LUST Investigation Field Procedures Workplan

105 E Main Street Property – WI DOT
105 E Main Street
Winneconne, Wisconsin

July 12, 2016
by METCO
WDNR File Reference #: 03-71-562271
PECFA Claim #: 54986-9701-05

Excellence through experience™

This document was prepared by:

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July 12, 2016

WDNR BRRTS#: 03-71-562271
PECFA Claim #: 54986-9701-05

Steven Brooks
P.O. Box 42
Winneconne, WI 54986

Dear Mr. Brooks,

Enclosed is our "LUST Investigation Field Procedures Workplan" concerning the 105 E Main Street Property – WI DOT site in Winneconne, Wisconsin. This document outlines the procedures and the methods used to conduct such an investigation.

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: Sarah Frederick – WDNR

LUST Investigation Field Procedures Workplan - METCO
105 E Main Street Property – WI DOT

Table of Contents

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

LUST Investigation Field Procedures Workplan - METCO
105 E Main Street Property – WI DOT

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.

INTRODUCTION

Site Name

105 E Main Street Property – WI DOT

Site Address

105 E Main Street
Winneconne, Wisconsin

Legal Description

NE ¼, NE ¼, Section 21, Township 19 North, Range 15 East, Winnebago County

Contact or Client

Steven Brooks
P.O. Box 42
Winneconne, WI 54986
(920) 420-5011

WDNR Project Manager

Sarah Frederick
WDNR Northeast Region
625 E County Road Y, Suite 700
Oshkosh, WI 54901
(920) 424-0399

Consultant

METCO
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Jason T. Powell
709 Gillette Street, Suite 3
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SITE BACKGROUND

Facility

Prior to the 1950's, the subject property appears to have been undeveloped. A gas station was built on the property in the 1950's and operated until the 1970's. Since then, the property has been used as an auto repair facility, re-sale facility, boat repair facility, small engine repair facility, and an auto dealership. According to the former property owners, two 5,000-gallon gasoline USTs were removed from the property in the 1990's. Steven Brooks has owned the property since approximately 2008 and uses the property for used car and boat sales.

On July 30-31, 2013, Himalayan consultants, LLC conducted a Phase 2 Hazardous Materials Investigation (P2HMI) for the Wisconsin Department of Transportation for an upcoming road reconstruction project. During the P2HMI, three soil borings were conducted at the subject property with six soil samples and three groundwater samples collected for laboratory analysis. The P2HMI soil and groundwater sampling results showed exceedances of the WDNR soil and groundwater standards for chlorinated hydrocarbons. The P2HMI results were reported to the WDNR, who then required that a site investigation be conducted.

On September 17-18, 2014, TRC Environmental Corporation conducted a Phase 3 Investigation for the Wisconsin Department of Transportation. During the Phase 3 Investigation, three additional soil boring were completed at the subject property with six soil samples collected for laboratory analysis. Three monitoring wells (TRC-11-1, 11-2, and 11-3) were installed in the soil borings and subsequently developed. On September 22, 2014, TRC collected groundwater samples from the three monitoring wells for laboratory analysis. The Phase 3 Investigation results also showed exceedances of the WDNR soil and groundwater standards for chlorinated hydrocarbons. However, the results also showed detects for gasoline compounds in the area of monitoring well TRC-11-1, including NR140 ES or PAL exceedances for Benzene (35.8 ppb) and Naphthalene (23.3 ppb).

When first reported to the WDNR after the P2HMI, an ERP case (BRRTS # 02-71-562271) was opened at the subject property since only chlorinated hydrocarbons were detected at the subject property. However, after the Phase 3 Investigation, the site was converted to a LUST case (BRRTS # 03- 71-562271) since gasoline related hydrocarbons were detected at the subject property and the collective P2HMI and Phase 3 Investigation data indicated that the chlorinated hydrocarbons originated from the nearby PDK Properties site (BRRTS # 02-71-562227), which is located approximately 50 feet to the east of

the subject property.

A closed LUST site, Falk Property (BRRTS 3 03-71-001089) exists approximately 60 feet to the west of the subject property. The Falk Property site was closed in 1994 with residual soil contamination.

Based on the data collected during the P2HMI and Phase 3 Investigation, which also investigated the areas of the PDK Properties and Falk Properties site, it appears that the subject property and other nearby properties have been impacted by chlorinated hydrocarbons from the PDK Properties site. The Falk Property site was closed with residual soil contamination in place. However, based on the information available at this time, it does not appear that the Falk Property is impacting or being impacted by the 105 E Main Street Property site.

Potential Risks and Impacts

The subject property and surrounding properties are all served by the Village of Winneconne municipal water system. The Village of Winneconne has two municipal wells, the closest being 1,100 feet to the east-southeast and the other located approximately 1,950 feet to the west-southwest of the subject property.

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, Winneconne is located in the southern 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 760 feet above Mean Sea Level (MSL). See Appendix A for site location.

Geology

Native unconsolidated materials in this area generally consist of clay to sandy clay. The unconsolidated materials are underlain by sandstone bedrock at approximately 100 feet below ground surface.

Hydrology

The nearest surface water is the Wolf River, which exists approximately 225 feet to the west of the subject property.

Hydrogeology

Based on the local topography, groundwater is expected to exist at approximately 5 to 10 feet below ground surface. Based on groundwater elevations collected during the Phase 3 Investigation, local groundwater flow is generally toward the west.

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 assist in the investigation.

Drilling Project

METCO has proposed 12 to 14 boreholes to be completed on/off site. METCO has also proposed 4 to 5 monitoring wells to be installed on/off site. METCO also plans to use the three existing monitoring wells (TRC-11-1, -11-2, and -11-3) for laboratory analysis. Three wells associated with the PDK propertied site (TRC-12-1, -12-2, and -12-3) may also be used for water level elevations only.

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 surface for analysis.

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

HNU 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 HNU probe is inserted into the plastic bag halfway between the sample and the highest meter response recorded. The samples are screened with a MODEL HW-101 HNU Meter equipped with a 10.2 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.

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.

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 variances needed at this time.

SCHEDULE FOR INVESTIGATION PROJECT

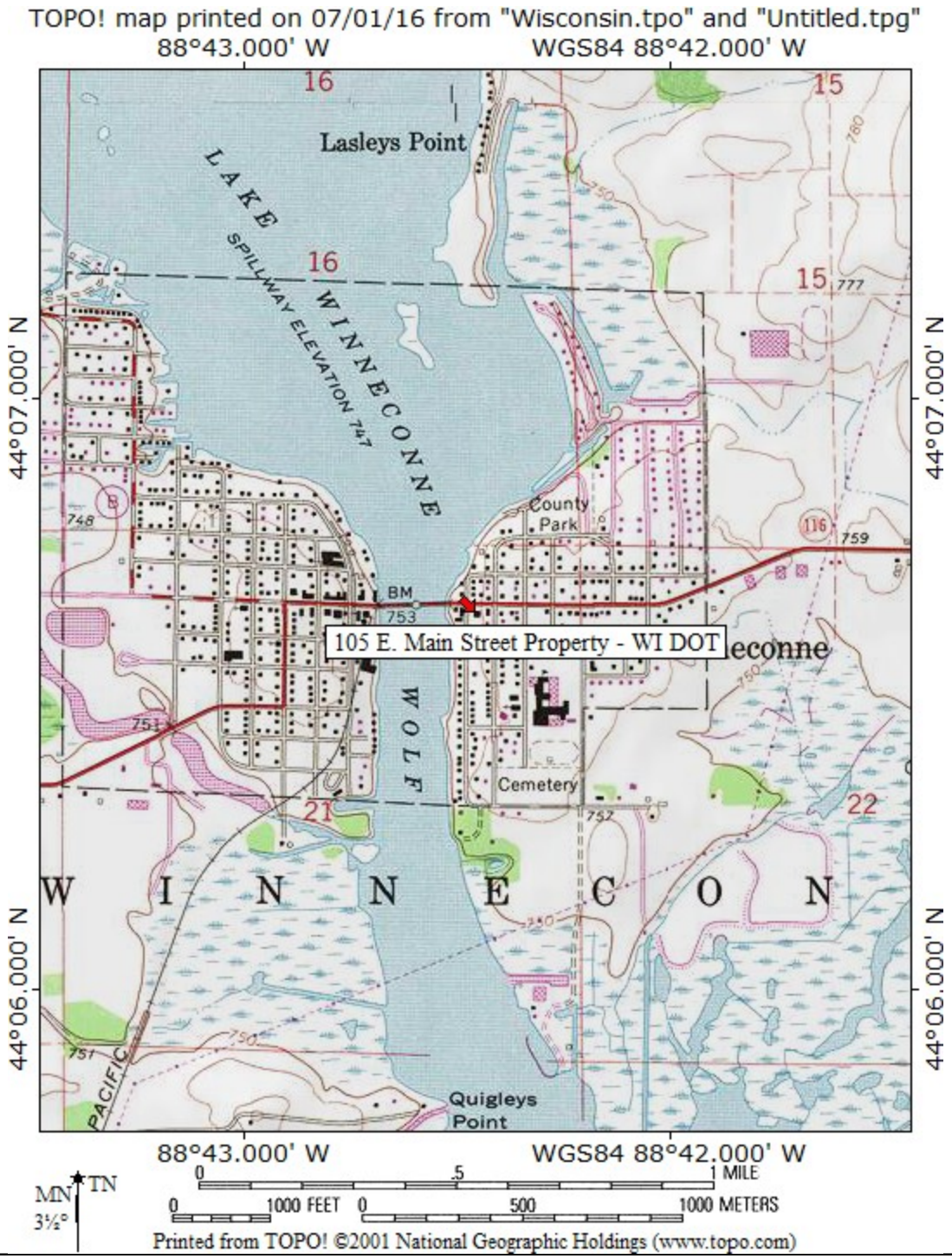
The following is a checklist of activities that have been, or will be completed, concerning the LUST Investigation, along with an estimated time frame. A typical LUST Investigation takes approximately 2 to 6 months. The investigation may take up to 12 months if bedrock or groundwater is contaminated.

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 (7/12/16).
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.

APPENDIX A/SITE MAPS



B.1.a LOCATION MAP CONTOUR INTERVAL 10 FEET
105 E. MAIN STREET PROPERTY – WI DOT – WINNECONNE, WI
SEAMLESS USGS TOPOGRAPHIC MAPS ON CD-ROM

B.I.b
DETAILED SITE MAP
105 EAST MAIN STREET

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Excellence through experience

WINNECONNE, WISCONSIN

DRAWN BY: ED
DATE: 08/05/2015

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

= PROPERTY BOUNDARY

SCALE:
1 INCH = 30 FEET
0 15 30

- = MONITORING WELL LOCATION (DOT PHASE 3)
- = GEOPROBE BORING/TEMPORARY WELL LOCATION (ABANDONED - DOT PHASE 2)
- = GEOPROBE BORING LOCATION (DOT PHASE 2/3)
- = TEST PIT - FALK PROPERTY - 1991
- = PROPOSED MONITORING WELL LOCATION
- = PROPOSED GEOPROBE BORING LOCATION

MAIN STREET/HIGHWAY 116

WOLF RIVER

FMR PUMPS

TP-4
TP-3
AREA OF REMOVED GASOLINE USTS
TP-1
GP-9-3/ TW-9-3
TP-2

FALK PROPERTY
CLOSED LUST SITE
21 E MAIN STREET
BRRTS# 03-71-001089

GP-9-2/ TW-9-2

GP-9-4

GP-9-1/ TW-9-1

S IST AVENUE

APPROXIMATE LOCATION OF FORMER PUMP ISLAND

ESTIMATED LOCATION OF REMOVED GASOLINE USTS

B-11-2/ MW-11-2

GP-11-2/ TRC-11-2

B-11-1/ MW-11-1

GP-11-1/ TRC-11-1

B-11-3/ MW-11-3

AI AUTO SALES
105 E MAIN STREET
BRRTS# 03-71-562271

RESIDENCE
113 E MAIN STREET

GP-12-3/ TRC-12-3

B-12-2

PDK PROPERTIES
OPEN ERP SITE
115-119 E MAIN STREET
BRRTS# 02-71-562227

GP-12-2/ TRC-12-2

B-12-1/ MW-12-1

GP-12-1/ TRC-12-1

GP-11-3/ TRC-11-3

GRAVEL LOT FOR
SCHOOL BUS PARKING
24 S 2ND AVENUE

S 2ND AVENUE

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

APPENDIX C/LUST SAMPLING GUIDELINES

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_2SO_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_2SO_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_2SO_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_2SO_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_2SO_4	28 days
Organic Carbon SW846 9060/ EPA 415.1	40 ml Glass	4°C, pH<2 with H_2SO_4 or HCL	28 days
Phenol, Total EPA 420.1	1 Liter Glass	4°C, pH<2 with H_2SO_4	28 days
Phosphorus, Total EPA 365.3	250 mL HDPE	4°C, pH<2 with H_2SO_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
Semivolatile 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.

APPENDIX D/WDNR DOCUMENTS

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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!	*Type BRRTS No. Here (If Known). Assess groundwater levels separately.*
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			Re-assess if Cr-VI present
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-Dichloropropene (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			

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.

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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		
2,4,5-Trichlorophenoxypropionic acid (2,4,5-TP/Silvex)	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		
Trimethylbenzenes (1,2,4- and 1,3,5- 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.

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.

Residential setting. Not-To-Exceed D-C RCLs from web-calculator at: *http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search* (Chicago as climatic zone). Basis: ca

= cancer; **nc** = non-cancer; **Csat** = soil saturation concentration; **ceiling** = 10%.

