MID-STATE ASSOCIATES, INC.

1835 N. Stevens Street
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Rhinelander, WI 54501
715-362-3244
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Engineers • Architects • Planners • Surveyors • Scientists

June 12, 1996

Mr. Chris Saari
Wisconsin Department of Natural Resources
P.O. Box 125
6250 South Ranger Road
Brule, WI 54820-0125

Re: Site Investigation and Remedial Action Options Report for the
Quearm Oil Leaking Underground Storage Tank Site, Ashland, Wisconsin
WDNR UID No. 03-02-000975

Dear Mr. Saari:

On behalf of Mr. Fred Gygi, Mid-State Associates, Inc. (MSA) is submitting the subject site's Site Investigation and Remedial Action Options Report to satisfy the submittal requirements of s. NR 716.15 and s. NR 722.13, Wis. Adm. Code. The site is located at 105 W. 6th Street, Ashland, Wisconsin.

Please call me if you have any questions regarding this submittal.

Sincerely,

MID-STATE ASSOCIATES, INC.

Brian J. Hegge
Project Manager

BJH:ab
Enc.
cc: Fred Gygi, Ironwood, MI
Janine Dobson, Park Falls, WI

212365SI.DNR

Site Investigation and Remedial Action Options Report

Quearm Oil Leaking Underground Storage Tank (LUST) Site
105 W. 6th Street
Ashland, Wisconsin

MSA Project No. 212365
WDNR File No. 03-02-000975
PECFA Claim File No. 54806-1649-05

Prepared for:
Quearm Oil Company
Ashland, Wisconsin 54806

Prepared by:
Mid-State Associates, Inc.
Rhinelander, WI 54501

MID-STATE ASSOCIATES, INC.

Site Investigation and Remedial Action Options Report

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SUBMITTAL CERTIFICATION

The conclusions and recommendations presented in this report are the professional opinions of Mid-State Associates, Inc. (MSA). These opinions are based upon currently accepted hydrogeologic, scientific, and engineering professional practices at this time and location. As a result, MSA does not guarantee nor warranty these opinions as to the potential environmental liability associated with this property.

The findings, conclusions, and opinions contained in this report are intended for exclusive use by the Quearm Oil Company and are applicable only to the Quearm Oil Company leaking underground storage tank (LUST) project. MSA has no obligations to other persons nor organizations who may use or rely upon this information.

I, John Sager, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03(1), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct, and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Report Prepared by:

John Sager
Project Hydrogeologist

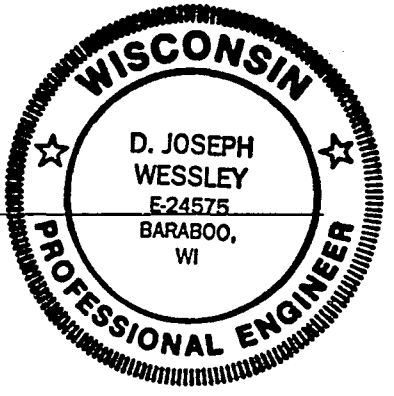
6/7/96
Date

"I, D. Joseph Wessley, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

Report Reviewed by:

D. Joseph Wessley, June 6, 1996
D. Joseph Wessley
Senior Project Engineer, P.E. No. E-24575

P.E. Stamp



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EXECUTIVE SUMMARY

A site investigation was conducted between January 1996 and April 1996 at the Quearm Oil Company leaking underground storage tank (LUST) site in Ashland, Wisconsin. During the investigation, nine Geoprobe® soil borings were completed and soil samples were collected for field screening and laboratory analysis.

As part of the site investigation, soil samples were collected for laboratory analysis from each of the Geoprobe® soil borings. Gasoline range organics (GRO) were detected at a concentration exceeding the Wis. Adm. Code Chapter NR 720 Generic Residual Contaminant Levels (GRCLs) for petroleum contamination in soil collected from boring GP-9 (1,740 mg/Kg) and GP-4 (5,800 mg/Kg). Volatile organic compounds (VOCs) were detected in concentrations exceeding the NR 720 GRCLs in soil samples collected from borings GP-1, GP-3, GP-4, and GP-9.

The soil at the site is composed of red clay. Groundwater was not encountered during the investigation.

The area of soil contamination is located in the immediate area surrounding the former underground storage tank (UST) basin and the southern pump island and piping run. Contamination extends to approximately 10 feet below grade at the former UST location and 7 feet below grade at the southern pump island. Approximately 250 yards of soil in the UST area are contaminated above the GRCLs.

Three remedial alternatives were evaluated for this site: (1) soil excavation with off-site bio-treatment; (2) soil excavation with off-site asphalt incorporation; and (3) soil excavation with on-site thermal desorption. The economic analysis indicates that Alternative 1 is the most practical and cost effective method to restore the site and, therefore, the recommended remedial action.

