

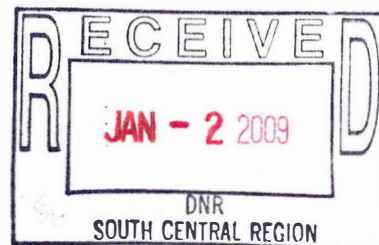
LUST Investigation Field Procedures Workplan

**Dick's Car Care
Baraboo, Wisconsin**

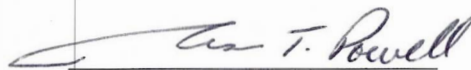
**December 30, 2008
by METCO
WDNR File Ref#: 03-57-258614
PECFA#: 53913-2101-20**



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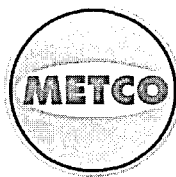
This document was prepared by:



Jason T. Powell
Staff Scientist



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



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December 30, 2008

WDNR BRRTS#: 03-57-258614

PECFA Claim#: 53913-2101-20

Dave Christian
3220 7th Street
Baraboo, WI 53913

Dear Mr. Christian,

Enclosed is our "LUST Investigation Field Procedures Workplan" concerning the Dick's Car Care site in Baraboo, 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 (WDNR) 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: Hank Kuehling- WDNR

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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
WDCOMM - Wisconsin Department of Commerce
WDILHR - Wisconsin Department of Industry, Labor, and Human Relations
WDNR - Wisconsin Department of Natural Resources
WPDES - Wisconsin Pollutant Discharge Elimination System

OBJECTIVES

Requirements of the WDNR

A Leaking Underground Storage Tank (LUST) 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 Soil Cleanup Standards or COMM46/NR746 Table 1/Table 2 Values may require 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 a LUST Investigation shall be no more than \$20,000 unless pre-approved by PECFA. All consultant and commodity service costs must not exceed the Wisconsin Department of Commerce Usual and Customary Charges.

Purpose of Document

This document briefly outlines all methods and procedures used by METCO personnel concerning "LUST 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 and Wisconsin Department of Commerce (WDCOMM) Bureau of PECFA.

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

INTRODUCTION

Site Name

Dick's Car Care

Site Address

620 Broadway Street
Baraboo, Wisconsin

Legal Description

NW ¼, SE ¼, Section 35, Township 12 North, Range 6 East, Sauk County

Contact or Client

Dave Christian
3220 7th Street
Baraboo, WI 53913
(608) 393-1867

WDNR Project Manager

Hank Kuehling
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Madison, WI 53711
(608) 275-3286

Consultant

METCO
Ronald J. Anderson, P.G.
Jason T. Powell
1421 State Road 16
La Crosse, WI 54601
(608) 781-8879

SITE BACKGROUND

Facility

The Dick's Car Care property is currently used as an auto repair shop. A gas station operated on this property from the early 1940's until 1985. In 1985, two 1,000-gallon leaded gasoline UST's and a 500-gallon leaded gasoline UST were removed. In November 2008, a 500-gallon fuel oil UST and a 500-gallon waste oil UST were removed. To our knowledge, no other petroleum tanks existed or currently exist on the subject property.

**LUST Investigation Field Procedures Workplan - METCO
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On June 30, 2000, BT Squared, Inc. conducted a Phase 2 Environmental Site Assessment (P2ESA) for the Wisconsin Department of Transportation. During the P2ESA, four Geoprobe soil borings were conducted along the western property boundary with eight soil samples collected for laboratory analysis (DRO, GRO, and PVOC). One soil sample (GP2-S6 at 12 feet) showed significant levels of petroleum contamination, including 1,510 ppm DRO, 3,240 ppm GRO, and elevated levels of PVOC's. The petroleum contamination was reported to the WDNR, who then required that a LUST Investigation be completed.

On November 3, 2008, during the removal of the waste oil UST, METCO collected two soil samples beneath the removed UST for Diesel Range Organics (DRO) analysis. Both soil samples showed no detects.

Numerous LUST, ERP, or Spill sites are known to exist in the City of Baraboo. The closest being Smith Oil Service, which exists approximately 100 feet to the northeast. A gas station formerly existed on the Wells Fargo Bank property, which exists approximately 50 feet to the north, however the environmental status of this property is unknown.

Potential Risks and Impacts

The nearest municipal well, Baraboo Municipal Well #4, exists approximately 4,100 feet to the east of the subject property. There are no known private wells within one mile 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, Baraboo is located in the northeast portion of the Lower Wisconsin River Basin. This area is characterized by rolling hills and wide, level valley floors, which were formed by unconsolidated glacial and alluvial deposits that overlie bedrock.

The elevation of the site is approximately 880 feet above Mean Sea Level (MSL). See Appendix A for site location.

Geology

Native unconsolidated materials in this area generally consist of silt/clay to silty sand with gravel and cobbles (glacial till). The unconsolidated materials are underlain by Cambrian sandstone at approximately 100-200 feet below ground surface.

Hydrology

The nearest surface water is the Baraboo River, which exists approximately 2,000 feet to the south of the subject property.

Hydrogeology

Based on data collected from the neighboring Smith Oil Service site, the depth to groundwater in this area is estimated to be approximately 45 to 50 feet below ground surface. Groundwater flow direction is expected to be generally toward the southeast.

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 3 to 5 boreholes to be completed on/off site. METCO has also proposed 1 to 3 monitoring wells to be installed on/off site.

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

- 1) Determine general subsurface geotechnical characteristics.
- 2) Collect a soil sample for field analysis every 2.5 feet of boring.
- 3) Collect at least two soil samples for laboratory analysis in every boring.
- 4) Verify, through sampling, the horizontal and vertical extent of soil contamination, including smear zones.
- 5) Install monitoring wells in an arrangement that fully defines the horizontal and vertical extent of groundwater contamination.
- 6) Properly survey and develop the monitoring wells.
- 7) Collect at least two rounds of groundwater samples.
- 8) If conditions warrant, perform slug tests on 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 or WDCOMM for review and discussion.

METCO PROCEDURES AND METHODS

Drilling

Drilling is conducted with a truck mounted auger 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 in accordance with ASTM D-1586 "Penetration Tests and Split-Barrel Sampling of Soils" using a 2-inch outside diameter (O.D.), 2.5 foot split spoon sampler. Using this procedure, a split spoon sampler is driven into the soil by a 140-pound weight falling 30-inches, and a soil sample collected.

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 $\frac{1}{4}$ 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.

<u>Outside temperature</u>	<u>Time to establish headspace</u>
<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. Fifteen-foot well screens with 0.010-inch slots are installed approximately 3 to 12 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.

If conditions warrant, a slug test is conducted on one of the monitoring wells or a piezometer to determine hydrogeologic parameters (hydraulic conductivity, transmissivity, and flow velocity). Slug tests are conducted by displacing groundwater in the well using a polyethylene slug and groundwater recovery is recorded. 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.

**LUST Investigation Field Procedures Workplan - METCO
Dick's Car Care**

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.

Variations

We are not aware of any variations 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.

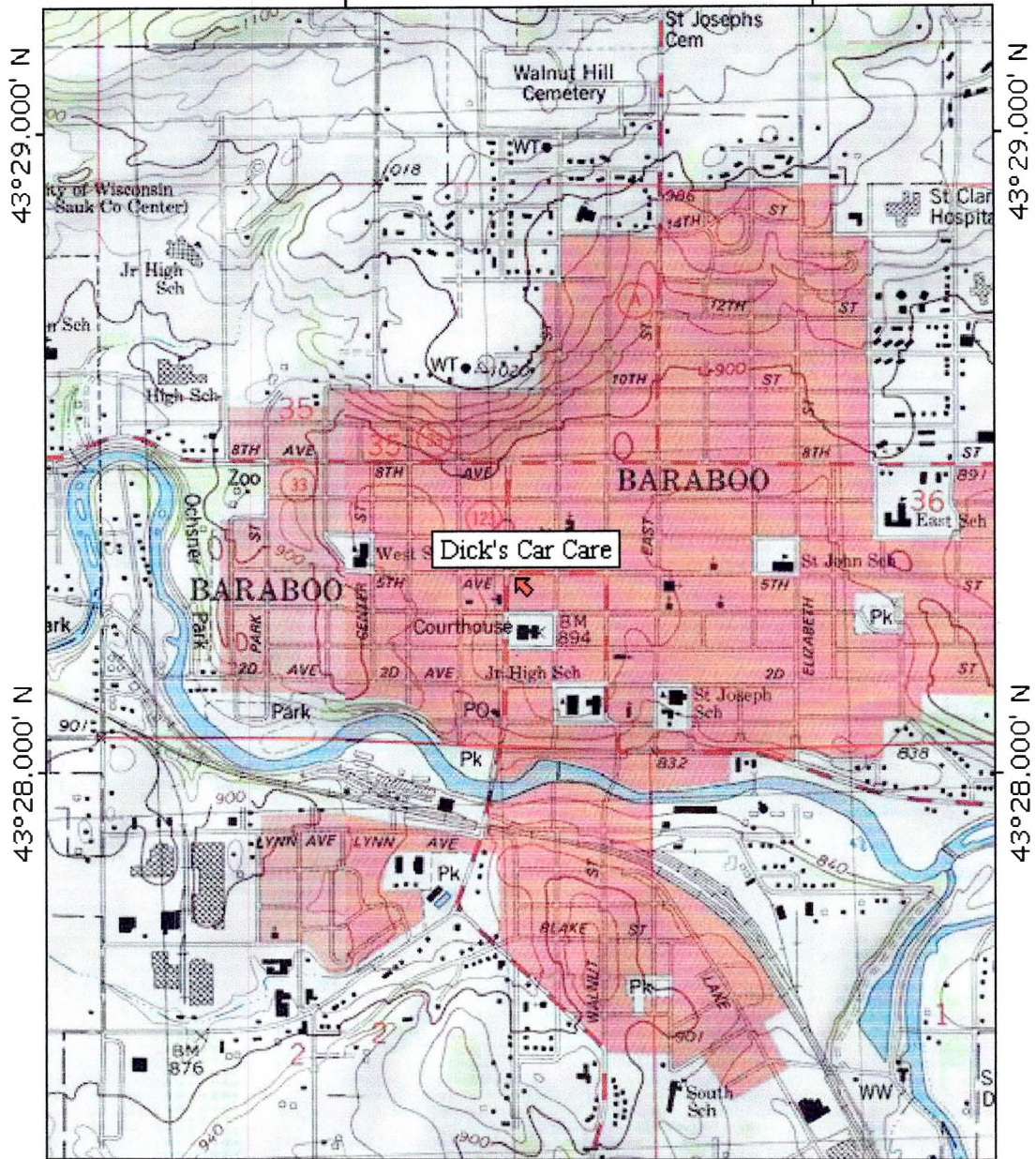
- 1) METCO submits a LUST Investigation Project proposal to client (8/25/08).
- 2) Proposal acceptance by client. METCO notifies the WDNR that a consultant has been contracted (8/29/08).
- 3) Client obtains PECFA Packet and Site Eligibility Letter from PECFA (9/25/08).
- 4) METCO submits a LUST Investigation Field Procedures Workplan to client and WDNR for review and approval (12/30/08).
- 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).