------> 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:

[redacted]

Contaminant	CAS Number	NC RCL (mg/kg)	C RCL (mg/kg)	Not-To-Exceed D-C RCL (mg/kg)	Basis	INPUT Site Data (mg/kg)	Comparison / Hazard Index / Cumulative Cancer Risk: Flag E = Individual Exceedance!	Hazard Quotient (HQ) from Data	Target CR used: 1.00E-06 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

[redacted]

To Pass, data must meet all these criteria: Exceedance Count = 0 | HI 1.00E+00 | ≤ Cumulative CR ≤ 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 (mg/kg-day)$^{-1}$	SFO Ref	Inhalation Unit Risk (ug/m^3)$^{-1}$	IUR Ref	Chronic RfD (mg/kg-day)	Chronic RfD Ref	Chronic RfC (mg/m^3)	Chronic RfC Ref
Benzene	71-43-2	No	Yes	5.50E-02	I	7.80E-06	I	4.00E-03	I	3.00E-02	I
Dibromoethane, 1,2-	106-93-4	No	Yes	2.00E+00	I	6.00E-04	I	9.00E-03	I	9.00E-03	I
Dichloroethane, 1,2-	107-06-2	No	Yes	9.10E-02	I	2.60E-05	I	6.00E-03	S	7.00E-03	P
Ethylbenzene	100-41-4	No	Yes	1.10E-02	C	2.50E-06	C	1.00E-01	I	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	I	-	
Anthracene	120-12-7	No	Yes	-		-		3.00E-01	I	-	
Benz[a]anthracene	56-55-3	Yes	Yes	7.30E-01	W	1.10E-04	C	-		-	
Benzo(j)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	I	-	
Fluorene	86-73-7	No	Yes	-		-		4.00E-02	I	-	
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	I	-	
Naphthalene	91-20-3	No	Yes	-		3.40E-05	C	2.00E-02	I	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	I	-	
Toluene	108-88-3	No	Yes	-		-		8.00E-02	I	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	S	-	
Xylenes	1330-20-7	No	Yes	-		-		2.00E-01	I	1.00E-01	I

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	GIABS	ABS	RBA	Volatilization Factor (m^3/kg)	Soil Saturation Concentration (mg/kg)	Particulate Emission Factor (m^3/kg)	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)
Benzene	1	-	1	5.10E+03	1.82E+03	1.56E+09	1.26E+01	-	1.84E+00	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(j)fluoranthene	1	0.13	1	-	-	1.56E+09	5.79E-01	1.58E+00	3.98E+04	4.24E-01
Benzo[a]pyrene	1	0.13	1	-	-	1.56E+09	2.10E-02	6.29E-02	1.44E+03	1.57E-02
Benzo[b]fluoranthene	1	0.13	1	-	-	1.56E+09	2.10E-01	6.29E-01	1.44E+04	1.57E-01
Benzo[k]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[a,h]anthracene	1	0.13	1	-	-	1.56E+09	2.10E-02	6.29E-02	1.32E+03	1.57E-02
Dibenzo(a,e)pyrene	1	0.13	1	-	-	1.56E+09	5.79E-02	1.58E-01	3.98E+03	4.24E-02
Dimethylbenz(a)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-cd]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	-	-	5.52E+00	5.52E+00
Nitropyrene, 4-	1	0.13	1	-	-	1.56E+09	5.79E-01	1.58E+00	3.98E+04	4.24E-01
Pyrene	1	0.13	1	3.43E+06	-	1.56E+09	-	-	-	-
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	-	-	-	-

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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	Ingestion SL Child THQ=1 (mg/kg)	Dermal SL Child THQ=1 (mg/kg)	Inhalation SL Child THQ=1 (mg/kg)	Noncarcinogenic SL Child THI=1 (mg/kg)	Ingestion SL Adult THQ=1 (mg/kg)	Dermal SL Adult THQ=1 (mg/kg)	Inhalation SL Adult THQ=1 (mg/kg)	Noncarcinogenic SL Adult THI=1 (mg/kg)	Screening Level (mg/kg)
Benzene	3.13E+02	-	1.60E+02	1.06E+02	3.34E+03	-	1.60E+02	1.52E+02	1.60E+00 ca*
Dibromoethane, 1,2-	7.04E+02	-	1.17E+02	1.00E+02	7.51E+03	-	1.17E+02	1.15E+02	5.00E-02 ca
Dichloroethane, 1,2-	4.69E+02	-	4.82E+01	4.37E+01	5.01E+03	-	4.82E+01	4.77E+01	6.52E-01 ca*
Ethylbenzene	7.82E+03	-	8.53E+03	4.08E+03	8.34E+04	-	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	6.38E+01 ca
Acenaphthene	4.69E+03	1.52E+04	-	3.59E+03	5.01E+04	9.12E+04	-	3.23E+04	3.59E+03 nc
Anthracene	2.35E+04	7.61E+04	-	1.79E+04	2.50E+05	4.56E+05	-	1.62E+05	1.79E+04 nc
Benz[a]anthracene	-	-	-	-	-	-	-	-	1.57E-01 ca
Benzo(j)fluoranthene	-	-	-	-	-	-	-	-	4.24E-01 ca
Benzo[a]pyrene	-	-	-	-	-	-	-	-	1.57E-02 ca
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	1.57E-01 ca
Benzo[k]fluoranthene	-	-	-	-	-	-	-	-	1.57E+00 ca
Chrysene	-	-	-	-	-	-	-	-	1.57E+01 ca
Dibenz[a,h]anthracene	-	-	-	-	-	-	-	-	1.57E-02 ca
Dibenzo(a,e)pyrene	-	-	-	-	-	-	-	-	4.24E-02 ca
Dimethylbenz(a)anthracene, 7,12-	-	-	-	-	-	-	-	-	4.59E-04 ca
Fluoranthene	3.13E+03	1.01E+04	-	2.39E+03	3.34E+04	6.08E+04	-	2.15E+04	2.39E+03 nc
Fluorene	3.13E+03	1.01E+04	-	2.39E+03	3.34E+04	6.08E+04	-	2.15E+04	2.39E+03 nc
Indeno[1,2,3-cd]pyrene	-	-	-	-	-	-	-	-	1.57E-01 ca
Methylnaphthalene, 1-	5.48E+03	1.77E+04	-	4.18E+03	5.84E+04	1.06E+05	-	3.77E+04	1.76E+01 ca
Methylnaphthalene, 2-	3.13E+02	1.01E+03	-	2.39E+02	3.34E+03	6.08E+03	-	2.15E+03	2.39E+02 nc
Naphthalene	1.56E+03	5.07E+03	2.09E+02	1.78E+02	1.67E+04	3.04E+04	2.09E+02	2.05E+02	5.52E+00 ca*
Nitropyrene, 4-	-	-	-	-	-	-	-	-	4.24E-01 ca
Pyrene	2.35E+03	7.61E+03	-	1.79E+03	2.50E+04	4.56E+04	-	1.62E+04	1.79E+03 nc
Toluene	6.26E+03	-	3.23E+04	5.24E+03	6.67E+04	-	3.23E+04	2.18E+04	5.24E+03 sat
Trimethylbenzene, 1,2,4-	-	-	8.34E+01	8.34E+01	-	-	8.34E+01	8.34E+01	8.34E+01 nc
Trimethylbenzene, 1,3,5-	7.82E+02	-	-	7.82E+02	8.34E+03	-	-	8.34E+03	7.82E+02 sat
Xylenes	1.56E+04	-	8.64E+02	8.18E+02	1.67E+05	-	8.64E+02	8.59E+02	8.18E+02 sat

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(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 recr. (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

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

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 T able 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, boron, 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

APPENDIX E/PROJECT DOCUMENTS

1.0 SITE DESCRIPTION

A1 Auto Sales, Inc. / Steve's Marine Service (105 E. Main Street) is located near the southeast quadrant of the intersection of E. Main Street (STH 116) and 1st Avenue [hereafter referred to as the site] (see Figure 3.1, Attachment A). The site is part of the northeast ¼ of the northwest ¼ of Section 21, Township 19 North, Range 15 East, in the Village of Winneconne, Winnebago County, Wisconsin. According to the Winnebago County GIS Parcel Profiler Site, the site is currently owned by Steven Brooks.

Based on Himalayan's inspection of the site on July 30, 2013, the site is utilized as an auto and boat repair facility (see Photographs, Attachment E).

The predominant land surface at the site is a concrete covered parking lot on the northwest side of the property, with a gravel driveway on the southern side of the building. The eastern portion of the site contains the repair building.

The land use surrounding the site is generally commercial properties.

2.0 SITE HISTORY - 105 E Main St

In August 2012, Himalayan performed a Phase 1 Hazardous Materials Assessment (HMA) of the project corridor and identified the site at 105 E. Main Street as one of the sites with hazardous material concerns [Ref. 2]. Based on the information obtained from the Phase 1 HMA, the site was previously utilized as an auto repair facility, a former re-sale facility, a boat repair facility, a small engine repair facility, and an auto dealership.

According to Himalayan's personal interviews with the former and current site owners, gas pumps and tanks associated with the former auto dealership on site from the 1950s to the 1970s, were removed from the northwest portion of the site approximately 25 years ago. Inspection of historical aerial photographs from the 1960's and 1970's also indicate the presence of a pump island in this same area. According to the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) storage tank records, no tanks are registered to the site [Ref. 3].

Based on the age of the building (at least 1950s), potential asbestos containing materials (ACM) and lead based paint (LBP) may be present in the building on site.

3.0 PURPOSE AND PROPOSED ACQUISITION/CONSTRUCTION

The purpose of this Phase 2 HMI was to identify the potential presence and nature of contamination at the site. The Phase 2 HMI was performed in general accordance with FDM Procedure 21-35-10

Falk Property | 105 E Main | PDK Properties

Table 1
Summary of Soil Analytical Results
Phase 3, STH 116 (Wolf River Bridge)
Winneconne, WI
WISDOT ID #6190-17-00

ANALYTE		Site 5		Site 6						Site 9								Site 11						Site 12						NR 720 RCLs FOR SOIL[4]			
		GP5-1	GP5-1	GP6-1	GP6-1	GP6-2	GP6-2	GP6-3	GP6-3	GP9-1	GP9-1	GP9-2	GP9-2	GP9-3	GP9-3	GP9-4	GP9-4	GP11-1	GP11-1	GP11-2	GP11-2	GP11-3	GP11-3	GP12-1	GP12-1	GP12-2	GP12-2	GP12-3	GP12-3				
		2.5-5	10-12.5	5-7.5	12.5-15	2.5-5	7.5-10	5-7.5	12.5-15	2.5-5	7.5-10	5-7.5	7.5-10	2.5-5	7.5-10	5-7.5	10-12.5	2.5-5	7.5-10	2.5-5	12.5-15	5-7.5	12.5-15	2.5-5	12.5-15	5-7.5	12.5-15	10-12.5	17.5-20				
DATE		9/17/2014	9/17/2014	9/16/2014	9/17/2014	9/17/2014	9/17/2014	9/17/2014	9/17/2014	9/17/2014	9/17/2014	9/16/2014	9/17/2014	9/17/2014	9/17/2014	9/17/2014	9/17/2014	9/17/2018	9/17/2018	9/18/2014	9/18/2014	9/18/2014	9/18/2014	9/18/2014	9/18/2014	9/18/2014	9/18/2014	9/18/2014	9/18/2014				
PID	PPM	1.3	0.1	126.7	0.5	1.2	10.8	0.8	1.1	28.1	0.8	0.7	0.3	1.0	0.8	0.9	1.7	1.1	1.7	2.0	10.7	4.3	5.1	1.8	6.3	1.8	2.7	54.2	659.2				
DRO	mg/kg	—	—	448	1.6J	38.4	9.8	31.1	6.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	<0.77	0.76J	0.80J	1.0J	0.83J	1.1J	-	-	-	-
GRO	mg/kg	—	—	—	—	—	—	—	—	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	—	—	—	—	—	—	<2.5	<2.5	<2.5	<2.5	4.0J	20.5	-	-	-	-
VOCs																																	
ETHYLBENZENE	µg/kg	<25	<25	<50	<25	<25	<26	<25	<25	<26	<26	<25	<25	<25	<25	<25	<25	<25	474	<26	<25	<25	<28	<25	<25	<25	<25	<100	<500	1,570	7,470	37,000	-
ISOPROPYLBENZENE (CUMENE)	µg/kg	<25	<25	<50	<25	<25	<26	<25	<25	<26	<26	<25	<25	<25	<25	<25	<25	<25	162	<25	<25	<25	<26	<25	<25	<25	<25	<100	<500	-	268,000	268,000	-
TRICHLOROETHYLENE	µg/kg	<25	<25	<50	<25	<25	<25	<25	<25	<26	<26	<25	<25	86.6	579	<25	49.7J	<25	<25	<25	430	<25	522	<25	191	<25	<25	8360	61300	3.6	1,260	8,810	-
NAPHTHALENE	µg/kg	<40	<40	<80	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	238J	<40	<40	<40	<46	<40	<40	<40	<40	<160	<801	659	5,150	26,000	-
1,2,4-TRIMETHYLBENZENE	µg/kg	<25	<25	<50	<25	39.0J	<25	<25	<25	<26	<26	<25	<25	<25	<25	<25	<25	<25	<25	46.6J	<25	<25	<25	<26	<25	<25	<25	<25	<100	<500	1,107	818,000	818,000	-
1,3,5-TRIMETHYLBENZENE	µg/kg	<25	<25	<50	<25	<25	<25	<25	<25	<26	<26	<25	<25	<25	<25	<25	<25	<25	730	<25	<25	<25	<25	<26	<25	<25	<25	<25	<100	<500	1,382[6]	69,800	219,000	-
METHYLENE CHLORIDE	µg/kg	35.1J	<25	54.2J	35.3J	<25	31.0J	25.2J	30.9J	<26	<26	<25	<25	<25	<25	<25	<25	<25	<25	<25	27.4J	<25	<25	<26	<25	<26	<26	<25	<100	<600	1,382[6]	182,000	182,000	-
M&P-XYLENE	µg/kg	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<200	<1000	2.6	60,700	1,070,000	-
O-XYLENE	µg/kg	<26	<26	<50	<25	33.0J	<25	<25	<25	<26	<26	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<26	<25	<25	<26	<25	<100	<500	3,840[7]	268,000[7]	268,000[7]	-
N-PROPYLBENZENE	µg/kg	<25	<25	<50	<25	<25	<25	<25	<25	<26	<26	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<26	<25	<25	<26	<25	<100	<500	3,840[7]	268,000[7]	258,000[7]	-
P-ISOPROPYLTOLUENE	µg/kg	<25	<25	572	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	52.1J	<25	<25	<25	<25	<25	<25	<25	<25	<100	<500	-	264,000	264,000	-
SEC-BUTYLBENZENE	µg/kg	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	123	<25	<25	<25	<25	<25	<25	<25	<25	<100	<500	-	162,000	162,000	-
PAHs																																	
ACENAPHTHENE	µg/kg	<8.3	<8.3	<16.7	<8.3	<8.3	<8.3	9.8J	18.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-	3,440,000	33,000,000	-
ACENAPHTHYLENE	µg/kg	10.2J	<7.5	30.8J	<7.5	64.1	<7.5	14.9J	51.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-	-	-	-
ANTHRACENE	µg/kg	30.1	<8.6	65.4	<8.6	146	<8.6	82.2	141	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	197,727	17,200,000	100,000,000	-
BENZO(A)ANTHRACENE	µg/kg	90.4	15.1J	186	<5.8	120	<5.8	173	295	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	470	15	211	-
BENZO(A)PYRENE	µg/kg	93.7	15.5J	174	<6.0	169	<6.0	157	241	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	479	148	1,280	-
BENZO(B)FLUORANTHENE	µg/kg	71.3	12.4J	136	<8.3	233	<8.3	112	183	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-	-	-	-
BENZO(G,H,I)PERYLENE	µg/kg	50.8	10.4J	93.2	<6.3	84.5	<6.3	92.9	142	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-	1,400	21,100	-
BENZO(K)FLUORANTHENE	µg/kg	79.3	16.6J	140	<9.2	136	<9.2	148	200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	144.6	14,800	211,000	-
CHRYSENE	µg/kg	103	23.8	226	<7.7	192	<7.7	188	277	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-	15	211	-
DIBENZ(A,H)ANTHRACENE	µg/kg	14.8J	<6.1	38.1	<6.1	34.4	<6.1	23	35.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	88,877.8	2,290,000	22,000,000	-
FLUORANTHENE	µg/kg	172	42.9	332	<8.3	165	0.6J	417	677	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14,802.7	2,290,000	22,000,000	-
FLUORENE	µg/kg	<8.3	<8.3	<16.7	<8.3	22.2	<8.3	17.6	68.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-	148	2,110	-
INDENO(1,2,3-CD)PYRENE	µg/kg	43.4	8.0J	76.8	<6.3	77.7	<6.3	79.8	126	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-	15,600	53,100	-
1-METHYLNAPHTHALENE	µg/kg	<8.3	<8.3	176	<8.3	139	<8.3	<8.3	<8.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-	220,000	2,200,000	-
2-METHYLNAPHTHALENE	µg/kg	<8.3	<8.3	220	<8.3	174	<8.3	<8.3	<8.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-	-	-	-
PHENANTHRENE	µg/kg	82.8	24.5	252	<8.3	201	8.4J	210	461	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	54,132	1,720,000	-	-
PYRENE	µg/kg	161	35.5	301	<8.3	158	<8.3	365	567	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
METALS																																	
ARSENIC	mg/kg	3.6	4.4	3.6	2.1	6.6	3	2.6	3.9	—	—	—	—	—	—	—	—	2.2	3.2	3.7	2.9	2.6	6.8	3	4.8	3.1	2.7	3.8	3.3	0.58	0.613	2.39	8.0
BARIUM	mg/kg	58.2	67.8	94.9	21.8	79.5	65.2	43	71.2	—	—	—	—	—	—	—	—	37.2	55.2	100	56	38.1	55	50.6	63.5	53.2	52	54	44.9	164.80	13,300	100,000	364
CADMIUM	mg/kg	0.26J	<0.063	1.1	<0.064	0.34J	<0.058	0.26J	<0.061	—	—	—	—	—	—	—	—	<0.057	<0.063	<0.057	<0.056	<0.065	<0.060	<0.058	<0.062	<0.063	<0.060	<0.062	<0.064	0.75	70	799	1.0
CHROMIUM	mg/kg	9.9	18.3	12	8.7	8.8	20.2	8.7	19.1	—	—	—	—	—	—	—	—	14.4	18.6	26.8	18.1	18	16.9	18.8	16.2	14.6	17.5	14.3	12.2	360,000	100,000	100,000	44
LEAD	mg/kg	67.8	7.4	167	3.6	37.4	4.3	70.1	9.6	—	—	—	—	—	—	—	—	4	4.3	14.1	4.4	5.5	3.7	4.7	4.4	3.9	4.2	4.6	3.6	27	400	800	52
MERCURY	mg/kg	0.41	0.007	14.7	0.0032J	0.023	0.0050J	0.12	0.0059J	—	—	—	—	—	—	—	—	0.016	0.0072	0.045	0.0055J	0.0096	0.0054J	0.0079	0.0065	0.0081	0.0046J	0.0038J	0.0045J	0.209	3.13	3.13	-

