicates/blanks required.

Quality Assurance/Quality Control/Waste Management

All drilling and sampling equipment advanced into the subsurface is cleaned between sampling locations. This consists of washing with a biodegradable Alconox solution and rinsing with potable water. Wash and rinse water are disposed of atop an isolated area of asphalt for evaporation or discharged into a local storm sewer.

Drill cuttings, field screened as being contaminated, are contained in 55-gallon DOT barrels, characterized, and properly disposed of by METCO and/or client.

Development and purge waters are contained in 55 gallon DOT barrels, characterized, and properly disposed of by METCO and/or the client. Disposal options will depend on the amount of water, type of contaminants, and concentration of contaminants. All wastewater contaminants and disposal activities are recorded with complete documentation submitted to the WDNR.

Variances

We are not aware of any variiances needed at this time.

SCHEDULE FOR INVESTIGATION PROJECT

The following is a checklist of activities that have been, or will be completed, concerning the LUST Investigation, along with an estimated time frame. A typical LUST Investigation takes approximately 2 to 6 months. The investigation may take up to 12 months if bedrock or groundwater is contaminated.

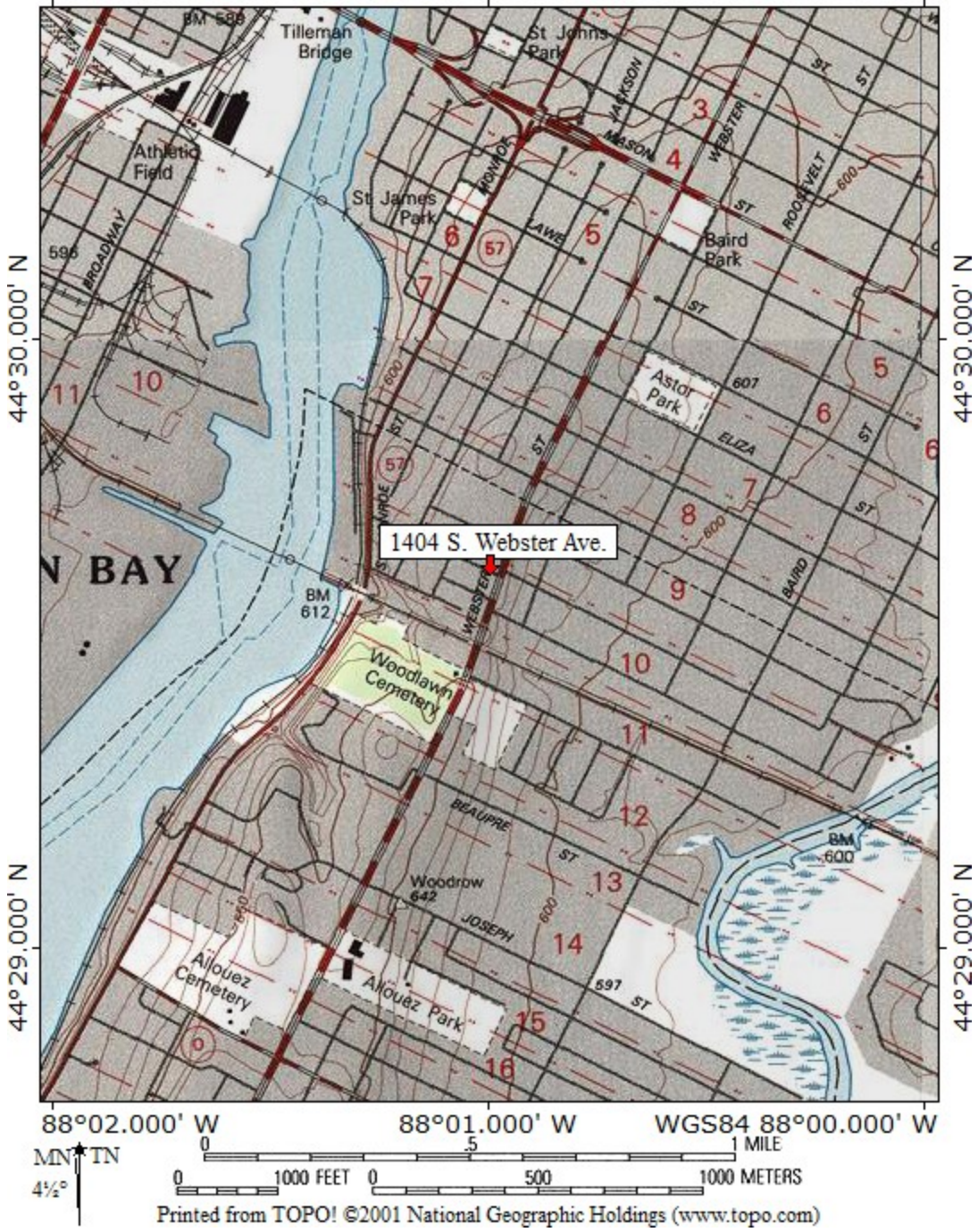
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- 1) METCO submits a LUST Investigation Project proposal to client (done).
- 2) Proposal acceptance by client. METCO notifies the WDNR that a consultant has been contracted (done).
- 3) Client obtains PECFA Packet and Site Eligibility Letter from PECFA (done).
- 4) METCO submits a LUST Investigation Field Procedures Workplan to client and WDNR for review and approval (8/22/16).
- 5) METCO conducts Drilling Project (1 month). More than one field mobilization may be needed to complete project depending on complexity of the site and project (1 month to receive lab results).
- 6) METCO develops/surveys the installed monitoring wells and collects. Round 1 groundwater samples for laboratory analysis (1 month to receive lab results).
- 7) METCO collects Round 2 groundwater samples for laboratory analysis (1 month to receive lab results).
- 8) METCO completes any additional work that is needed, such as slug tests (1 month).
- 9) METCO prepares a LUST Investigation report that contains all collected data and submits to the client and WDNR (3-6 months).
- 10) If no further investigation work is required, METCO will apply for "site closure" with the WDNR. Upon closure, METCO will complete the PECFA Application and submit for reimbursement (reimbursement takes 3 to 6 months).
- 11) If further investigation and/or remediation is required METCO will provide further assistance.

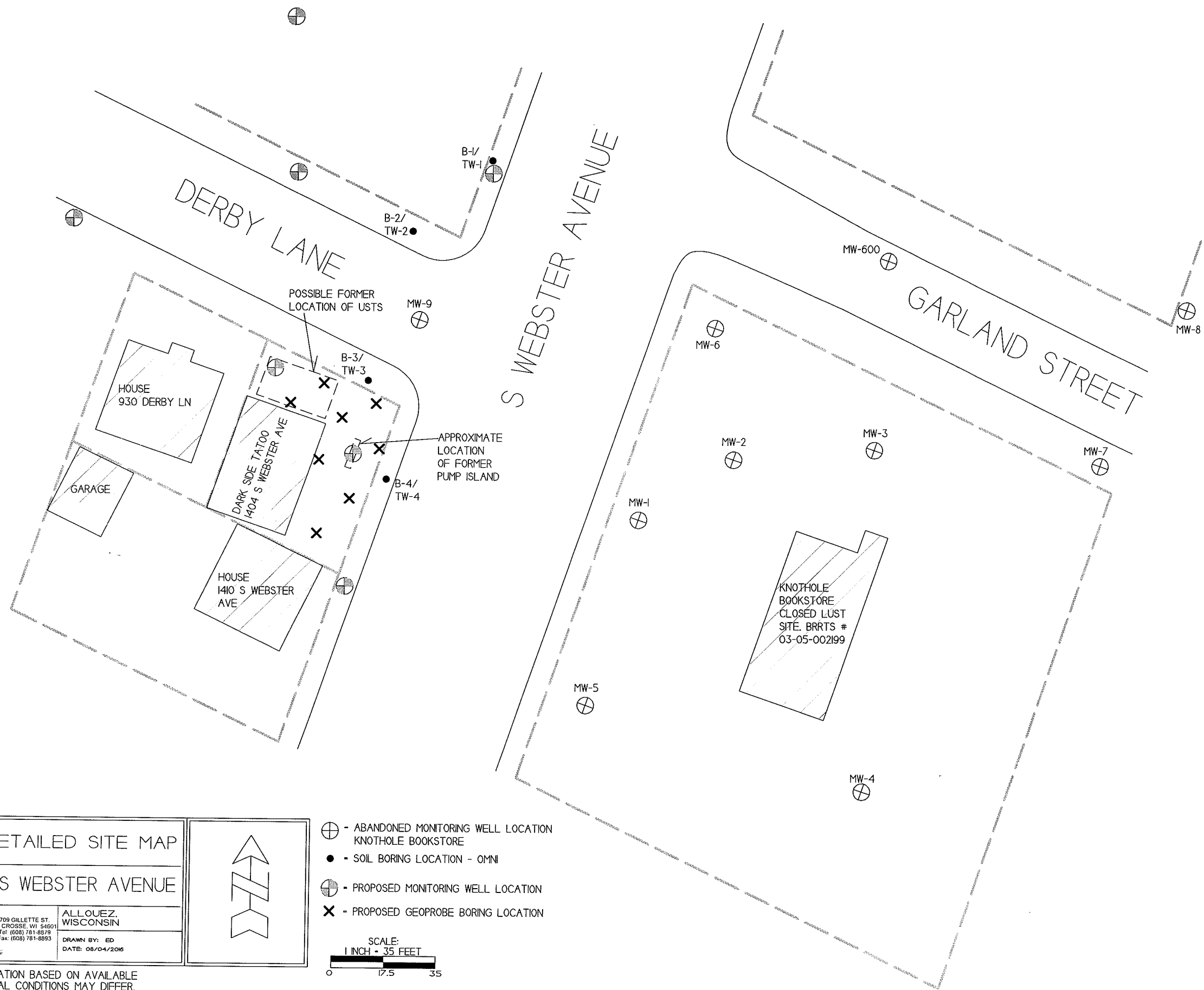
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APPENDIX A/SITE MAPS

TOPO! map printed on 08/05/16 from "Wisconsin.tpo" and "Untitled.tpg"
88°02.000' W 88°01.000' W WGS84 88°00.000' W

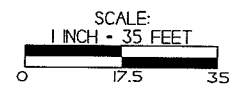


B.1.a LOCATION MAP
CONTOUR INTERVAL 10 FEET
1404 S. WEBSTER AVE. – GREEN BAY, WI
SEAMLESS USGS TOPOGRAPHIC MAPS ON CD-ROM



B.I.b DETAILED SITE MAP	
1404 S WEBSTER AVENUE	
<p>709 GILLETTE ST. LA CROSSE, WI 54601 Tel: (608) 781-8879 Fax: (608) 781-8893</p>	<p>ALLOUEZ WISCONSIN</p>
	<p>DRAWN BY: ED DATE: 08/04/2016</p>

- ⊕ - ABANDONED MONITORING WELL LOCATION
KNOTHOLE BOOKSTORE
- - SOIL BORING LOCATION - OMNI
- ⊕ - PROPOSED MONITORING WELL LOCATION
- ✕ - PROPOSED GEOPROBE BORING LOCATION



NOTE: INFORMATION BASED ON AVAILABLE DATA. ACTUAL CONDITIONS MAY DIFFER.

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APPENDIX B/INVESTIGATION CHECKLIST

SITE INVESTIGATION CHECKLIST
Revised February 1992 PUBL-SW-115

This checklist was prepared by the Department of Natural Resources. It lists the necessary information to include in a site investigation report, for investigations conducted in accordance with guidelines prepared by the Emergency and Remedial Response Section, of the Bureau of Solid and Hazardous Waste Management, Wisconsin DNR. Sites include those where actions are conducted under the LUST, Spills and Environmental Repair programs. If some of this information is not submitted the report should clearly state why it is omitted. More complete information regarding site investigations is available in the Department's "Guidance on Conducting Environmental Response Actions".

The purpose of the site investigation is to 1) define the extent and degree of contamination and 2) to provide a basis for choosing a remedial action alternative. The narrative portion of the investigation report should clearly address these goals.

The Department strongly recommends that the site investigation report follow the sequence of information listed here. This will allow for a quick completeness check and more timely review of submittals. Incomplete reports will not be reviewed until all the necessary information has been received. The following information should be included in the site investigation, (as appropriate to each case):

I. INTRODUCTION/COVER LETTER

- ___ 1. Project title
- ___ 2. Purpose of report and desired department action
- ___ 3. Client(s)
- ___ 4. Author(s), with signatures
- ___ 5. Scope of Services
- ___ 6. Dates the work was performed
- ___ 7. Date of report
- ___ 8. Subcontractors employed by the consultant

II. GENERAL and BACKGROUND INFORMATION

1. General Information

A. Identify the owner/operator and/or person(s) responsible: (include all applicable)

- ___ 1. name
- ___ 2. address
- ___ 3. day phone number
- ___ 4. contact person (name)
- ___ 5. address
- ___ 6. phone number
- ___ 7. verification of ownership: photocopy of deed or exact legal description of property

B. Specify the site of contamination:

- ___ 1. name
- ___ 2. phone number
- ___ 3. specific location (street corner, miles from an intersection, etc)
 - ___ a. legal address (street address if applicable, do not supply just a P.O. Box #)
 - ___ b. location of impacted properties by latitude and longitude, to an accuracy of seconds, at a minimum (preferred method) or State Plane coordinate system
 - ___ c. location of impacted properties by quarter, quarter, section, township, range, civil township, county, or other locational criteria if site(s) are not within the Public Land Survey system
- ___ 4. type of operation: gas station, tank farm, private residence, manufacturer, etc.

C. Site Location Maps

- ___ 1. General Location Map
 - ___ locate on a USGS topographic base map (include quadrangle name, series and scale)
 - ___ locate on a plat map, if applicable
- ___ 2. Local Base Map: the map must be drawn to scale and include the following items. Other features may also be needed:
 - ___ a. bar scale
 - ___ b. North arrow
 - ___ c. legend
 - ___ d. location of benchmark used
 - ___ e. origin of horizontal grid system

3. Including Site Specific Features: more than one map may be appropriate, use the local map for the base map (These maps may be used for several purposes.)

- ___ a. location of discharge on site or facility, for example, the location of (former) tank and pump islands and piping
- ___ b. location of all buildings on site
- ___ c. locations of public utilities, appropriately marked
- ___ d. property boundaries
- ___ e. location of all soil borings and wells (monitoring wells and potable wells)
- ___ f. location of soil vapor points
- ___ g. locations of where field screenings and lab confirmation samples were taken
- ___ h. nearby/neighboring structures and private wells (within 1200 feet)
- ___ i. any nearby surface waters (within map scale)
- ___ j. roads and paved areas, and other access areas
- ___ k. known and potential sources of contamination
- ___ l. known and potential receptors
- ___ m. limits of excavation

2. Site Background

A. General Site Information

- ___ 1. site description, including features like:
 - ___ - number of tanks/containers
 - ___ - volume/size of tanks/containers
 - ___ - tank/container contents, past and present
 - ___ - tank/container age, installation dates
 - ___ - tank/container construction materials
 - ___ - presence and type of leak detection
 - ___ - presence and type of secondary containment
- ___ 2. general site construction history
- ___ 3. any past reports of spills, or other incidents
- ___ 4. periods of nonoperation
- ___ 5. proximity of sensitive sites such as schools, homes, private or public wells, etc.

B. Description of Discharge Incident

- ___ 1. type of hazardous substances discharged, known or suspected (released, spilled, lost, etc.)
- ___ 2. approximate amounts discharged
- ___ 3. location of impact
- ___ 4. dates of discharge
- ___ 5. local problems associated with discharge, e.g. vapors in homes, well contamination, etc.
- ___ 6. known receptors

C. Impacts

- ___ 1. existing impacts to human health, safety, welfare and the environment
- ___ 2. any impacts to adjacent or nearby buildings, wells or other structures
- ___ 3. names and addresses of owners of adjacent properties, if those properties have been adversely impacted by the hazardous substance discharge

D. Past Activities, Monitoring and Testing

- ___ 1. dates of site activities, duration and type and potential amounts of discharges
- ___ 2. description of emergency actions taken and of interim actions taken, including dates
- ___ 3. record of activities conducted at the site which had potential to cause contamination
- ___ 4. inventory record system data
- ___ 5. summary of monitoring results, including:
 - ___ - product monitoring records according to ILHR 10
 - ___ - groundwater monitoring
 - ___ - surface water monitoring
 - ___ - soil monitoring
 - ___ - sediment monitoring
 - ___ - atmospheric monitoring
- ___ 6. records of testing, repair, removal or replacement, including dates
- ___ 7. tank/container/line integrity testing
 - ___ method
 - ___ testing firm
 - ___ dates
 - ___ results

E. Hazardous Waste Generation

- ___ 1. hazardous waste manifest
- ___ 2. was hazardous waste ever generated or stored on site?

- F. Description of Tank/Container and Soil Removal Activities
- 1. description of soil conditions in the area of the tank/container excavation or in area of discharge
 - 2. volume of (contaminated) soils removed from the excavation
 - 3. location of stockpiled contaminated soils
 - 4. type of impermeable base for stockpiled soils
 - 5. type of impermeable cover for stockpiled soils
 - 6. if excavation was backfilled, what was used as fill?
 - 7. final deposition of soil excavated, where and how were they used? (daily cover, backfill on/off site, roasted, buried, etc.)
 - 8. condition of tanks, lines, pumps (corrosion, visible leaks, etc?)
 - 9. product (other than petroleum) or waste delivery or storage systems

- G. Land Use Information
- 1. current and past land uses of site and neighboring properties
 - 2. description of zoning of property and adjacent properties

3. Environmental Analysis

- A. Site Historical Significance
- 1. impacts or potential impacts to significant historical or archeological features due to any response activities or the discharge itself
 - 2. presence of buildings greater than 50 years old on or next to discharge site

- B. Presence of "Sensitive" Environmental Receptors
- 1. wildlife habitat
 - 2. state or federal threatened or endangered species
 - 3. sensitive or unique ecosystems or species
 - 4. areas of special natural resource interest
 - 5. other surface waters and wetlands, as appropriate

- C. Geology (use maps as appropriate)
- 1. geologic origin, nature and distribution of bedrock
 - 2. geologic origin, nature and distribution of overlying soils
 - 3. thicknesses of various strata (consolidated and unconsolidated)
 - 4. depth to bedrock
 - 5. geophysical characteristics
 - 6. soil types and texture
 - 7. soil descriptions to include:
 - structure
 - mottling
 - voids
 - layering
 - lenses
 - geologic origin
 - Unified Soil System Classification
 - grain size distribution, if applicable
 - evidence of secondary permeability
 - odor, if evident
 - staining, if evident
 - 8. bedrock descriptions, if impacted:
 - rock type
 - grain size
 - bedding thickness
 - presence of fractures
 - orientation of fractures
 - sedimentary structures
 - secondary porosity/solutional features
 - other
 - 9. topography
 - 10. site hydrology, including
 - intermittent and ephemeral streams,
 - drain tile systems,
 - surface waters
 - wetlands
 - location of floodway and floodplain (this may be best located on a site map)

- D. Hydrogeology
- 1. depth to water table
 - 2. flow directions, seasonal variations

- ___ 3. horizontal and vertical gradients
- ___ 4. hydraulic characteristics: (define as field test results or non-field estimates)
 - ___ hydraulic conductivity, variation
 - ___ transmissivity
 - ___ storativity
- ___ 5. aquifer definition:
 - ___ size
 - ___ use
 - ___ presence of aquitards
- ___ 6. local and regional recharge or discharge area(s)
- ___ 7. potentiometric surface
- ___ 8. location, seasonal variation of groundwater divides
- ___ 9. location and extent of perched groundwater
- ___ 10. local and regional groundwater quality
- ___ 11. hydraulic connection between aquifers
- ___ 12. saturated thickness of aquifer
- ___ 13. estimates of flow volume passing below the discharge site/facility (include calculations in the appendices)
- ___ 14. drillers logs which indicated any abnormal drilling difficulties
- ___ 15. isoconcentration maps
- ___ 16. other

III. RESULTS

1. Contaminant Migration Pathway and Receptor Assessment

A. Potential Vapor and Product Migration Pathways (include depth of burial and construction material)

- ___ 1. sewer lines
- ___ 2. storm sewers
- ___ 3. buried power cables
- ___ 4. buried telephone lines
- ___ 5. tile lines
- ___ 6. more permeable soil lenses
- ___ 7. water lines
- ___ 8. road beds
- ___ 9. foundations
- ___ 10. other

B. Potential Receptors of Contamination (description of impacts or potential impacts, if applicable)

- ___ 1. buildings on site
- ___ 2. neighboring basements/buildings
- ___ 3. nearby wells (locations must be provided on a map)
- ___ 4. nearby surface waters, including wetlands
- ___ 5. critical habitats
- ___ 6. endangered species
- ___ 7. outstanding resource waters
- ___ 8. exceptional resource waters
- ___ 9. sensitive or unique ecosystems
- ___ 10. other

C. Potential Health Impacts

- ___ 1. danger of explosion
- ___ 2. contaminated private wells
- ___ 3. contaminated public water supply wells
- ___ 4. exposure to vapors
- ___ 5. dermal exposure
- ___ 6. other

2. Sampling and Analysis Results (figures and tables should be used, but general trends and the overall evaluation should be in narrative form) Provide units of measurement for all results. Describe or provide the following information for each media impacted:

A. soil chemistry results, per parameter, per location

- ___ 1. field screening results with locations identified
- ___ 2. laboratory (confirmation) sample results with locations identified
- ___ 3. any indication of contamination of soils encountered (staining, odor, etc.)