**LUST Investigation Field Procedures Workplan - METCO
Dick's Car Care**

- 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 or WDCOMM. Upon closure, METCO will complete the PECFA Application and submit for reimbursement (reimbursement takes 3 to 6 months).
- 14) If further investigation and/or remediation is required METCO will provide further assistance.

APPENDIX A/SITE MAPS

TOPO! map printed on 12/18/08 from "wisconsin.tpo" and "Untitled.tpg"
B9°45.000' W WGS84 B9°44.000' W





TN
MN
2°

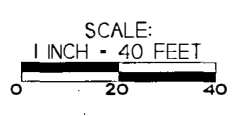
89°45.000' W WGS84 89°44.000' W
0 5 10
0 1000 FEET 0 500 1000 METERS
MILE

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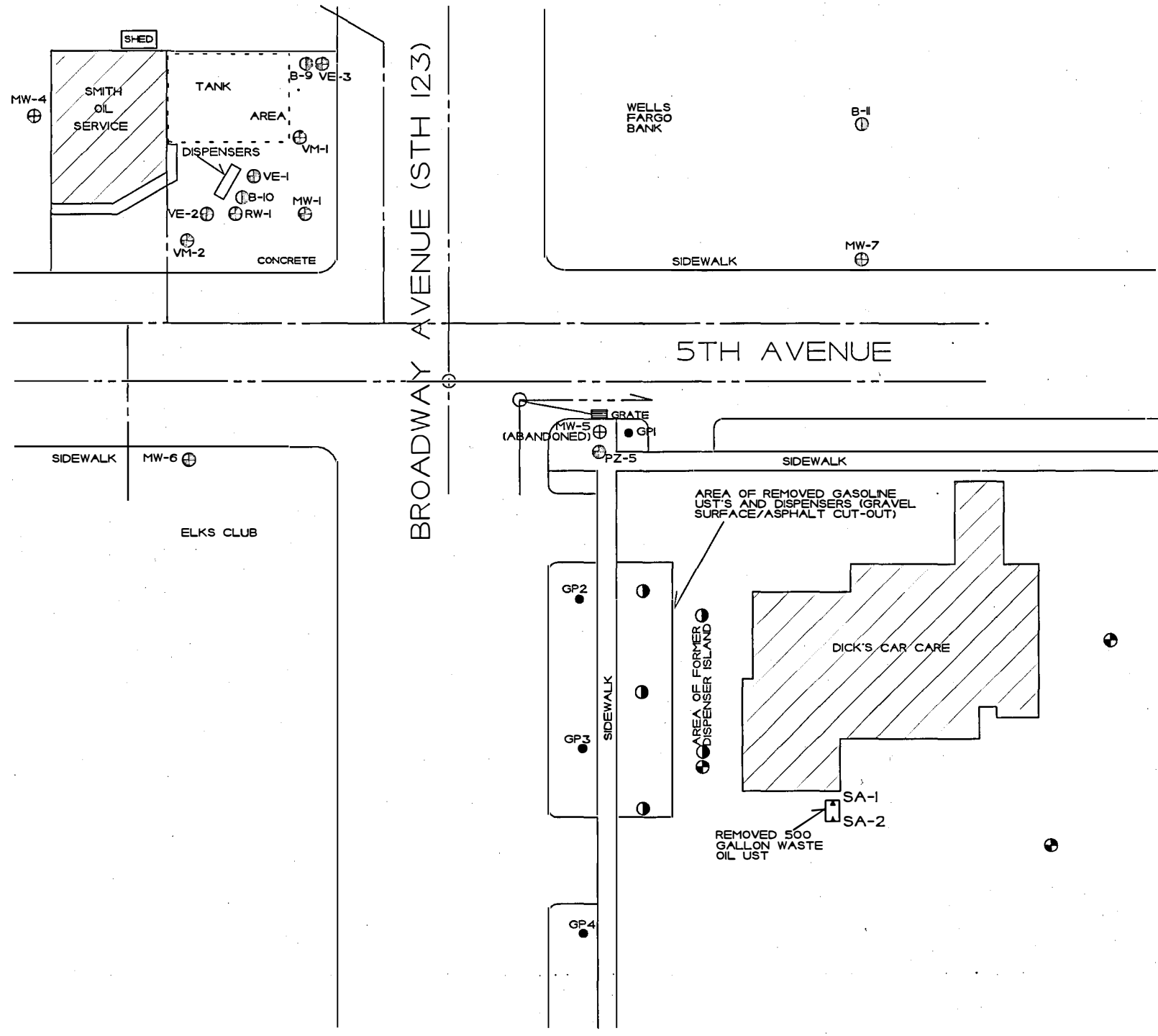
SITE LOCATION MAP – CONTOUR INTERVAL 20 FEET
DICK'S CAR CARE – BARABOO, WI
SEAMLESS USGS TOPOGRAPHIC MAPS ON CD-ROM

<h1>SITE LAYOUT MAP</h1> <h2>DICK'S CAR CARE</h2>		
	1421 State Road 10 La Crosse, WI 54601 Tel: (608) 781-8879 Fax: (608) 781-8893	
BARABOO, WISCONSIN DRAWN BY: ED DATE: 12/18/08		

- ⊕ MONITORING/REMEDIAL WELL LOCATION (SMITH OIL SERVICE)
- ⊖ SOIL BORING LOCATION (SMITH OIL SERVICE)
- GEOPROBE BORING LOCATION (P2ESA)
- ▲ SOIL SAMPLE LOCATION (UST REMOVAL)
- WATER LINES
- SANITARY SEWER LINES
- - - STORM SEWER LINES
- ⊕ PROPOSED MONITORING WELL LOCATION (IF GROUNDWATER IS LIKELY IMPACTED)
- ⊖ PROPOSED SOIL BORING LOCATION



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



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

LUST and Petroleum Analytical and QA Guidance
July 1993 Revision

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

Abbreviations:

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

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

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

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

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

PCBs - Polychlorinated Biphenyls

Pb - Lead

SYNERGY ENVIRONMENTAL LAB – Sample Bottle Requirements

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

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

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

SYNERGY ENVIRONMENTAL LAB – Sample Bottle Requirements

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

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



(b) No soil contamination is present at the site that exceeds any of the soil screening levels in Table 1.

Table 1
Indicators of Residual Petroleum Product in Soil Pores

	<u>Soil Screening Levels (mg/kg)</u>
<u>Benzene</u>	<u>8.5</u>
<u>1,2-DCA</u>	<u>0.6</u>
<u>Ethylbenzene</u>	<u>4.6</u>
<u>Toluene</u>	<u>38</u>
<u>Xylene</u>	<u>42</u>
<u>1,2,4 - Trimethylbenzene</u>	<u>83</u>
<u>1,3,5 - Trimethylbenzene</u>	<u>11</u>
<u>Naphthalene</u>	<u>2.7</u>

(c) There is no soil contamination within 4 feet of the ground surface that exceeds any of the direct contact soil contaminant concentrations for the substances listed in Table 2.