HAZARD INDEX (CUMULATIVE)[8]	
NON-INDUSTRIAL	--
INDUSTRIAL	--

CANCER RISK (CUMULATIVE)[8]	
NON-INDUSTRIAL	--
INDUSTRIAL	--

1.38	10.13	-	1.0	1.0
0.294	2.158	-	1.0	1.0

5.60E-05	4.80E-05	-	1.0E-05	1.0E-05
9.50E-07	7.00E-06	-	1.0E-05	1.0E-05

Notes:
RCLs = Residual Contaminant Levels
BTV = Background Threshold Value
J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
- = Suggested standard has not been established for this analyte.
-- = Sample was not analyzed for given analyte.
Bold = Indicates that the analyte and/or sample exceeds the NR 720 RCL for direct contact (non-industrial or industrial), or standards for hazard index or cancer risk.
Italics = Indicates that the analyte exceeds the groundwater pathway RCL.

Footnotes:
(1) Only analytes that were detected in at least one sample are shown in the table
(2) Value is the generic RCL for the groundwater pathway.
(3) Value is the generic RCL for exposure by direct contact.
(4) Calculated from USEPA Regional Screening Levels Web Calculator found at http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search using default exposure assumptions listed in NR 720.12(3)
(5) Background threshold value taken from the Wisconsin DNR's NR 720 RCL Spreadsheet
(6) GW Pathway RCL is for combined 1,2,4- and 1,3,5- Trimethylbenzene
(7) GW Pathway and Direct Contact RCL is for combined M,O&P Xylenes
(8) Calculated using WDNR RCL Spreadsheet Calculator (June-14 Update)

Created By: B. Lips 10/14/2014
Checked By: D. Hoek 10/15/2014

Table 2
Summary of Groundwater Analytical Results
Phase 3, STH 116 (Wolf River Bridge)
Winneconne, WI
WISDOT ID #6190-17-00

Falk Property 105 E Main PDK Properties

ANALYTE[1]		WDNR NR 140 GROUNDWATER STANDARDS		WELL ID/DTB (FT BGS)													
				Site 5	Site 8				Site 9			Site 11			Site 12		
				TW5-1	TW8-1	TW8-2	TW8-3	TRC-8-1	TW9-1	TW9-2	TW9-3	TRC-11-1	TRC-11-2	TRC-11-3	TRC-12-1	TRC-12-2	TRC-12-3
				15'	15'	15'	15'	15'	10'	10'	10'	15'	15'	15'	15'	15'	25'
		ES	PAL	9/17/2014	9/17/2014	9/17/2014	9/17/2014	9/22/2014	9/17/2014	9/17/2014	9/14/2014	9/22/2014	9/22/2014	9/22/2014	9/22/2014	9/22/2014	9/22/2014
VOCs																	
BENZENE	µg/L	5	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**35.8**	<5.0	<0.50	<0.50	<0.50	<50.0
N-BUTYLBENZENE	µg/L	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6.5	<5.0	<0.50	<0.50	<0.50	<50.0
1,1-DICHLOROETHENE	ug/L	7	0.7	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	*1.0 J*	<4.1	<0.41	<0.41	<0.41	<41.0
CIS-1,2-DICHLOROETHENE	ug/L	70	7	<0.26	<0.26	<0.26	<0.26	<0.26	0.33 J	<0.26	*9.1*	**137**	<2.6	<0.26	1.1	<0.26	*27.0 J*
TRANS-1,2-DICHLOROETHENE	ug/L	100	20	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	0.32 J	1.3 J	<2.6	<0.26	2.5	<0.26	<25.7
ETHYLBENZENE	ug/L	700	140	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	97.9	<5.0	<0.50	<0.50	<0.50	<50.0
ISOPROPYLBENZENE (CUMENE)	µg/L	-	-	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	11.8	<1.4	<0.14	<0.14	<0.14	<14.3
P-ISOPROPYLTOLUENE	ug/L	-	-	0.58 J	3.8	<0.50	<0.50	146	<0.50	<0.50	<0.50	1.5 J	<5.0	<0.50	<0.50	<0.50	<50.0
METHYL-TERT-BUTYL ETHER	ug/L	60	12	<0.17	<0.17	0.27 J	<0.17	<0.17	<0.17	0.42 J	<0.17	<0.44	<1.7	<0.17	<0.17	<0.17	<17.4
NAPHTHALENE	µg/L	100	10	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	*23.3*	<25.0	<2.5	<2.5	<2.5	<250
N-PROPYLBENZNE	ug/L	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	22.4	<5.0	<0.50	<0.50	<0.50	<50.0
TETRACHLOROETHENE	ug/L	5	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	*4.0*	<5.0	<0.50	<0.50	<0.50	<50.0
TOLUENE	µg/L	800	160	<0.50	0.94 J	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	13.7	<5.0	<0.50	<0.50	<0.50	<50.0
TRICHLOROETHENE	ug/L	5	0.5	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	**53.5**	**130**	**1,030**	**64.8**	**127**	<0.33	**19,600**
1,2,4-TRIMETHYLBENZENE	ug/L	480[3]	96[3]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	3.1	<5.0	<0.50	<0.50	<0.50	<50.0
1,3,5-TRIMETHYLBENZNE	ug/L	480[3]	96[3]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	23.0	<5.0	<0.50	<0.50	<0.50	<50.0
VINYL CHLORIDE	ug/L	0.2	0.02	<0.18	<0.18	<0.18	<0.18	<0.18	**17.1**	<0.18	**8.7**	<0.44	<1.8	<0.18	<0.18	<0.18	<17.6
M&P-XYLENE	ug/L	2000[4]	400[4]	<1.0	<1.0	<1.0	1.3 J	<1.0	<1.0	<1.0	<1.0	19.2	<10.0	<1.0	<1.0	<1.0	<100
O-XYLENE	µg/L	2000[4]	400[4]	<0.50	<0.50	<0.50	0.69 J	<0.50	<0.50	<0.50	<0.50	<1.2	<5.0	<0.50	<0.50	<0.50	<50.0
DISSOLVED METALS																	
ARSENIC, DISSOLVED	µg/L	10	1	<7.2	<7.2	<6.8	<7.2	<7.2	*9.0 J*	**11.7 J**	<7.2	*8.3 J*	<7.2	<7.2	<7.2	<7.2	<7.2
BARIUM, DISSOLVED	µg/L	2000	400	32.6	*574*	122	176	228	287	266	118	108	52.1	116	82.2	123	41.1
CADMIUM, DISSOLVED	µg/L	5	0.5	<0.60	<0.60	<1.0	<0.60	<0.60	*1.8 J*	<0.60	<0.60	<0.60	<0.60	<0.60	*0.63 J*	<0.60	<0.60
CHROMIUM, DISSOLVED	µg/L	100	10	<2.1	<2.1	2.0J	<2.1	<2.1	39	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
LEAD, DISSOLVED	µg/L	15	1.5	*6.5J*	<3.0	*5.7J*	<3.0	*3.6 J*	**198**	*5.5 J*	<3.0	<3.0	<3.0	<3.0	<3.0	*3.4 J*	*3.1 J*
MERCURY, DISSOLVED	µg/L	2	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	*0.25*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
SELENIUM, DISSOLVED	µg/L	50	10	<6.7	<6.7	<6.8	<6.7	<6.7	<6.8	<6.7	<6.7	<6.7	<6.7	<6.7	<6.7	<6.7	<6.7
SILVER, DISSOLVED	µg/L	50	10	<2.7	<2.7	<3.2	<2.7	<2.7	<3.2	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7

Created By: T.Krause 10/14/14
Checked By: D. Haak 10/15/2014

Notes:
ES = NR140 Enforcement Standard
PAL = NR140 Preventative Action Limit
BGS = Below ground surface
J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
B = Analyte was detected in the associated method blank.
- =Suggested standard has not been established for this analyte.
ITALIC = indicates that the analyte exceeds the WDNR NR140 PAL
BOLD = indicates that the analyte exceeds the WDNR NR140 ES

Footnotes:
(1) Only analytes with hits are shown in the graph
(2) Heavy oil free product seen while purging well prior to groundwater sample being taken
(3) NR 140 Groundwater ES and PAL Standard is for combined 1,2,4- and 1,3,5- Trimethylbenzene
(4) Groundwater ES and PAL is for combined M,O&P Xylenes

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105 E Main St

TABLE 2
SOIL QUALITY RESULTS - DETECTED COMPOUNDS
Phase 2 Hazardous Materials Investigation
A1 Auto Sales, Inc. / Steve's Marine Service (105-113 E. Main Street), Winneconne, Winnebago County
Project ID: 6190-17-00

Sample I.D.	B-11-1		B-11-2		B-11-3		Generic NR 720 RCL
Depth (feet)	2-4	8-10	2-4	10-12	2-4	8-10	
Collection Date	7/30/2013		7/30/2013		7/30/2013		
GRO (mg/kg)	<2.7	<3.1	<2.7	<3.1	<2.8	<3.2	100/250*
DRO (mg/kg)	2.9	<0.77	<0.72	<0.82	<0.74	<0.77	100/250*
VOCs (µg/kg)							
Tetrachloroethene	<27.5	169	<26.9	74.7	<25.8	<25.0	NSE
Trichloroethene	<27.5	195	<26.9	162	<25.8	<25.0	NSE
RCRA Metals (mg/kg)							
Arsenic	**4.4**	**4.9**	**4.2**	**4.3**	**1.2 J**	**3.9**	0.039 (b)
Barium	25.9	85.8	51.2	68.8	16.8	73.3	NSE
Cadmium	0.13 J	0.28 J	0.20 J	0.26 J	<0.047	<0.23 J	8 (b)
Chromium	13.0	**22.1**	12.6	**18.5**	6.6	**19.7**	14 (a) (b)
Lead	4.1	5.4	4.3	7.7	1.9	4.9	50 (b)
Mercury	0.017	0.010	0.11	0.016	<0.0032	<0.0076	NSE

Notes:
Analytes detected above the method detection limit (MDL) in at least one sample are included in the Table
GRO= Gasoline Range Organics; DRO= Diesel Range Organics; VOC= Volatile Organic Compounds; TCLP= Toxicity characteristic leaching procedure
RCRA = Resource Conservation and Recovery Act; **Bold** results indicate concentrations exceeding NR 720 or Interim RCLs
mg/kg=milligrams per kilogram and mg/L milligrams per liter=parts per million (ppm); µg/kg=micrograms per kilogram=parts per billion (ppb)
J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit ; NSE = No Standard Established; RCL= Residual
* = RCLs (mg/kg) based on permeability of soils per NR 720 for groundwater protection

Table 2 presents the summary of soil quality results. Also, refer to Figure 3.2, Attachment A for sample locations and analytical results.

Refer to Attachment D for complete laboratory report for each sample.

6.2 Groundwater Samples

Based on the laboratory analytical results of groundwater samples collected from temporary wells MW-11-1, MW-11-2, and MW-11-3, no petroleum constituents were detected in any of the water samples. However, chlorinated solvents were detected in each of the samples. Trichloroethene (18.9 to 383 µg/L) was detected above the NR 140 ES in each of the three samples. Tetrachloroethene was detected above the NR 140 ES in MW-11-1 (7.4 µg/L) and MW-11-2 (21.8 µg/L) and above the NR 140 PAL in MW-11-3 (0.50 J µg/L). Vinyl chloride was detected above the NR 140 ES in MW-11-1 (4.6 µg/L) and MW-11-2 (1.5 J µg/L).

Cis-1,2-dichloroethene was detected in MW-11-1 (11.0 µg/L) and MW-11-2 (19.4 µg/L) above the NR 140 PAL.

Trans-1,2-dichloroethene (0.66 µg/L) and 2-butanone (MEK) (4.4 J µg/) were also detected in MW-11-1, but are below their respective NR 140 PALs.

Four of the eight RCRA metals were detected in the samples. Arsenic (8.3 J µg/L) was identified in MW-11-2, chromium (3.7 J µg/L) was identified in MW-11-3, and lead (3.2 J µg/L) was identified in MW-11-1, and are all above their respective NR 140 PAL. Barium (89.6 to 161 µg/L) was detected below the NR 140 PAL in all samples.

Also refer to Figure 3.3 in Attachment B for the well locations and Attachment D for the laboratory results.