B. groundwater sample results, per parameter, per well, over time

- ___ 1. laboratory results
- ___ 2. trends analysis

- ___ 3. compliance evaluation with NR 140 groundwater standards, if applicable
- C. soil vapor results (define type of survey used)
 - ___ 1. by parameter
 - ___ 2. per location
- D. sampling results from other media impacted by the discharge
 - ___ 1. parameters
 - ___ 2. locations
- 3. Sampling Methods Used (for each media impacted, lists provided for soil and groundwater only)

- A. Soils:
 - ___ 1. description of sample collection method
 - ___ 2. field screening or analytical instrument type used
 - ___ lamp strength
 - ___ calibration
 - ___ operating procedure
 - ___ 3. sample container
 - ___ 4. temperature at which the sample was collected
 - ___ 5. time allowed for PID or FID samples to achieve at least 70° F, and location

- B. Groundwater
 - ___ 1. method and instruments used to obtain sample
 - ___ 2. any indication of contamination noticed in field
 - ___ 3. whether the well was purged or not, why and how, and amount removed
 - ___ 4. drilling method used
 - ___ 5. monitoring well construction features
 - ___ 6. abandonment methods
 - ___ a. boreholes
 - ___ b. monitoring wells
 - ___ c. excavations
 - ___ 7. survey methods
 - ___ 8. sample container size
 - ___ 9. sample description
 - ___ - turbid
 - ___ - clear
 - ___ - sheen
 - ___ - free product
 - ___ 10. other

- C. Vapors/Ambient Air
 - ___ 1. description of sample collection method
 - ___ 2. field screening, if conducted
 - ___ 3. sample container

4. Quality Control and Quality Assurance

- A. General QA/QC (for all media impacted)
 - ___ 1. name and address of laboratory
 - ___ 2. laboratory certification number
 - ___ 3. number of blanks, with results:
 - ___ - field blanks
 - ___ - trip blanks
 - ___ - lab spikes
 - ___ - split samples
 - ___ - replicate spikes
 - ___ 4. name and training of person collecting the samples (including certification, if applicable)

- B. Field Instrument Quality Control (for all media impacted)
 - ___ 1. instrument make, model and lamp energy
 - ___ 2. limitations of field screening instruments
 - ___ - temperature changes
 - ___ - humidity changes
 - ___ - other
 - ___ 3. any repairs to the instrument
 - ___ 4. field instrument calibration measures conducted
 - ___ 5. time and frequency or schedule of field instrument calibration
 - ___ 6. composition of the calibration gas used (calibration product ?)
 - ___ 7. calibration curves used
 - ___ 8. correction factor if one was used

- ___ 9. results of any calibration checks
- ___ 10. time of day and ambient temperature when calibrations, calibration curves or calibration checks were completed
- ___ 11. time and temperature that samples were equilibrated if the outside temperature is below 60°F at the time of field analysis

C. Field Sampling and Transportation Quality Control and Assurance (for all media impacted)

- ___ 1. sample type
- ___ 2. sample location and associated field and laboratory identification
- ___ 3. sampling technique used
- ___ 4. sampling techniques used to minimize exposure of samples to the atmosphere
- ___ 5. date and time of sampling
- ___ 6. field preservation performed
- ___ 7. date and time of preservation or extraction
- ___ 8. decontamination procedures used during the site investigation
- ___ 9. deviations from standard operating procedures
- ___ 10. shipping time and technique

D. Laboratory Receipt and Analysis (for all media impacted)

- ___ 1. chain of custody forms (4400-151)
- ___ 2. time and date of receipt of samples by the laboratory
- ___ 3. sample condition on receipt by the laboratory including
 - the temperature of the samples and
 - whether the samples were properly sealed
- ___ 4. time and date of analysis
- ___ 5. method of analysis
- ___ 6. laboratory detection limit
- ___ 7. sample results with units of measurement
- ___ 8. accuracy and precision of replicate spikes
- ___ 9. results or percent recovery of matrix spikes with every batch of samples not to exceed eight hours

5. Investigative Wastes (for all media impacted, to include but which is not limited to contaminated water from excavations, borings, purge water, rinse waters from decontamination procedures, extra sample)

- ___ A. analytical results (hazardous determination, if listed?)
- ___ B. ultimate disposal
- ___ C. other

IV. SUMMARY AND EVALUATION OF RESULTS (Analysis of Degree and Extent of Contamination)

- ___ 1. degree and extent of soil contamination
- ___ 2. degree and extent of groundwater contamination
- ___ 3. degree and extent of contamination of other media impacted
- ___ 4. known or potential impacts to receptors, such as water supply wells
- ___ 4. vapor migration potential
- ___ 5. impacts from seepage into basements, utility lines, surface waters
- ___ 6. difficulties experienced during the investigation
- ___ 7. unanticipated or questionable results
- ___ 8. details needing emphasis

V. CONCLUSIONS

- ___ source and type of release defined
- ___ soil and groundwater contamination adequately defined?
- ___ further study needed
- ___ further remediation needed
- ___ known or potential impacts from the release defined?
- ___ clean site, ready for case closure
- ___ other

VI. RECOMMENDATIONS

- 1. Investigation Incomplete
 - ___ continued monitoring
 - ___ additional investigation
- 2. Remedial Action Alternatives (provide description of alternatives) e.g.:
 - ___ remediation method (to be) used for contaminated soil

- soil removal, treatment and disposal
- soil venting
- product recovery
- groundwater extraction and treatment
- insitu biological treatment
- other actions (define)

3. Other
- work plans for further action
 - construction proposals for further action
 - pilot study, other treatability studies
 - schedules for further actions
 - required permits
 - air quality
 - wastewater discharge

VII. FIGURES

- 1. Site Maps
 - - location maps (regional and local)
 - - water table and/or potentiometric surface maps
 - - isoconcentration maps
 - - surface water depth maps
 - - bedrock and soil type and distribution maps
- 2. Flow Cross Sections
- 3. Extent of Contamination in Soil
- 4. Extent of Contamination in Groundwater (Isoconcentration)
- 5. Locations of Potential Receptors
- 6. Geologic Cross-Sections
 - a. geologic setting
 - b. boring location
 - c. soil classification
 - d. analytical sampling
 - e. monitoring well locations
 - f. water table
 - g. extent of contaminant plume
 - h. concentrations at referenced date and point
 - i. sampling intervals (for soil and groundwater)
 - j. of excavation walls showing location of field screening and/or analytical results, as appropriate
- 7. Photographs (NO black and white photocopies)

VIII. TABLES

- 1. Groundwater Chemistry Results
- 2. Soil Chemistry Results
- 3. Analytical Methods Used
- 4. Standards for Comparison and Compliance Determinations (Tables with compliance standards should be combined with analytical results for comparison)
- 5. Geologic and Hydrogeologic Results
- 6. Groundwater Elevations
- 7. Screening Results
- 8. Other

IX. APPENDICES (up to the author)

- 1. Table giving data for compounds found, such as:
Chemical formula, Molecular weight, Ionic potential, Solubility,
Vapor pressure, Henry's Law Constant, Kow
- 2. References used to support methods or provide standards methods, including previous reports
- 3. All raw data
- 4. All documentation on forms: (DNR form number)
 - a. soil boring logs (4400-122)
 - b. monitoring well construction logs (4400-113A)
 - c. soil boring/well abandonment forms (3300-5B)
 - d. chain of custody forms
 - e. lab/chemistry results
 - f. groundwater monitoring well information form (4400-89)
 - g. monitoring well development form (4400-113B)
- 5. Variances (for well construction, hazardous waste storage requirements, etc.)

- 6. Well logs of all impacted wells and potentially impacted wells within 1200' of the discharge site (locate wells on a map)
- 7. All calculations and assumptions
- 8. Landfill receipts for disposed soil
- 9. Regional hydrogeological information references used

Other information that may be needed includes:

- access
- public information plan
- health and safety plan

**LUST Investigation Field Procedures Workplan - METCO
1404 S Webster Avenue - LUST**

APPENDIX C/LUST SAMPLING GUIDELINES

LUST and Petroleum Analytical and QA Guidance
July 1993 Revision

Petroleum Substance Discharged	Analysis of Samples Collected for UST Tank Closure Assessments	Solid Waste Program Requirements for Soils to be landfilled ⁵	Site Investigation, Pretreatment and Posttreatment Sample Analysis ¹¹
Regular Gasoline	GRO ²	Free Liquids ⁶ GRO Benzene ⁷ Pb ⁷ Haz. Waste Deter. ⁸	GRO VOC/PVOC ¹⁵ Pb ¹²
Unleaded Gasoline; Grades 80 100, and 100 LL (Low Lead) Aviation Fuel	GRO ²	Free Liquids ⁶ GRO Benzene ⁷ Pb ⁷ Haz. Waste Deter. ⁸	GRO PVOC
Diesel; Jet Fuels; and No's 1, 2, and 4 Fuel Oil	DRO ³	Free Liquids ⁶ DRO Benzene ⁷ Haz. Waste Deter. ⁸	DRO ³ PVOC PAH ^{13 14}
Crude Oil; Lubricating Oils; No. 6 Fuel Oil	DRO ³	Free Liquids ⁶ DRO Haz. Waste Deter. ⁸	DRO ³ PAH ^{13 14}
Unknown Petroleum	GRO ⁷ and DRO ^{3 4}	Free Liquids ⁶ GRO and DRO Pb, Cd ⁷ Haz. Waste Deter. ⁸ CN ¹⁹ S ^{2 10}	GRO and DRO ^{3 4} VOC/PVOC ¹⁵ PAH ^{13 14} Pb, Cd ¹²
Waste Oil	DRO ³	Free Liquids ⁶ DRO Pb, Cd ⁷ Haz. Waste Deter. ⁸ CN ¹⁹ S ^{2 10}	DRO ³ VOC/PVOC ¹⁵ PAH ^{13 14} PCBs ¹⁶ Pb, Cd ¹²

Abbreviations:

GRO - Gasoline Range Organics, Determined by the Wisconsin Modified GRO Method

DRO - Diesel Range Organics, Determined by the Wisconsin Modified DRO Method

VOC - Volatile Organic Compounds (See Section 11.1 for a list of VOC compounds)

PVOC - Petroleum Organic Compounds (See Section 11.2 for a list of PVOC compounds)

PAH - Polynuclear Aromatic Hydrocarbons (See Section 11.3 for a list of the PAH compounds)

PCBs - Polychlorinated Biphenyls

Pb - Lead

SYNERGY ENVIRONMENTAL LAB – Sample Bottle Requirements

**TABLE 1
SAMPLE & PRESERVATION REQUIREMENTS FOR WATER and
DRINKING WATER SAMPLES**

Test	Original Sample Container	Preserved	Holding Time to Analysis
WET CHEMISTRY			
Alkalinity SM2320B/EPA 310.2	250 mL HDPE	4°C	14 days
Ammonia EPA 350.1	250 mL HDPE	4°C, pH<2 with H ₂ SO ₄	28 days
BOD, cBOD SM5210B	500 ml HDPE	4°C	48 hrs.
COD EPA 410.4	500 ml HDPE	4°C, pH<2 with H ₂ SO ₄	28 days
Chloride EPA 300.0/EPA 325.2	250 mL HDPE	4°C	28 days
Cyanide SW846 9012A/SM4500-CN-C	1000 mL HDPE	4°C, pH>12 with NaOH	14 days
Flashpoint SW846 1010	250 mL HDPE	4°C	28 days
Fluoride EPA 300.0	250 mL HDPE	4°C	28 days
Hardness SW846 6010B	250 mL HDPE	4°C, pH<2 with HNO ₃	180 days
TKN EPA 351.2	1 Liter HDPE	4°C, pH<2 with H ₂ SO ₄	28 days
Nitrate EPA 300.0	250 mL HDPE	4°C	48 hours
Nitrate+Nitrite EPA 300.0	250 mL HDPE	4°C, pH<2 with H ₂ SO ₄	28 days
Nitrite EPA 300.0	250 mL HDPE	4°C	48 hours
Oil & Grease EPA 1664	1 Liter Glass	4°C, pH<2 with H ₂ SO ₄	28 days
Organic Carbon SW846 9060/ EPA 415.1	40 ml Glass	4°C, pH<2 with H ₂ SO ₄ or HCL	28 days
Phenol, Total EPA 420.1	1 Liter Glass	4°C, pH<2 with H ₂ SO ₄	28 days
Phosphorus, Total EPA 365.3	250 mL HDPE	4°C, pH<2 with H ₂ SO ₄	28 days
Sulfate EPA 300.0	250 mL HDPE	4°C	28 days
Total Dissolved Solids EPA 160.1	250 ml HDPE	4°C	7 days
Total Solids EPA 160.3	250 ml HDPE	4°C	7 days
Total Suspended Solids EPA 160.2	250 mL HDPE	4°C	7 days
METALS			
Metals	250 mL HDPE	4°C, pH<2 with HNO ₃	6 months
Mercury SW8467470/EPA 245.1	250 mL HDPE	4°C, pH<2 with HNO ₃	28 days
ORGANICS			
Semivolatiles SW846 8270C	1 Liter amber glass, collect 2 for one of the samples submitted .	4°C	7 days extr. 40 days following extr
PAH SW846 8270C	1 Liter amber glass, collect 2 for one of the samples submitted	4°C	7 days extr. 40 days following extr
PCB SW846 8082	1 Liter amber glass, collect 2 for one of the samples submitted.	4°C	7 days extr. 40 days following extr
DRO, Modified DNR Sep 95	1 Liter amber glass with Teflon lined cap	4°C, 5 mL 50% HCl	7 days extr. 40 days following extr
VOC'S SW846 8260B/EPA524.2	(3) 40 mL glass vials with Teflon lined septum caps	4°C, 0.5 mL 50% HCl, No Headspace	14 days
GRO/VOC	(4) 40 mL glass vials with Teflon lined septum caps	4°C, 0.5 mL 50% HCl prior to adding sample to jar	14 days
GRO, Modified DNR Sep 95	(2) 40 mL glass vials with Teflon lined septum caps	4°C, 0.5 mL 50% HCl prior to adding sample to jar	14 days
GRO/PVOC	(2) 40 mL glass vials with Teflon lined septum caps	4°C, 0.5 mL 50% HCl prior to adding sample to jar	14 days
PVOC	(2) 40 mL glass vials with Teflon lined septum caps	4°C, 0.5 mL 50% HCl prior to adding sample to jar	14 days

**All samples are to be cooled to 4°C until tested.
HDPE = High Density Polyethylene.**

SYNERGY ENVIRONMENTAL LAB – Sample Bottle Requirements

**TABLE 2
SAMPLE & PRESERVATION REQUIREMENTS FOR SOIL SAMPLES**

Test	Original Sample Container	Preserved	Holding Times from Date and Time of Collection			
			Solvent Addition	Shipping	Extraction	Analysis
METALS						
Metals	2 oz glass or soil cup	4°C	NA	NA	NA	180 days
Mercury SW846 7471	2 oz glass or soil cup	4°C	NA	NA	NA	28 days
Chromium Hexavalent SM3500-Cr	2 oz glass or soil cup	4°C	NA	NA	NA	24 hours
ORGANICS						
Any combinations of GRO, VOC, PVOC	1- tared VOC vial with 10 mls methanol, 13 grams of soil collected with syringe	4°C, 1:1 with methanol	Immediately	4 days	21 days	21 days
DRO, Modified	1- tared VOC vial, 13 grams of soil collected with syringe jar	4°C, Hexane	10 days	4 days	47 days	47 days
PAH, SW846 8270C	2 oz glass untared	4°C	NA	NA	14 days	40 days
Semivolatiles SW846 8270C	2 oz glass untared	4°C	NA	NA	14 days	40 days
PCB SW846 8082	2 oz glass untared	4°C	NA	NA	14 days	40 days

All samples are to be cooled to 4°C until tested.