Table 2
Protection of Human Health from Direct Contact with Contaminated Soil

<u>Substance</u>	<u>Soil Contaminant Concentrations (Top 4 ft of the soil) (mg/kg)</u>
<u>Benzene</u>	<u>1.10</u>
<u>1,2-Dichloroethane (DCA)</u>	<u>0.54</u>

HAZARDOUS SUBSTANCE/WASTE RELEASES:

INTERIM SOIL CLEANUP GUIDELINES--PETROLEUM CONTAMINATION

DNR Closeout Action

BTEX (1)	GRO/DRO	Soil Type (2)	Soils Accessible	Soils Inaccessible or accessible and not technically and economically feasible
<= NR 720	<= 100 ppm	Permeable (K>10 E-6 cm/s)	Close	Close
<= NR 720	<= 250 ppm	Less Permeable (K<=10 E-6 cm/s)	Close	Close
<= NR 720 or > NR 720	> applic. GRO/DRO		Require additional work	Close with consideration of deed instrument according to guidelines

(1) BTEX: proposed criteria developed in preparation of NR 720:

Benzene	5.5 ug/kg
Toluene	1500 ug/kg
Ethylbenzene	2900 ug/kg
Xylenes	4100 ug/kg
1,2-DCA	4.9 ug/kg

(2) K: Saturated hydraulic conductivity

Unofficial Text (See Printed Volume). Current through date and Register shown on Title Page.

(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.

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 I 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)
Acetone	1000	200
Alachlor	2	0.2
Aldicarb	10	2
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	960	190
Bromodichloromethane	0.6	0.06
Bromoform	4.4	0.44
Bromomethane	10	1
Butylate	400	80
Cadmium	5	0.5
Carbaryl	960	192
Carbofuran	40	8
Carbon disulfide	1000	200
Carbon tetrachloride	5	0.5
Chloramben	150	30
Chlordane	2	0.2
Chloroethane	400	80
Chloroform	6	0.6
Chloromethane	3	0.3
Chromium	100	10
Chrysene	0.2	0.02
Cobalt	40	8
Copper	1300	130
Cyanazine	1	0.1
Cyanide	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	100	20
Dicamba	300	60
1,2-Dichlorobenzene	600	60
1,3-Dichlorobenzene	1250	125
1,4-Dichlorobenzene	75	15

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Table 1 – Continued
Public Health Groundwater Quality Standards

Substance ¹	Enforcement Standard (micrograms per liter – except as noted)	Preventive Action Limit (micrograms per liter – except as noted)
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)	0.2	0.02
Di (2-ethylhexyl) phthalate	6	0.6
Dimethoate	2	0.4
2,4-Dinitrotoluene	0.05	0.005
2,6-Dinitrotoluene	0.05	0.005
Dinoseb	7	1.4
Dioxin (2, 3, 7, 8-TCDD)	0.00003	0.000003
Endrin	2	0.4
EPTC	250	50
Ethylbenzene	700	140
Ethylene glycol	7 mg/l	0.7 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
Mercury	2	0.2
Methanol	5000	1000
Methoxychlor	40	4
Methylene chloride	5	0.5
Methyl ethyl ketone (MEK)	460	90
Methyl isobutyl ketone (MIBK)	500	50
Methyl tert-butyl ether (MTBE)	60	12
Metolachlor	15	1.5
Metribuzin	250	50
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
Phenol	6 mg/l	1.2 mg/l
Picloram	500	100
Polychlorinated biphenyls (PCBs)	0.03	0.003
Prometon	90	18

Unofficial Text (See Printed Volume). Current through date and Register shown on Title Page.

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)
Pyrene	250	50
Pyridine	10	2
Selenium	50	10
Silver	50	10
Simazine	4	0.4
Styrene	100	10
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	1 mg/l	0.2 mg/l
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-Trichlorophenoxypropionic 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
Vinyl chloride	0.2	0.02
Xylene ⁴	10 mg/l	1 mg/l

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

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

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 Xylene includes meta-, ortho-, and para-xylene combined. The preventive action limit has been set at a concentration that is intended to address taste and odor concerns associated with this substance.

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.

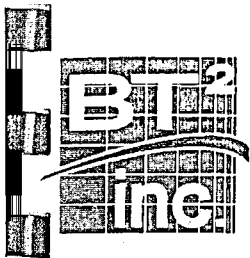
NR 140.12 Public welfare related groundwater standards. The groundwater quality standards for substances of public welfare concern are listed in Table 2.

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

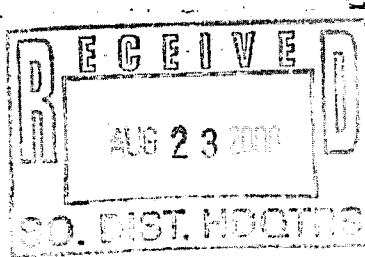
Substance	Enforcement Standard (milligrams per liter – except as noted)	Preventive Action Limit (milligrams per liter – except as noted)
Chloride	250	125
Color	15 color units	7.5 color units
Foaming agents MBAS (Methylene-Blue Active Substances)	0.5	0.25
Iron	0.3	0.15
Manganese	0.05	0.025
Odor	3 (Threshold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

APPENDIX E/PROJECT DOCUMENTS



August 15, 2000

Mr. Robert Pearson
Wisconsin Department of Transportation
4802 Sheboygan Avenue, Room 451
P.O. Box 7965
Madison, WI 53707



SUBJECT: Phase 2 Environmental Site Assessments
WIDOT S.T.H. 123, Baraboo, Wisconsin
-Dick's Car Care, 620 Broadway, Baraboo, Wisconsin (5971-01-01)
-NAPA Auto Parts, 104 Broadway, Baraboo, Wisconsin (5971-01-03)
BT² Project #1770 and #1771

Dear Mr. Pearson:

This letter presents the results of two Phase 2 Environmental Site Assessments (ESAs), conducted on S.T.H. 123 (Broadway Street), in Baraboo, Wisconsin. The specific sites investigated were Dick's Car Care, 620 Broadway, and NAPA Auto Parts, 104 Broadway, Baraboo, Wisconsin. The work was conducted in accordance with Work Order 5971-01-01 dated May 30, 2000 and Work Order 5971-01-03 also dated May 30, 2000 to investigate the properties due to the historical presence of underground storage tanks (USTs) on the sites. The focus of the assessment was to identify potential soil and groundwater contamination which may be encountered during proposed improvements to S.T.H. 123.

To investigate if contamination is present in the right-of-way near 104 and 620 Broadway Street, Geoprobe™ (geoprobe) borings were drilled at the properties on June 30, 2000. The locations of the properties are shown on **Figure 1**. The property details and geoprobe boring locations are shown on **Figures 2 and 3**, respectively.

Selected soil samples were prepared and shipped to TestAmerica laboratories in Watertown, Wisconsin. Chain of custody forms and laboratory analytical reports are attached. The laboratory analytical results for soil samples are summarized in **Table 1** and **Table 2**. Groundwater was not encountered in any of the geoprobe borings.

Background

Dick's Car Care is located at 620 Broadway Street in Baraboo, Wisconsin. Revisions to Sanborn maps dated 1941 indicated the presence of USTs on the site. According to the current owner, the USTs were removed in 1987. No USTs are listed under this address in the Wisconsin Department of Commerce tracking database. A small strip of pavement approximately 15 feet wide had been previously stripped away extending between the two service drives on Broadway Street. This may have been the area in which the USTs were removed from.

Mr. Robert Pearson
August 15, 2000
Page 2

NAPA Auto Parts is located at 104 Broadway Street in Baraboo, Wisconsin. According to the current owner, three USTs were removed from the site in the early to mid-1980s. The exact locations of the USTs are unknown. No USTs are listed under this address in the Wisconsin Department of Commerce tracking database. Three 55-gallon drums were present along the west wall of the building at 110 Broadway Street. Obvious soil staining was present around the drums. Two vent pipes were observed on the north side of the building at 110 Broadway Street. It is unknown if these vent pipes service or have serviced USTs.

Field Methods and Observations

Dicks Car Care

Per phone conversations with Wisconsin Department of Transportation (WI DOT) personnel, the number of borings installed at Dicks Car Care was increased from two to four. The geoprobe borings (GP1 through GP4) were installed within the WIDOT right-of-way between the sidewalk and Broadway Street. In accordance with the work order, geoprobe borings were installed to the depth of groundwater, bedrock, or 20 feet below ground surface (bgs). The total depths of the borings ranged from 11.5 to 20 feet bgs. Refusal was encountered while installing borings GP1, GP2, and GP4 at depths of 18 feet, 12 feet, and 11.5 feet, respectively. Refusal was likely due to the tight till layers with large cobbles encountered rather than bedrock. At each geoprobe boring, soil samples were collected at 2-foot intervals. The headspace of soil samples was field-screened using a photo-ionization detector (PID). The soil headspace PID readings were entered on the boring log, along with a description of the soil samples. The soils encountered by the borings were typically 4 to 5 feet of fill, underlain by varying thicknesses of fine to medium sand with gravel. The fine to medium sand and gravel was further underlain by silty sand with gravel (till). No groundwater was encountered. Boring logs and borehole abandonment forms for the borings are included as **Attachment A**.

Soil samples were collected at 2-foot intervals for field screening with a PID. Field screening results ranged from less than 3 ppm to 360 ppm. Petroleum odors were noted in the sample collected from boring GP2. A total of eight soil samples (two from each boring) were collected and preserved for submittal to TestAmerica, Inc., of Watertown, Wisconsin (WDNR Certification No. 128053530), for laboratory analysis. The samples were analyzed for gasoline range organics (GRO), diesel range organics (DRO), and petroleum volatile organic compounds (PVOCs). Soil sample analytical results are summarized in **Table 1**. Laboratory analytical reports and chain of custody forms are included in **Attachment C**.