105 E Main St

TABLE 3
GROUNDWATER RESULTS - DETECTED COMPOUNDS
Phase 2 Hazardous Materials Investigation
A1 Auto Sales, Inc. / Steve's Marine Service (105 E. Main Street), Winneconne, Winnebago County
Project ID: 6190-17-00

Sample I.D.	MW-11-1	MW-11-2	MW-11-3	NR 140 ES (µg/L)	NR 140 PAL (µg/L)
Collection Date	7/31/13	7/31/13	7/31/13		
VOCs (µg/L)					
2-Butanone (MEK)	4.4 J	<13.5	<2.7	460	90
cis-1,2-Dichloroethene	*11.0*	*19.4*	<0.42	70	7
trans-1,2-Dichloroethene	0.66 J	<1.9	<0.37	100	20
Tetrachloroethene	**7.4**	**21.8**	*0.50 J*	5	0.5
Trichloroethene	**289**	**383**	**18.9**	5	0.5
Vinyl chloride	**4.6**	**1.5 J**	<0.18	0.2	0.02
RCRA Metals (µg/L)					
Arsenic	<4.2	*8.3 J*	<4.2	10	1
Barium	161	125	89.6	2,000	400
Chromium	<1.4	<1.4	*3.7 J*	5	0.5
Lead	*3.2 J*	<2.7	<2.7	15	1.5

Notes:
Analytes detected above the method detection limit (MDL) in at least one sample are included in the Table
VOCs = Volatile Organic Compounds
RCRA = Resource Conservation and Recovery Act
µg/L = micrograms per liter = parts per billion (ppb)
J = Concentration reported is between the Method Detection Limit and the Limit of Quantitation
Italics results indicate concentrations exceeding NR 140 PAL
Bold results indicate concentrations exceeding NR 140 ES
ES = Enforcement Standard per NR 140; PAL = Preventative Action Limit

6.3 Waste Characterization Sample

A composite soil sample (Proto B-11) was collected from the site for landfill acceptance criteria (Protocol B) to provide waste characterization for potential off-site disposal and/or treatment of contaminated soils at a landfill.

Based on the laboratory analytical results, no cyanide, PCBs, TCLP VOCs, and TCLP Semi-volatiles were detected in the sample. The general chemistry results for the sample included:

PDK Properties

TABLE 2
SOIL QUALITY RESULTS
Phase 2 Hazardous Materials Investigation
Hometown Family Hair Care (119 E. Main Street), Winneconne, Winnebago County
Project ID: 6190-17-00

Sample I.D.	B-12-1		B-12-2		NR 720 RCL / Interim RCL
Depth (feet)	2-4	8-10	2-4	16-18	
Collection Date	7/31/2013		7/31/2013		
GRO (mg/kg)	<3.1	<3.3	<3.1	**401**	250*
DRO (mg/kg)	<0.80	<0.78	<0.87	44.5	250*
PAHs (µg/kg)					
Anthracene	<9.8	<9.7	11.0 J	<9.6	3,000,000
Benzo(a)anthracene	<9.8	<9.7	25.1	<9.6	88
Benzo(a)pyrene	3.9 J	<3.5	**22.0**	<3.4	8.8
Benzo(b)fluoranthene	15.6 J	13.7 J	28.9	13.3 J	88
Benzo(g,h,i)perylene	<9.8	<9.7	10.6 J	<9.6	1,800
Benzo(k)fluoranthene	4.9 J	<3.4	23.1	<3.4	880
Chrysene	<9.8	<9.7	28.7	<9.6	8,800
Fluoranthene	<9.8	<9.7	52.8	<9.6	500,000
1-Methylnaphthalene	<3.4	<3.4	<3.7	5.5 J	23,000
Phenanthrene	<9.8	<9.7	33.8	16.5 J	1,800
Pyrene	<9.8	<9.7	45.3	<9.6	500,000
VOCs (µg/kg)					
Tetrachloroethene	<26.3	<26.6	<26.9	<5,260**	NSE
Trichloroethene	78.2	<26.6	70.1 J	1,410,000	NSE
TCLP (mg/L)					
Tetrachloroethene	NA	NA	NA	127	---
Trichloroethene	NA	NA	NA	12,000	---
RCRA Metals (mg/kg)					
Arsenic	**5.2**	**3.6**	**2.0 J**	**5.2**	0.039
Barium	89.2	62.4	103	61.1	NSE
Cadmium	0.29 J	0.23 J	0.34 J	0.23 J	8
Chromium	**24.8**	**17.5**	**17.0**	**17.4**	14
Lead	7.0	4.9	13.0	4.3	50
Mercury	0.020	0.011	0.086	0.0073 J	NSE

Notes:
Analytes detected above the method detection limit (MDL) in at least one sample are included in the Table
GRO= Gasoline Range Organics; DRO= Diesel Range Organics; VOC= Volatile Organic Compounds; TCLP= Toxicity characteristic leaching procedure
RCRA = Resource Conservation and Recovery Act; **Bold** results indicate concentrations exceeding NR 720 or Interim RCLs
J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
* = RCLs (mg/kg) based on permeability of soils per NR 720 for groundwater protection
**= Tetrachloroethene not detected above the method detection limit; however, it was detected in the TCLP sample

Refer to Attachment D for complete laboratory report for each sample.

6.2 Groundwater Samples

Based on the laboratory analytical results of the groundwater sample collected from temporary well MW-12-1, four VOCs were detected in the sample. Trichloroethene (13.4 µg/L) was detected above the NR 140 ES. Cis-1,2-dichloroethene (2.6 µg/L), trans-1,2-dichloroethene (7.3 µg/L), and methyl tert butyl ether (1.7 µg/L) were detected below the NR 140 PALs in the sample [Ref. 8].

Barium (273 µg/L) was the only RCRA metal detected in the groundwater sample, and is below its NR 140 PAL.

Also refer to Figure 3.3 in Attachment A for the well locations and Attachment D for the laboratory results.

PDK Properties

TABLE 3
GROUNDWATER RESULTS - DETECTED COMPOUNDS
Phase 2 Hazardous Materials Investigation
Hometown Family Hair Care (119 E. Main Street), Winneconne, Winnebago County
Project ID: 6190-17-00

Sample I.D.	MW-12-1	NR 140 ES (µg/L)	NR 140 PAL (µg/L)
Collection Date	7/31/13		
VOCs (µg/L)			
cis-1,2-dichloroethene	2.6	70	7
trans-1,2-dichloroethene	7.3	100	20
Methyl tert butyl ether	1.7	60	12
Trichloroethene	**13.4**	5	0.5
RCRA Metals (µg/L)			
Barium	273	2,000	400

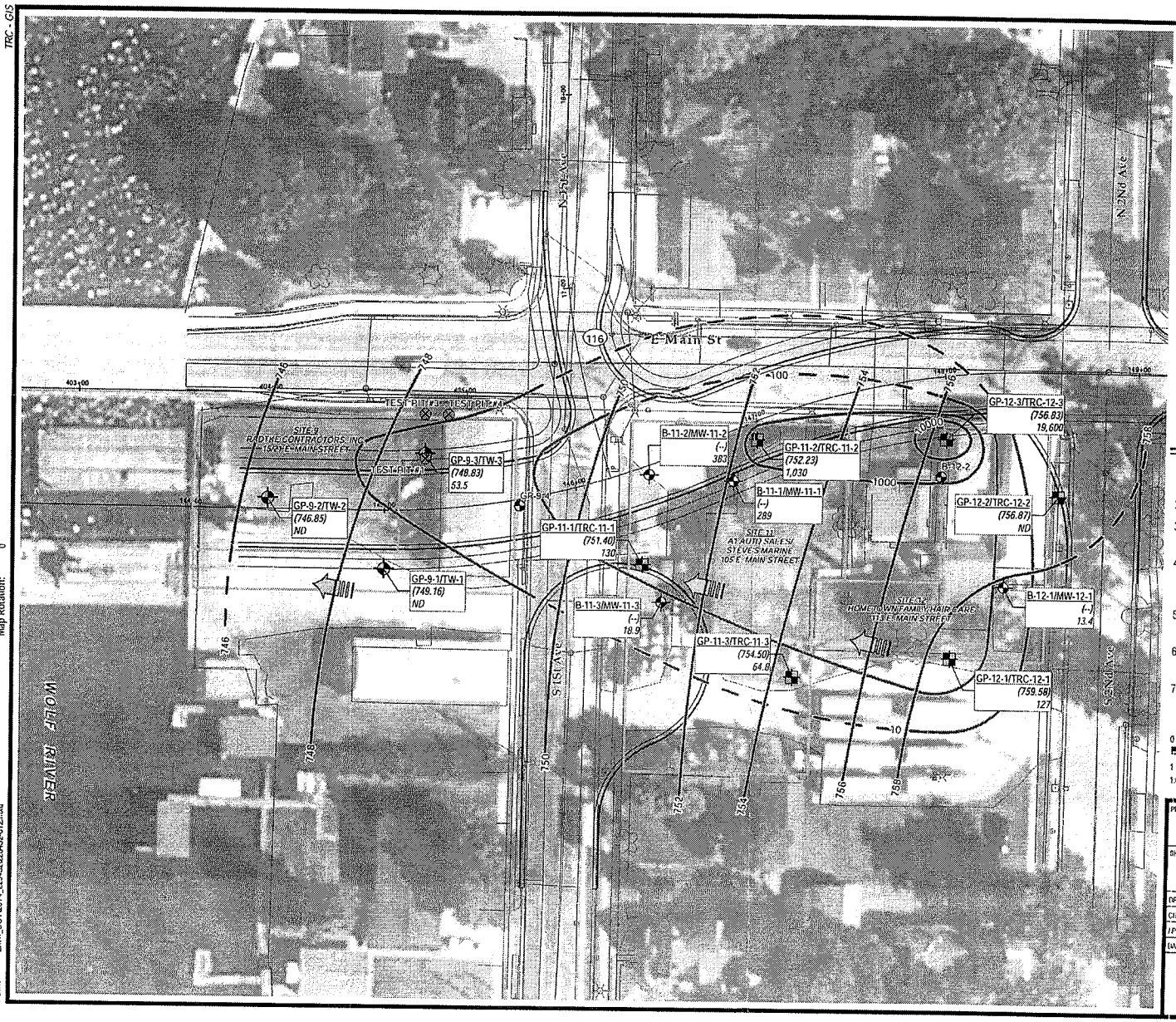
Notes:
Analytes detected above the method detection limit (MDL) in at least one sample are included in the Table
VOCs = Volatile Organic Compounds
RCRA = Resource Conservation and Recovery Act
µg/L = micrograms per liter = parts per billion (ppb)
Italics results indicate concentrations exceeding NR 140 PAL
Bold results indicate concentrations exceeding NR 140 ES
ES = Enforcement Standard per NR 140; PAL = Preventative Action Limit

6.3 Waste Characterization Sample

A composite soil sample (Proto B-12) was collected from the site for landfill acceptance criteria (Protocol B) to provide waste characterization for potential off-site disposal and/or treatment of contaminated soils at a landfill.

Based on the laboratory analytical results, no sulfide, PCBs, and TCLP Semi-Volatiles were detected in the sample. The general chemistry results for the sample included: mercury 0.00038 mg/L, trichloroethene 0.150 mg/L, flashpoint >210 deg. F, pH 8.6, specific gravity 1.7, and reactive cyanide 0.0050 J mg/kg. No free liquids were encountered in the sample.

Table 4 presents the summary of soil quality results for the composite sample. See Attachment D for complete laboratory report.



LEGEND

- TRC SOIL BORING / 2" NR 141MONITORING WELL
- TRC SOIL BORING / TEMPORARY WELL
- TRC SOIL BORING
- HISTORIC SOIL BORING / TEMPORARY WELL
- HISTORIC SOIL BORING
- PREVIOUS INVESTIGATION TEST PITS
- GROUNDWATER CONTAMINATION ISOCONCENTRATION CONTOUR (TCE PAL - 0.5µg/L, DASHED WHERE INFERRED)
- GROUNDWATER ELEVATION CONTOUR (2 FT INTERVAL, DASHED WHERE INFERRED)
- PROPERTY BOUNDARY
- GROUNDWATER FLOW DIRECTION

SAMPLE ID
(GROUNDWATER ELEVATION, FT)
TCE CONCENTRATION (µg/L)

NOTES

1. BASE MAP IMAGERY FROM ESRI/MICROSOFT, "WORLD IMAGERY", WEB BASEMAP SERVICE LAYER, 2011.
2. CONSTRUCTION DESIGN WORK SUPPLIED BY WisDOT.
3. PROPERTY BOUNDARIES SUPPLIED BY WINNEBAGO COUNTY GIS DEPARTMENT.
4. HISTORIC BORING / WELL LOCATIONS AND PROPERTY BOUNDARIES DIGITIZED FROM HIMALAYAN CONSULTANTS, LLC PHASE 1 & 2 FIGURES, LOCATIONS ARE APPROXIMATE.
5. TCE ISOCONCENTRATION DEVELOPED USING LOGARTHIMIC SCALE.
6. TEMPORARY WELL GROUND SURFACE ELEVATION IS DERIVED FROM 10 METER DIGITAL ELEVATION MODEL.
7. TCE PAL - 0.5 µg/L, ES - 5.0 µg/L

0 50 100 Feet
1 " = 50 '
1:600

N

PROJECT:	WISDOT ID# 6190-17-00 STH 116 WINNECONNE, WISCONSIN		
SHEET TITLE:	GROUNDWATER FLOW AND CONTAMINATION CONCENTRATION MAP SEPTEMBER 2014		
DRAWN BY:	RHODE B	SCALE	PROJ. NO. 223432
CHECKED BY:	SIEWERT D	1" = 50'	FILE NO. 223432-012.mxd
APPROVED BY:	HAAK D	DATE PRINTED	FIGURE 4
DATE:	NOVEMBER 2014		

TRC
708 Heartland Trail, Suite 3001
Madison, WI 53717
Phone: 608.826.3600
www.trcsolutions.com

TRC - GIS
Coordinate System: NAD 1983 HARN WISCRS Winnebago County Feet (Foot US)
Map Rotation: 0
Saved By: BRHODE on 11/6/2014, 11:36:26 AM
Path: E:\WI_DOT\2014_223432\223432-012.mxd

LOG OF TEST BORING

Himalayan Consultants, LLC

Project: STH 116 - Winneconne Bridge P2
Winnebago County, WI
Location: Site #11

Boring No.: B-11-1
Surface Elevation:
Job No.:
Sheet: 1 of 2

W156 N11357 Pilgrim Rd, Germantown, WI 53022 Tel: (262) 502-0066 Fax: (262) 502-0077

SAMPLE No.	Type	Recov.	Moist.	N-Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES q_{est} (q_u) tsf	W %	LL	PL	DD pcf	PID ppm
					0	Concrete pavement						
			D		2	Reddish brown clayey sand, with some small and large gravel (fill)						0
						Lab Sample (2' - 4')						
			D			Very light brown fine grain sand, with some small and large gravel (fill)						
					4	Dark brown to black silty sand, with some partially decomposed wood fragments (fill)						0
1	GP	30"	M									
			M			Dark gray to black sandy clay, with trace gravel, wood fibers, and glass fragments (fill)						
					6	Red medium plasticity clay, with little small and large gravel						0
			M		8							0
						Lab Sample (8' - 10')						
2	GP	60"			10	Red medium plasticity clay, with little small and large gravel						0

WATER LEVEL OBSERVATIONS

While Drilling
Upon Completion of Drilling: Dry
Time After Drilling: 24 hours
Depth to Water: 14.2
Depth to Cave-in

GENERAL NOTES

Start: 7/30/13 Complete: 7/31/13
Crew Chief: AS Rig: B-57
Drilling Method: Geoprobe

NOTE: Soil stratification lines represent approximate boundaries between soil types and transitions may be gradual.