**LUST Investigation Field Procedures Workplan - METCO
1404 S Webster Avenue - LUST**

APPENDIX D/WDNR DOCUMENTS

Residual Contaminant Levels Protective of Groundwater Quality
 (Soil-to-Groundwater Scenario Results from: http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search)

NR140 Substance	NR 140 CAS	Fed MCL (ug/l) (If Red, MCL>ES)	NR 140 ES (ug/l)	RCL-gw (mg/kg) DF=1	Use 2, or input the calculated site-specific DF -->	2.00	INPUT NUMERIC Site Data Max (mg/kg)	Flag.E = Individual Exceedance!
Acetochlor	34256-82-1	-	7	5.58E-03			1.12E-02	
Acetone	67-64-1	-	9000	1.85E+00			3.69E+00	
Alachlor	15972-60-8	2	2	1.65E-03			3.30E-03	
Aldicarb	116-06-3	3	10	2.49E-03			4.99E-03	
Aluminum	7429-90-5	-	200	3.01E+02			6.01E+02	
Antimony	7440-36-0	6	6	2.71E-01			5.42E-01	
Anthracene	120-12-7	-	3000	9.84E+01			1.97E+02	
Arsenic	7440-38-2	10	10	2.92E-01			5.84E-01	
Atrazine, total chlorinated residues	1912-24-9	3	3	1.95E-03			3.90E-03	
Barium	7440-39-3	2000	2000	8.24E+01			1.65E+02	
Bentazon	25057-89-0	-	300	6.59E-02			1.32E-01	
Benzene	71-43-2	5	5	2.56E-03			5.12E-03	
Benzo(a)pyrene (PAH)	50-32-8	0.2	0.2	2.35E-01			4.70E-01	
Benzo(b)fluoranthene (PAH)	205-99-2	-	0.2	2.40E-01			4.80E-01	
Beryllium	7440-41-7	4	4	3.16E+00			6.32E+00	
Boron	7440-42-8	-	1000	3.20E+00			6.40E+00	
Bromodichloromethane (THM)	75-27-4	80	0.6	1.63E-04			3.26E-04	
Bromoform (THM)	75-25-2	80	4.4	1.17E-03			2.33E-03	
Bromomethane	74-83-9	-	10	2.53E-03			5.06E-03	
Butylate	2008-41-5	-	400	3.88E-01			7.76E-01	
Cadmium	7440-43-9	5	5	3.76E-01			7.52E-01	
Carbaryl	63-25-2	-	40	3.64E-02			7.27E-02	
Carbofuran	1563-66-2	40	40	1.56E-02			3.12E-02	
Carbon disulfide	75-15-0	-	1000	2.97E-01			5.93E-01	
Carbon tetrachloride	56-23-5	5	5	1.94E-03			3.88E-03	
Chloramben	133-90-4	-	150	3.63E-02			7.27E-02	
Chlorodifluoromethane	75-45-6	-	7000	2.89E+00			5.79E+00	
Chloroethane	75-00-3	-	400	1.13E-01			2.27E-01	
Chloroform (THM)	67-66-3	80	6	1.67E-03			3.33E-03	
Chlorpyrifos	2921-88-2	-	2	2.95E-02			5.90E-02	
Chloromethane	74-87-3	-	30	7.76E-03			1.55E-02	
Chromium (total)	7440-47-3	100	100	1.80E+05			3.60E+05	
Chrysene (PAH)	218-01-9	-	0.2	7.25E-02			1.45E-01	
Cobalt	7440-48-4	-	40	1.81E+00			3.62E+00	
Copper	7440-50-8	1300	1300	4.58E+01			9.16E+01	
Cyanazine	21725-46-2	-	1	4.68E-04			9.37E-04	
Cyanide, free	57-12-5	200	200	2.02E+00			4.04E+00	
Dacthal (DCPA)	1861-32-1	-	70	8.56E-02			1.71E-01	
1,2-Dibromoethane	106-93-4	0.05	0.05	1.41E-05			2.82E-05	
Dibromochloromethane (THM)	124-48-1	80	60	1.60E-02			3.20E-02	
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	0.2	0.2	8.64E-05			1.73E-04	
Dibutyl phthalate	84-74-2	-	1000	2.52E+00			5.04E+00	
Dicamba	1918-00-9	-	300	7.76E-02			1.55E-01	
1,2-Dichlorobenzene	95-50-1	600	600	5.84E-01			1.17E+00	
1,3-Dichlorobenzene	541-73-1	-	600	5.76E-01			1.15E+00	
1,4-Dichlorobenzene	106-46-7	75	75	7.20E-02			1.44E-01	
Dichlorodifluoromethane	75-71-8	-	1000	1.54E+00			3.08E+00	
1,1-Dichloroethane	75-34-3	-	850	2.42E-01			4.84E-01	
1,2-Dichloroethane	107-06-2	5	5	1.42E-03			2.84E-03	
1,1-Dichloroethylene	75-35-4	7	7	2.51E-03			5.02E-03	
1,2-Dichloroethylene (cis)	156-59-2	70	70	2.06E-02			4.12E-02	
1,2-Dichloroethylene (trans)	156-60-5	100	100	2.94E-02			5.88E-02	
2,4-Dichlorophenoxyacetic acid (2,4-D)	94-75-7	70	70	1.81E-02			3.62E-02	
1,2-Dichloropropane	78-87-5	5	5	1.66E-03			3.32E-03	
1,3-Dichloropropane (cis/trans) (Telone)	542-75-6	-	0.4	1.43E-04			2.85E-04	
Di (2-ethylhexyl) phthalate	117-81-7	6	6	1.44E+00			2.88E+00	
Dimethoate	60-51-5	-	2	4.51E-04			9.02E-04	
2,4-Dinitrotoluene	121-14-2	-	0.05	6.76E-05			1.35E-04	
2,6-Dinitrotoluene	606-20-2	-	0.05	6.88E-05			1.38E-04	
Dinitrotoluene, Total Residues	25321-14-6	-	0.05	6.89E-05			1.38E-04	
Dinoseb	88-85-7	7	7	6.15E-02			1.23E-01	
1,4-Dioxane (p-dioxane)	123-91-1	-	3	6.18E-04			1.24E-03	
Dioxin (2,3,7,8-TCDD)	1746-01-6	0	0	1.50E-05			3.00E-05	
Endrin	72-20-8	2	2	8.08E-02			1.62E-01	
EPTC	759-94-4	-	250	1.32E-01			2.64E-01	
Ethylbenzene	100-41-4	700	700	7.85E-01			1.57E+00	
Ethyl Ether (Diethyl Ether)	60-29-7	-	1000	2.24E-01			4.47E-01	
Ethylene glycol	107-21-1	-	14000	2.82E+00			5.64E+00	
Fluoranthene	206-44-0	-	400	4.44E+01			8.88E+01	
Fluorene (PAH)	86-73-7	-	400	7.41E+00			1.48E+01	

Type BRRTS No.
Here (If Known).
Assess groundwater
levels separately.

Re-assess if Cr-VI present

No RSL result for: Asbestos; Bacteria; 1,3-DCB; Hydrogen Sulfide; Nitrate/Nitrite; Tetrahydrofuran; Perchlorate.

Only use DAF=2 (or site-specific DAF) RCL after clearly defining gw plume. RCL < 0.0001 ppm is in "E" notation.

Residual Contaminant Levels Protective of Groundwater Quality
 (Soil-to-Groundwater Scenario Results from: http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search)

NR140 Substance	NR 140 CAS	Fed MCL (ug/l) (If Red, MCL>ES)	NR 140 ES (ug/l)	RCL-gw (mg/kg) DF=1	Use 2, or input the calculated site-specific DF -->	2.00	INPUT NUMERIC Site Data Max (mg/kg)	Flag E = Individual Exceedance!
Fluoride	7782-41-4	4000	4000	6.01E+02			1.20E+03	
Fluorotrichloromethane	75-69-4	-	3490	2.23E+00			4.47E+00	
Formaldehyde	50-00-0	-	1000	2.02E-01			4.04E-01	
Heptachlor	76-44-8	0.4	0.4	3.31E-02			6.62E-02	
Heptachlor epoxide	1024-57-3	0.2	0.2	4.08E-03			8.16E-03	
Hexachlorobenzene	118-74-1	1	1	1.26E-02			2.52E-02	
n-Hexane	110-54-3	-	600	4.22E+00			8.44E+00	
Lead	7439-92-1	15	15	1.35E+01			2.70E+01	
Lindane	58-89-9	0.2	0.2	1.16E-03			2.32E-03	
Manganese	7439-96-5	-	300	1.96E+01			3.91E+01	
Mercury	7439-97-6	2	2	1.04E-01			2.08E-01	
Methanol	67-56-1	-	5000	1.01E+00			2.03E+00	
Methoxychlor	72-43-5	40	40	2.16E+00			4.32E+00	
Methylene chloride	75-09-2	5	5	1.28E-03			2.56E-03	
Methyl ethyl ketone (MEK)	78-93-3	-	4000	8.39E-01			1.68E+00	
Methyl isobutyl ketone (MIBK)	108-10-1	-	500	1.13E-01			2.26E-01	
Methyl tert-butyl ether (MTBE)	1634-04-4	-	60	1.35E-02			2.70E-02	
Metolachlor/s-Metolachlor	51218-45-2	-	100	1.17E-01			2.34E-01	
Metribuzin	21087-64-9	-	70	2.14E-02			4.28E-02	
Molybdenum	7439-98-7	-	40	8.08E-01			1.62E+00	
Monochlorobenzene	108-90-7	100	100	6.79E-02			1.36E-01	
Naphthalene	91-20-3	-	100	3.29E-01			6.59E-01	
Nickel	7440-02-0	-	100	6.50E+00			1.30E+01	
N-Nitrosodiphenylamine (NDPA)	86-30-6	-	7	3.82E-02			7.64E-02	
Pentachlorophenol (PCP)	87-86-5	1	1	1.01E-02			2.02E-02	
Phenol	108-95-2	-	2000	1.15E+00			2.30E+00	
Picloram	1918-02-1	500	500	1.39E-01			2.78E-01	
Polychlorinated biphenyls (PCBs)	1336-36-3	0.5	0.03	4.69E-03			9.38E-03	
Prometon	1610-18-0	-	100	4.75E-02			9.49E-02	
Propazine	139-40-2	-	10	8.86E-03			1.77E-02	
Pyrene (PAH)	129-00-0	-	250	2.72E+01			5.45E+01	
Pyridine	110-86-1	-	10	3.44E-03			6.87E-03	
Selenium	7782-49-2	50	50	2.60E-01			5.20E-01	
Silver	7440-22-4	-	50	4.25E-01			8.50E-01	
Simazine	122-34-9	4	4	1.97E-03			3.94E-03	
Styrene	100-42-5	100	100	1.10E-01			2.20E-01	
Tertiary Butyl Alcohol (TBA)	75-65-0	-	12	2.45E-03			4.90E-03	
1,1,1,2-Tetrachloroethane	630-20-6	-	70	2.67E-02			5.33E-02	
1,1,2,2-Tetrachloroethane	79-34-5	-	0.2	7.80E-05			1.56E-04	
Tetrachloroethylene (PCE)	127-18-4	5	5	2.27E-03			4.54E-03	
Tetrahydrofuran	109-99-9	-	50	1.11E-02			2.22E-02	
Thallium	7440-28-0	2	2	1.42E-01			2.84E-01	
Toluene	108-88-3	1000	800	5.54E-01			1.11E+00	
Toxaphene	8001-35-2	3	3	4.64E-01			9.28E-01	
1,2,4-Trichlorobenzene	120-82-1	70	70	2.04E-01			4.08E-01	
1,1,1-Trichloroethane	71-55-6	200	200	7.01E-02			1.40E-01	
1,1,2-Trichloroethane	79-00-5	5	5	1.62E-03			3.24E-03	
Trichloroethylene (TCE)	79-01-6	5	5	1.79E-03			3.58E-03	
2,3,5-Trichlorophenylpropene acid (2,3,5-TCPP)	93-72-1	50	50	2.75E-02			5.50E-02	
1,2,3-Trichloropropane	96-18-4	-	60	2.60E-02			5.20E-02	
Trifluralin	1582-09-8	-	7.5	2.48E-01			4.95E-01	
Triphenylethylene (1,2,3- and 1,2,5-combined)	95-63-6 / 108-67-8	-	480	6.90E-01			1.38E+00	
Vanadium	7440-62-2	-	-	-			-	
Vinyl chloride	75-01-4	2	0.2	6.90E-05			1.38E-04	
Xylenes (m-, o-, p- combined)	1330-20-7	10000	2000	1.97E+00			3.94E+00	

Type BRRTS No.
Here (If Known).
Assess groundwater
levels separately.

Residential setting. Not-To-Exceed D-C RCLs from web-calculator at: http://epa-prgs.crnl.gov/cgi-bin/chemicals/csl_search (Chicago as climatic zone).
 = cancer; nc = non-cancer; Csat = soil saturation concentration; ceiling = 10%.

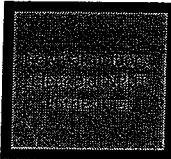
Basis: ca

-----> If web-calculator result or Csat exceeds 10% by weight (the ceiling limit concentration defined in RSL Users Guide), Not-to-Exceed D-C RCL defaults to 100,000 ppm.

1. Enter data in yellow cells. Numeric only values under "INPUT Site Data." For ND, use detection limit. Do not type '-', 'NA' nor 'space bar.' Leave purple cells "as is."
2. After completing data entry, See Summary in Row 872.

Site Name:

Sample ID:



Comparison / Hazard Index / Cumulative Cancer Risk

Target CR used:
1.00E-06

Contaminant	GAS Number	NC RCL (mg/kg)	C RCL (mg/kg)	Not-To-Exceed D-C RCL (mg/kg)	Basis	INPUT Site Data (mg/kg)	Flag E = Individual Exceedance!	Hazard Quotient (HQ) from Data	Cancer Risk (CR) from Data
Benzene	71-43-2	111	1.49	1.49	ca				
Ethylbenzene	100-41-4	4220	7.47	7.47	ca				
Toluene	108-88-3	5300	-	818	Csat				
Xylenes	1330-20-7	890	-	258	Csat				
Methyl tert-Butyl Ether (MTBE)	1634-04-4	23800	59.4	59.4	ca				
Dichloroethane, 1,2-	107-06-2	46.7	0.61	0.61	ca				
Dibromoethane, 1,2-	106-93-4	107	0.05	0.05	ca				
Trimethylbenzene, 1,2,4-	95-63-6	89.8	-	89.8	nc				
Trimethylbenzene, 1,3,5-	108-67-8	782	-	182	Csat				
Naphthalene	91-20-3	188	5.15	5.15	ca				
Benzo[a]pyrene	50-32-8	-	0.01	0.01	ca				
Acenaphthene	83-32-9	3440	-	3440	nc				
Anthracene	120-12-7	17200	-	17200	nc				
Benz[a]anthracene	56-55-3	-	0.15	0.15	ca				
Benzo[j]fluoranthene	205-82-3	-	0.38	0.38	ca				
Benzo[b]fluoranthene	205-99-2	-	0.15	0.15	ca				
Benzo[k]fluoranthene	207-08-9	-	1.48	1.48	ca				
Chrysene	218-01-9	-	14.8	14.8	ca				
Dibenz[a,h]anthracene	53-70-3	-	0.01	0.01	ca				
Dibenzo[a,e]pyrene	192-65-4	-	0.04	0.04	ca				
Dimethylbenz(a)anthracene, 7,12-	57-97-6	-	0	0	ca				
Fluoranthene	206-44-0	2290	-	2290	nc				
Fluorene	86-73-7	2290	-	2290	nc				
Indeno[1,2,3-cd]pyrene	193-39-5	-	0.15	0.15	ca				
Methylnaphthalene, 1-	90-12-0	4010	15.6	15.6	ca				
Methylnaphthalene, 2-	91-57-6	229	-	229	nc				
Nitropyrene, 4-	57835-92-4	-	0.38	0.38	ca				
Pyrene	129-00-0	1720	-	1720	nc				
Lead and Compounds	7439-92-1	400	-	400	nc				

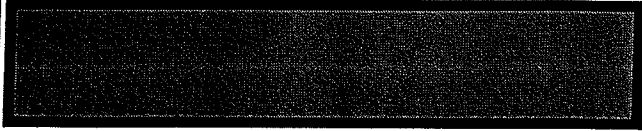
03-14-563925

Exceedance Count / Hazard Index / Cumulative Cancer Risk: 0 0.00E+00 0.0E+00

To Pass, data must meet all these criteria: Exceedance HI ≤ Cumulative CR
 Count = 0 1.00E+00 ≤ 1e-05

Bottom-Line:

Soil Data Entry Needed!



Site-specific

Resident Screening Levels (RSL) for Soil

ca=Cancer, nc=Noncancer, ca* (Where nc SL < 100 x ca SL).

ca** (Where nc SL < 10 x ca SL), max=SL exceeds ceiling limit (see User's Guide), sat=SL exceeds csat, Smax=Soil SL exceeds ceiling limit and has been substituted with the max value (see User's Guide), Ssat=Soil inhalation SL exceeds csat and has been substituted with the csat

Chemical	CAS Number	Mutagen?	VOC?	Ingestion SF		Inhalation Unit Risk		Chronic RfD (mg/kg-day)	Chronic RfD (mg/m ³)	Chronic RfC Ref
				(mg/kg-day) ⁻¹	SFO Ref	(ug/m ³) ⁻¹	IUR Ref			
Benzene	71-43-2	No	Yes	5.50E-02	I	7.80E-06	I	4.00E-03	3.00E-02	I
Dibromoethane, 1,2-	106-93-4	No	Yes	2.00E+00	I	6.00E-04	I	9.00E-03	9.00E-03	I
Dichloroethane, 1,2-	107-06-2	No	Yes	9.10E-02	I	2.60E-05	I	6.00E-03	7.00E-03	P
Ethylbenzene	100-41-4	No	Yes	1.10E-02	C	2.50E-06	C	1.00E-01	1.00E+00	I
Lead and Compounds	7439-92-1	No	No	-	-	-	-	-	-	-
Methyl tert-Butyl Ether (MTBE)	1634-04-4	No	Yes	1.80E-03	C	2.60E-07	C	-	3.00E+00	I
Acenaphthene	83-32-9	No	Yes	-	-	-	-	6.00E-02	-	-
Anthracene	120-12-7	No	Yes	-	-	-	-	3.00E-01	-	-
Benz[a]anthracene	56-55-3	Yes	Yes	7.30E-01	W	1.10E-04	C	-	-	-
Benzo(i)fluoranthene	205-82-3	No	No	1.20E+00	C	1.10E-04	C	-	-	-
Benzo[a]pyrene	50-32-8	Yes	No	7.30E+00	I	1.10E-03	C	-	-	-
Benzo[b]fluoranthene	205-99-2	Yes	No	7.30E-01	W	1.10E-04	C	-	-	-
Benzo[k]fluoranthene	207-08-9	Yes	No	7.30E-02	W	1.10E-04	C	-	-	-
Chrysene	218-01-9	Yes	No	7.30E-03	W	1.10E-05	C	-	-	-
Dibenz[a,h]anthracene	53-70-3	Yes	No	7.30E+00	W	1.20E-03	C	-	-	-
Dibenzo[a,e]pyrene	192-65-4	No	No	1.20E+01	C	1.10E-03	C	-	-	-
Dimethylbenz(a)anthracene, 7,12-	57-97-6	Yes	No	2.50E+02	C	7.10E-02	C	-	-	-
Fluoranthene	206-44-0	No	No	-	-	-	-	4.00E-02	-	-
Fluorene	86-73-7	No	Yes	-	-	-	-	4.00E-02	-	-
Indeno[1,2,3-cd]pyrene	193-39-5	Yes	No	7.30E-01	W	1.10E-04	C	-	-	-
Methylnaphthalene, 1-	90-12-0	No	Yes	2.90E-02	P	-	-	7.00E-02	-	A
Methylnaphthalene, 2-	91-57-6	No	Yes	-	-	-	-	4.00E-03	-	-
Naphthalene	91-20-3	No	Yes	-	-	3.40E-05	C	2.00E-02	3.00E-03	I
Nitropyrene, 4-	57835-92-4	No	No	1.20E+00	C	1.10E-04	C	-	-	-
Pyrene	129-00-0	No	Yes	-	-	-	-	3.00E-02	-	-
Toluene	108-88-3	No	Yes	-	-	-	-	8.00E-02	5.00E+00	I
Trimethylbenzene, 1,2,4-	95-63-6	No	Yes	-	-	-	-	-	7.00E-03	P
Trimethylbenzene, 1,3,5-	108-67-8	No	Yes	-	-	-	-	1.00E-02	-	-
Xylenes	1330-20-7	No	Yes	-	-	-	-	2.00E-01	1.00E-01	I

Site-specific

Resident Screening Levels (RSL) for Soil

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Smax=Soil SL exceeds ceiling limit and has been substituted with the max value (see User's Guide).