NAPA Auto Parts

The number of borings installed at NAPA Auto Parts was also increased from two to four to allow for the additional investigation of 110 Broadway. These two properties are both owned by the same party. The geoprobe borings (GP1 through GP4) were all installed within the WIDOT right-of-way. Groundwater and bedrock were not encountered. Therefore, each boring was installed to a total depth of 20 feet bgs. At each geoprobe boring, soil samples were collected at 2-foot intervals. The headspace of soil samples was field-screened using a PID. The soil headspace PID readings were entered on the boring log, along with a description of the soil samples. The soils encountered by the borings were typically 15 to 20 feet of fill, underlain by silty clay. Boring logs and borehole abandonment forms for the borings are included as **Attachment B**.

Soil samples were collected at 2-foot intervals for field screening with a PID. Field screening results ranged from less than 3 ppm to 272 ppm. Petroleum odors were noted in samples collected from borings GP1, GP2, and GP3. A total of eight soil samples (two from each boring) were collected and preserved for submittal to TestAmerica for laboratory analysis. The samples were analyzed GRO, DRO, and PVOCs.

Analytical Results

Dick's Car Care

Analytical results of the soil indicate that significant petroleum impacts are present in soil in the right-of-way. Soil samples collected from boring GP2, GP3, and GP4 contained detectable concentrations of GRO, DRO, and PVOCs. The sample collected from boring GP2 at a depth of 12 feet contained concentrations of DRO, GRO, benzene, ethylbenzene, toluene, and xylenes which exceed Wisconsin Administrative Code NR 720 cleanup standards. Soil sample analytical results are summarized in **Table 1**. Laboratory analytical reports and chain of custody forms are included as **Attachment C**.

NAPA Auto Parts

Analytical results of the soil indicate that significant petroleum impacts are also present in soil in the right-of-way at both 104 and 110 Broadway Street. Soil samples collected from all borings (GP1, GP2, GP3, and GP4) contained detectable concentrations of GRO, DRO, and PVOCs. The samples collected from borings GP1, GP2, and GP3 contained concentrations of benzene which exceed Wisconsin Administrative Code NR 720 cleanup standards. NR 720 cleanup standards were also exceeded in samples collected from GP2 for GRO, DRO, ethylbenzene, toluene, and xylenes and from GP3 for GRO and xylenes. Soil sample analytical results are summarized in **Table 2**. Laboratory analytical reports and chain of custody forms are included as **Attachment C**.

Conclusions and Recommendations

Dick's Car Care

The soil at the site appears to have been impacted by petroleum constituents in an area which is likely near the location of the former USTs, indicating a release may have occurred on the site. Four of the eight soil samples collected contained detectable concentrations of petroleum compounds. The soil sample collected from boring GP2 at a depth of 12 feet bgs contained concentrations of DRO, GRO, benzene, ethylbenzene, toluene, and xylenes above the NR 720 generic soil cleanup standards. Based on field screening performed at the site using a PID, it appears the petroleum impacts in the right-of-way are confined to a depth of 7 feet or more bgs. For the planned WI DOT activities, it does not appear that impacted soil will be encountered. However, we understand the City of Baraboo has not yet decided whether or not to make improvements to sewer and water lines along Broadway Street during the highway reconstruction. If sewer or water mains are proposed in the vicinity of the site and at depths greater than 7 feet bgs, petroleum-impacted soil may be encountered.

NAPA Auto Parts

The soil at the NAPA Auto Parts site also appears to have been impacted by petroleum constituents in all areas investigated. Seven of the eight soil samples collected contained detectable concentrations of petroleum compounds. The soil samples collected from borings GP1, GP2, and GP3 contained concentrations of petroleum compounds above the NR 720 generic soil cleanup standards. Based on field screening performed at the site using a PID, it appears the petroleum impacts in the right-of-way are confined to a depth of 10 feet or more bgs. For the planned WI DOT activities, it does not appear that impacted soil will be encountered. However, we understand improvements will be made to the storm

Mr. Robert Pearson
August 15, 2000
Page 4

sewer located along the western boundary of the property. However, the design of the storm sewer has not been completed. Depending on the depth and location of the storm sewer, impacted soil may be encountered.

Qualifications and Limitations

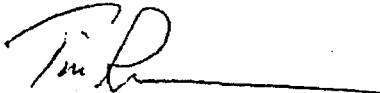
This report is presented for use by our client alone, and is not to be used by or relied upon by others who have not entered into a contract with BT² for these services. Conclusions in this report represent our professional judgement and are limited to those site conditions and potential soil impacts from neighboring properties that could be discovered under the work outlined in the Work Authorizations dated May 30, 2000.

The conclusions and interpretations of this report do not collectively define all the risks associated with purchase or other use of the property. In particular, the conclusions were based on collection and analysis of sixteen soil samples from areas potentially impacted by former land use practices. Should you, our client, or other interested parties, wish to further reduce the risks associated with undiscovered or unquantified environmental impacts, you may want to consider having additional assessment activities performed, such as collecting and analyzing additional soil, groundwater, or other appropriate samples for compounds of relevant and particular concern, or complete other investigation activities as appropriate.

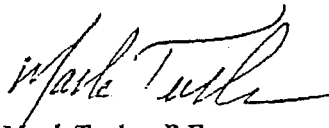
The assessment was prepared in accordance with the generally accepted industry standards at the time the work was performed. No other warranty is expressed or implied.

If you have any questions regarding this letter please call us at (608) 224-2830.

Sincerely,
BT², Inc.



Tim Ryan
Project Engineer



Mark Tusler, P.E.
Project Manager

Attachments: Table 1: Soil Analytical Results Summary - Dick's Car Care
Table 2: Soil Analytical Results Summary - NAPA Auto Parts
Figure 1: Site Location Map
Figure 2: Site Plan with geoprobe locations - Dick's Car Care
Figure 3: Site Plan with geoprobe locations - NAPA Auto Parts
Attachment A: Soil Boring Logs and Borehole Abandonment Forms - Dick's Car Care
Attachment B: Soil Boring Logs and Borehole Abandonment Forms - NAPA Auto Parts
Attachment C: Laboratory Analytical Reports and Chain-of-Custody Forms

cc: Michele Brokaw - WI DOT
Linda Olver - WI DOT
Troy Clausen - WDNR
Dick Christian - Dick's Car Care
Bob Schrieber - NAPA Auto Parts

I:\1770\Reports\000815phase2.1770

Table 1
Soil Analytical Results Summary
WI DOT - Dick's Car Care (5971-01-01)
(Results are in µg/kg, except where noted otherwise)

Sample	Date	Depth (feet)	FID (IU)	Lab Notes	DRO (mg/kg)	GRO (mg/kg)	Benzene	Ethylbenzene	Toluene	Xylenes	1,2,4-TMB	1,3,5-TMB	MTBE	Other VOCs
GP1-S5	6/30/00	9	--	(1)	<5.3	<5.8	<30	<30	<30	<87	<30	<30	<30	NA
GP1-S9	6/30/00	18	--	(1)	<5.3	<5.3	<26	<26	<26	<79	<26	<26	<26	NA
GP2-S5	6/30/00	9	--	(1)	7.7	<5.8	<30	39	117	286	191	90	<30	NA
GP2-S6	6/30/00	12	360	(2)	1,510	3,240	23,800	73,500	178,000	397,000	176,000	56,200	<1,300	NA
GP3-S7	6/30/00	9	--	(1)	<5.3	<5.9	<30	<30	128	<87	<30	<30	<30	NA
GP3-S10	6/30/00	20	--	(1)	<5.3	<6.4	<32	<32	<32	<96	<32	<32	<32	NA
GP4-S4	6/30/00	7	--	(1)	<5.1	<5.1	<26	<26	44	<77	<26	<26	<26	NA
GP4-S6	6/30/00	11	--	(1)	<5.3	<5.3	<27	<27	<27	<80	<27	<27	<27	NA
MeOH Blank	6/30/00	--	--	--	NA	<5.0	<25	<25	<25	<75	<25	<25	<25	NA
NR 720 Generic Soil Cleanup Standards					100	100	5.5	2,900	1,500	4,100	NE	NE	NE	

NOTE: Detections are in bold. NR 720 Generic Soil Cleanup Standards exceedances are shaded.

ABBREVIATIONS:

FID = Flame-ionization Detector
MTBE = Methyl-tert-butyl ether

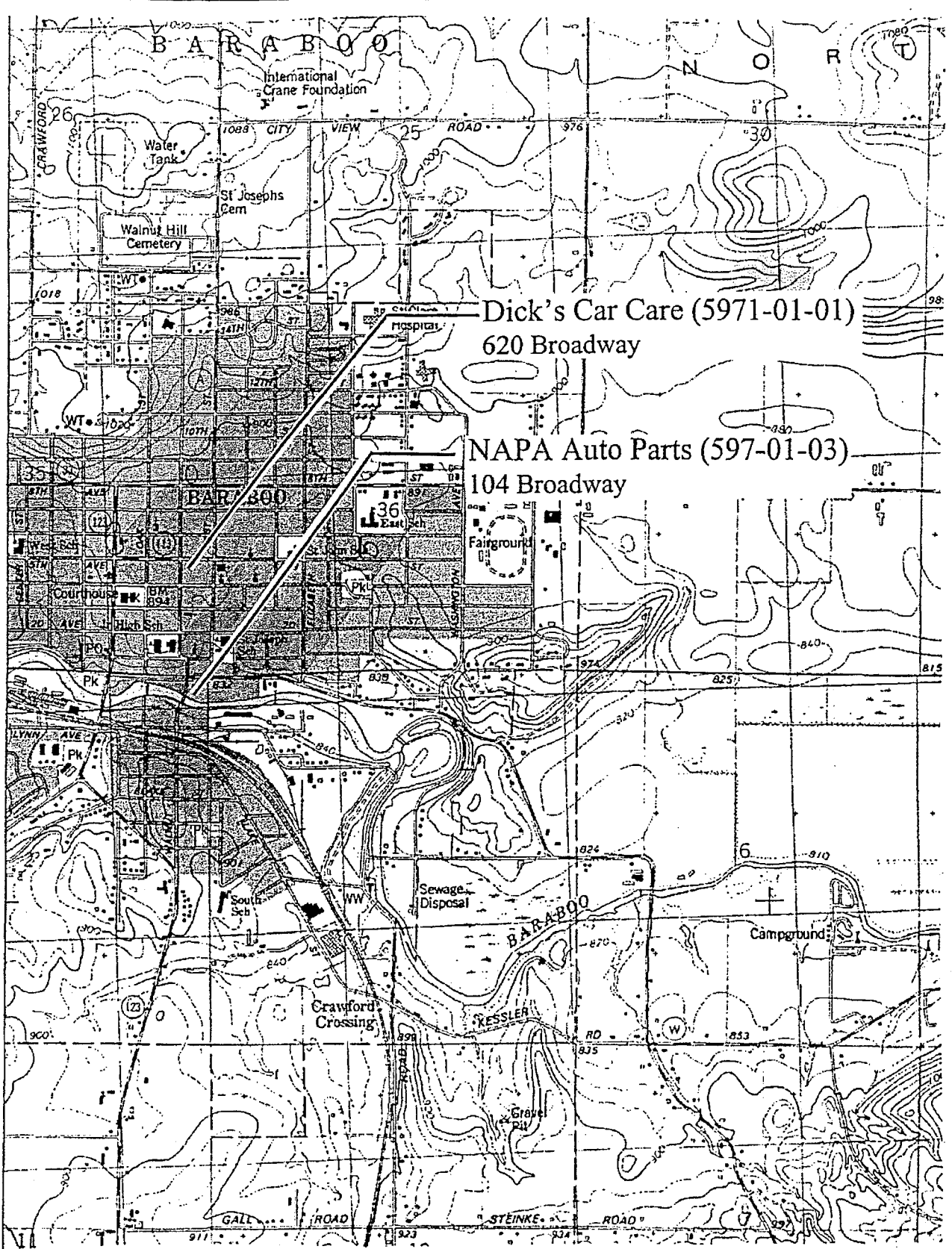
DRO = Diesel Range Organics
VOCs = Volatile Organic Compounds

GRO = Gasoline Range Organics
NE = No Standard Established

TMB = Trimethylbenzene
NA = Not Analyzed

LABORATORY NOTES:

- (1) DRO analysis - Received past hold time.
(2) DRO analysis - Received past hold time. GRO analysis - Late eluting hydrocarbons present.



Dick's Car Care (5971-01-01)
620 Broadway

NAPA Auto Parts (597-01-03)
104 Broadway

PROJECT NO. 1770/1771
 DRAWN BY: TR
 CHECKED BY: MT
 DRAWN: 08/15/00
 REVISED:

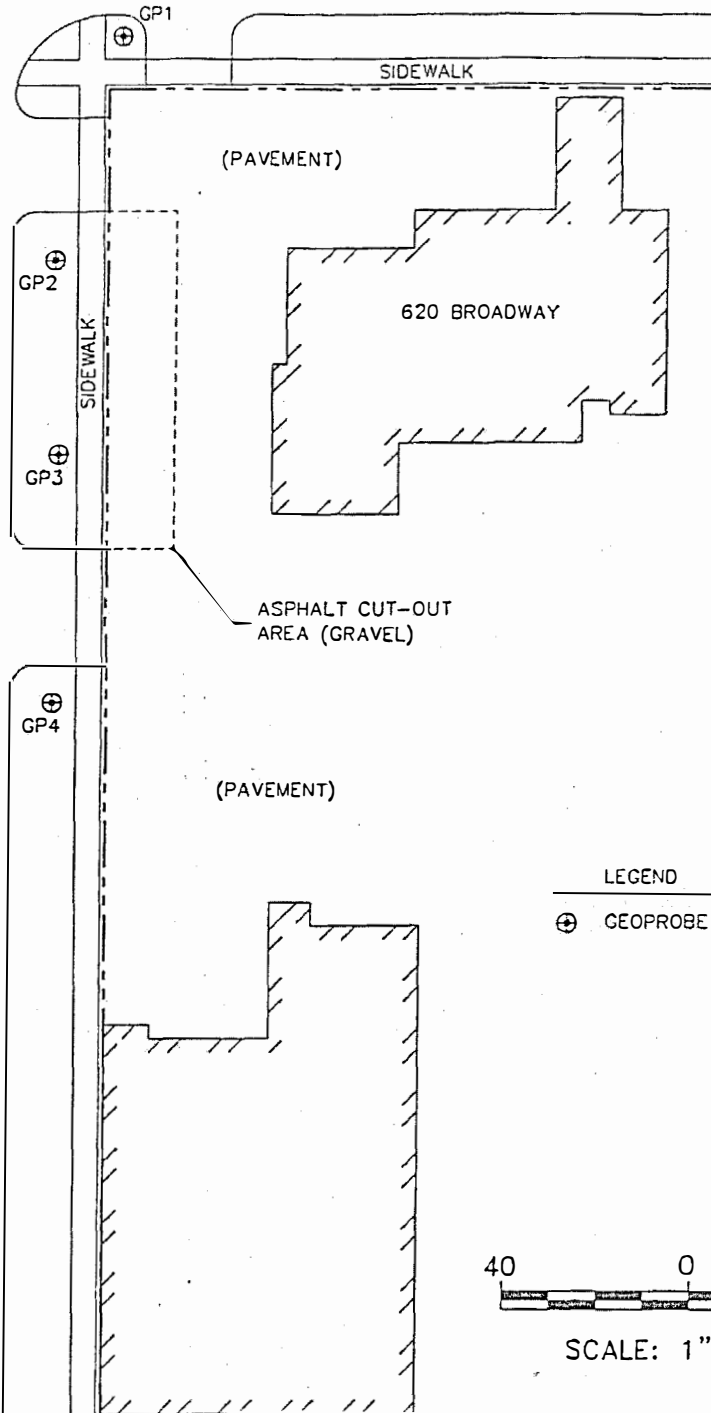
FIGURE 1
 SITE LOCATION MAP
 DICK'S CAR CARE & NAPA AUTO PARTS
 104 & 620 BROADWAY
 BARABOO, WISCONSIN



N

5TH AVENUE (STH 113)

BROADWAY STREET (STH 123)



LEGEND

⊕ GEOPROBE SOIL BORING



SCALE: 1" = 40'

PROJECT NO. 1770

DRAWN BY: KP

CHECKED BY: NH

DRAWN: 07/05/00

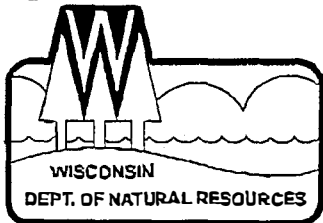
REVISED: 07/05/00

FIGURE 2
 SITE PLAN
 WDOT - DICKS CAR CARE (5971-01-01)
 620 BROADWAY STREET
 BARABOO, WISCONSIN



ATTN: RON or Jason

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES



Jim Doyle, Governor
Matthew Frank, Secretary
Lloyd L. Eagan, Regional Director

South Central Region Headquarters
3911 Fish Hatchery Road
Fitchburg, Wisconsin 53711-5397
Telephone 608-275-3266
FAX 608-275-3338
TDD 608-275-3231

August 13, 2008

BRRTS # 03-57-258614

Mr. Dave Christian
320 7th Street
Baraboo W 53913

SUBJECT: Reported Contamination at the: Dicks Car Care, 620 Broadway

Dear Mr. Christianson:

This is a reissue of a Responsible Party (RP) letter that was originally sent on September 14, 2000. Since that time the Wisconsin Department of Natural Resources (WDNR) has been notified that you are the current RP.

On August 23, 2000 Mark Tusler representing BT2 Inc. notified the Department of Natural Resources that soil contamination had been detected at the site listed above.

Based on the information that you submitted to the WDNR, we believe that you are currently responsible for restoring the environment at the referenced site under Section 292, Wisconsin Stats., known as the hazardous substances spills law. This letter describes your legal responsibilities, explains what you need to do to investigate and clean up the contamination, and provides you with information about cleanups, environmental consultants, possible financial assistance, and working cooperatively with the Departments of Natural Resources and Commerce.

Legal Responsibilities:

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

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

Wisconsin Administrative Code chapters NR 700 through NR 749 establish requirements for emergency and interim actions, public information, site investigations, design and operation of remedial action systems, and case closure. Chapter NR 708 includes provisions for immediate actions in response to limited contamination. Wisconsin Administrative Code chapter NR 140 establishes groundwater standards for contaminants that reach groundwater.

Steps to Take:



*Quality Natural Resources Management
Through Excellent Customer Service*



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

1. Within the next 30 days, you must submit written verification (such as a letter from the consultant) that you have hired an environmental consultant.
2. Within the next 60 days, your consultant must submit a workplan and schedule for the investigation. The consultant must follow the DNR administrative codes and technical guidance documents.