INTRODUCTION

This report presents the results of a site investigation conducted by Mid-State Associates, Inc. (MSA) at the Quearm Oil Company leaking underground storage tank (LUST) site. The site is at 105 West 6th Street, Ashland, Ashland County, Wisconsin 54806. The site investigation was requested by the Wisconsin Department of Natural Resources (WDNR) to satisfy the requirements of Sec. 144.76 of the Wisconsin Statutes, and has been prepared in accordance with s. NR 716.15, Wis. Adm. Code.

The site is operated as a retail fuel sales facility. Petroleum contamination was discovered on November 14, 1995, during the removal of two 1,000-gallon underground storage tanks (USTs).

MSA conducted a site investigation between January 1996 and April 1996. The site investigation consisted of advancing nine Geoprobe® soil borings. The investigation was performed to define the nature and extent of petroleum hydrocarbon impacts vertically and laterally in the soil and, if applicable, groundwater.

This document also represents the results of the Remedial Action Options (RAO) report associated with the release of petroleum hydrocarbons at the site from the UST system. The RAO report provides alternatives for the remediation of a past petroleum release along with a recommended alternative in accordance with s. NR 722.13, Wis. Adm. Code. Approval of the RAO report by the WDNR and the Wisconsin Department of Industry, Labor and Human Relations (DILHR) is a prerequisite for proceeding with the final design and implementation of the proposed remedial action and obtaining reimbursement from the Wisconsin Petroleum Environmental Cleanup Fund Act (PECFA) program.

BACKGROUND INFORMATION

Pertinent information regarding the site contact person, site location, and site description is given in the Facility Description Abstract (Table 1).

TABLE 1
FACILITY DESCRIPTION ABSTRACT
QUEARM OIL LUST SITE, ASHLAND, WI

Responsible Party:	Quearm Oil Company 105 W. 6th Street Ashland, WI 54806
Contact Person:	Mr. Fred Gygi Quearm Oil Company 631 E. McLeod Avenue Ironwood, MI 49938 (906) 932-8088
Site Location:	105 W. 6th Street Ashland, WI 54806 SE¼, SW¼, SW¼, Section 33, Township 48 North, Range 4 West Ashland County
Site Description:	The site is operated as a retail fuel sales facility. Two 1,000-gallon gasoline USTs were formerly located approximately 4 feet west of the main building on site. The two 1,000-gallon gasoline USTs were closed by removal on November 14, 1995. Seven aboveground storage tanks (ASTs) are located on the western portion of the property. A site investigation was conducted in the AST area between August 1992 and May 1993 by Ayres and Associates, Inc.
MSA Contact Person:	John Sager, Project Hydrogeologist and Brian Hegge, Project Manager (715) 362-3244

SITE HISTORY

The site has historically been used as a retail fuel sales facility.

PREVIOUS SITE WORK

Two 1,000-gallon gasoline USTs were formerly located approximately 4 feet west of the main building in a single tank basin. The two USTs were closed by removal on November 14, 1995. The UST Closure Report prepared by MSA documenting the UST removal activities was previously submitted to the WDNR on December 29, 1995.

A petroleum-product release of unknown volume was identified at the site during the UST removal. The WDNR was subsequently notified of the petroleum-product release to the subsurface and has required an investigation to determine the extent of the petroleum impacts to the site. The project location, site layout, and UST area detail are shown on Figures 1, 2, and 3, respectively.

OTHER KNOWN AND POTENTIAL SOURCES OF PETROLEUM CONTAMINATION IN THE AREA

A release of petroleum product from the ASTs west of the building was confirmed by Ayres and Associates, Inc. in 1992 to 1993 during a site investigation of the AST area (Ayres & Associates, Inc., 1993). A gas station/mini-mart is located directly east of the site, across Ellis Avenue. No other sources nor potential sources of petroleum contamination are known to exist in the area.

TOPOGRAPHY AND HYDROLOGY

The information presented below was obtained from the 1964 United States Geological Survey (USGS) Ashland West and Ashland East Quadrangle 7.5-minute series quadrangle map (Figure 1) and from data collected during the site investigation. According to regional geologic references (Young and Skinner, 1974), the site is in the Lake Superior Hydrogeologic Basin. Lake Superior is located approximately 2,300 feet northwest of the site. The approximate mean surface elevation of Lake Superior is 602 feet National Geodetic Vertical Datum of 1929 (NGVD). Surface elevations of the site are at an approximate elevation of 670 feet NGVD. The land surface in Ashland slopes gently toward Lake Superior. Land surface near the USTs and building is relatively level.