Ssat=Soil inhalation SL exceeds csat and has been substituted with the csat

Chemical	GIABS	ABS	RBA	Volatilization Factor (m ³ /kg)	Soil Saturation Concentration (mg/kg)	Particulate Emission Factor (m ³ /kg)	Ingestion SL (mg/kg)	Dermal SL (mg/kg)	Inhalation SL (mg/kg)	Carcinogenic SL (mg/kg)
Benzene	1	-	1	5.10E+03	1.82E+03	1.56E+09	TR=1.0E-6 1.26E+01	-	1.84E+00	TR=1.0E-6 1.60E+00
Dibromoethane, 1,2-	1	-	1	1.25E+04	1.34E+03	1.56E+09	3.48E-01	-	5.84E-02	5.00E-02
Dichloroethane, 1,2-	1	-	1	6.60E+03	2.98E+03	1.56E+09	7.64E+00	-	7.13E-01	6.52E-01
Ethylbenzene	1	-	1	8.18E+03	4.80E+02	1.56E+09	6.32E+01	-	9.19E+00	8.02E+00
Lead and Compounds	1	-	1	-	-	1.56E+09	-	-	-	-
Methyl tert-Butyl Ether (MTBE)	1	-	1	7.08E+03	8.87E+03	1.56E+09	3.86E+02	-	7.64E+01	6.38E+01
Acenaphthene	1	0.13	1	2.03E+05	-	1.56E+09	-	-	-	-
Anthracene	1	0.13	1	7.56E+05	-	1.56E+09	-	-	-	-
Benz[a]anthracene	1	0.13	1	6.37E+06	-	1.56E+09	2.10E-01	6.29E-01	5.85E+01	1.57E-01
Benzo[<i>i</i>]fluoranthene	1	0.13	1	-	-	1.56E+09	5.79E-01	1.58E+00	3.98E+04	4.24E-01
Benzo[<i>a</i>]pyrene	1	0.13	1	-	-	1.56E+09	2.10E-02	6.29E-02	1.44E+03	1.57E-02
Benzo[<i>b</i>]fluoranthene	1	0.13	1	-	-	1.56E+09	2.10E-01	6.29E-01	1.44E+04	1.57E-01
Benzo[<i>k</i>]fluoranthene	1	0.13	1	-	-	1.56E+09	2.10E+00	6.29E+00	1.44E+04	1.57E+00
Chrysene	1	0.13	1	-	-	1.56E+09	2.10E+01	6.29E+01	1.44E+05	1.57E+01
Dibenz[<i>a,h</i>]anthracene	1	0.13	1	-	-	1.56E+09	2.10E-02	6.29E-02	1.32E+03	1.57E-02
Dibenzo[<i>a,e</i>]pyrene	1	0.13	1	-	-	1.56E+09	5.79E-02	1.58E-01	3.98E+03	4.24E-02
Dimethylbenz[<i>a</i>]anthracene, 7,12-	1	0.13	1	-	-	1.56E+09	6.13E-04	1.84E-03	2.23E+01	4.59E-04
Fluoranthene	1	0.13	1	-	-	1.56E+09	-	-	-	-
Fluorene	1	0.13	1	4.06E+05	-	1.56E+09	-	-	-	-
Indeno[1,2,3- <i>cd</i>]pyrene	1	0.13	1	-	-	1.56E+09	2.10E-01	6.29E-01	1.44E+04	1.57E-01
Methylnaphthalene, 1-	1	0.13	1	8.46E+04	3.94E+02	1.56E+09	2.40E+01	6.55E+01	-	1.76E+01
Methylnaphthalene, 2-	1	0.13	1	8.37E+04	-	1.56E+09	-	-	-	-
Naphthalene	1	0.13	1	6.69E+04	-	1.56E+09	-	-	-	-
Nitropyrene, 4-	1	0.13	1	-	-	1.56E+09	5.79E-01	1.58E+00	5.52E+00	5.52E+00
Pyrene	1	0.13	1	3.43E+06	-	1.56E+09	-	-	3.98E+04	4.24E-01
Toluene	1	-	1	6.19E+03	8.18E+02	1.56E+09	-	-	-	-
Trimethylbenzene, 1,2,4-	1	-	1	1.14E+04	2.19E+02	1.56E+09	-	-	-	-
Trimethylbenzene, 1,3,5-	1	-	1	9.54E+03	1.82E+02	1.56E+09	-	-	-	-
Xylenes	1	-	1	8.28E+03	2.60E+02	1.56E+09	-	-	-	-

Site-specific

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Chemical	Ingestion		Dermal		Inhalation		Noncarcinogenic		Ingestion		Dermal		Inhalation		Noncarcinogenic		Screening Level (mg/kg)
	SL Child THQ=1 (mg/kg)	SL Adult THQ=1 (mg/kg)	SL Child THQ=1 (mg/kg)	SL Adult THQ=1 (mg/kg)	SL Child THQ=1 (mg/kg)	SL Adult THQ=1 (mg/kg)	SL Child THQ=1 (mg/kg)	SL Adult THQ=1 (mg/kg)	SL Child THQ=1 (mg/kg)	SL Adult THQ=1 (mg/kg)	SL Child THQ=1 (mg/kg)	SL Adult THQ=1 (mg/kg)	SL Child THQ=1 (mg/kg)	SL Adult THQ=1 (mg/kg)	SL Child THQ=1 (mg/kg)	SL Adult THQ=1 (mg/kg)	
Benzene	3.13E+02	7.04E+02	-	-	1.60E+02	1.06E+02	1.60E+02	1.06E+02	3.34E+03	3.34E+03	-	-	1.60E+02	1.52E+02	1.60E+02	1.52E+02	1.60E+00 ca*
Dibromoethane, 1,2-	7.04E+02	4.69E+02	-	-	1.17E+02	1.00E+02	1.17E+02	1.00E+02	7.51E+03	7.51E+03	-	-	1.17E+02	1.15E+02	1.17E+02	1.15E+02	5.00E+02 ca
Dichloroethane, 1,2-	4.69E+02	7.82E+03	-	-	4.82E+01	4.37E+01	4.82E+01	4.37E+01	5.01E+03	5.01E+03	-	-	4.82E+01	4.77E+01	4.82E+01	4.77E+01	6.52E+01 ca*
Ethylbenzene	7.82E+03	-	-	-	8.53E+03	4.08E+03	8.53E+03	4.08E+03	8.34E+04	8.34E+04	-	-	8.53E+03	7.74E+03	8.53E+03	7.74E+03	8.02E+00 ca
Lead and Compounds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.00E+02 nc
Methyl tert-Butyl Ether (MTBE)	-	-	-	-	2.21E+04	2.21E+04	2.21E+04	2.21E+04	-	-	-	-	2.21E+04	2.21E+04	2.21E+04	2.21E+04	6.38E+01 ca
Acenaphthene	4.69E+03	2.35E+04	1.52E+04	7.61E+04	-	-	-	-	5.01E+04	5.01E+04	9.12E+04	9.12E+04	-	3.23E+04	3.23E+04	3.23E+04	3.59E+03 nc
Anthracene	2.35E+04	-	-	-	-	1.79E+04	1.79E+04	1.79E+04	2.50E+05	2.50E+05	4.56E+05	4.56E+05	-	1.62E+05	1.62E+05	1.62E+05	1.79E+04 nc
Benz[a]anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.57E+01 ca
Benzo[<i>b</i>]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.24E+01 ca
Benzo[<i>a</i>]pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.57E+02 ca
Benzo[<i>b</i>]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.57E+01 ca
Benzo[<i>k</i>]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.57E+00 ca
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.57E+01 ca
Dibenz[<i>a,h</i>]anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.57E+00 ca
Dibenzo[<i>a,e</i>]pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.57E+01 ca
Dimethylbenz[<i>a</i>]anthracene, 7,12-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.57E+02 ca
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.24E+02 ca
Fluorene	3.13E+03	3.13E+03	1.01E+04	1.01E+04	-	-	-	-	3.34E+04	3.34E+04	6.08E+04	6.08E+04	-	2.15E+04	2.15E+04	2.15E+04	4.59E+04 ca
Indeno[1,2,3- <i>cd</i>]pyrene	-	-	-	-	-	-	-	-	3.34E+04	3.34E+04	6.08E+04	6.08E+04	-	2.15E+04	2.15E+04	2.15E+04	2.39E+03 nc
Methylnaphthalene, 1-	5.48E+03	3.13E+02	1.77E+04	1.01E+03	-	-	-	-	5.84E+04	5.84E+04	1.06E+05	1.06E+05	-	3.77E+04	3.77E+04	3.77E+04	1.57E+01 ca
Methylnaphthalene, 2-	3.13E+02	1.56E+03	1.01E+03	5.07E+03	-	-	-	-	3.34E+03	3.34E+03	6.08E+03	6.08E+03	-	2.15E+03	2.15E+03	2.15E+03	1.76E+01 ca
Naphthalene	1.56E+03	-	5.07E+03	2.09E+02	-	-	-	-	1.67E+04	1.67E+04	3.04E+04	3.04E+04	2.09E+02	2.05E+02	2.05E+02	2.05E+02	2.39E+02 nc
Nitropyrene, 4-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.52E+00 ca*
Pyrene	2.35E+03	6.26E+03	7.61E+03	3.23E+04	-	-	-	-	2.50E+04	2.50E+04	4.56E+04	4.56E+04	-	1.62E+04	1.62E+04	1.62E+04	4.24E+01 ca
Toluene	6.26E+03	-	-	8.34E+01	-	-	-	-	6.67E+04	6.67E+04	-	-	3.23E+04	2.18E+04	2.18E+04	2.18E+04	1.79E+03 nc
Trimethylbenzene, 1,2,4-	-	-	-	-	-	-	-	-	-	-	-	-	8.34E+01	8.34E+01	8.34E+01	8.34E+01	5.24E+03 sat
Trimethylbenzene, 1,3,5-	7.82E+02	-	-	-	-	-	-	-	8.34E+03	8.34E+03	-	-	-	8.34E+03	8.34E+03	8.34E+03	8.34E+01 nc
Xylenes	1.56E+04	-	-	8.64E+02	-	-	-	-	1.67E+05	1.67E+05	-	-	8.64E+02	8.59E+02	8.59E+02	8.59E+02	7.82E+02 sat

(22) "Wastewater and sludge storage or treatment lagoon" means a natural or man-made containment structure, constructed primarily of earthen materials for the treatment or storage of wastewater or sludge, which is not a land disposal system.

History: Cr. Register, September, 1985, No. 357, eff. 10-1-85; cr. (1m), am. (7), (17) and (18), Register, October, 1988, No. 394, eff. 11-1-88; am. (6), cr. (20h) and (20m), Register, March, 1994, No. 459, eff. 4-1-94; cr. (1s), (10e), (10s), (20k), r. and rec. (12), (13), Register, August, 1995, No. 476, eff. 9-1-95; cr. (14m), Register, October, 1996, No. 490, eff. 11-1-96; am. (20), Register, December, 1998, No. 516, eff. 1-1-99; correction in (9) made under s. 13.93 (2m) (b) 7., Stats., Register, April, 2001, No. 544; CR 02-134: cr. (1u), (1w), (1y) and (20s) Register June 2003 No. 570, eff. 7-1-03; correction in (20) made under s. 13.92 (4) (b) 6., Stats., Register January 2012 No. 673.

Subchapter II — Groundwater Quality Standards

NR 140.10 Public health related groundwater standards. The groundwater quality standards for substances of public health concern are listed in Table 1.

Note: For all substances that have carcinogenic, mutagenic or teratogenic properties or interactive effects, the preventive action limit is 10% of the enforcement standard. The preventive action limit is 20% of the enforcement standard for all other substances that are of public health concern. Enforcement standards and preventive action limits for additional substances will be added to Table 1 as recommendations are developed pursuant to ss. 160.07, 160.13 and 160.15, Stats.

Table 1
Public Health Groundwater Quality Standards

Substance ¹	Enforcement Standard (micrograms per liter – except as noted)	Preventive Action Limit (micrograms per liter – except as noted)
Acetochlor	7	0.7
Acetochlor ethane sulfonic acid + oxanilic acid (Acetochlor – ESA + OXA)	230	46
Acetone	9 mg/l	1.8 mg/l
Alachlor	2	0.2
Alachlor ethane sulfonic acid (Alachlor – ESA)	20	4
Aldicarb	10	2
Aluminum	200	40
Ammonia (as N)	9.7 mg/l	0.97 mg/l
Antimony	6	1.2
Anthracene	3000	600
Arsenic	10	1
Asbestos	7 million fibers per liter (MFL)	0.7 MFL
Atrazine, total chlorinated residues	3 ²	0.3 ²
Bacteria, Total Coliform	0 ³	0 ³
Barium	2 milligrams/liter (mg/l)	0.4 mg/l
Bentazon	300	60
Benzene	5	0.5
Benzo(b)fluoranthene	0.2	0.02
Benzo(a)pyrene	0.2	0.02
Beryllium	4	0.4
Boron	1000	200
Bromodichloromethane	0.6	0.06
Bromoform	4.4	0.44
Bromomethane	10	1
Butylate	400	80
Cadmium	5	0.5
Carbaryl	40	4
Carbofuran	40	8
Carbon disulfide	1000	200
Carbon tetrachloride	5	0.5
Chloramben	150	30
Chlordane	2	0.2
Chlorodifluoromethane	7 mg/l	0.7 mg/l
Chloroethane	400	80
Chloroform	6	0.6
Chlorpyrifos	2	0.4
Chloromethane	30	3
Chromium (total)	100	10
Chrysene	0.2	0.02

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Table 1 – Continued
Public Health Groundwater Quality Standards

Substance ¹	Enforcement Standard (micrograms per liter – except as noted)	Preventive Action Limit (micrograms per liter – except as noted)
Cobalt	40	8
Copper	1300	130
Cyanazine	1	0.1
Cyanide, free ⁴	200	40
Dacthal	70	14
1,2-Dibromoethane (EDB)	0.05	0.005
Dibromochloromethane	60	6
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.02
Dibutyl phthalate	1000	100
Dicamba	300	60
1,2-Dichlorobenzene	600	60
1,3-Dichlorobenzene	600	120
1,4-Dichlorobenzene	75	15
Dichlorodifluoromethane	1000	200
1,1-Dichloroethane	850	85
1,2-Dichloroethane	5	0.5
1,1-Dichloroethylene	7	0.7
1,2-Dichloroethylene (cis)	70	7
1,2-Dichloroethylene (trans)	100	20
2,4-Dichlorophenoxyacetic Acid (2,4-D)	70	7
1,2-Dichloropropane	5	0.5
1,3-Dichloropropene (cis/trans)	0.4	0.04
Di (2-ethylhexyl) phthalate	6	0.6
Dimethenamid/Dimethenamid-P	50	5
Dimethoate	2	0.4
2,4-Dinitrotoluene	0.05	0.005
2,6-Dinitrotoluene	0.05	0.005
Dinitrotoluene, Total Residues ⁵	0.05	0.005
Dinoseb	7	1.4
1,4-Dioxane	3	0.3
Dioxin (2, 3, 7, 8-TCDD)	0.00003	0.000003
Endrin	2	0.4
EPTC	250	50
Ethylbenzene	700	140
Ethyl ether	1000	100
Ethylene glycol	14 mg/l	2.8 mg/l
Fluoranthene	400	80
Fluorene	400	80
Fluoride	4 mg/l	0.8 mg/l
Fluorotrichloromethane	3490	698
Formaldehyde	1000	100
Heptachlor	0.4	0.04
Heptachlor epoxide	0.2	0.02
Hexachlorobenzene	1	0.1
N-Hexane	600	120
Hydrogen sulfide	30	6
Lead	15	1.5
Lindane	0.2	0.02
Manganese	300	60
Mercury	2	0.2

Table 1 – Continued
Public Health Groundwater Quality Standards

Substance ¹	Enforcement Standard (micrograms per liter – except as noted)	Preventive Action Limit (micrograms per liter – except as noted)
Methanol	5000	1000
Methoxychlor	40	4
Methylene chloride	5	0.5
Methyl ethyl ketone (MEK)	4 mg/l	0.8 mg/l
Methyl isobutyl ketone (MIBK)	500	50
Methyl tert-butyl ether (MTBE)	60	12
Metolachlor/s–Metolachlor	100	10
Metolachlor ethane sulfonic acid + oxanilic acid (Metolachlor – ESA + OXA)	1.3 mg/l	0.26 mg/l
Metribuzin	70	14
Molybdenum	40	8
Monochlorobenzene	100	20
Naphthalene	100	10
Nickel	100	20
Nitrate (as N)	10 mg/l	2 mg/l
Nitrate + Nitrite (as N)	10 mg/l	2 mg/l
Nitrite (as N)	1 mg/l	0.2 mg/l
N–Nitrosodiphenylamine	7	0.7
Pentachlorophenol (PCP)	1	0.1
Perchlorate	1	0.1
Phenol	2 mg/l	0.4 mg/l
Picloram	500	100
Polychlorinated biphenyls (PCBs)	0.03	0.003
Prometon	100	20
Propazine	10	2
Pyrene	250	50
Pyridine	10	2
Selenium	50	10
Silver	50	10
Simazine	4	0.4
Styrene	100	10
Tertiary Butyl Alcohol (TBA)	12	1.2
1,1,1,2–Tetrachloroethane	70	7
1,1,2,2–Tetrachloroethane	0.2	0.02
Tetrachloroethylene	5	0.5
Tetrahydrofuran	50	10
Thallium	2	0.4
Toluene	800	160
Toxaphene	3	0.3
1,2,4–Trichlorobenzene	70	14
1,1,1–Trichloroethane	200	40
1,1,2–Trichloroethane	5	0.5
Trichloroethylene (TCE)	5	0.5
2,4,5–Trichlorophenoxy–propionic acid (2,4,5–TP)	50	5
1,2,3–Trichloropropane	60	12
Trifluralin	7.5	0.75
Trimethylbenzenes (1,2,4– and 1,3,5– combined)	480	96
Vanadium	30	6

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Table 1 – Continued
Public Health Groundwater Quality Standards

Substance ¹	Enforcement Standard (micrograms per liter – except as noted)	Preventive Action Limit (micrograms per liter – except as noted)
Vinyl chloride	0.2	0.02
Xylene ⁶	2 mg/l	0.4 mg/l

¹ Appendix I contains Chemical Abstract Service (CAS) registry numbers, common synonyms and trade names for most substances listed in Table 1.

² Total chlorinated atrazine residues includes parent compound and the following metabolites of health concern: 2-chloro-4-amino-6-isopropylamino-s-triazine (formerly deethylatrazine), 2-chloro-4-amino-6-ethylamino-s-triazine (formerly deisopropylatrazine) and 2-chloro-4,6-diamino-s-triazine (formerly diaminoatrazine).