Once an investigation has established the type and severity of contamination involved at your site, your consultant will be able to determine whether the Department of Commerce or the Department of Natural Resources has authority over the case. The decision will be reviewed by agency staff, and you will be notified by mail if the case is being transferred to Commerce. In general, cases involving petroleum products that have leaked from either above ground or underground storage systems will be reviewed by the Commerce, unless high risk criteria are involved.

3. Please inform the appropriate agency of what is being done at your site. If the site meets criteria for a "simple site", progress reports must be submitted semi-annually, beginning 6 months from the initial notification date. If the site meets criteria for a "complex site", a complete site investigation report and a draft remedial options report must be submitted within 30 days of completion. In addition, you or your consultant must provide a brief report at least every 90 days. Quarterly reports need only include one or two pages of text, plus any relevant maps and tables. Should conditions at your site warrant, we may require more frequent contacts.

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

Unless you are notified that your case has been transferred to Commerce, all correspondence regarding this site should be sent to:

Hank Kuehling
 Remediation and Redevelopment Program
 Wisconsin Department of Natural Resources
 3911 Fish Hatchery Road
 Fitchburg, WI 53711

Unless otherwise requested, please send only one copy of plans and reports. To speed processing, correspondence should reference the BRRTS numbers shown at the top of this letter.

Information for Site Owners:

Information to help you select a consultant, and materials on controlling costs, understanding the cleanup process, and choosing a site cleanup method are enclosed. For information on obtaining limited liability under Section 292.15, Wisconsin Stats., please see our website at <http://www.dnr.state.wi.us/org/aw/rr/liability>.

Financial Assistance:

Reimbursement from the Petroleum Environmental Cleanup Fund (PECFA) is available for the costs of cleaning up contamination from eligible petroleum storage tanks. Please refer to the enclosed information sheet entitled *Site Remediation Using PECFA* for more information on eligibility and regulations for this program. Funding is also available for cleanup at some drycleaning sites.

Thank you for your cooperation.

Sincerely,



Hank Kuehling, P.G. (for)
Remediation & Redevelopment Program Hydrogeologist
Telephone: (608) 275-3286
harlan.kuehling@wisconsin.gov

Enclosures

cc: File

COPY

**Tank Closure Site Assessment Report
Dick's Car Care
Baraboo, Wisconsin**

**November 19, 2008
by METCO**



Excellence through experience™

This document was prepared by:

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

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



Excellence through experience™

1421 State Road 16 ♦ La Crosse, WI 54601 ♦ 1-800-552-2932 ♦ Fax (608) 781-8893 Email: rona@metcohq.com ♦ www.metcohq.com

November 19, 2008

Dave Christian
3220 7th Street
Baraboo, WI 53913

Dear Mr. Christian,

Enclosed is our "Tank Closure Site Assessment Report" concerning the removed underground storage tank (UST) system at the Dick's Car Care property located in Baraboo, Wisconsin. This document presents the procedures, methods, observations, and documentation used to conduct such a project.

As required, a copy of this report will be sent to the WDNR.

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

Sincerely,

Ronald J. Anderson PG
Senior Hydrogeologist/Project Manager

Cc: Wendy Weihemuller - WDNR

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CONCLUSIONS	3
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APPENDIX B/ LABORATORY REPORT	5
APPENDIX C/ STATE FORMERS - 8951	6

**Tank Closure Site Assessment Report - METCO
Dick's Car Care**

INTRODUCTION

METCO was retained to perform a Tank Closure Site Assessment at the Dick's Car Care property located in Baraboo, Wisconsin. The purpose of this site assessment was to: 1) Document tank system removal, 2) Determine if petroleum products have spilled or leaked into the environment, and 3) Determine if additional investigations are needed. This report presents the data and results of this assessment.

Please note that this property is an active DNR LUST site – BRRTS #03-57-258614, which is currently under investigation by METCO.

SCOPE OF SERVICES

Duties included collecting background information, field observations, laboratory analysis of collected soil samples, and subsequent report generation. All work was done in accordance with the Department of Commerce (DCOMM) and the Department of Natural Resources (WDNR) approved methods.

PROJECT CONCERNED PARTIES

Tank System Owner

Dave Christian
3220 7th Street
Baraboo, WI 53913
608-393-1867

General Contractor

METCO
102 Enterprise Drive
P.O. Box 448
Hillsboro, WI 54634
608-489-2198

State Certified Site Assessor

METCO
Ronald J. Anderson (#41861)
1421 State Highway 16
La Crosse, WI 54601
608-781-8879

SITE INFORMATION

Site Address

620 Broadway Street, Baraboo, Wisconsin.

Tank Closure

On November 3, 2008, a 500 gallon waste oil UST was removed, including the associated piping.

The tank and piping were constructed of bare steel, which was corroded. However, no cracks, leaks, or holes were noticed in the tank system. No petroleum odors or staining were noticed in the surrounding soils.

The tank system and its contents were properly disposed.

OBSERVATIONS

Geology

Native soils consisted of a tan glacial till.

Groundwater was not encountered.

Bedrock was not encountered.

Laboratory Results

SA-1 = <10 ppm DRO at 6-7 feet below ground surface.

SA-2 = <10 ppm DRO at 6-7 feet below ground surface.

Soil Sampling

The soil samples were collected for laboratory analysis with as little disturbance and exposure to the air as possible.

Using a clean shovel and gloved hand, each soil sample was collected and placed in a laboratory specified, clean, clear, glass container with a screw on, Teflon lined cap. The samples were then packed in a cooler containing ice and hand delivered to Synergy Environmental Labs located in Appleton, Wisconsin.

Tool Cleaning Methods

No sampling tools were cleaned on-site and no wastewater produced.

CONCLUSIONS

According to the WDNR, if a collected soil sample tests more than 10 ppm for GRO or DRO, the current owner/operator of the facility is required to determine the complete extent of the contamination released from their tank system and possibly clean it up.

Since the collected soil samples showed no detect levels for petroleum products (DRO), METCO can only conclude that the removed system has not released measurable amounts of contaminants into the areas sampled.

A copy of this report will be sent to the WDNR.