LOG OF TEST BORING

Himalayan Consultants, LLC

Project STH 116 - Winneconne Bridge P2
Winnebago County, WI
Location Site #11

Boring No. B-11-1
Surface Elevation
Job No.
Sheet 2 of 2

W156 N11357 Pilgrim Rd, Germantown, WI 53022 Tel: (262) 502-0066 Fax: (262) 502-0077

SAMPLE No.	Type	Recov.	Moist.	N-Value	Depth (ft)	VISUAL CLASSIFICATION and Remarks	q_{est} (q_u) tsf	W %	LL	PL	DD pcf	PID ppm
					12							0
			M									
					14							0
3	GP	42"				Red medium plasticity clay, with little small and large gravel						
					16							0
			M									
						Gravel seam						
					18	Red medium plasticity clay, with little small and large gravel						0
			M									
4	GP	60"										
					20	End of Boring = 20.0 Feet						0
					22							
					24							

NOTE: Soil stratification lines represent approximate boundaries between soil types and transitions may be gradual.

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT
Form 3300-5 2/2000

Notice: Please complete Form 3300-5 and return it to the appropriate DNR office and bureau. Completion of this report is required by chs. 160, 281, 283, 289, 291, 292, 293, 295 and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295 and 299, Wis. Stats., failure to file this form may result in a 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 the instructions for more information.

Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other _____

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County

Common Well Name B-11-1 Gov't Lot (If applicable)

Grid Location NE 1/4 of NE 1/4 of Sec. 21 ; T. 19 N; R. 15 ☒ E ☐ W

_____ ft. ☐ N. ☐ S., _____ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat. _____ Long. _____ or

St. Plane _____ ft. N. _____ ft. E. ☐ S ☐ C ☐ N Zone

Reason For Abandonment: Temporary well

WI Unique Well No. of Replacement Well:

(2) FACILITY / OWNER NAME

Facility Name: Site #11

Facility ID | License/Permit/Monitoring No.

Street Address of Well: 105 E. Main Street

City, Village or Town: Winneconne

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date 7/30/13

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

If a Well Construction Report is available, please attach.

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (Specify) Direct Push

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 20.0 (From groundsurface) Casing Diameter (in.) _____

Casing Depth (ft.) _____

Lower Drillhole Diameter (in.) _____

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown
If Yes, To What Depth? _____ Feet

Depth to Water (Feet) 14.2 Feet

(4) PUMP, LINER, SCREEN, CASING & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☒ Yes	☐ No	☐ Not Applicable
Casing Left in Place?	☐ Yes	☐ No	

Was casing Cut Off Below Surface? ☐ Yes ☐ No
Did Sealing Material Rise to Surface? ☒ Yes ☐ No
Did Material Settle After 24 Hours? ☐ Yes ☒ No
If Yes, Was Hole Retopped? ☐ Yes ☐ No

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Screened & Poured (Bentonite Chips) ☒ Other (Explain) Gravity

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry (11 lb./gal. wt.)
☐ Bentonite-Sand Slurry " "
☒ Bentonite Chips

For monitoring wells and monitoring well boreholes only
☐ Bentonite Pellets
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Material Used To Fill Well/Drillhole	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
3/8" Chipped Bentonite	Surface	20	25 lbs	

(6) Comments _____

(7) Name of Person or Firm Doing Sealing Work: Horizon | Date of Abandonment: 7/31/13

Signature of Person Doing Work | Date Signed

Street or Route: 1402 7th Avenue | Telephone Number: 262-377-9060

City, State, Zip Code: Grafton, WI 53024

FOR DNR OR COUNTY USE ONLY

Date Received | Noted By

Comments

LOG OF TEST BORING

Himalayan Consultants, LLC

Project: STH 116 - Winneconne Bridge P2
Winnebago County, WI
Location: Site #11

Boring No. B-11-2
Surface Elevation
Job No.
Sheet 1 of 2

W156 N11357 Pilgrim Rd, Germantown, WI 53022 Tel: (262) 502-0066 Fax: (262) 502-0077

SAMPLE No.	Type	Recov.	Moist	N-Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES q_{est} (q_u) tsf	W %	LL	PL	DD pcf	PID ppm
					0	Concrete pavement						
			D			Red clayey sand with little small and large gravel (fill)						
			M		2	Red sandy clay (fill)						0
			M		4	Dark brown to black non-plastic silty clay, with little partially decomposed wood fragments, and trace large gravel (fill) Lab Sample (2' - 4')						0
1	GP	36"										
			M		6	Dark brown to black non-plastic silty clay, with little partially decomposed wood fragments, and trace large gravel (fill)						0
						Large and small gravel with some medium to coarse grain brown sand, and possible red brick fragments (fill)						
			M		8	Red low plasticity clay with little small and large gravel						0
2	GP	60"										
			M		10	Red low plasticity clay with little small and large gravel Lab Sample (10' - 12')						0

WATER LEVEL OBSERVATIONS

While Drilling
Upon Completion of Drilling: Dry
Time After Drilling: 24 hours
Depth to Water: 7.3 feet
Depth to Cave-in

GENERAL NOTES

Start: 7/30/13 Complete: 7/31/13
Crew Chief: AS Rig: B-57
Drilling Method: Geoprobe

NOTE: Soil stratification lines represent approximate boundaries between soil types and transitions may be gradual.

LOG OF TEST BORING

Himalayan Consultants, LLC

Project: STH 116 - Winneconne Bridge P2
Winnebago County, WI
Location: Site #11

Boring No.: B-11-2
Surface Elevation:
Job No.:
Sheet: 2 of 2

W156 N11357 Pilgrim Rd, Germantown, WI 53022 Tel: (262) 502-0066 Fax: (262) 502-0077

SAMPLE No.	Type	Recov.	Moist.	N-Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES q_{est} (q_u) tsf	W %	LL	PL	DD pcf	PID ppm
					12							0
			M		14							0
3	GP	60"				Red low plasticity clay with little small and large gravel						
					16							0
			M		18							0
4	GP	60"										
					20	End of Boring = 20.0 Feet						0
					22							
					24							

NOTE: Soil stratification lines represent approximate boundaries between soil types and transitions may be gradual.

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT
Form 3300-5 2/2000

Notice: Please complete Form 3300-5 and return it to the appropriate DNR office and bureau. Completion of this report is required by chs. 160, 281, 283, 289, 291, 292, 293, 295 and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295 and 299, Wis. Stats., failure to file this form may result in a 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 the instructions for more information.

Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other _____

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County

Common Well Name B-11-2 Gov't Lot (If applicable)

Grid Location NE 1/4 of NE 1/4 of Sec. 21 ; T. 19 N; R. 15 ☒ E ☐ W

_____ ft. ☐ N. ☐ S., _____ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat. _____ Long. _____ or

St. Plane _____ ft. N. _____ ft. E. S ☐ C ☐ N ☐ Zone

Reason For Abandonment: Temporary well

WI Unique Well No. of Replacement Well:

(2) FACILITY / OWNER NAME

Facility Name: Site #11

Facility ID | License/Permit/Monitoring No.

Street Address of Well: 105 E. Main Street

City, Village or Town: Winneconne

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date 7/30/13

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

If a Well Construction Report is available, please attach.

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (Specify) Direct Push

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 20.0 (From groundsurface) Casing Diameter (in.) _____

Casing Depth (ft.) _____

Lower Drillhole Diameter (in.) _____

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown
If Yes, To What Depth? _____ Feet

Depth to Water (Feet) 7.3 Feet

(4) PUMP, LINER, SCREEN, CASING & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☒ Yes	☐ No	☐ Not Applicable
Casing Left in Place?	☐ Yes	☐ No	
Was casing Cut Off Below Surface?	☐ Yes	☐ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Screened & Poured (Bentonite Chips) ☒ Other (Explain) Gravity

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry (11 lb./gal. wt.)
☐ Bentonite-Sand Slurry " "
☒ Bentonite Chips

For monitoring wells and monitoring well boreholes only
☐ Bentonite Pellets
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Material Used To Fill Well/Drillhole	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
3/8" Chipped Bentonite	Surface	20	25 lbs	

(6) Comments _____

(7) Name of Person or Firm Doing Sealing Work: Horizon | Date of Abandonment: 7/31/13

Signature of Person Doing Work | Date Signed

Street or Route: 1402 7th Avenue | Telephone Number: 262-377-9060

City, State, Zip Code: Grafton, WI 53024

FOR DNR OR COUNTY USE ONLY

Date Received | Noted By

Comments

LOG OF TEST BORING

Himalayan Consultants, LLC

W156 N11357 Pilgrim Rd, Germantown, WI 53022 Tel: (262) 502-0066 Fax: (262) 502-0077

Project: STH 116 - Winneconne Bridge P2
Winnebago County, WI
Location: Site #11

Boring No.: B-11-3
Surface Elevation:
Job No.:
Sheet: 1 of 2

SAMPLE No.	Type	Recov.	Moist.	N-Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES q_{est} (q_u) tsf	W %	LL	PL	DD pcf	PID ppm
			D		0	Small and large gravel with some medium to coarse grain brown sand (fill)						
			M			Dark brown to black clayey sand with some small and large gravel (fill)						
			M			Medium to coarse grain poorly graded brown sand (fill)						
					2	Fine to medium grain poorly graded red sand						0
			M			Lab Sample (2' - 4')						
					4							0
1	GP	42"										
			M		6	Red clayey sand						0
						Red medium plasticity clay, with little small and large gravel						
			M		8							0
						Lab Sample (8' - 10')						
2	GP	60"			10							
			M			Red medium plasticity clay, with little small and large gravel						0

WATER LEVEL OBSERVATIONS

While Drilling:
Upon Completion of Drilling: Dry
Time After Drilling: 24 hours
Depth to Water: 7.2 feet
Depth to Cave-in:

GENERAL NOTES

Start: 7/30/13 Complete: 7/31/13
Crew Chief: AS Rig: B-57
Drilling Method: Geoprobe

NOTE: Soil stratification lines represent approximate boundaries between soil types and transitions may be gradual.

LOG OF TEST BORING

Himalayan Consultants, LLC

Project STH 116 - Winneconne Bridge P2
Winnebago County, WI
Location Site #11

Boring No. B-11-3
Surface Elevation
Job No.
Sheet 2 of 2

W156 N11357 Pilgrim Rd, Germantown, WI 53022 Tel: (262) 502-0066 Fax: (262) 502-0077

SAMPLE No.	Type	Recov.	Moist.	N-Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES q_{est} (q_u) tsf	W %	LL	PL	DD pcf	PID ppm
					12							0
			M									
					14							0
3	GP	60"										
						Red medium plasticity clay, with little small and large gravel						
					16							0
			M		18							0
4	GP	60"										
					20	End of Boring = 20.0 Feet						0
					22							
					24							

NOTE: Soil stratification lines represent approximate boundaries between soil types and transitions may be gradual.

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT
Form 3300-5 2/2000

Notice: Please complete Form 3300-5 and return it to the appropriate DNR office and bureau. Completion of this report is required by chs. 160, 281, 283, 289, 291, 292, 293, 295 and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295 and 299, Wis. Stats., failure to file this form may result in a 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 the instructions for more information.

Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other _____

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County

Common Well Name B-11-3 Gov't Lot (If applicable)

Grid Location NE 1/4 of NE 1/4 of Sec. 21 ; T. 19 N; R. 15 ☒ E ☐ W

_____ ft. ☐ N. ☐ S., _____ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat. _____ Long. _____ or

St. Plane _____ ft. N. _____ ft. E. ☐ S ☐ C ☐ N Zone

Reason For Abandonment: Temporary well

WI Unique Well No. of Replacement Well:

(2) FACILITY / OWNER NAME

Facility Name: Site #11

Facility ID | License/Permit/Monitoring No.

Street Address of Well: 105 E. Main Street

City, Village or Town: Winneconne

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date 7/30/13

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

If a Well Construction Report is available, please attach.

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (Specify) Direct Push

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 20.0 (From groundsurface) Casing Diameter (in.) _____

Casing Depth (ft.) _____

Lower Drillhole Diameter (in.) _____

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown
If Yes, To What Depth? _____ Feet

Depth to Water (Feet) 7.2 Feet

(4) PUMP, LINER, SCREEN, CASING & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☒ Yes	☐ No	☐ Not Applicable
Casing Left in Place?	☐ Yes	☐ No	
Was casing Cut Off Below Surface?	☐ Yes	☐ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Screened & Poured (Bentonite Chips) ☒ Other (Explain) Gravity

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry (11 lb./gal. wt.)
☐ Bentonite-Sand Slurry " "
☒ Bentonite Chips

For monitoring wells and monitoring well boreholes only
☐ Bentonite Pellets
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Material Used To Fill Well/Drillhole	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
3/8" Chipped Bentonite	Surface	20	25 lbs	

(6) Comments _____

(7) Name of Person or Firm Doing Sealing Work: Horizon | Date of Abandonment: 7/31/13

Signature of Person Doing Work | Date Signed

Street or Route: 1402 7th Avenue | Telephone Number: 262-377-9060

City, State, Zip Code: Grafton, WI 53024

FOR DNR OR COUNTY USE ONLY

Date Received | Noted By

Comments

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: STH 116 - Winneconne Bridge P2	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: MW-11-1
Facility License, Permit or Monitoring Number	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ____ Long. ____ or St. Plane ____ ft. N, ____ ft. E	Wis. Unique Well Number / DNR Well Number
Facility ID	Section Location of Waste/Source: NE 1/4 of NE 1/4 of Sec. 21 T. 19 N,R 15 ☒ E. ☐ W.	Date Well Installed: 7/30/13
Type of Well: Well Code ____	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☒ Not Known	Well Installed By: Name (first, last) and Firm: Adam Sweet, Horizon Exploration
Distance from Waste/Source ____ ft.	Enf. Stds. Apply ☐	Gov. Lot #

A. Protective pipe, top elevation ____ ft. MSL

B. Well casing, top elevation ____ ft. MSL

C. Land surface elevation 0 ft. MSL

D. Surface seal, bottom ____ ft MSL or ____ ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☒ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☐ 41
Geoprobe Other ☒ __

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ____

17. Source of Water (attach analysis if required):

E. Bentonite seal, top ____ ft. MSL or ____ ft.

F. Fine sand, top ____ ft. MSL or ____ ft.

G. Filter pack, top ____ ft. MSL or ____ ft.

H. Screen joint, top ____ ft. MSL or 10 ft.

I. Well bottom ____ ft. MSL or 20 ft.

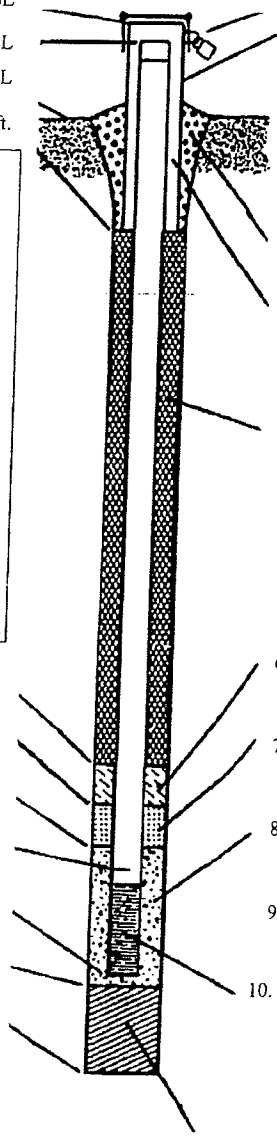
J. Filter pack, bottom ____ ft. MSL or ____ ft.