³ Total coliform bacteria may not be present in any 100 ml sample using either the membrane filter (MF) technique, the presence-absence (P-A) coliform test, the minimal medium ONPG-MUG (MMO-MUG) test or not present in any 10 ml portion of the 10-tube multiple tube fermentation (MTF) technique.

⁴ "Cyanide, free" refers to the simple cyanides (HCN, CN⁻) and/or readily dissociable metal-cyanide complexes. Free cyanide is regulatorily equivalent to cyanide quantified by approved analytical methods for "amenable cyanide" or "available cyanide".

⁵ Dinitrotoluene. Total Residues includes the dinitrotoluene (DNT) isomers: 2,3-DNT, 2,4-DNT, 2,5-DNT, 2,6-DNT, 3,4-DNT and 3,5-DNT.

⁶ Xylene includes meta-, ortho-, and para-xylene combined.

History: Cr. Register, September, 1985, No. 357, eff. 10-1-85; am. table 1, Register, October, 1988, No. 394, eff. 11-1-88; am. table 1, Register, September, 1990, No. 417, eff. 10-1-90; am. Register, January, 1992, No. 433, eff. 2-1-92; am. Table 1, Register, March, 1994, No. 459, eff. 4-1-94; am. Table 1, Register, August, 1995, No. 476, eff. 9-1-95; am. Table 1, Register, December, 1998, No. 516, eff. 1-1-99; am. Table 1, Register, December, 1998, No. 516, eff. 12-31-99; am. Table 1, Register, March, 2000, No. 531, eff. 4-1-00; CR 03-063; am. Table 1, Register February 2004 No. 578, eff. 3-1-04; CR 02-095; am. Table 1, Register November 2006 No. 611, eff. 12-1-06; reprinted to correct errors in Table 1, Register January 2007 No. 613; CR 07-034; am. Table 1 Register January 2008 No. 625, eff. 2-1-08; CR 09-102; am. Table 1 Register December 2010 No. 660, eff. 1-1-11.

NR 140.12 Public welfare related groundwater standards. The groundwater quality standards for substances of public welfare concern are listed in Table 2.

Note: For each substance of public welfare concern, the preventive action limit is 50% of the established enforcement standard.

Table 2
Public Welfare Groundwater Quality Standards

Substance	Enforcement Standard (milligrams per liter – except as noted)	Preventive Action Limit (milligrams per liter – except as noted)
Chloride	250	125
Color	15 color units	7.5 color units
Foaming agents MBAS (Methylene-Blue Active Substances)	0.5	0.25
Iron	0.3	0.15
Manganese	0.05	0.025
Odor	3 (Threshold Odor No.)	1.5 (Threshold Odor No.)
Sulfate	250	125
Zinc	5	2.5

History: Cr. Register, September, 1985, No. 357, eff. 10-1-85; am. table 2, Register, October, 1990, No. 418, eff. 11-1-90; am. Table 2, Register, March, 1994, No. 459, eff. 4-1-94.

NR 140.14 Statistical procedures. (1) If a preventive action limit or an enforcement standard for a substance listed in Table 1 or 2, an alternative concentration limit issued in accordance with s. NR 140.28 or a preventive action limit for an indicator parameter established according to s. NR 140.20 (2) is attained or exceeded at a point of standards application:

(a) The owner or operator of the facility, practice or activity at which a standard is attained or exceeded shall notify the appropriate regulatory agency that a standard has been attained or exceeded; and

(b) The regulatory agency shall require a response in accordance with the rules promulgated under s. 160.21, Stats. No response shall be required if it is demonstrated to the satisfaction of the appropriate regulatory agency that a scientifically valid determination cannot be made that the preventive action limit or enforcement standard for a substance in Table 1 or 2 has been attained or exceeded based on consideration of sampling procedures or laboratory precision and accuracy, at a significance level of 0.05.

(2) The regulatory agency shall use one or more valid statistical procedures to determine if a change in the concentration of a substance has occurred. A significance level of 0.05 shall be used for all tests.

(3) In addition to sub. (2), the following applies when a preventive action limit or enforcement standard is equal to or less than the limit of quantitation:

(a) If a substance is not detected in a sample, the regulatory agency may not consider the preventive action limit or enforcement standard to have been attained or exceeded.

(b) If the preventive action limit or enforcement standard is less than the limit of detection, and the concentration of a substance is reported between the limit of detection and the limit of quantitation, the regulatory agency shall consider the preventive action limit or enforcement standard to be attained or exceeded only if:

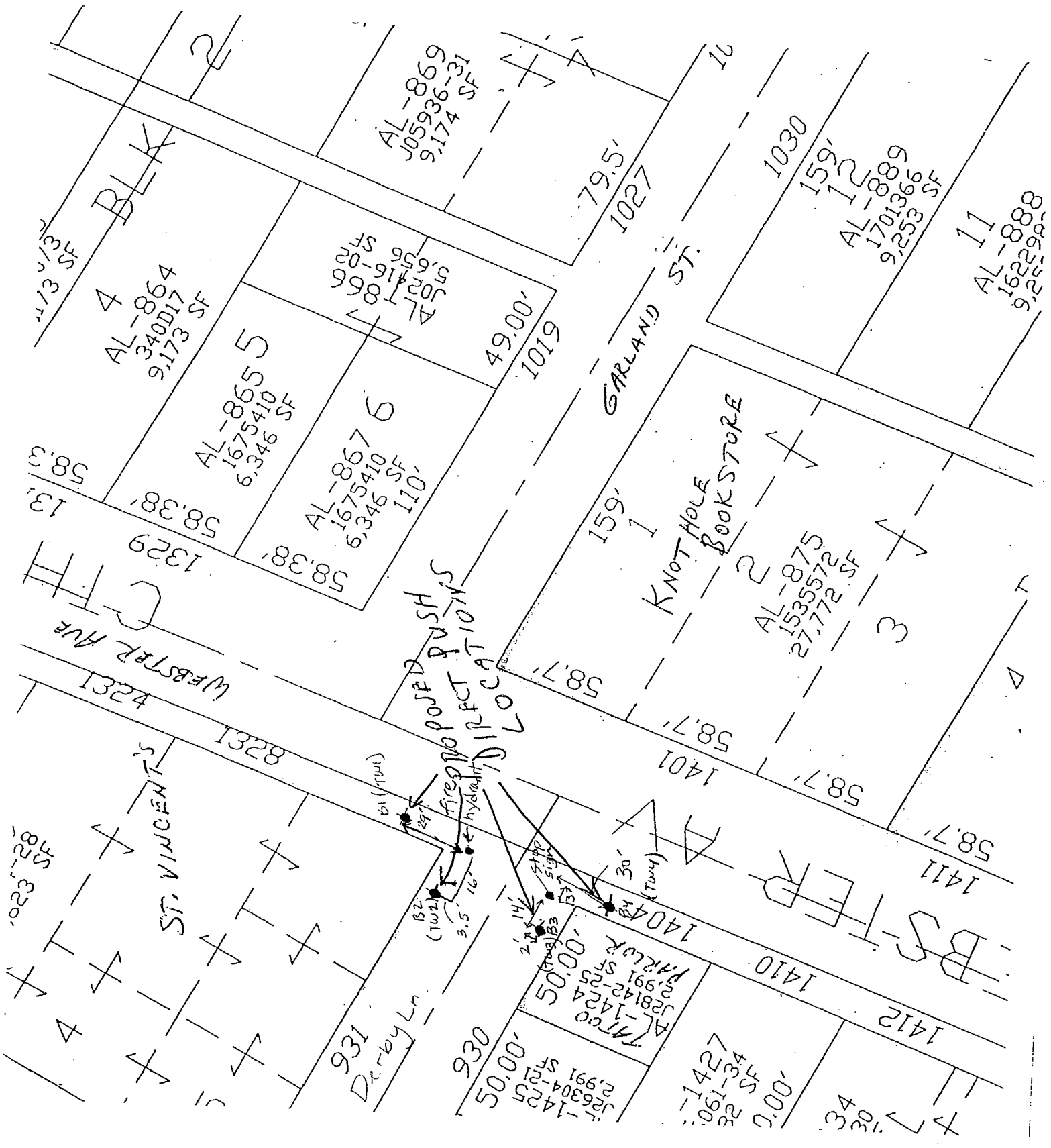
1. The substance has been analytically confirmed to be present in the same sample using an equivalently sensitive analytical method or the same analytical method, and

2. The substance has been statistically confirmed to be present above the preventive action limit or enforcement standard, determined by an appropriate statistical test with sufficient samples at a significance level of 0.05.

(c) If the preventive action limit or enforcement standard is between the limit of detection and the limit of quantitation, the regulatory agency shall consider the preventive action limit or

**LUST Investigation Field Procedures Workplan - METCO
1404 S Webster Avenue - LUST**

APPENDIX E/PROJECT DOCUMENTS



AL-8664
340017
9,173 SF

AL-8655
1675410
6,346 SF

AL-8676
1675410
6,346 SF

AL-8669
1059336-31
9,174 SF

AL-1027
1675410
6,346 SF

AL-8889
1701366
9,253 SF

AL-8888
1622998
9,253 SF

AL-8875
15335572
27,772 SF

WEBSTER AVE
1329

GARLAND ST.
1027

POPE PUSH
KNOT HOLE BOOK STORE

ST. VINCENT'S

DERBY LN.

930
50.00
1425
2,991 SF

1404
50.00
1424
2,991 SF

1427
361-34
2,991 SF

1412

1411

1401

159

1019

79.5'

1030

159'

3

1

13

58.8

1329

49.00'

159'

58.7'

58.7'

58.7'

58.7'

58.7'

58.7'

FIRE HYDRA

STOP SIGNS

30'

30'

3.5'

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Route To: Watershed/Wastewater Waste Management
 Remediation/Revelopment Other

Facility/Project Name: Webster Avenue Chlorinated Invest License/Permit/Monitoring Number: _____ Boring Number: B1 Page _____ of _____

Boring Drilled By: Name of crew chief (first, last) and Firm
First Name: Tony Last Name: Kapugi Date Drilling Started: 12, 19, 2012 Date Drilling Completed: 12, 19, 2012 Drilling Method: Direct Push

Firm: On-Site Environmental

WI Unique Well No. _____ DNR Well ID No. _____ Well Name: TW1 Final Static Water Level _____ Feet MSL Surface Elevation _____ Feet MSL Borehole Diameter 2 inches

Local Grid Origin (estimated:) or Boring Location State Plane _____ N, _____ E Lat 0 ' " Long 0 ' " Local Grid Location _____ Feet N E S _____ Feet W

1/4 of _____ 1/4 of Section _____, T _____ N, R _____ Facility ID _____ County Brown County Code 05 Civil Town/City/ or Village Attouez

Sample Number and Type	Length Air & Recovered (in)	Blow Counts	Depth in Feet (Ordinary ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					P 200	ROD/Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index			
			0	Topsoil											
			2	Red-brown clay						M/w					
			4	Very sandy clay											
			6							M					
			8												
			10	Fine tan sand						Dry					

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: [Signature] Firm: OMNI Associates, Inc.

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Route To: Watershed/Wastewater Waste Management
 Remediation/Revelopment Other

Facility/Project Name: Webster Avenue Chlorinated Invest License/Permit/Monitoring Number: _____ Boring Number: B2 Page ____ of ____

Boring Drilled By: Name of crew chief (first, last) and Firm
First Name: _____ Last Name: _____ Date Drilling Started: 12, 19, 2012 Date Drilling Completed: 12, 19, 2012 Drilling Method: Direct Push

Firm: On-Site Environmental

WI Unique Well No. _____ DNR Well ID No. _____ Well Name: TW2 Final Static Water Level _____ Feet MSL Surface Elevation _____ Feet MSL Borehole Diameter 2 inches

Local Grid Origin (estimated:) or Boring Location
State Plane _____ N, _____ E Lat _____ Long _____ Local Grid Location _____ Feet N E S W

1/4 of _____ 1/4 of Section _____ T _____ N, R _____

Facility ID _____ County Brown County Code 05 Civil Town/City/Village Alouez

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					ROD/Comments	
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			0	Topsoil											
			2	Red-brown clay											
			4												
			6	Fine tan sand @ tip											
			8												
			10	Fine tan sand											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: [Signature] Firm: OMNI Associates, Inc.

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Route To: Watershed/Wastewater Waste Management
 Remediation/Revelopment Other

Facility/Project Name: Webster Avenue Chlorinated Invest License/Permit/Monitoring Number: _____ Boring Number: B3 Page ____ of ____

Boring Drilled By: Name of crew chief (first, last) and Firm: _____
 First Name: _____ Last Name: _____
 Firm: On-Site Environmental

Date Drilling Started: 12, 19, 2012 Date Drilling Completed: 12, 19, 2012 Drilling Method: Direct Push

WI Unique Well No. _____ DNR Well ID No. _____ Well Name: TW3 Final Static Water Level _____ Feet MSL Surface Elevation _____ Feet MSL Borehole Diameter 2 inches

Local Grid Origin (estimated:) or Boring Location
 State Plane _____ N, _____ E Lat _____ Long _____ Local Grid Location _____ Feet N E S W

1/4 of _____ 1/4 of Section _____, T _____ N, R _____
 Facility ID _____ County Brown County Code 05 Civil Town/City/ or Village Attouez

Sample Number and Type	Length Av. & Recovered (in)	Blow Counts	Depth in Feet (Surface ground not foot)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			0 2 4 6 8 10	Blind drill to 30' TW3 installed										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: [Signature] Firm: OMNI Associates, Inc.

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Route To: Watershed/Wastewater Waste Management
 Remediation/Revelopment Other

Facility/Project Name: Webster Avenue Chlorinated Invest License/Permit/Monitoring Number: _____ Boring Number: B4 Page ____ of ____

Boring Drilled By: Name of crew chief (first, last) and Firm
First Name: _____ Last Name: _____ Date Drilling Started: 12, 19, 2012 Date Drilling Completed: 12, 19, 2012 Drilling Method: Direct Push

Firm: On-Site Environmental

WI Unique Well No. _____ DNR Well ID No. _____ Well Name: TW4 Final Static Water Level _____ Feet MSL Surface Elevation _____ Feet MSL Borehole Diameter 2 inches

Local Grid Origin (estimated:) or Boring Location
State Plane _____ N, _____ E Lat 0' _____ " Long 0' _____ "

1/4 of _____ 1/4 of Section _____ T _____ N, R _____ Local Grid Location _____ Feet N E S _____ Feet W

Facility ID _____ County Brown County Code 05 Civil Town/City/ or Village Altoona

Sample Number and Type	Length Air. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties				P 200	ROD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index		
			0 2 4 6 8 10	Blind drilled to 230' TW4 installed										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: [Signature] Firm: OMNI Associates, Inc.

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

TABLE 1
SUMMARY OF LABORATORY ANALYSIS
GROUNDWATER SAMPLES

PARAMETER (µg/L)	ES	PAL	TW1	TW2	TW3	TW4
SAMPLE DATE			12/19/12			
DETECTED VOCs (ug/l)						
BENZENE	5	0.5	0.99 "J"	<2.5	<5	16 "J"
BROMODICHLOROMETHANE	0.6	0.06	1.84 "J"	<3.4	<6.8	<13.6
n-BUTYLBENZENE	-	-	<0.9	<4.5	<9	100
CHLOROFORM	6	0.6	4.3	4.9 "J"	9.5 "J"	<9.8
cis-1,2-DICHLOROETHENE	70	7	3.11	<3.7	11.1 "J"	281
ETHYLBENZENE	700	140	3.6	<3.9	30.8	360
ISOPROPYLBENZENE	-	-	<0.92	<4.6	<9.2	103
n-PROPYLBENZENE	-	-	0.60 "J"	<2.95	7.5 "J"	261
NAPHTHALENE	100	10	<120	<10.5	<21	255
TETRACHLOROETHENE	5	0.5	28.9	253	440	93
TOLUENE	800	160	1.23 "J"	<2.65	7.3 "J"	43
TRICHLOROETHENE	5	0.5	7.7	<2.35	32	480
1,2,4-TRIMETHYLBENZENE	480	96	5.1	<4	64	1970
1,3,5-TRIMETHYLBENZENE	(combined)	(combined)	<0.74	<3.7	15 "J"	540
m&p-XYLENE	2,000	400	4.7	<5.5	134	2300
o-XYLENE			<0.8	<4	9.2 "J"	130

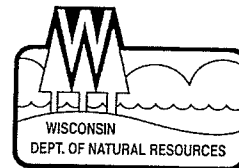
ES = enforcement standard

PAL = preventive action limit

"J" = Analyte detected between the limit of detection and the limit of quantification

11.1 = sample concentration detected above the preventive action limit

2300 = sample concentration detected above the enforcement standard



February 12, 2013

Mr. Mark Amundson
6426 Nero Rd
Sobieski WI 54171-9747

Subject: Reported Contamination at **1404 S Webster Ave-LUST, 1404 S Webster Ave, Allouez Vil, WI**
WDNR BRRTS Activity # **03-05-560082**

Dear Mr. Amundson:

On February 11, 2013, Robert Klauk of the Wisconsin Department of Natural Resources ("WDNR), on behalf of Mark Amundson, notified the WDNR that petroleum contamination had been detected at the site described above.

Based on the information that has been submitted to the WDNR regarding this site, we believe you are responsible for investigating and restoring the environment at the above-described site under Section 292.11, Wisconsin Statutes, known as the hazardous substances spills law.

This letter describes the legal responsibilities of a person who is responsible under Section 292.11, explains what you need to do to investigate and clean up the contamination, and provides you with information about cleanups, environmental consultants, possible financial assistance, and working cooperatively with the WDNR, Department of Safety and Professional Services (DSPS) or the Department of Agriculture, Trade and Consumer Protection (DATCP).

Legal Responsibilities:

Your legal responsibilities are defined both in statute and in administrative codes. The hazardous substances spill law, Section 292.11 (3) Wisconsin Statutes, states:

- **RESPONSIBILITY.** A person who possesses or controls a hazardous substance which is discharged or who causes the discharge of a hazardous substance shall take the actions necessary to restore the environment to the extent practicable and minimize the harmful effects from the discharge to the air, lands, or waters of the state.

Wisconsin Administrative Code chapters NR 700 through NR 749 establish requirements for emergency and interim actions, public information, site investigations, design and operation of remedial action systems, and case closure. Wisconsin Administrative Code chapter NR 140 establishes groundwater standards for contaminants that reach groundwater.

Steps to Take:

The longer contamination is left in the environment, the farther it can spread and the more it may cost to clean up. Quick action may lessen damage to your property and neighboring properties and reduce your costs in investigating and cleaning up the contamination. To ensure that your cleanup complies with Wisconsin's laws and administrative codes, you should hire a professional environmental consultant who understands what needs to be done. These are the first steps to take:

1. Within the next **30 days**, by March 14, 2013, you should submit written verification (such as a letter from the consultant) that you have hired an environmental consultant. If you do not take action within this time frame, the WDNR may initiate enforcement action against you.
2. Within the next **60 days**, by April 14, 2013, your consultant should submit a work plan and schedule for the investigation. The consultant must comply with the requirements in the NR 700 Wis. Adm. Code rule series and should adhere to current WDNR technical guidance documents.

In addition, within 30 days of completion of the site investigation, your consultant should submit a site investigation report to the department or other agency with administrative authority.