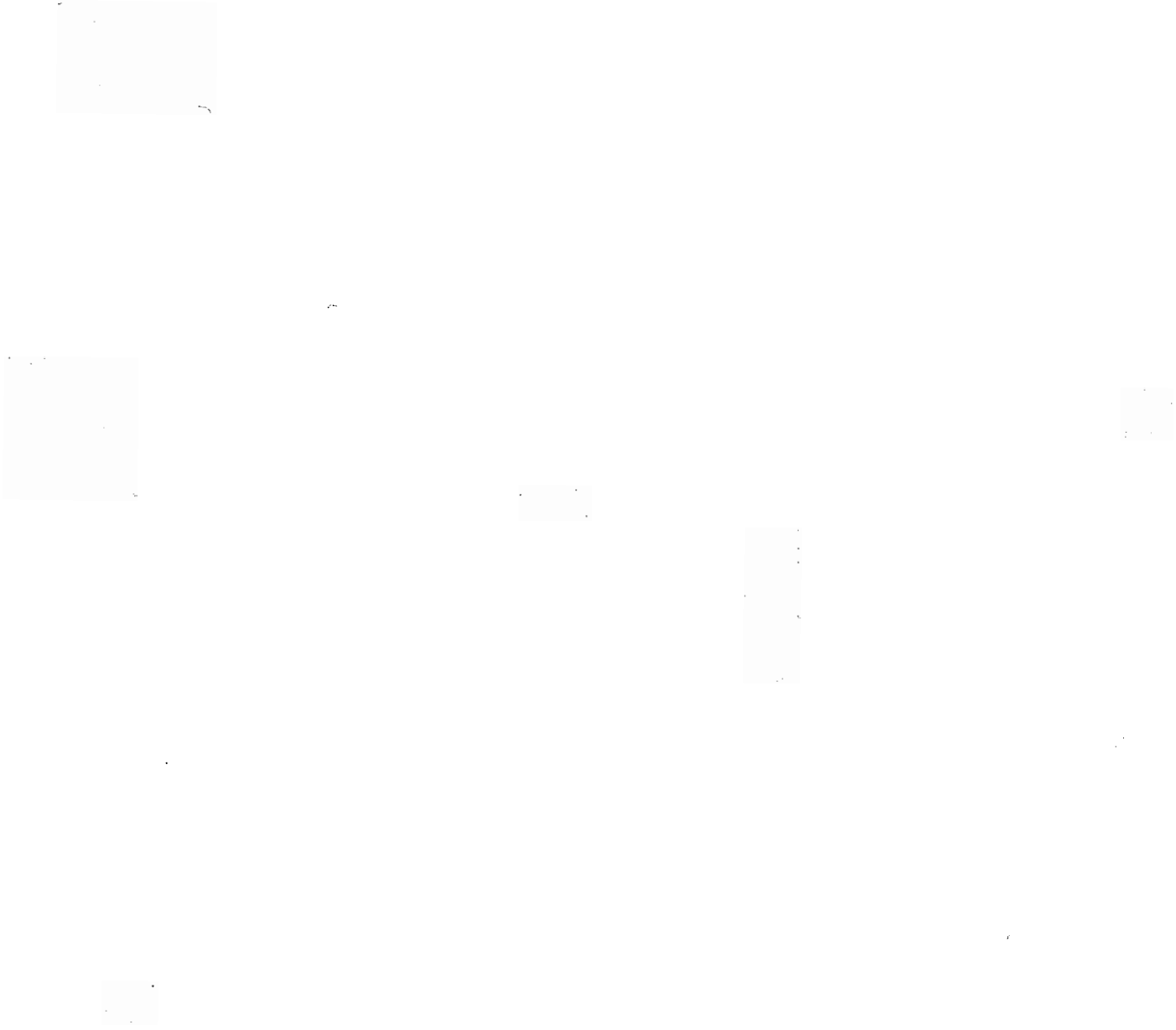
STANDARD OF CARE

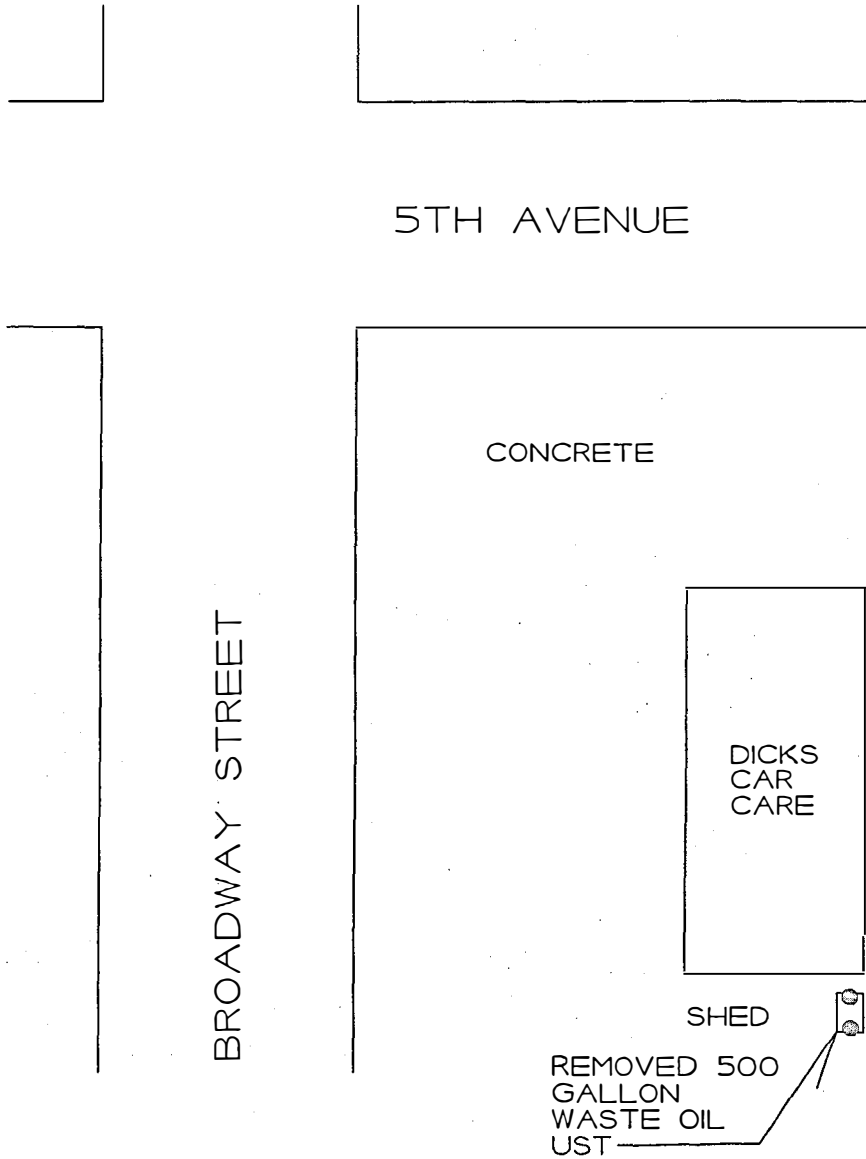
The analysis and conclusions expressed in this report are based upon data obtained from the subsurface evaluation at the indicated locations and from other information discussed in this report. Actual subsurface conditions may vary and may not become evident without further assessment.

The conclusions and recommendations contained in this report represent our professional opinions. All work conducted by METCO is in accordance with currently accepted hydrogeologic and engineering practices and they neither imply nor intend warranty.

We appreciate the opportunity to be of service on this project. If you have any questions or require additional information, please do not hesitate to contact us.

Appendix A/ Site Map





● - SOIL SAMPLING LOCATION

SITE LAYOUT MAP TANK SYSTEM CLOSURE SITE ASSESSMENT CONDUCTED ON 11/3/08		
DICKS CAR CARE BARABOO, WISCONSIN		
METCO 1421 STATE HIGHWAY 16 LA CROSSE, WI 54603 608/ 781-8879 608/ 781-8893 FAX	SCALE: 1 INCH = 30 FEET	
	DRAWN BY: RA DATE: 1/5/08 JOB NO:	

NOTE: THIS IS NOT A SURVEYED MAP.
 MEASUREMENTS AND SPACIAL
 RELATIONSHIPS MAY BE INCORRECT.

**Tank Closure Site Assessment Report - METCO
Dick's Car Care**

Appendix B/ Laboratory Report

Synergy Environmental Lab,

1990 Prospect Ct., Appleton, WI 54914 *P 920-830-2455 * F 920-733-0631

RON ANDERSON
 METCO
 1421 U.S. HIGHWAY 16
 LA CROSSE, WI 54601

Report 19-Nov-08

Project Name DICK'S CAR CARE
 Project #

Invoice # E18122

Lab 5018122A
 Sample ID SA-1
 Sample Soil
 Sample Date 11/3/2008

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run	Analyst	Code
General										
General										
Solids Percent	97.3	%			1	5021		11/4/2008	MDK	1
Organic										
General										
Diesel Range Organics	< 10	mg/kg	0.82	2.6	1	DRO95		11/13/200	MDK	1

Lab 5018122B
 Sample ID SA-2
 Sample Soil
 Sample Date 11/3/2008

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run	Analyst	Code
General										
General										
Solids Percent	97.1	%			1	5021		11/4/2008	MDK	1
Organic										
General										
Diesel Range Organics	< 10	mg/kg	0.82	2.6	1	DRO95		11/13/200	MDK	1

Project Name DICK'S CAR CARE
Project #

Invoice # E18122

"J" Flag: Analyte detected between LOD and LOQ

LOD Limit of Detection

LOQ Limit of Quantitation

Code **Comment**

1 Laboratory QC within limits.

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight.

Authorized Signature

Michael J. Ricker

CHAIN OF CUSTODY RECORD

Synergy

Environmental Lab, Inc.

Chain # Ne 328

Page 1 of 1

Lab I.D. # _____
 Account No. : _____ Quote No.: _____
 Project #: _____
 Sampler: (signature) [Signature]

1990 Prospect Ct. • Appleton, WI 54914
 920-830-2455 • FAX 920-733-0631

Sample Handling Request
 ___ Rush Analysis Date Required ___
 (Rushes accepted only with prior authorization)
 Normal Turn Around

Project (Name / Location): Dick's Car Care

Reports To: <u>Metro</u>		Invoice To: <u>Metro</u>	
Company		Company	
Address		Address	
City State Zip		City State Zip	
Phone		Phone	
FAX		FAX	

Analysis Requested										Other Analysis										
DRO (Mod DRO Sep 95)	GRO (Mod GRO Sep 95)	IRON	LEAD	NITRATE / NITRITE	PAH (EPA 8270)	PVOC (EPA 8021)	PVOC + NAPHTHALENE	SULFATE	VOC DW (EPA 524.2)	VOC (EPA 8260)	8-PCRA METALS									PID/ FID
X	X																			

Lab I.D.	Sample I.D.	Collection Date	Time	Comp	Grab	Filtered Y/N	No. of Containers	Sample Type (Matrix)*	Preservation
Sol 9122 A	SA-1	11/4/08	1128		X		1	S	—
B	SA-2	11/4/08	1133		X		1	S	—

Comments/Special Instructions (*Specify groundwater "GW", Drinking Water "DW", Waste Water "WW", Soil "S", Air "A", Oil, Sludge etc.)

Sample Integrity - To be completed by receiving lab. Method of Shipment: <u>Per truck</u> Temp. of Temp. Blank: <u>°C On Ice</u> <input checked="" type="checkbox"/> Cooler seal intact upon receipt: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Relinquished By: (sign) _____	Time _____	Date _____	Received By: (sign) _____	Time _____	Date _____
	Received in Laboratory By: <u>[Signature]</u>			Time: <u>8:30</u>	Date: <u>11/4/08</u>	

**Tank Closure Site Assessment Report - METCO
Dick's Car Care**

Appendix C/ State Form ERS - 8951

APPENDIX F/HEALTH AND SAFETY PLAN

SAFETY PLAN INFORMATION

Code: METCO

METCO Project No: C1710

Company Name: METCO

Contact:

Last Name: Powell

First Name: Jason

Salutation: MR.