K. Borehole bottom ____ ft. MSL or 20 ft.

L. Borehole diameter 2 in.

M. O.D. well casing 1.3 in.

N. I.D. well casing 0.8 in.



1. Cap and lock? ☐ Yes ☒ No

2. Protective cover pipe:
a. Inside diameter: ____ in.
b. Length: ____ ft.
c. Material: N/A Steel ☐ 04 Other ☒ __
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ____

3. Surface seal: Bentonite ☐ 30 Concrete ☐ 01 Other ☐ __

4. Material between well casing and protective pipe:
Bentonite ☐ 30 Annular space seal ☐ __ Other ☐ __

5. Annular space seal: a. Granular Bentonite ☐ 33
b. ____ Lbs/gal mud weight... Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight.... Bentonite slurry ☐ 31
d. ____ % Bentonite..... Bentonite-cement grout ☐ 50
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. ____ Other ☐ __

7. Fine sand Material: Manufacturer, product name & mesh size
a. ____
b. Volume added ____ ft^3

8. Filter pack material: Manufacturer, product name and mesh size
a. ____
b. Volume added ____ ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
____ Other ☐ __

10. Screen material: PVC
a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01
____ Other ☐ __
b. Manufacturer Monoflex
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.

11. Backfill material (below filter pack): None ☒ 14
____ Other ☐ __

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

Signature	Firm
	Himalayan Consultants, LLC W156 N11357 Pilgrim Road, Germantown, WI 53022 Tel. (262) 502-0066, Fax (262) 502-0077

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a 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 these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐ _____

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: STH 116 - Winneconne Bridge P2	Local Grid Location of Well: _____ ft. ☐ N. ☐ S. _____ ft. ☐ E. ☐ W.	Well Name: MW-11-2
Facility License, Permit or Monitoring Number	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐	Wis. Unique Well Number / DNR Well Number
Facility ID	Lat. _____ Long. _____ or St. Plane _____ ft. N, _____ ft. E	Date Well Installed: 7/30/13
Type of Well: Well Code _____	Section Location of Waste/Source: NE 1/4 of NE 1/4 of Sec. 21 T. 19 N,R 15 ☒ E. ☐ W.	Well Installed By: Name (first, last) and Firm: Adam Sweet, Horizon Exploration
Distance from Waste/ Source _____ ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☒ Not Known / Gov. Lot #	

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation 0 ft. MSL

D. Surface seal, bottom _____ ft MSL or _____ ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☒ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☐ 41
Geoprobe Other ☒ __

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe _____

17. Source of Water (attach analysis if required):

E. Bentonite seal, top _____ ft. MSL or _____ ft.

F. Fine sand, top _____ ft. MSL or _____ ft.

G. Filter pack, top _____ ft. MSL or _____ ft.

H. Screen joint, top _____ ft. MSL or 10 ft.

I. Well bottom _____ ft. MSL or 20 ft.

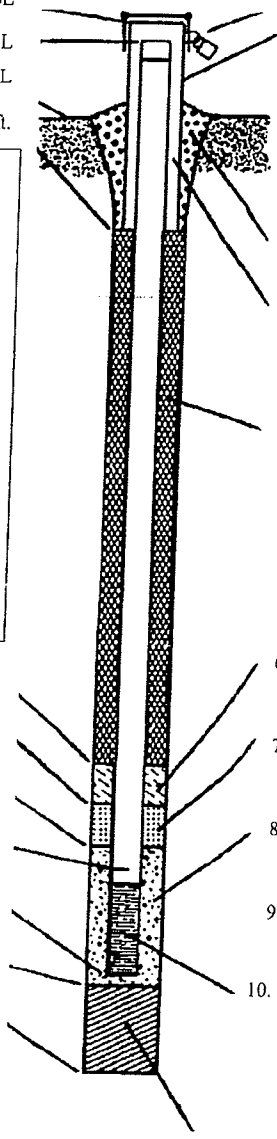
J. Filter pack, bottom _____ ft. MSL or _____ ft.

K. Borehole bottom _____ ft. MSL or 20 ft.

L. Borehole diameter 2 in.

M. O.D. well casing 1.3 in.

N. I.D. well casing 0.8 in.



1. Cap and lock? ☐ Yes ☒ No

2. Protective cover pipe:
a. Inside diameter: _____ in.
b. Length: _____ ft.
c. Material: N/A Steel ☐ 04 Other ☒ __
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____

3. Surface seal: Bentonite ☐ 30 Concrete ☐ 01 Other ☐ __
_____

4. Material between well casing and protective pipe: Bentonite ☐ 30 Annular space seal ☐ __ Other ☐ __
_____

5. Annular space seal: a. Granular Bentonite ☐ 33
b. _____ Lbs/gal mud weight... Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight.... Bentonite slurry ☐ 31
d. _____ % Bentonite..... Bentonite-cement grout ☐ 50
e. _____ Ft^3 volume added for any of the above

f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. _____ Other ☐ __

7. Fine sand Material: Manufacturer, product name & mesh size
a. _____
b. Volume added _____ ft^3

8. Filter pack material: Manufacturer, product name and mesh size
a. _____
b. Volume added _____ ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐ __
_____

10. Screen material: PVC
a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐ __
_____
b. Manufacturer Monoflex
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.

11. Backfill material (below filter pack): None ☒ 14 Other ☐ __
_____

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

Signature	Firm
	Himalayan Consultants, LLC W156 N11357 Pilgrim Road, Germantown, WI 53022 Tel. (262) 502-0066, Fax (262) 502-0077

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State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: STH 116 - Winneconne Bridge P2	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: MW-11-3
Facility License, Permit or Monitoring Number:	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ____ Long. ____ or St. Plane ____ ft. N, ____ ft. E	Wis. Unique Well Number: / DNR Well Number:
Facility ID:	Section Location of Waste/Source: NE 1/4 of NE 1/4 of Sec. 21 T. 19 N,R 15 ☒ E. ☐ W.	Date Well Installed: 7/30/13
Type of Well: Well Code ____	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☒ Not Known	Well Installed By: Name (first, last) and Firm: Adam Sweet, Horizon Exploration
Distance from Waste/Source ____ ft.	Enf. Stds. Apply ☐	Gov. Lot #

A. Protective pipe, top elevation ____ ft. MSL

B. Well casing, top elevation ____ ft. MSL

C. Land surface elevation 0 ft. MSL

D. Surface seal, bottom ____ ft MSL or ____ ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☒ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☐ 41
Geoprobe Other ☒ [ ]

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ____

17. Source of Water (attach analysis if required):

E. Bentonite seal, top ____ ft. MSL or ____ ft.

F. Fine sand, top ____ ft. MSL or ____ ft.

G. Filter pack, top ____ ft. MSL or ____ ft.

H. Screen joint, top ____ ft. MSL or 10 ft.

I. Well bottom ____ ft. MSL or 20 ft.

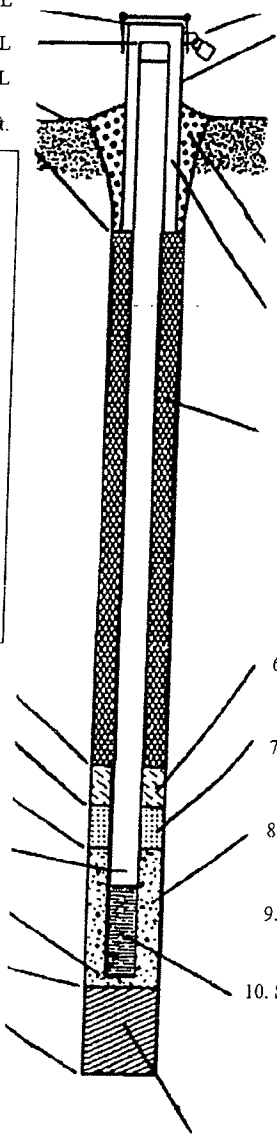
J. Filter pack, bottom ____ ft. MSL or ____ ft.

K. Borehole bottom ____ ft. MSL or 20 ft.

L. Borehole diameter 2 in.

M. O.D. well casing 1.3 in.

N. I.D. well casing 0.8 in.



1. Cap and lock? ☐ Yes ☒ No

2. Protective cover pipe:
a. Inside diameter: ____ in.
b. Length: ____ ft.
c. Material: N/A Steel ☐ 04 Other ☒ [ ]
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ____

3. Surface seal: Bentonite ☐ 30 Concrete ☐ 01 Other ☐ [ ]

4. Material between well casing and protective pipe: Bentonite ☐ 30 Annular space seal ☐ Other ☐ [ ]

5. Annular space seal: a. Granular Bentonite ☐ 33
b. ____ Lbs/gal mud weight... Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight.... Bentonite slurry ☐ 31
d. ____ % Bentonite..... Bentonite-cement grout ☐ 50
e. ____ Ft3 volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. ____ Other ☐ [ ]

7. Fine sand Material: Manufacturer, product name & mesh size
a. ____
b. Volume added ____ ft3

8. Filter pack material: Manufacturer, product name and mesh size
a. ____
b. Volume added ____ ft3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐ [ ]

10. Screen material: PVC
a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐ [ ]
b. Manufacturer Monoflex
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.

11. Backfill material (below filter pack): None ☒ 14 Other ☐ [ ]

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

Signature	Firm
	Himalayan Consultants, LLC W156 N11357 Pilgrim Road, Germantown, WI 53022 Tel. (262) 502-0066, Fax (262) 502-0077

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TRC Field Soil Boring Log Information

TRC Project No: 223432 Page 1 of 1

Project Name	Start Date	End Date	Boring Number
STH 116	9/17/14	9/17/14	GP-11-1/TRC-11-1

Boring Drilled By	Drilling Method
OES (Tony)	Direct Push

Drill Rig	Common Well Name	Initial Water Level	Surface Elevation	Borehole Diameter
track mounted rig	TRC-11-1	–	–	2 Inches

Boring Location
State Plane Easting 2307892.356 Northing 771898.1
NW 1/4 of NE 1/4 of Section 21 T 19 N,R 15E

Local Grid Location (If applicable)
☐ N Feet ☐ S ☐ E Feet ☐ W

County	State	DNR County Code	Civil Town/City/ or Village
Winnebago	WI	–	Winneconne

Number	Length (In) Recovered	Blow Counts	Depth In Feet	Group Name, Percent & Range of Particle Sizes, Plasticity, Color, Odor, Moisture, Density/Consistency, Additional Comments, Geologic Origin (Stratigraphic Unit)	Sample Type	PID/FID	Standard Penetration	Well Diagram	RQD/ Comments
1	2.5/5			Driveway Gravel + Sand		0.8			0-2.5
				0.5'					
				Silty Sand, trace gravel,					
				10YR4/4 - dark yellowish brown, loose		1.1			2.5-5
				non-plastic, no stains/odors					
2	3/5					1.0			5-7.5
				5.5'					
				Clay, semi-plastic, dense, trace					
				gravel, moist, no stains/odors		1.7			7.5-10
				2.5YR 4/4 - reddish brown					
3	3/5					0.8			10-12.5
						0.8			12.5-15
				EOB @ 15'					
				TRC-11-1 monitoring well installed					
				sampled 2.5-5' and 7.5-10'					

Logged By: DM

Checked By: Ted O'Connell

F-204A (R 12-94)

TRC Field Soil Boring Log Information

TRC Project No: 223432

Project Name	Start Date	End Date	Boring Number
STH 116	9/18/14	9/18/14	GP-11-2 / TRC-11-2

Boring Drilled By	Drilling Method
OES (Tony)	Direct Push

Drill Rig	Common Well Name	Initial Water Level	Surface Elevation	Borehole Diameter
track mounted rig	TRC-11-2	—	—	2 Inches

Boring Location
State Plane Easting 2307958.168 Northing 771965.8708
NW 1/4 of NE 1/4 of Section 21 T 19 N,R 15 E

Local Grid Location (If applicable)
☐ N ☐ E
Feet ☐ S Feet ☐ W

County	State	DNR County Code	Civil Town/City/ or Village
Winnebago	WI	—	Winneconne

Number	Length (In) Recovered	Blow Counts	Depth In Feet	Group Name, Percent & Range of Particle Sizes, Plasticity, Color, Odor, Moisture, Density/Consistency, Additional Comments, Geologic Origin (Stratigraphic Unit)	Sample Type	PID/FID	Standard Penetration	Well Diagram	RQD/ Comments
1	2/5			Concrete		0.5			0-2.5
				0.5'					
				Silty clay, plastic, dry, no stains/ odors, dense, cohesive					
				2.5 YR 4/4 reddish brown		2.6			2.5-5
2	3/5			moist around 6'		1.1			5-7.5
						1.0			7.5-10
3	5/5			Angular pieces of gravel 5-12 mm @ 12-15'		6.7			10-12.5
				rust colored staining @ 12-15'		10.7			12.5-15
				EOB @ 15'					
				TRC-11-2 monitoring well installed sampled 2.5-5' and 12.5-15'					

Logged By: DM

Checked By: Ted O'Connell

F-204A (R 12-94)

TRC Field Soil Boring Log Information

TRC Project No: 223432

Project Name	Start Date	End Date	Boring Number
STH 116	9/18/14	9/18/14	GP-11-3/TRC-11-3

Boring Drilled By	Drilling Method
ORS (Tony)	Direct Push

Drill Rig	Common Well Name	Initial Water Level	Surface Elevation	Borehole Diameter
track mounted rig	TRC-11-3	–	–	2 Inches

Boring Location
State Plane Easting 2307922.1 Northing 771842.4306
NW 1/4 of NE 1/4 of Section 21 T 14 N,R 15 E

Local Grid Location (If applicable)
☐ N Feet ☐ S ☐ E Feet ☐ W

County	State	DNR County Code	Civil Town/City/ or Village
Winnebago	WI	–	Winneconne

Number	Length (In) Recovered	Blow Counts	Depth In Feet	Group Name, Percent & Range of Particle Sizes, Plasticity, Color, Odor, Moisture, Density/Consistency, Additional Comments, Geologic Origin (Stratigraphic Unit)	Sample Type	PID/FID	Standard Penetration	Well Diagram	RQD/ Comments
1	2.5/5			Topsoil 0.5' Silty Sand, trace fines, 10YR 4/4 – dark yellowish brown, loose, non-plastic black staining 0-2' silt and clay (fines) increase w/ depth		1.3			0-2.5
						2.0			2.5-5
2	4/5			6' Clay, plastic, moist, dense, 10YR 4/3 - dark brown, trace gravel no stains/odors		4.3			5-7.5
						4.2			7.5-10
3	4/5					4.0			10-12.5
						6.1			12.5-15
				EOB @ 15' TRC-11-3 monitoring well installed sampled 5-7.5' and 12.5-15'					

Logged By: BM

Checked By: Ted O'Connell

F-204A (R 12-94)

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other ☐

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: STH 116	Local Grid Location of Well: ft. ☐N ☐S, ft. ☐E ☐W	Well Name: TRC-11-1
Facility License, Permit or Monitoring No.	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: 07275 / DNR Well ID No.
Facility ID	St. Plane 771963.876 ft. N, 2307980.168 ft. E. S/C/N	Date Well Installed: 9/18/2014 (m m d d y y y y)
Type of Well: Well Code 11 / MW	Section Location of Waste/Source: NW 1/4 of NE 1/4 of Sec. 21 T. 19 N, R. 15 ☒E ☐W	Well Installed By: Name (first, last) and Firm: Tony Kapugi, OES
Distance from Waste/Source ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation 756.58 ft. MSL

C. Land surface elevation _____ ft. MSL

D. Surface seal, bottom 754.88 ft. MSL or 1.5 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☒ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☒ 41
Geoprobe Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe _____

17. Source of water (attach analysis, if required):

E. Bentonite seal, top 754.88 ft. MSL or 1.5 ft.

F. Fine sand, top 752.38 ft. MSL or 4.0 ft.

G. Filter pack, top 751.38 ft. MSL or 5.0 ft.

H. Screen joint, top 749.38 ft. MSL or 7.0 ft.

I. Well bottom 739.38 ft. MSL or 17.0 ft.

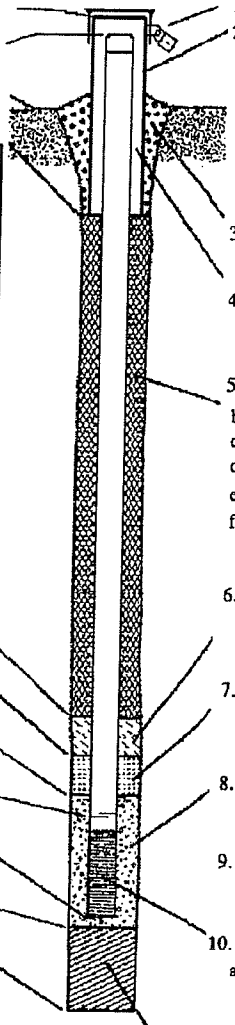
J. Filter pack, bottom 738.88 ft. MSL or 17.5 ft.