For sites with petroleum contamination, when your investigation has established the degree and extent of contamination, your consultant will be able to determine whether the Department of Commerce or the WDNR has authority over the case. For agrichemicals, your case will be transferred to the Department of Agriculture, Trade and Consumer Protection for oversight.

Sites where discharges to the environment have been reported are entered into the Bureau for Remediation and Redevelopment Tracking System ("BRRTS"), a version of which appears on the WDNR's internet site. You may view the information related to your site at any time (<http://dnr.wi.gov/botw/SetUpBasicSearchForm.do>) and use the feedback system to alert us to any errors in the data.

If you want a formal written response from the department on a specific submittal, please be aware that a review fee is required in accordance with ch. NR 749, Wis. Adm. Code. If a fee is not submitted with your reports, you should proceed under the advice of your consultant to complete the site investigation and cleanup to maintain your compliance with the spills law and chapters NR 700 through NR 749. **Do not delay the investigation of your site by waiting for an agency response.** We have provided detailed technical guidance to environmental consultants. Your consultant is expected to know our technical procedures and administrative rules and should be able to answer your questions on meeting cleanup requirements.

All correspondence regarding this site should be sent to:

Robert Klauk
Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
2984 Shawano Ave
Green Bay WI 54313-6727
robert.klauk@wisconsin.gov

Unless otherwise requested, please send only one hard copy of plans and reports. In addition to the paper copy, an electronic copy may also be submitted to assist the WDNR with site evaluation and discussions. A hard copy of any attachments sent electronically must be submitted for the information to be included in the site file, regardless of size. To speed processing, correspondence should reference the BRRTS and FID numbers (if assigned) shown at the top of this letter.

Vapor Intrusion:

Chapter NR 716, Wisconsin Administrative Code outlines the requirements for investigation of contamination in the environment. Specifically, s. NR 716.11(3)(a) requires that the field investigation determine the "nature, degree and extent, both areal and vertical, of the hazardous substances or environmental pollution in **all** affected media". In addition, section 716.11(5) specifies that the field investigation include an evaluation of the "pathways for migration of the contamination, including drainage improvements, utility corridors, bedrock and permeable material or soil along which **vapors**, free product or contaminated water may flow".

In order to ensure the vapor intrusion pathway is evaluated, you need to include documentation within the Site Investigation Report that explains how the assessment was done and why the pathway was ruled out. **If the pathway cannot be ruled out, then investigation and, if appropriate, remedial action must be taken to address the risk presented prior to submitting the site for closure.**

The DNR has developed guidance to help RP's and their consultants comply with the requirements described above. The guidance includes a detailed explanation of how to assess the vapor intrusion pathway and provides criteria which identify when an investigation is necessary. The guidance is available at: <http://dnr.wi.gov/org/aw/rr/archives/pubs/RR800.pdf>.

Additional Information for Site Owners:

We encourage you to visit our website at <http://dnr.wi.gov/org/aw/rr>, where you can find information on selecting a consultant, financial assistance and understanding the cleanup process. You will also find information there about liability clarification letters, post-cleanup liability and more.

Information to help you select a consultant, materials on controlling costs, understanding the cleanup process, and choosing a site cleanup method are enclosed. In addition, *Fact Sheet 2 – Voluntary Party Remediation and Exemption from Liability* is enclosed and provides information on obtaining protection of limited liability under s. 292.15, Wis. Stats.

February 12, 2013
Mr. Mark Amundson
BRRTS #03-05-560082

4

If you have questions, call Robert Klauk at 920-662-5161 for more information or visit the RR web site at the address above.

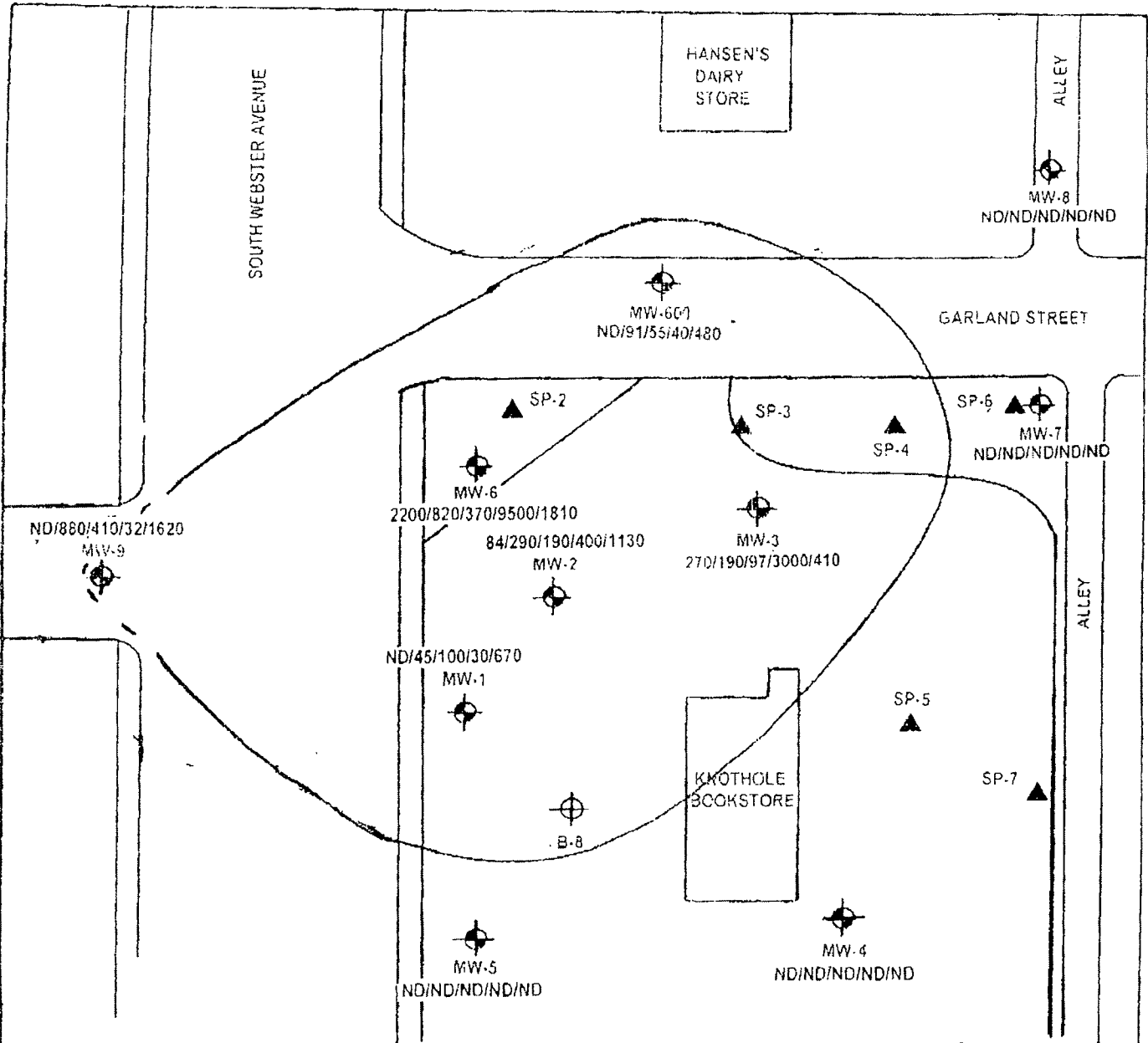
Thank you for your cooperation.

Sincerely,

Denise D. Danelski
Brownfields Outreach/Environmental Program Associate
Remediation & Redevelopment Program

Enclosures: 1. Remediation & Redevelopment Program
 2. CLEAN (Contaminated Lands Environmental Action Network)
 3. Environmental Contamination – The Basics
 4. Selecting an Environmental Consultant
 5. Environmental Services Contractor List
 6. Fact Sheet 2, VPLE
 7. Information about PECFA

cc: Robert Klauk - NER



LEGEND

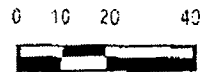
MW-1 MONITORING WELL

B-8 SOIL BORING

SP-2 SOIL PROBE

ND/45/100/30/670 BENZENE/ETHYLBENZENE/NAPHTHALENE/TOLUENE/TRIMETHYLBENZENE

DATA OBTAINED 06/11/03



APPROXIMATE SCALE
1" = 40'

NRP ENVIRONMENTAL CONSULTANTS, INC.

PROJECT KNOTHOLE BOOKS

FIGURE 9-EXTENT OF GROUNDWATER CONTAMINATION

TABLE I
SUMMARY OF GROUNDWATER ANALYSIS RESULTS

Parameter (ppb)	MW-1							WDNR PAL	WDNR ES
	04/02/97	09/12/02	12/11/02	03/26/03	06/11/03	09/16/04	12/16/04		
BENZENE	ND	5.5	ND	ND	ND	ND	ND	0.5	5
ETHYLBENZENE	96	38	70	230	45	14	43	140	700
MTBE	ND	4.8	12	18	9.4	ND	ND	12	60
NAPHTHALENE	320	130	150	200	100	74	260	8	40
TOLUENE	1500	68	88	330	30	6.7	36	200	1000
TRIMETHYLBENZENES	1550	770	940	870	670	428	1040	96	480
TOTAL XYLENES	7200	2300	2590	4100	560	920	3090	1000	10000
TRICHLOROETHENE	ND	NA	NA	NA	NA	ND	ND	0.5	5
TETRACHLOROETHENE	ND	NA	NA	NA	NA	5.7	ND	0.5	5
TOTAL LEAD	95	NA	NA	NA	NA	NA	NA	1.5	15

Parameter (ppb)	MW-2							WDNR PAL	WDNR ES
	04/02/97	09/12/02	12/11/02	03/26/03	06/11/03	09/16/04	12/16/04		
BENZENE	3100	15	49	220	84	1.8	23	0.5	5
ETHYLBENZENE	1000	46	160	200	290	1.3	66	140	700
MTBE	ND	1.2	5.0	12	6.2	ND	ND	12	60
NAPHTHALENE	410	40	110	240	190	3.9	49	8	40
TOLUENE	7900	44	140	640	400	2.0	61	200	1000
TRIMETHYLBENZENES	2070	279	810	940	1130	23	236	96	480
TOTAL XYLENES	5400	235	1000	3720	1670	22.1	300	1000	10000
TRICHLOROETHENE	ND	NA	NA	NA	NA	ND	ND	0.5	5
TETRACHLOROETHENE	ND	NA	NA	NA	NA	1.1	ND	0.5	5
TOTAL LEAD	43	NA	NA	NA	NA	NA	NA	1.5	15

NOTE:
 ppb = parts per billion
 WDNR PAL = WDNR NS 140 Preventive Action Limit
 WDNR ES = WDNR NR 140 Enforcement Standard
 ND = Not Detected
 NE = Not Established
 NA = Not Sampled For
 * = Sampled for but not detected above PAL

TABLE I
SUMMARY OF GROUNDWATER ANALYSIS RESULTS

Parameter (ppb)	MW-3							WDNR PAL	WDNR ES
	04/02/97	09/12/02	12/11/02	03/26/03	06/11/03	09/16/04	12/16/04		
BENZENE	850	180	170	140	270	170	180	0.5	5
ETHYLBENZENE	1500	550	290	240	90	660	800	140	700
MTBE	ND	ND	ND	6.3	ND	ND	18	12	60
NAPHTHALENE	340	54	52	48	97	130	170	8	40
TOLUENE	8500	2600	1900	200	3000	1900	1600	200	1000
TRIMETHYLBENZENES	1660	550	328	261	410	650	680	96	480
TOTAL XYLENES	6700	3100	1690	650	2120	2180	2080	1000	10000
TRICHLOROETHENE	ND	NA	NA	NA	NA	NA	NA	0.5	5
TETRACHLOROETHENE	ND	NA	NA	NA	NA	NA	NA	0.5	5
TOTAL LEAD	11	NA	NA	NA	NA	NA	NA	1.5	15

Parameter (ppb)	MW-4							WDNR PAL	WDNR ES
	04/02/97	09/12/02	12/11/02	03/26/03	06/11/03	09/16/04	12/16/04		
BENZENE	ND	ND	ND	ND	ND	NA	NA	0.5	5
ETHYLBENZENE	ND	ND	ND	ND	ND	NA	NA	140	700
MTBE	ND	ND	ND	ND	ND	NA	NA	12	60
NAPHTHALENE	ND	ND	ND	ND	ND	NA	NA	8	40
TOLUENE	ND	ND	ND	ND	ND	NA	NA	200	1000
TRIMETHYLBENZENES	ND	ND	ND	ND	ND	NA	NA	96	480
TOTAL XYLENES	ND	ND	ND	ND	ND	NA	NA	1000	10000
TRICHLOROETHENE	ND	NA	NA	NA	NA	NA	NA	0.5	5
TETRACHLOROETHENE	ND	NA	NA	NA	NA	NA	NA	0.5	5
TOTAL LEAD	7.2	NA	NA	NA	NA	NA	NA	1.5	15

DATE: 12/16/04
 BY: [Name]
 FOR: [Name]
 TITLE: [Title]
 COMMENTS: [Comments]

TABLE I
SUMMARY OF GROUNDWATER ANALYSIS RESULTS

Parameter (ppb)	MW-5							WDNR PAL	WDNR ES
	04/02/97	09/12/02	12/11/02	03/26/03	06/11/03	09/16/04	12/16/04		
BENZENE	ND	ND	ND	ND	ND	NA	NA	0.5	5
ETHYLBENZENE	ND	ND	ND	ND	ND	NA	NA	140	700
MTBE	ND	ND	ND	ND	ND	NA	NA	12	60
NAPHTHALENE	ND	ND	ND	ND	ND	NA	NA	8	40
TOLUENE	ND	ND	ND	ND	ND	NA	NA	200	1000
TRIMETHYLBENZENES	ND	ND	ND	ND	ND	NA	NA	96	480
TOTAL XYLENES	ND	ND	ND	ND	ND	NA	NA	1000	10000
TRICHLOROETHENE	ND	NA	NA	NA	NA	NA	NA	0.5	5
TETRACHLOROETHENE	ND	NA	NA	NA	NA	NA	NA	0.5	5
TOTAL LEAD	5.3	NA	NA	NA	NA	NA	NA	1.5	15

Parameter (ppb)	MW-6							WDNR PAL	WDNR ES
	06/25/97	09/12/02	12/11/02	03/26/03	06/11/03	09/16/04	12/16/04		
BENZENE	3700	2000	NA	2200	2200	1800	2500	0.5	5
ETHYLBENZENE	1500	1100	NA	990	820	130	210	140	700
MTBE	ND	ND	NA	ND	ND	ND	ND	12	60
NAPHTHALENE	300	400	NA	420	370	630	580	8	40
TOLUENE	11000	9400	NA	10000	9500	5100	7600	200	1000
TRIMETHYLBENZENES	1880	1630	NA	1770	1810	4100	3400	96	480
TOTAL XYLENES	7700	7300	NA	8100	7800	8000	8200	1000	10000
TRICHLOROETHENE	ND	NA	NA	NA	NA	ND	ND	0.5	5
TETRACHLOROETHENE	ND	NA	NA	NA	NA	ND	ND	0.5	5
TOTAL LEAD	160	NA	NA	NA	NA	NA	NA	1.5	15

NOTE:
 ND = Not Detected
 NA = Not Analyzed
 WDNR PAL = WISN NR 140 Preventive Action Limit
 WDNR ES = WISN NR 140 Enforcement Standard
 * Sampled for but not detected above PAL

TABLE I
SUMMARY OF GROUNDWATER ANALYSIS RESULTS

Parameter (ppb)	MW-7							WDNR PAL	WDNR ES
	06/25/97	09/12/02	12/11/02	03/26/03	06/11/03	09/16/04	12/16/04		
BENZENE	ND	ND	ND	ND	ND	NA	NA	0.5	5
ETHYLBENZENE	ND	ND	ND	ND	ND	NA	NA	140	700
MTBE	ND	ND	ND	ND	ND	NA	NA	12	60
NAPHTHALENE	ND	ND	ND	ND	ND	NA	NA	8	40
TOLUENE	ND	ND	ND	ND	ND	NA	NA	200	1000
TRIMETHYLBENZENES	ND	ND	ND	ND	ND	NA	NA	96	480
TOTAL XYLENES	ND	ND	ND	NS	ND	NA	NA	1000	10000
TRICHLOROETHENE	ND	NA	NA	NA	NA	NA	NA	0.5	5
TETRACHLOROETHENE	ND	NA	NA	NA	NA	NA	NA	0.5	5
TOTAL LEAD	3.2	NA	NA	NA	NA	NA	NA	1.5	15

Parameter (ppb)	MW-8							WDNR PAL	WDNR ES
	06/23/98	09/12/02	12/11/02	03/26/03	06/11/03	09/16/04	12/16/04		
BENZENE	ND	ND	ND	ND	ND	NA	NA	0.5	5
ETHYLBENZENE	ND	ND	ND	ND	ND	NA	NA	140	700
MTBE	ND	ND	ND	ND	ND	NA	NA	12	60
NAPHTHALENE	ND	ND	ND	ND	ND	NA	NA	8	40
TOLUENE	ND	ND	ND	ND	ND	NA	NA	200	1000
TRIMETHYLBENZENES	ND	ND	ND	ND	ND	NA	NA	96	480
TOTAL XYLENES	ND	ND	ND	ND	ND	NA	NA	1000	10000
TRICHLOROETHENE	ND	NA	NA	NA	NA	NA	NA	0.5	5
TETRACHLOROETHENE	ND	NA	NA	NA	NA	NA	NA	0.5	5
TOTAL LEAD	NA	NA	NA	NA	NA	NA	NA	1.5	15

NOTES:
 1. ND = Not Detected
 2. NA = Not Analyzed
 3. NS = Not Sampled
 4. WDNR PAL = Wisconsin Department of Natural Resources Primary Action Limit
 5. WDNR ES = Wisconsin Department of Natural Resources Secondary Standard
 6. * = Concentration detected above PAL

TABLE I
SUMMARY OF GROUNDWATER ANALYSIS RESULTS

Parameter (ppb)	MW-9								WDNR PAL	WDNR ES
	06/23/98	10/05/01	09/12/02	12/11/02	03/26/03	06/11/03	09/16/04	12/16/04		
BENZENE	9.5	ND	3.6	ND	ND	ND	NA	NA	0.5	5
ETHYLBENZENE	350	600	49	700	780	880	NA	NA	140	700
MTBE	ND	24	9.3	25	48	43	NA	NA	12	60
NAPHTHALENE	100	270	61	270	330	410	NA	NA	8	40
TOLUENE	47	18	5.4	14	15	32	NA	NA	200	1000
TRIMETHYLBENZENES	510	830	309	960	1070	1220	NA	NA	96	480
TOTAL XYLENES	2050	3440	1110	4330	4900	5500	NA	NA	1000	10000
TRICHLOROETHENE	43	NA	NA	NA	NA	NA	NA	NA	0.5	5
TETRACHLOROETHENE	870	NA	NA	NA	NA	NA	NA	NA	0.5	5
TOTAL LEAD	NA	NA	NA	NA	NA	NA	NA	NA	1.5	15