P.O. Box

Street: 1421 State Road 16

City: La Crosse

State: WI

Zip Code: 00005-4601

Area code: 608

Phone: 781-8879

Fax: (608)781-8893

SITE INFORMATION

Site Name: Dick's Car Care

Site Address: 620 Broadway Street

Site Address City: Baraboo

Site Address State: WI Site Address Zip Code: 53913

Site Address County: Sauk

WDNR Contact: Hank Kuehling

Fire Dept. Contact: Baraboo

Project Date:

Tank Removal Contractor:

General Contractor: METCO

TANK INFORMATION

Tank Sizes\Contents

Tank 1:	1000	Contents: Leaded Gasoline	Age: Removed
Tank 2:	1000	Contents: Leaded Gasoline	Age: Removed
Tank 3:	500	Contents: Leaded Gasoline	Age: Removed
Tank 4:	500	Contents: Fuel Oil	Age: Removed
Tank 5:	500	Contents: Waste Oil	Age: Removed
Tank 6:		Contents:	Age:

PURPOSE OF ACTIVITY (Check all appropriate)

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

Background Information Complete Ir

TYPE OF SITE

SITE HEALTH AND SAFETY PLAN

POTENTIAL HEALTH AND SAFETY HAZARDS (check all appropriate)

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

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

EVALUATION OF CHEMICAL HAZARDS (MSDS sheets attached)

NAME	PHYSICAL STATE	ROUTE OF ENTRY	OSHA PEL/TL	SYMPTOMS OF EXPOSURE
1.	Vapor/Liq	Inh/Skin	25-300PPM	Nausea, Irritation
2.				
3. Gasoline		Inh/Skin	300 PPM	Eyes, Nose, Throat Irrita
4.				
5.				

ON-SITE PERSONNEL RESPONSIBILITIES

Team Member	Responsibilities
1. Jason Powell	Site Project Management
2. Eric Dahl	Hydrogeologist
3. Brandon Walker	Environmental Tech
4. Aaron Nichols	Environmental Tech

METHOD TO CONTROL POTENTIAL HEALTH AND SAFETY HAZARDS

MONITORING INSTRUMENTS

Combustible Gas Indicator:

Action Levels
0-10% I FI No Fxnlosion 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:

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 cartridge:

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: Baraboo	911
Hospital Emergency Room: St Clare Hospital	608-356-1400
Poison Control Center: Madison	(608) 265-8160
Police Baraboo	911
Fire Dept: Baraboo	911
Hazardous Waste Response Center:	800-943-0003 Wisconsin EPA 800-424-8802

Location Address: 620 Broadway Street, Baraboo, WI

EMERGENCY ROUTES (attach maps)

Hospital: St Clare Hospital (707 14th Street, Baraboo, WI 53913)
Travel north on Broadway 3 blocks to 8th Street (Hwy 33), turn right onto 8th Street and travel 6 blocks to Elizabeth Street, turn left on Elizabeth Street and travel north to 14th Street, turn right onto 14th Street and 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.

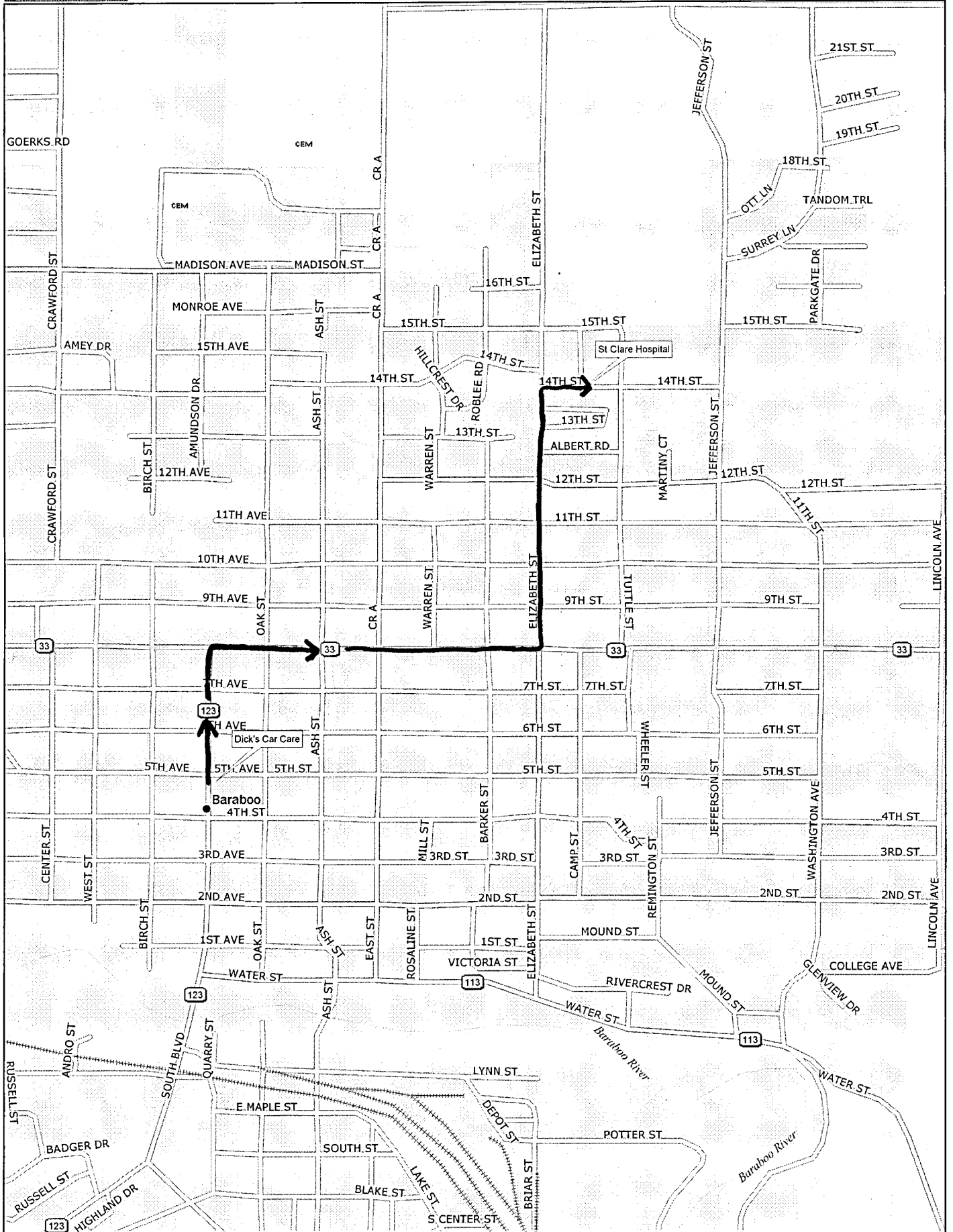
ON-SITE ORGANIZATION

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: Dave Christian		(608) 393-1867
METCO Corporate Contact: Paul Knower	home	(608)489-2659
	work	1-800-236-0448

DAILY SAFETY PLAN CHECK

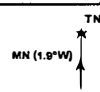
- 1. Hard-hat**
- 2. Visible fire extinguisher**
- 3. Safety glasses**
- 4. Hearing protection**
- 5. No smoking on site**
- 6. Safety data sheet**
- 7. Route to hospital**
- 8. Barricades (cones, flags, fences, vehicle)**
- 9. Emergency phone numbers**
- 10. Know where the job site book is**



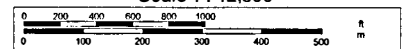
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Scale 1 : 12,800



1" = 1,066.7 ft Data Zoom 14-0

APPENDIX G/QUALIFICATIONS

**LUST Investigation Field Procedures Workplan – METCO
Dicks Car Care**

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/DCOMM 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, 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.

**LUST Investigation Field Procedures Workplan – METCO
Dicks Car Care**

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 an 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); and remedial projects (sampling, pilot tests, system operation/maintenance).

**LUST Investigation Field Procedures Workplan – METCO
Dicks Car Care**

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 Commerce as a PECFA consultant (#823519).
- Member of the Geological Society of America

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: soil and groundwater sampling, geoprobe operation, operation and maintenance of remedial systems, geoprobe projects (oversight, direction, and sampling), drilling projects/monitoring well installation (oversight, direction, and sampling), soil excavation projects (oversight, direction, and sampling), site mapping, data reduction and analysis, and reporting.

**LUST Investigation Field Procedures Workplan – METCO
Dicks Car Care**

Thomas P. Pignet, P.E.

Professional Titles

- Chemical Engineer
- Industrial Engineer

Credentials

- Licensed Professional Engineer in Wisconsin

Education

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

Post-Graduate Education

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

Work Experience

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

**LUST Investigation Field Procedures Workplan – METCO
Dicks Car Care**

Brandon A. Walker

Professional Title

- Staff Scientist

Credentials

- Registered through the Wisconsin Department of Commerce as a PECFA consultant.

Education

Includes B.S. in Geography and a minor in Environmental Studies from the University of Wisconsin- La Crosse. Applicable courses successfully completed include Water Resources, Ecology, Climate Systems, Earth Science, Zoology, Fundamentals of Cartography, Interpretation of Aerial Photography, Global Issues, Urban Geography, Environmental Sociology, and Environmental Studies.

Work Experience

With METCO since April 2007 as a Staff Scientist. Duties have included: soil and groundwater sampling, operation and maintenance of remedial systems, geoprobe projects (oversight, direction, and sampling), site mapping, data reduction and analysis, and reporting.

**LUST Investigation Field Procedures Workplan – METCO
Dicks Car Care**

Aaron K. Nichols

Professional Title

- Staff Scientist

Credentials

- Registered through the Wisconsin Department of Commerce as a PECFA consultant.

Education

Includes B.S. in Geography and a minor in Earth Science from the University of Wisconsin- La Crosse. Applicable courses successfully completed include Cartography, Interpretation of Aerial Photography, Remote Sensing, Soil Morphology, Biogeography, Earth Science, Conservation of Global Environments, Environmental Ethics, Geoarchaeology, and Environmental Studies.

Work Experience

- With METCO since June 2007 as a Staff Scientist. Duties have include: groundwater sampling, site mapping, data reduction and analysis, and reporting.