K. Borehole, bottom 738.88 ft. MSL or 17.5 ft.

L. Borehole, diameter 8.0 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 2.07 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 8.0 in.
b. Length: 1.0 ft.
c. Material: Steel ☒ 04 Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____

3. Surface seal: Bentonite ☐ 30 Concrete ☒ 01 Other ☐

4. Material between well casing and protective pipe: Bentonite ☐ 30 Other ☐

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight... Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight..... Bentonite slurry ☐ 31
d. _____ % Bentonite ..... Bentonite-cement grout ☐ 50
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
a. Unimin Silica Sand
b. Volume added 0.32 ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. Coarse Sand
b. Volume added 4.6 ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐

10. Screen material: PVC
a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐
b. Manufacturer Monoflex
c. Slot size: 0.01 in.
d. Slotted length: 10 ft.

11. Backfill material (below filter pack): None ☒ 14 Other ☐

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

Signature _____ Firm TRC

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a 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 these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
STH 116	Winnebago	TRC-11-1
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well ID Number**
	71	QZ275	___

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☒ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 30 min.

4. Depth of well (from top of well casisng) 16.93 ft.

5. Inside diameter of well 2.07 in.

6. Volume of water in filter pack and well casing 1.8 gal.

7. Volume of water removed from well 8.0 gal.

8. Volume of water added (if any) — gal.

9. Source of water added —

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☐ No

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 5.85 ft.	Dry ft.
Date	b. 09/19/2014 (m m d d y y y y)	09/19/2014 (m m d d y y y y)
Time	c. 8:45 ☒ a.m. ☐ p.m.	9:15 ☒ a.m. ☐ p.m.
12. Sediment in well bottom	— inches	— inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe) light brown	Clear ☐ 20 Turbid ☐ 25 (Describe) clear
14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

Fill in if drilling fluids were used and well is at solid waste facility:

16. Well developed by: Name (first, last) and Firm
First Name: Tony Last Name: Kapigl
Firm: On-site Environmental

17. Additional comments on development:

Name and Address of Facility Contact /Owner/Responsible Party
First Name: Kathie Last Name: Van Price
Facility/Firm: WisDOT
Street: 944 Vanderperren Way
City/State/Zip: Green Bay, WI 54304

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature:
Print Name: David Mills
Firm: TRC

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐ _____

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: STH 116	Local Grid Location of Well: _____ ft. ☐N. ☐S. _____ ft. ☐E. ☐W.	Well Name: TRC-11-2
Facility License, Permit or Monitoring No.	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: 02276 / DNR Well ID No.: ___
Facility ID: ___	St. Plane 271963.87 ft N, 2307960.68 ft. E. S/C/N	Date Well Installed: 09/18/2014 (m m d d y y y y)
Type of Well: Well Code 11 / MW	Section Location of Waste/Source: NW 1/4 of NE 1/4 of Sec. 21, T. 19 N, R. 15 ☒E ☐W	Well Installed By: Name (first, last) and Firm: Tony Kagugi / OES
Distance from Waste/Source _____ ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number: _____

A. Protective pipe, top elevation _____ ft. MSL
B. Well casing, top elevation 758.52 ft. MSL
C. Land surface elevation _____ ft. MSL
D. Surface seal, bottom 757.02 ft. MSL or 1.5 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☒ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

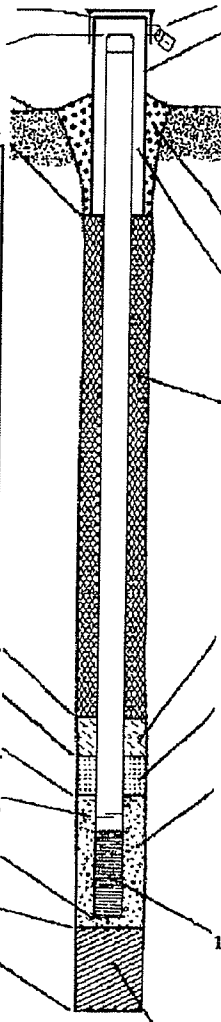
14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☒ 41
Geoprobe
Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):
_____

E. Bentonite seal, top 757.02 ft. MSL or 1.5 ft.
F. Fine sand, top 754.27 ft. MSL or 4.25 ft.
G. Filter pack, top 752.52 ft. MSL or 6.0 ft.
H. Screen joint, top 750.52 ft. MSL or 8.0 ft.
I. Well bottom 740.52 ft. MSL or 18.0 ft.
J. Filter pack, bottom 740.02 ft. MSL or 18.5 ft.
K. Borehole, bottom 740.02 ft. MSL or 18.5 ft.
L. Borehole, diameter 8.0 in.
M. O.D. well casing 2.38 in.
N. I.D. well casing 2.07 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 8.0 in.
b. Length: 10 ft.
c. Material: Steel ☒ 04
Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____
3. Surface seal: Bentonite ☒ 30
Concrete ☐ 01
Other ☐
4. Material between well casing and protective pipe:
Bentonite ☒ 30
Other ☐
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☐ 02
Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
a. Unimin Silica Sand
b. Volume added 3.1 ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. Coarse Sand
b. Volume added 4.0 ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
Other ☐
10. Screen material: PVC
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
Other ☐
b. Manufacturer Monoflex
c. Slot size: 0.01 in.
d. Slotted length: 10 ft.
11. Backfill material (below filter pack): None ☒ 14
Other ☐

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

Signature	Firm
	TRC

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a 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 these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
STH 116	Winnebago	TRC-11-2
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well ID Number**
	71	QZ276	____

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☒ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 30 min.

4. Depth of well (from top of well casisng) 17.55 ft.

5. Inside diameter of well 2.07 in.

6. Volume of water in filter pack and well casing 1.8 gal.

7. Volume of water removed from well 8.0 gal.

8. Volume of water added (if any) — gal.

9. Source of water added —

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☐ No

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 6.74 ft.	Dry ft.
Date	b. 09/19/2014 (mm/dd/yyyy)	09/19/2014 (mm/dd/yyyy)
Time	c. 9:20 ☒ a.m. ☐ p.m.	9:50 ☒ a.m. ☐ p.m.
12. Sediment in well bottom	— inches	— inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe) light brown	Clear ☒ 20 Turbid ☐ 25 (Describe) clear

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Tony Last Name: Kapugi
Firm: On-Site Environmental

17. Additional comments on development:

Name and Address of Facility Contact /Owner/Responsible Party
First Name: Kathie Last Name: Von Price
Facility/Firm: WisDOT
Street: 944 Vanderperren Way
City/State/Zip: Green Bay, WI 54304

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature:
Print Name: David Mims
Firm: TRC

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other ☐ ________

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: STH 116	Local Grid Location of Well: ________ ft. ☐N. ☐S. ________ ft. ☐E. ☐W.	Well Name: TRC-11-3
Facility License, Permit or Monitoring No.	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ___° ___' ___" Long. ___° ___' ___" or	Wis. Unique Well No. 02277 / DNR Well ID No. ___
Facility ID ________	St. Plane 77184.4306 ft. N. 2367972.1 ft. E. S/C/N	Date Well Installed 09/18/2014 (m m d d y y y y)
Type of Well: Well Code 11 / MW	Section Location of Waste/Source: NW 1/4 of NE 1/4 of Sec. 21, T. 19 N, R. 15 ☒E ☐W	Well Installed By: Name (first, last) and Firm: Tony Kapugi, OES
Distance from Waste/Source ____ ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient; s ☐ Sidegradient; d ☐ Downgradient; n ☐ Not Known / Gov. Lot Number ____	

A. Protective pipe, top elevation _______ ft. MSL

B. Well casing, top elevation 758.74 ft. MSL

C. Land surface elevation _______ ft. MSL

D. Surface seal, bottom 757.24 ft. MSL or 1.5 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☒ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50; Hollow Stem Auger ☒ 41; Other ☐ — Geoprobe

15. Drilling fluid used: Water ☐ 02; Air ☐ 01; Drilling Mud ☐ 03; None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ________

17. Source of water (attach analysis, if required): ________

E. Bentonite seal, top 757.24 ft. MSL or 1.5 ft.

F. Fine sand, top 754.74 ft. MSL or 4.0 ft.

G. Filter pack, top 754.24 ft. MSL or 4.5 ft.

H. Screen joint, top 752.74 ft. MSL or 6.0 ft.

I. Well bottom 742.74 ft. MSL or 16.0 ft.

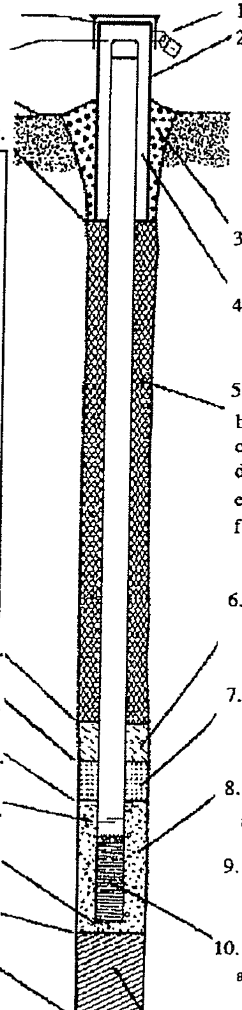
J. Filter pack, bottom 742.24 ft. MSL or 16.5 ft.

K. Borehole, bottom 742.24 ft. MSL or 16.5 ft.

L. Borehole, diameter 8.0 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 2.07 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 8.0 in.
b. Length: 1.0 ft.
c. Material: Steel ☒ 04; Other ☐
d. Additional protection? ☐ Yes ☐ No
If yes, describe: ________

3. Surface seal: Bentonite ☒ 30; Concrete ☒ 01; Other ☐

4. Material between well casing and protective pipe: Bentonite ☒ 30; Other ☐

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ____ % Bentonite . . . . . . Bentonite-cement grout ☐ 50
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01; Tremie pumped ☐ 02; Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. ________ Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
a. Unimin Silica Sand
b. Volume added 0.16 ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. Coarse Sand
b. Volume added 4.0 ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23; Flush threaded PVC schedule 80 ☐ 24; Other ☐

10. Screen material: PVC
a. Screen type: Factory cut ☒ 11; Continuous slot ☐ 01; Other ☐
b. Manufacturer Monoflex
c. Slot size: 0.01 in.
d. Slotted length: 10 ft.

11. Backfill material (below filter pack): None ☒ 14; Other ☐

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

Signature	Firm
[signature]	TRC

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a 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 these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
STH-116	Winnebago	TRC-11-3
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well ID Number**
	71	QZ277	

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☒ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 30 min.

4. Depth of well (from top of well casisng) 15.90 ft.

5. Inside diameter of well 2.07 in.

6. Volume of water in filter pack and well casing 1.2 gal.

7. Volume of water removed from well 6.0 gal.

8. Volume of water added (if any) ____.__ gal.

9. Source of water added —

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☐ No

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 8.54 ft.	Dry ft.
Date	b. 09/19/2014 (m m d d y y y y)	09/19/2014 (m m d d y y y y)
Time	c. 10:00 ☒ a.m. ☐ p.m.	10:30 ☒ a.m. ☐ p.m.
12. Sediment in well bottom	____.__ inches	____.__ inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe) light brown	Clear ☒ 20 Turbid ☐ 25 (Describe) clear

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Tony Last Name: Kapugi
Firm: On-site Environmental

17. Additional comments on development:

Name and Address of Facility Contact /Owner/Responsible Party
First Name: Kathie Last Name: VanPrice
Facility/Firm: WisDOT
Street: 944 Vanderperren Way
City/State/Zip: Green Bay, WI 54304

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature:
Print Name: David Mills
Firm: TRC

NOTE: See instructions for more information including a list of county codes and well type codes.

APPENDIX F/HEALTH AND SAFETY PLAN

SAFETY PLAN INFORMATION

Code: METCO METCO Project No: C2483

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: 105 E Main Street Property - WI DOT

Site Address: 105 E Main Street Site Address City: Winneconne

Site Address State: WI Site Address Zip Code: 54986 Site Address County: Winnebago

WDNR Contact: Sarah Frederick Fire Dept. Contact: Winneconne

Project Date: 8/1/2016 Tank Removal Contractor:

General Contractor: METCO

TANK INFORMATION

Tank Sizes\Contents

Tank 1:	5000	Contents:	Gasoline	Age:	Removed
Tank 2:	5000	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	☐	Tank Closure	☐	Install Tank Leak Detection	☐
Tank/Pipe Removal	☐	Tank\Pipe Repair	☐	Install Spill Protection	☐
Petroleum Release Investigation	☑	Install Remedial System	☐	Install Overfill Protection	☐
Leak Detection Testing	☐	Install Monotoring Wells	☐	Install Kard System	☐
Other					

Backgro[illegible]formation st[illegible]s Complete ☑ Ir ☐

TYPE OF SITE

SITE HEALTH AND SAFETY PLAN

POTENTAIL HEALTH AND SAFETY HAZARDS (check all appropriate)

Handling\transfer of product: ☐
* Fire
* Explosions

General Construction: ☑
* Electrical Hazards
* Physical Injury

Confined Space Entry: ☐
* Explosions

Heavy Equipment: ☑
Noise: ☑
Oxygen Depletion: ☐
Excavation: ☐
* Cave-ins
* Falls, slips

Poisonous plants: ☐
Other (Specify):

Snakes: ☐
Insects: ☐
Rodents: ☐
Heat: ☑
Cold: ☑

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	Liqiud/Vapor	Inh/Skin	50 - 300 PPM	Irritation of eyes, nose and throat
4.				
5.				