Parameter (ppb)	MW-600						WDNR PAL	WDNR ES
	09/12/02	12/11/02	03/26/03	06/11/03	09/16/04	12/16/04		
BENZENE	33	ND	1500	ND	68	8.0	0.5	5
ETHYLBENZENE	500	3.0	1500	91	330	280	140	700
MTBE	ND	ND	ND	13	ND	ND	12	60
NAPHTHALENE	340	25	1200	55	260	360	8	40
TOLUENE	1300	3.8	11000	110	700	310	200	1000
TRIMETHYLBENZENES	2460	69	3000	480	1530	2150	96	480
TOTAL XYLENES	5400	43	8800	490	2280	3140	1000	10000
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	0.5	5
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	0.5	5
TOTAL LEAD	NA	NA	NA	NA	NA	NA	1.5	15

NOTES:
 1ppb = 1 part per billion
 WDR PAL = WDR NS 140 Preventive Action Limit
 WDR ES = WDR NS 140 Enforcement Standard
 ND = Not Detected
 NB = Not Analyzed
 NA = Not Sampled for
 * = Sampled for but not detected above PAL

TABLE IV

SUMMARY OF GROUNDWATER ELEVATIONS

Groundwater Elevations Obtained 06/11/03

<u>Well #</u>	<u>Top Of Screen Elevation</u>	<u>Top Of Casing Elevation</u>	<u>Depth To Groundwater</u>	<u>Groundwater Elevation</u>
NW-1	89.8'	99.63'	19.96'	79.67'
NW-2	88.3'	98.34'	18.00'	80.34'
NW-3	85.6'	95.64'	20.05'	75.59'
NW-4	88.0'	97.97'	21.78'	76.19'
NW-5	89.4'	99.35'	19.40'	75.95'
NW-6	90.6'	100.59'	25.24'	75.35'
NW-7	78.0'	88.07'	10.00'	77.47'
NW-8	77.2'	87.23'	11.80'	75.43'
NW-9	88.6'	98.60'	23.06'	75.54'
NW-600	83.3'	93.31'	17.66'	75.65'

Groundwater Elevations Obtained 03/25/03

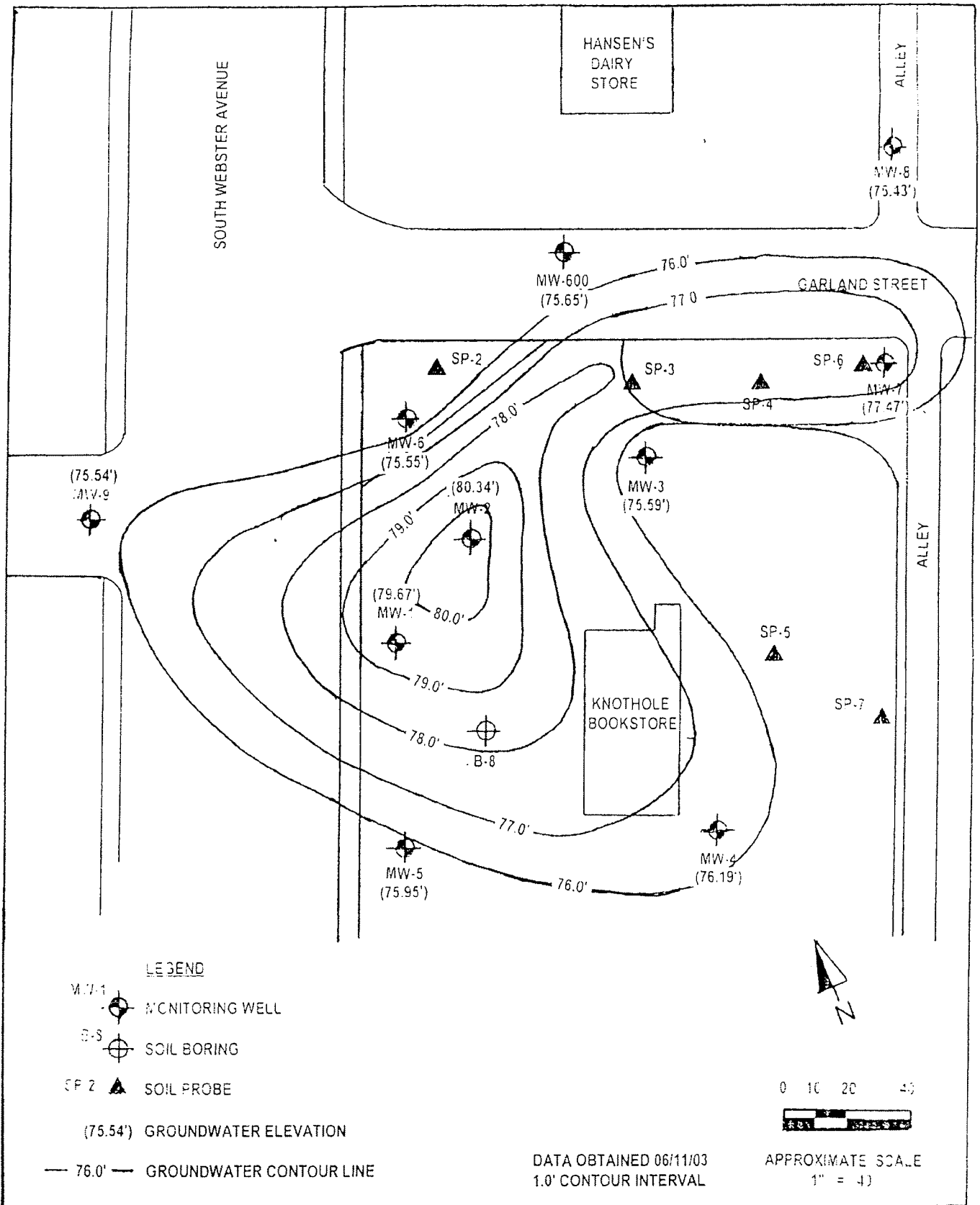
<u>Well #</u>	<u>Top Of Screen Elevation</u>	<u>Top Of Casing Elevation</u>	<u>Depth To Groundwater</u>	<u>Groundwater Elevation</u>
NW-1	89.8'	99.63'	22.52'	77.11'
NW-2	88.3'	98.34'	19.26'	79.08'
NW-3	85.6'	95.64'	20.70'	74.94'
NW-4	88.0'	97.97'	22.49'	75.48'
NW-5	89.4'	99.35'	24.00'	75.35'
NW-6	90.6'	100.59'	25.89'	74.70'
NW-7	78.0'	88.07'	12.69'	75.38'
NW-8	77.2'	87.23'	11.83'	75.40'
NW-9	88.6'	98.60'	23.62'	74.98'
NW-600	83.3'	93.31'	18.45'	74.66'

Groundwater Elevations Obtained 12/11/02

<u>Well #</u>	<u>Top Of Screen Elevation</u>	<u>Top Of Casing Elevation</u>	<u>Depth To Groundwater</u>	<u>Groundwater Elevation</u>
NW-1	89.8'	99.63'	19.85'	80.00'
NW-2	88.3'	98.34'	17.12'	80.82'
NW-3	85.6'	95.64'	19.83'	75.68'
NW-4	88.0'	97.97'	21.41'	76.10'
NW-5	89.4'	99.35'	23.33'	76.01'
NW-6	90.6'	100.59'	--	--
NW-7	78.0'	88.07'	11.32'	76.75'
NW-8	77.2'	87.23'	12.45'	74.83'
NW-9	88.6'	98.60'	22.45'	76.71'
NW-600	83.3'	93.31'	17.77'	75.54'

Groundwater Elevations Obtained 09/12/02

<u>Well #</u>	<u>Top Of Screen Elevation</u>	<u>Top Of Casing Elevation</u>	<u>Depth To Groundwater</u>	<u>Groundwater Elevation</u>
NW-1	89.8'	99.63'	19.05'	80.55'
NW-2	88.3'	98.34'	17.06'	81.28'
NW-3	85.6'	95.64'	19.47'	76.17'
NW-4	88.0'	97.97'	21.36'	76.61'
NW-5	89.4'	99.35'	22.91'	76.44'
NW-6	90.6'	100.59'	25.14'	75.15'
NW-7	78.0'	88.07'	10.45'	77.35'
NW-8	77.2'	87.23'	11.77'	75.26'
NW-9	88.6'	98.60'	22.40'	76.20'
NW-600	83.3'	93.31'	17.41'	75.90'



NRP ENVIRONMENTAL CONSULTANTS, INC.

PROJECT KNOTHOLE BOOKS
FIGURE: FIGURE 5-GROUNDWATER CONTOUR MAP

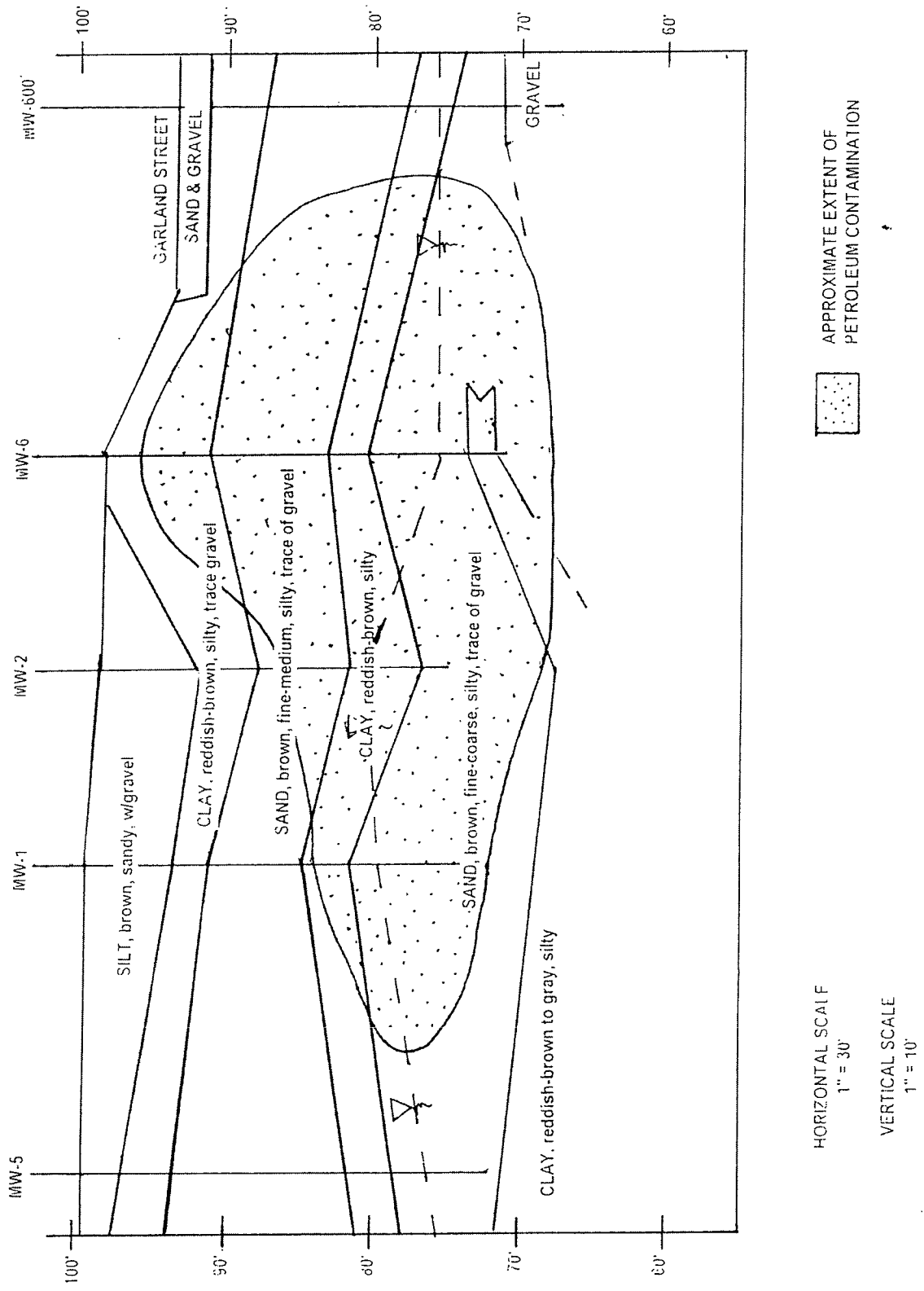


FIGURE 7-NORTH-SOUTH GEOLOGIC CROSS-SECTION

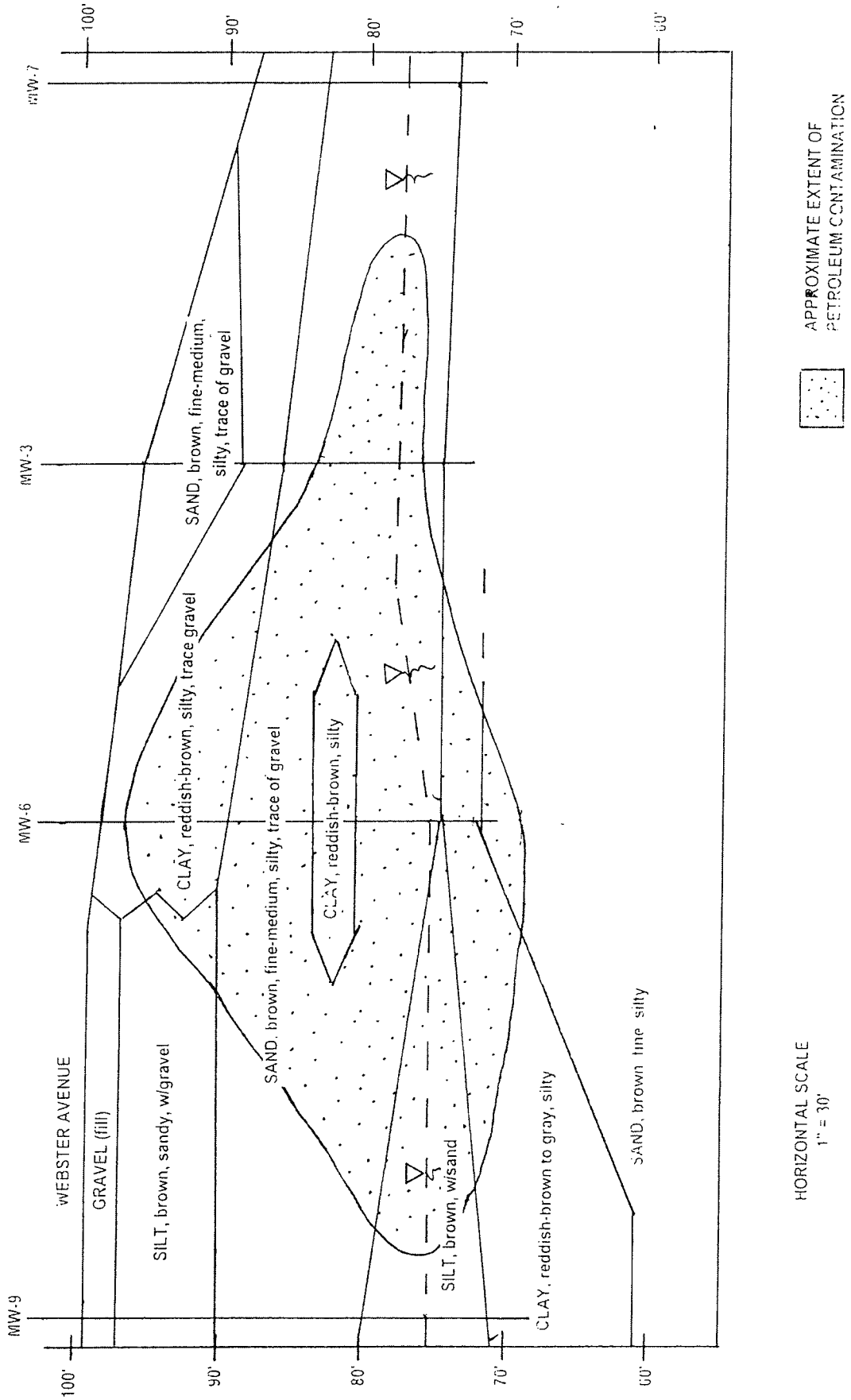


FIGURE 8-EAST-WEST GEOLOGIC CROSS-SECTION

**LUST Investigation Field Procedures Workplan - METCO
1404 S Webster Avenue - LUST**

APPENDIX F/HEALTH AND SAFETY PLAN

SAFETY PLAN INFORMATION

Code: METCO

METCO Project No: C2378

Company Name: METCO

Contact:

Last Name: Powell

First Name: Jason

Salutation:

P.O. Box

Street: 709 Gillette Street, Suite 3

City: La Crosse

State WI

Zip Code: 54603-0000

Area code: 608

Phone: 781-8879

Fax: (608)781-8893

SITE INFORMATION

Site Name: 1404 S Webster Avenue - LUST

Site Address: 1404 S Webster Avenue

Site Address City: Green Bay

Address:

Site Address State: WI Site Address Zip Code: 54301

Site Address County: Brown

WDNR Contact: Alex Edler

Fire Dept. Contact: Green Bay

Project Date: 10/1/2016

Tank Removal Contractor:

General Contractor: METCO

TANK INFORMATION

Tank Sizes\Contents

Tank 1:	2000	Contents: Gasoline	Age: Removed
Tank 2:	2000	Contents: Gasoline	Age: Removed
Tank 3:		Contents:	Age:
Tank 4:		Contents:	Age:
Tank 5:		Contents:	Age:
Tank 6:		Contents:	Age:

PURPOSE OF ACTIVITY (Check all appropriate)

New Tank Installation	<input type="checkbox"/>	Tank Closure	<input type="checkbox"/>	Install Tank Leak Detection	<input type="checkbox"/>
Tank/Pipe Removal	<input type="checkbox"/>	Tank\Pipe Repair	<input type="checkbox"/>	Install Spill Protection	<input type="checkbox"/>
Petroleum Release Investigation	<input checked="" type="checkbox"/>	Install Remedial System	<input type="checkbox"/>	Install Overfill Protection	<input type="checkbox"/>
Leak Detection Testing	<input type="checkbox"/>	Install Monitoring Wells	<input type="checkbox"/>	Install Kard System	<input type="checkbox"/>
Other					

Background information is Complete Ir

TYPE OF SITE

SITE HEALTH AND SAFETY PLAN

POTENTIAL HEALTH AND SAFETY HAZARDS (check all appropriate)

- | | | |
|---|--|---|
| Handling/transfer of product: <input type="checkbox"/> | Heavy Equipment: <input checked="" type="checkbox"/> | Snakes: <input type="checkbox"/> |
| * Fire | Noise: <input checked="" type="checkbox"/> | Insects: <input type="checkbox"/> |
| * Explosions | Oxygen Depletion: <input type="checkbox"/> | Rodents: <input type="checkbox"/> |
| General Construction: <input checked="" type="checkbox"/> | Excavation: <input type="checkbox"/> | Heat: <input checked="" type="checkbox"/> |
| * Electrical Hazards | * Cave-ins | Cold: <input checked="" type="checkbox"/> |
| * Physical Injury | * Falls, slips | |
| Confined Space Entry: <input type="checkbox"/> | Poisonous plants: <input type="checkbox"/> | |
| * Explosions | Other (Specify): | |

Description of site-specific hazards (utilities, terrain, etc.):
Underground utilities and site traffic

EVALUATION OF CHEMICAL HAZARDS (MSDS sheets attached)

NAME	PHYSICAL STATE	ROUTE OF ENTRY	OSHA PEL/TLV	SYMPTOMS OF EXPOSURE
1.	Vapor/Liq	Inh/Skin	25-300PPM	Nausea, Irritation
2.				
3. Gasoline	Liquid/Vapor	Inh/Skin	50 - 300 PPM	Irritation of eyes, nose and throat
4. PCE				
5. TCE				

ON-SITE PERSONNEL RESPONSIBILITIES

Team Member	Responsibilities
1. Jason Powell	Site Project Management
2. Eric Dahl	Hydrogeologist
3. Jon Jensen	Staff Scientist
4. Matt Michalski	Hydrogeologist

METHOD TO CONTROL POTENTIAL HEALTH AND SAFETY HAZARDS

MONITORING INSTRUMENTS

Combustible Gas Indicator:

Action Levels
0-10% LFL No Explosion Hazard

Action

None

Action Levels

Normal: 21%

Oxygen Deficient: Less than 21%

Oxygen Deficient: Less than 19.5%

Action

None

Notify Health & Safety Officer

Evacuate

Photoionization Detector:

Flame Ionization Detector:

Detector Tubes:

SITE HEALTH AND SAFETY PLAN

PERSONAL PROTECTIVE EQUIPMENT

Minimum Requirements

- 1. Hardhat
- 2. Safety glasses\goggles
- 3. Steel toes\shank shoes or boots
- 4. Flame retardant coveralls
- 5. Hearing protection (muffs or ear plugs)

Is additional PPE required? yes: no:

Additional Requirements

- | | | | |
|---------------------------------------|--------------------------|------------------------|--------------------------|
| Uncoated tyvek coveralls: | <input type="checkbox"/> | Full face respirators: | <input type="checkbox"/> |
| Saranex tyvek coveralls: | <input type="checkbox"/> | * type of cartridge: | |
| Rubber boots: | <input type="checkbox"/> | SCBA \ SAR: | <input type="checkbox"/> |
| Overboots: | <input type="checkbox"/> | Other: | |
| Surgical Inner Gloves: | <input type="checkbox"/> | | |
| Butyl Neoprene\ nitrile outer gloves: | <input type="checkbox"/> | | |

Level of protection designated A: B: C: D:

SITE CONTROL

Work Zones

- Support Zone: Beyond a 25' Radius of drilling or excavation and upwind of operation
- Contamination Reduction Zone: Between 15 foot and 25 foot Radius of drilling or excavation
- Exclusion Zone: Within 15 feet Radius of excavation or machine operation

Site Entry Procedure: Obtain approval and instructions from Project Leader.