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% LEL 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: ☐
Saranex tyvek coveralls: ☐
Rubber boots: ☐
Overboots: ☐
Surgical Inner Gloves: ☐
Butyl Neoprene\nitrile outer gloves: ☐

Full face respirators: ☐
* type of catrridge:
SCBA \ SAR: ☐
Other:

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

LOCAL RESOURCES	Phone Number
Ambulance: Winneconne	**911**
Hospital Emergency Room: Aurora Medical Center	**(920) 456-6000**
Poison Control Center: Milwaukee	**(800) 222-1222**
Police Winneconne	**911**
Fire Dept: Winneconne	**911**
Hazardous Waste Response Center:	**800-943-0003 Wisconsin** **EPA 800-424-8802**

Location Address: 105 E Main Street, Winneconne, WI 54986

EMERGENCY ROUTES (attach maps)

Hospital: Aurora Medical Center - 855 North Westhaven Avenue, Oshkosh, WI 54904 - Travel east on E Main St (STH 116) 2.7 miles to USH 45, turn right onto USH 45 and travel southeast 5.1 miles to I-41, take the exit on the left for I-41 and travel south 2.1 miles to STH 21/Omro Rd, take the exit and keep right to travel west on STH 21 0.5 miles to N Westhaven Dr, turn left onto N Westhaven Dr and travel 0.2 miles, hospital will be on 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
Client Contact: Steven Brooks		(920) 420-5011
METCO Corporate Contact: Paul Knower	home	(608)489-2659
	work	1-800-236-0448

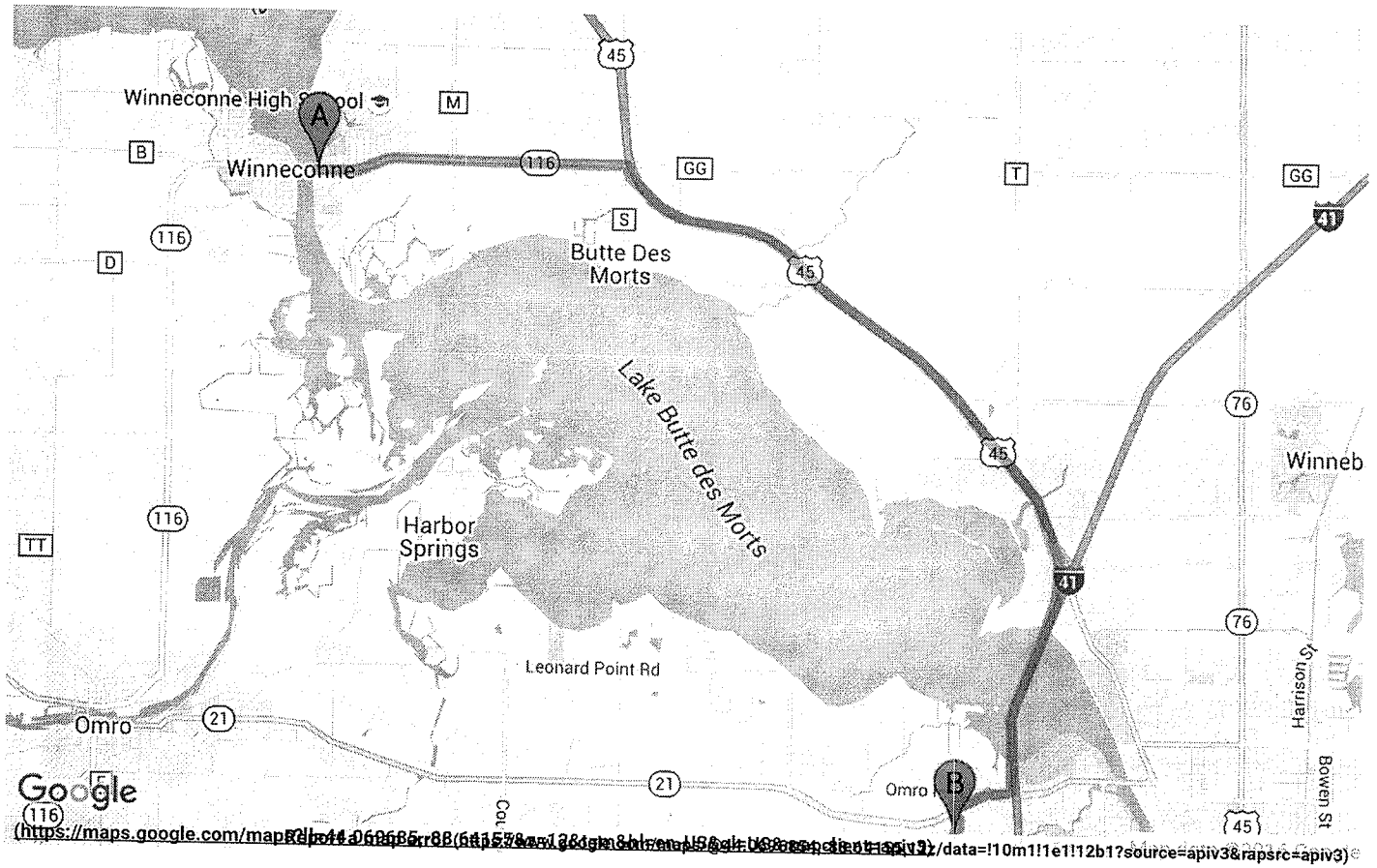
DAILY SAFETY PLAN CHECK

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. Emegency phone numbers
10. Know where the job site book is

US Hospital Finder (/)™: Directions

From: 105 E Main St, Winneconne, WI

To: Aurora Medical Center 855 North Westhaven Drive Oshkosh, WI 54904



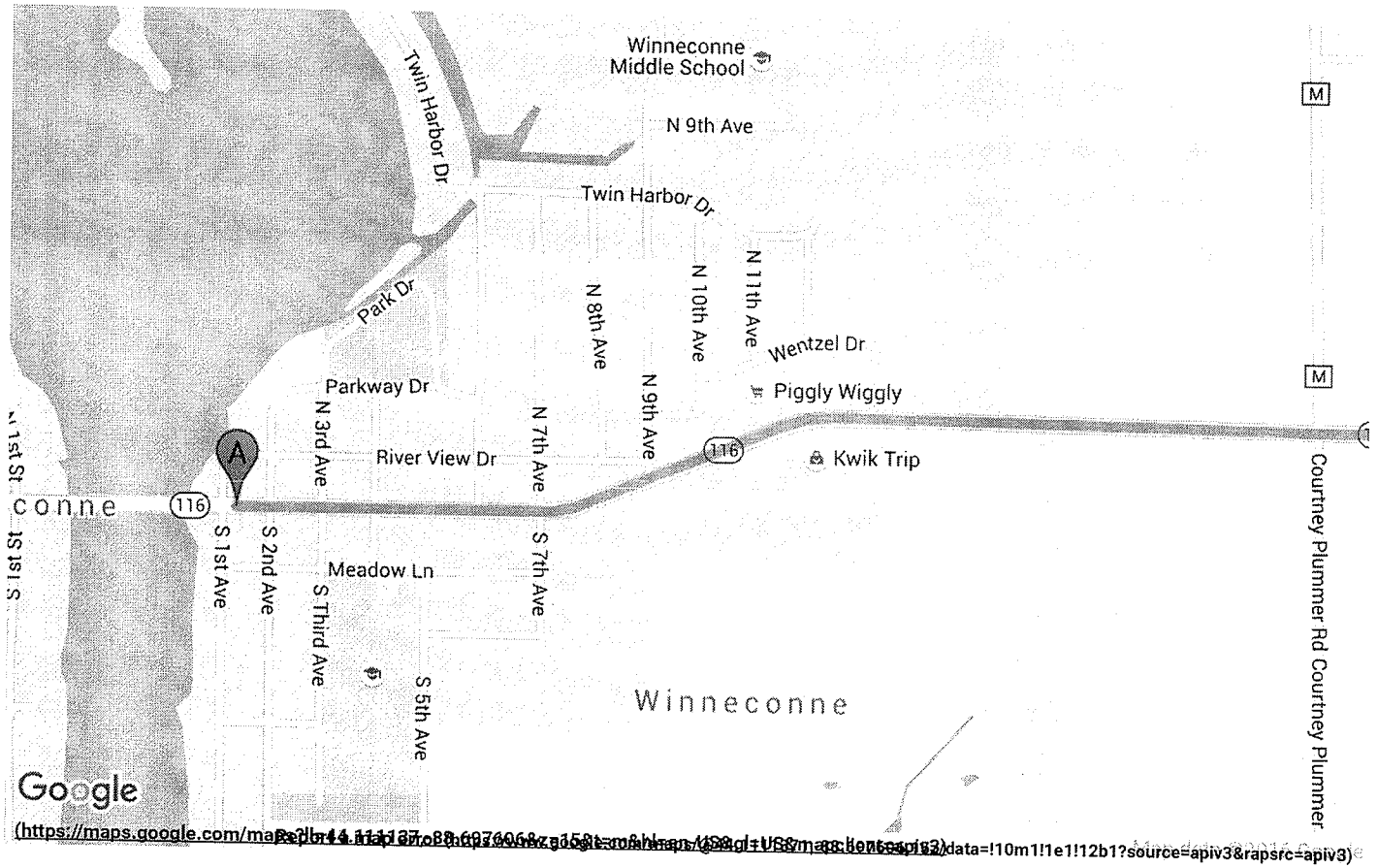
US Hospital Finder (/)™: Directions

From: 105 E Main St, Winneconne, WI

To: Aurora Medical Center 855 North Westhaven Drive Oshkosh, WI 54904

Find a Doctor Near You

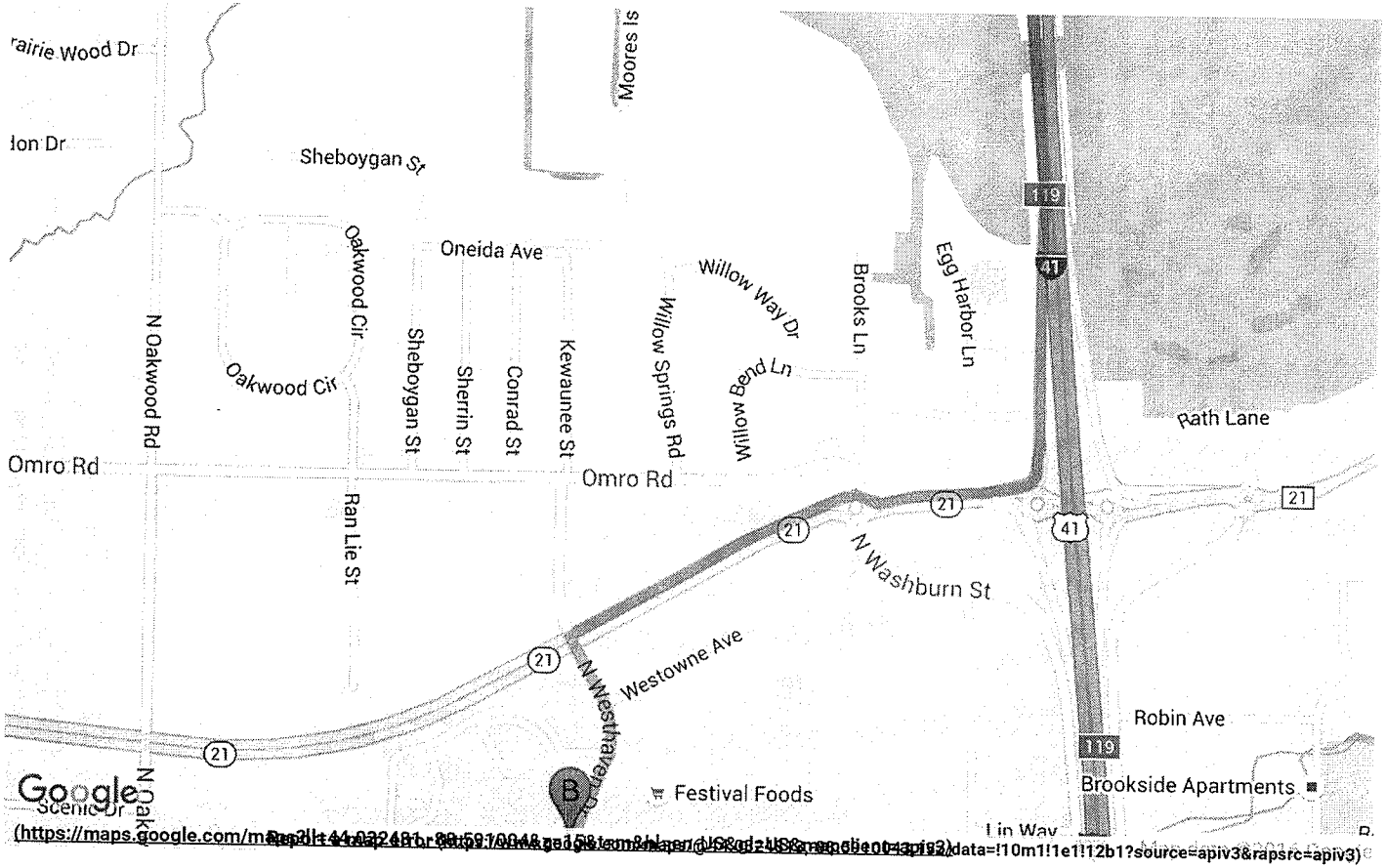
Opioid dependence treatment in the privacy of a doctor's office



US Hospital Finder (/)™: Directions

From: 105 E Main St, Winneconne, WI

To: Aurora Medical Center 855 North Westhaven Drive Oshkosh, WI 54904



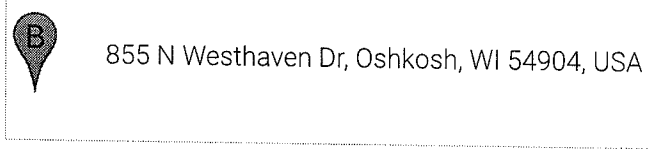
Get Driving Directions

Enter Address Or Location Now. Get Free Maps & Directions.

A 105 E Main St, Winneconne, WI 54986, USA

11.0 mi. About 13 mins

1.	Head **east** on **WI-116 N/E Main St** toward **N 2nd Ave** Continue to follow WI-116 N	2.7 mi
2.	Turn **right** to merge onto **US-45 S**	5.1 mi
3.	Take the exit on the **left** onto **I-41**	2.1 mi
4.	Take exit **119** for **WI-21/Omro Road** toward **Oshkosh Avenue**	0.3 mi
5.	Keep **right** to continue toward **WI-21 W/Omro Rd**	495 ft
6.	Slight **right** onto **WI-21 W/Omro Rd**	0.1 mi
7.	At the traffic circle, take the **1st** exit onto **WI-21 W**	0.4 mi
8.	Turn **left** onto **N Westhaven Dr** Destination will be on the right	0.2 mi



Map data ©2016 Google

Name: Aurora Medical Center

Address: 855 North Westhaven Drive Oshkosh, WI 54904

Phone: 920-456-6000

New Hospital Search (/)

Find a Doctor Near You

Opioid dependence treatment in the privacy of a doctor's office

APPENDIX G/QUALIFICATIONS

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 700 environmental sites.

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.

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.

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 (#823519).
- 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 Photograhy 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.