Decontaminations Procedures:

- Personnel: Remove protective equipment and wash hands prior to eating.
- Equipment: Wash with brush and Alconox soap and rinsed with portable water.

Investigation-derived material disposal

- Stockpiling: The soils will be placed on and covered with plastic. The client will determine the stockpile location, but will have to be approved by the Project Manager. Soils will be disposed of by the most efficient and cost effective approved method.
- DOT drums: Label drums as to content and date filled. Routinely inspect drums for leakage or spills. Place together in area where movement is at a minimum.

Work Limitations: Daylight hours. No eating, drinking, or smoking in the exclusion zone or the contamination reduction zone.

Employee Limitations:

Site Resources

Plan Approved by: _____ Date: _____

Shower: Water Supply:

SITE HEALTH AND SAFETY PLAN

CONTINGENCY PLANNING

<u>LOCAL RESOURCES</u>	<u>Phone Number</u>
Ambulance: Green Bay	911
Hospital Emergency Room: St Vincent Hospital	(920) 433-0111
Poison Control Center: Milwaukee	(800) 222-1222
Police Green Bay	911
Fire Dept: Green Bay	911
Hazardous Waste Response Center:	800-943-0003 Wisconsin EPA 800-424-8802

Location Address: 1404 S Webster Avebue, Green Bay, WI 54986

EMERGENCY ROUTES (attach maps)

Hospital: St Vincent Hospital (835 S Van Buren St, Green Bay, WI 54301) - Turn left onto S Webster Ave and travel north 0.5 miles to Porlier St, turn left onto Porlier St and travel 500 feet west to S Van Buren St, turn right onto S Van Buren St and travel north 300 feet and hospital will be on the right.

Other:

EMERGENCY PROCEDURES

If an emergency develops at the site, the discoverer will take the following course of action:

- * Notify the proper emergency service (fire, police, etc.) for assistance.
- * Notify other personnel on the site. Notify Project Leader.
- * Contact METCO and the client representative to inform them of the incident as soon as possible.
- * Prepare a summary report of the incident for METCO and the client representative.

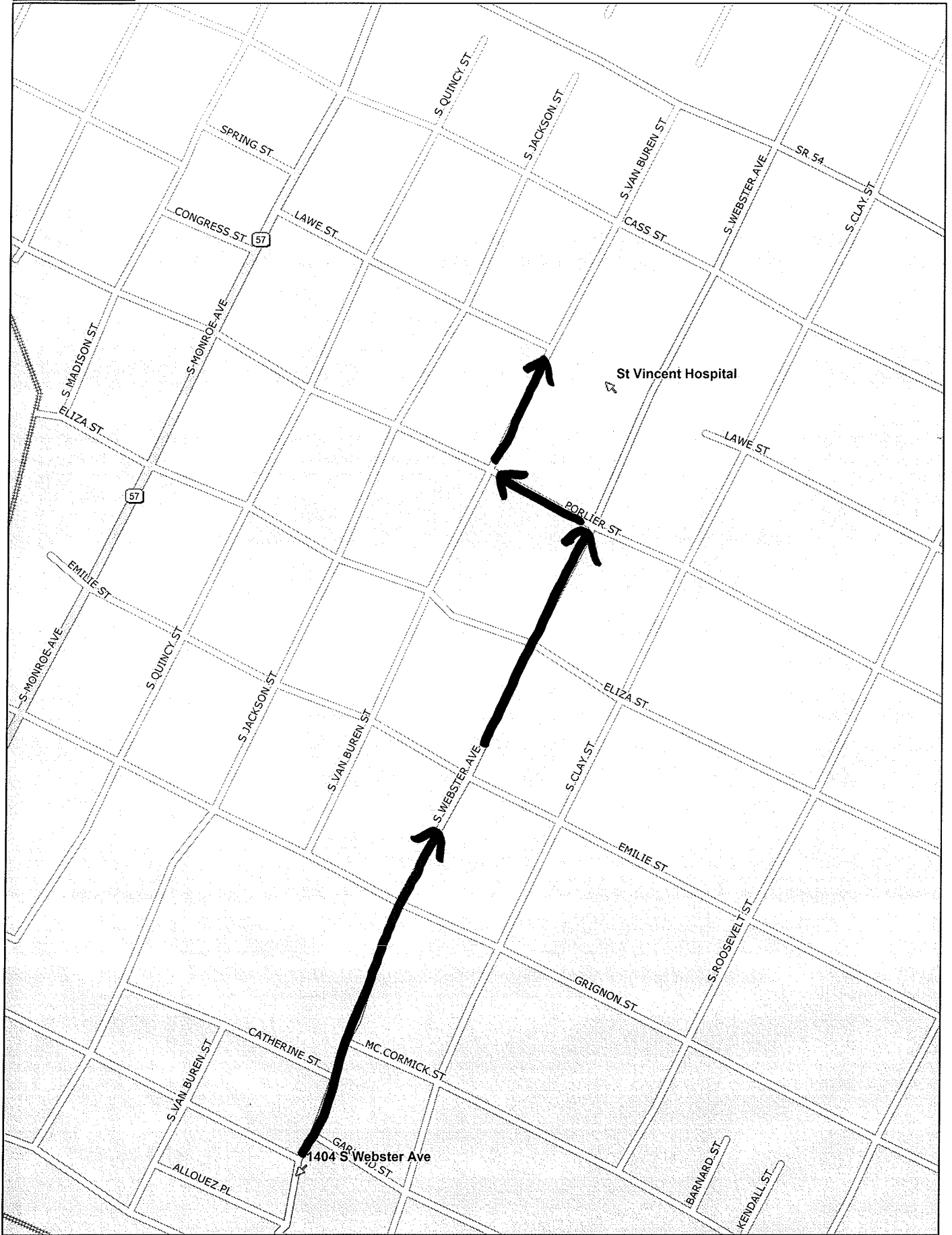
ON-SITE ORGANIZATION

PHONE NUMBERS

METCO Project Leader: Jason Powell	work	608-781-8879
	home	608-526-6108
METCO Safety Officer: Linda Eastman	work	1-800-236-0448
Engineer/Architect Contact:	home	(608)489-2236
		(920) 468-2564
Client Contact: Lee Amundson		
METCO Corporate Contact: Paul Knower	home	(608)489-2659
	work	1-800-236-0448

DAILY SAFETY PLAN CHECK

- 1. Hard-hat**
- 2. Visible fire extinguisher**
- 3. Safety glasses**
- 4. Hearing protection**
- 5. No smoking on site**
- 6. Safety data sheet**
- 7. Route to hospital**
- 8. Barricades (cones, flags, fences, vehicle)**
- 9. Emergency phone numbers**
- 10. Know where the job site book is**



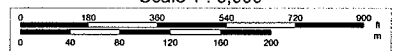
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Scale 1 : 6,000



1" = 500.0 ft

Data Zoom 15-1

**LUST Investigation Field Procedures Workplan - METCO
1404 S Webster Avenue - LUST**

APPENDIX G/QUALIFICATIONS

**LUST Investigation Field Procedures Workplan - METCO
1404 S Webster Avenue - LUST**

Ronald J. Anderson, P.G.

Professional Titles

- Senior Hydrogeologist
- Project Manager

Credentials

- Licensed Professional Geologist in Wisconsin
- Licensed Professional Geologist in Minnesota
- Recognized by the State of Wisconsin Department of Natural Resources (Chapter NR712) as a qualified Hydrogeologist
- Certified by State of Wisconsin/DSPS to conduct PECFA-funded LUST projects
- Certified tank closure site assessor (#41861) in Wisconsin
- Member of the Wisconsin Groundwater Association
- Member of the Minnesota Groundwater Association
- Member of the Federation of Environmental Technologist, Inc.
- Member of the Wisconsin Fabricare Institute

Education

Includes a BA in Earth Science from the University of Minnesota-Duluth. Applicable courses successfully completed include Hydrogeology, Applied Hydrogeology, Environmental Geology, Geological Field Methods, Geology Field Camp, Geomorphology, Structural Geology, Stratigraphy/Tectonics, Mineralogy/Petrology, Glacial/Quaternary Geology, Geology of North America, Oceanography, General Chemistry, Organic Chemistry, and Environmental Conservation

Post-Graduate Education

Includes Personnel Protection and Safety, Conducting Comprehensive Environmental Property Assessments, Groundwater Flow and Well Hydraulics, Effective Techniques for Contaminated Groundwater Treatment, and numerous other continuing education classes and conferences.

Work Experience

Includes nine months with the Wisconsin Department of Natural Resources Leaking Underground Storage Tank Program regulating LUST sites and since June 1990, with METCO as a Hydrogeologist and Project Manager. Duties have included: managing, conducting, and reporting tank closure assessments; property assessment, LUST investigations; spill investigations; agricultural chemical investigations, dry cleaning chemical investigations, general geotechnical/environmental investigations; Geoprobe projects (soil, groundwater, soil gas sampling); drilling projects (soil boring and monitoring wells); and remedial projects. Since 1989, METCO has sampled/consulted over 1,465 environmental sites.

**LUST Investigation Field Procedures Workplan - METCO
1404 S Webster Avenue - LUST**

Jason T. Powell

Professional Title

- Staff Scientist

Credentials

- Recognized by the State of Wisconsin Department of Natural Resources (Chapter NR712) as a qualified Scientist.

Education

Includes a BS in Groundwater Management from the University of Wisconsin- Stevens Point. Applicable courses successfully completed include Hydrogeology, Applied Hydrogeology, Environmental Geology, Hydrogeology-Groundwater Flow Modeling, Groundwater Management, Structural Geology, Mineralogy, Glacial Geology, Soils, Soil Physics, Hydrology, Geochemistry, Water Chemistry, Organic Chemistry, General Chemistry, Environmental Issues.

Post-Graduate Education

40-hour OSHA Hazardous Materials Safety Training course with 8-hour refresher course.

Work Experience

With METCO since May 1992 as a Geoprobe Assistant and Geoprobe Operator. In June 1995 to July 1996 as a Environmental Technician. In July 1996 as a Staff Scientist. Duties have included: LUST investigations; general geotechnical/environmental investigations; Geoprobe projects (soil, groundwater sampling); drilling projects (soil boring and monitoring wells); remedial projects (sampling, pilot tests, system operation/maintenance) and project management.

**LUST Investigation Field Procedures Workplan - METCO
1404 S Webster Avenue - LUST**

Eric J. Dahl

Professional Title

- Hydrogeologist

Credentials

- Recognized by the State of Wisconsin Department of Natural Resources (Chapter NR712) as a qualified Hydrogeologist.
- Registered through the Wisconsin Department of Safety and Professional Services as a PECFA consultant (#823519).

Education

Includes B.S. in Geology from the University of Wisconsin-Eau Claire. Applicable courses successfully completed include Environmental Geology, Physical Hydrogeology, Chemical Hydrogeology, Computer Modeling in Hydrogeology, Aqueous Geochemistry, Field Geology I and II, Mineralogy and Petrology I and II, Sedimentology and Stratigraphy, Petroleum and Economic Geology, Earth Resources, Earth History, and Structural Geology.

Post-Graduate Education

40-hour OSHA Hazardous Materials Safety Training course with 8-hour refresher course.

Work Experience

With METCO since November 1999 as a Hydrogeologist. Duties have included: Site Investigations, Phase I and Phase II Environmental Site Assessments, Case Closure Requests/GIS Registry, Geoprobe projects (oversight, direction, and sampling), drilling projects/monitoring well installation (oversight, direction, and sampling), soil excavation projects (oversight, direction, and sampling), Geoprobe operation, and operation and maintenance of remedial systems.

Thomas P. Pignet, P.E.

Professional Titles

- Chemical Engineer
- Industrial Engineer

Credentials

- Licensed Professional Engineer in Wisconsin

Education

Undergraduate: B.S. in Chemical Engineering from the University of Wisconsin. Applicable courses include the standard chemistry curriculum - basic, physical, organic, etc. - plus engineering transport phenomena, chemical unit operations (e.g. separations), fluid mechanics, etc.

Post-Graduate Education

Ph.D. in Chemical Engineering from the University of Minnesota - with applicable special training in absorption & catalysis; M.S. in Industrial Engineering from the University of Wisconsin - Milwaukee - with special emphasis on statistical techniques and data analysis. Applicable further training: continuing education, semester-length courses in [1] Understanding Environmental & Safety Regulation; [2] Hazardous & Toxic Waste Management; plus a number of 1-2 day workshops - Fire & Explosion Safety; Small Quantity Generations of Hazardous Waste.

Work Experience

Includes ten years as a research chemical engineer with a large chemical manufacturer; one year as process development engineer and demonstration-scale test analyst on a unique coal gasification project; ten years in association with UW-M, teaching and consulting to industry on energy efficiency, waste minimization and productivity improvement. One year working with a small engineering consulting firm on energy, environmental, and process improvement projects, including LUST Investigations and Remediations. With METCO since February 2000. Duties include Remedial Action Plan preparation, pilot test design and performance, remedial systems design and implementation, and general management of METCO's remedial projects.

**LUST Investigation Field Procedures Workplan - METCO
1404 S Webster Avenue - LUST**

Jon Jensen

Professional Title

- Staff Scientist

Credentials

- Registered through the Wisconsin Department of Safety and Professional Services as a PECFA consultant (#1294924).

Education

Includes B.S. in Geography with and Environmental Science minor from University of Wisconsin – La Crosse: Applicable courses successfully completed include Interpretation of Aerial Photographs, Intro to GIS, Advanced Remote Sensing, Fundamentals of Cartography, Biogeography, and Conservation of Global Environments.

Work Experience

With METCO since July, 2014 as Staff Scientist. Duties include: soil and groundwater sampling, operation and maintenance of remedial systems, Geoprobe projects (oversight, direction, and sampling), site mapping, data reduction and analysis, and reporting.

Matthew C. Michalski

Professional Title

- Hydrogeologist

Credentials

- Registered through the Wisconsin Department of Safety and Professional Services as a PECFA consultant (#1261443).
- Member of the Wisconsin Groundwater Association
- Member of the Minnesota Groundwater Association
- Member of the National Groundwater Association
- Member of the American Institute of Professional Geologist
- Member of the Geological Society of America

Education

Includes B.S. in Geology with an emphasis in Hydrogeology and Water Chemistry from the University of Wisconsin-Eau Claire, completion of Western Michigan University's Hydrogeology Field Camp, a B.S. In Geography from the University of Wisconsin-La Crosse. Applicable courses successfully completed include Hydrogeology, Contaminant Hydrogeology, Aqueous Geochemistry, Geomorphology and Aerial Photograph interpretation, Sedimentology and Stratigraphy, Structural Geology, Mineralogy and Petrology, Hazardous Waste Operation and Emergency Response, Surface Geophysics, Principles and Practices of Groundwater Sampling and Monitoring, Principles and Practices of Aquifer Testing, Principles of Well Drilling and Installation, Remediation Design and Implementation, Water Resources, Environmental Hazards and Land Use, and Advanced Map Design.

Post-Graduate Education

40-hour OSHA Hazardous Materials Safety Training course.

Work Experience

With METCO since May 2016 as a Hydrogeologist and from August 2012 to August 2014 as a Staff Scientist. Duties have included: soil and groundwater sampling, Site Investigations, Phase I and Phase II Environmental Site Assessments, Case Closure Requests/GIS Registry, Geoprobe projects (oversight, direction, and sampling), drilling projects/monitoring well installation (oversight, direction, and sampling), and operation and maintenance of remedial systems, site mapping, data reduction and analysis, and reporting.

LIST OF ACRONYMS

AST - Aboveground Storage Tank
ASTM - American Society for Testing and Materials
Cd - Cadmium
DOT - Department of Transportation
DRO - Diesel Range Organics
ES - Enforcement Standards
gpm - gallons per minute
GRO - Gasoline Range Organics
HNU - brand name for Photoionization Detector
ID - inside-diameter
LAST - Leaking Aboveground Storage Tank
LUST - Leaking Underground Storage Tank
MSL - Mean Sea Level
MTBE - Methyl-tert-butyl ether
MW - Monitoring Well
NIOSH - National Institute for Occupational Safety & Health
NR - Natural Resources
OD - outside-diameter
PAH - Polynuclear Aromatic Hydrocarbons
PAL - Preventive Action Limits
Pb - Lead
PECFA - Petroleum Environmental Cleanup Fund
PID - Photoionization Detector
POTW - Publicly Owned Treatment Works
ppb ug/kg - parts per billion
ppm mg/kg - parts per million
psi - pounds per square inch
PVC - Polyvinyl Chloride
PVOC - Petroleum Volatile Organic Compounds
RAP - Remedial Action Plan
scfm - standard cubic feet per minute
SVE - Soil Vapor Extraction
USCS - Unified Soil Classification System
USGS - United States Geological Survey
UST - Underground Storage Tank
VOC - Volatile Organic Compounds
WDNR - Wisconsin Department of Natural Resources
WPDES - Wisconsin Pollutant Discharge Elimination System