GEOLOGY AND HYDROGEOLOGY

Unconsolidated Quaternary-age glacial outwash deposits in the vicinity of the site range from 0 to 250 feet thick and consist primarily of red-to-yellow clay overlying stratified sand and gravel deposits. Glacial deposits near the site are greater than 80 to 100 feet thick based on water well records obtained from the Wisconsin Geological and Natural History Survey (WGNHS). A summary of the water well construction reports and geologic logs of wells within 1,200 feet of the site are presented in Table 2. Copies of the logs and reports are contained in Appendix A. The majority of the potable water wells in the area use the Quaternary-age deposits (water-bearing sands and gravels) below surface clay deposits as the principal aquifer.

Soil at the site consists of red clay to the depth investigated. Soil samples from soil borings GP-1 and GP-2 were analyzed for grain size analysis by Central Wisconsin Engineers, Inc. Grain size distribution tests results are included in Appendix B. The soil samples were classified as sandy clay, containing approximately 75% clay and 25% sand. Pea-gravel was encountered in the former piping runs and medium-grained sand in the former UST basin.

Regional groundwater information shows that groundwater in the Ashland area flows northwest toward Lake Superior. Based on previous site investigation activities conducted in the AST area, the depth to groundwater is approximately 4 to 18 feet below ground surface. Groundwater was reported to have been in sand lenses within the clay. Groundwater was not encountered during the UST area site investigation. Hydraulic conductivity of the clay soils is estimated to be 1×10^{-6} through 1×10^{-9} cm/sec based on the results of the grain size analysis.

SAMPLING METHODS AND DOCUMENTATION

This section presents the methods used during the field investigation to determine the extent of the petroleum contamination in the soil and groundwater at this site. This section also outlines the methods used to analyze the soil and groundwater samples collected in the field.

SOIL SAMPLING METHODS

Soil samples were obtained using a 1-inch-diameter Geoprobe® soil sampling device (GP-1 through GP-9). Upon retrieving the soil sample from the split spoon, samples for laboratory analysis were immediately collected in clean, laboratory-supplied, glass jars. Soil sampling and preservation procedures are documented in Appendix C. At each boring, after soil sampling for laboratory analysis was complete, a sample for headspace analysis was transferred from the split spoon or auger to new, quart-size, Ziploc® bags. The bags were filled approximately one-half full, shaken, and placed aside, out of direct sunlight.

Headspace samples were analyzed upon completion of drilling and sampling of the individual boreholes. The organic vapor concentration was determined by inserting the probe on the Thermo Environmental Model 580B Organic Vapor Monitor (OVM) (11.7 electron volt lamp) through a small opening made in the top of the bag. Appendix D describes the headspace screening procedures in detail. In general, a soil sample was collected for laboratory analysis from the sample interval with elevated OVM readings and/or the bottom of the borings. Samples were collected and analyzed to characterize and define the petroleum impacts; thus, both suspected contaminated samples and suspected clean samples were submitted for analysis.

Soil samples were described in the field using the Unified Soil Classification System (ASTM D2487). Soil boring logs were compiled, including sample intervals, descriptions, recovery, and OVM concentrations. Soil samples collected from the soil borings were analyzed for:

- Gasoline range organics (GRO), using WDNR Modified GRO Method;
- Volatile organic compounds (VOCs), Using EPA Method 8021; and
- Lead.

The Geoprobe® drilling rods and soil sampling equipment were decontaminated between each sample with a soap (Alconox) and water wash followed by a water rinse.

DOCUMENTATION

Soil boring logs and borehole abandonment reports are in Appendix E. Laboratory reports for soil samples, including chain of custody records, are in Appendix F.

SITE INVESTIGATION RESULTS

FIELD INVESTIGATION

The site investigation defined the nature and extent of petroleum contamination to the soil in the UST area.

Fieldwork conducted on January 17, 1996, consisted of advancing nine soil borings (GP-1 through GP-9) to approximately 6 to 14 feet below grade using Geoprobe® soil boring techniques. The soil borings were installed surrounding the UST area, and along the piping runs and pump islands. The locations of the soil borings are illustrated on Figure 4. Figures 5 and 6 present north-to-south and east-to-west hydrogeologic cross sections of the site illustrating the stratigraphy of the unconsolidated material encountered during the drilling. Soil at the site consists of red clay to the depth drilled. Intermittent sand and gravel lenses were encountered in some borings. Groundwater was not encountered during the investigation.

SOIL INVESTIGATION AND CHEMISTRY

Field organic vapor analyses and analytical soil sample results are presented in Tables 3 and 4, respectively. Soil boring locations are presented in Figure 4. The highest contamination of GRO and VOCs was detected along the former piping run and pump island south of the USTs, and in the former UST basin. Contamination above the Wis. Adm. Code NR 720 Generic Residual Contaminant Levels (GRCLs) was detected in soil borings GP-1, GP-3, GP-4, and GP-9.

DISCUSSION OF SITE INVESTIGATION ACTIVITIES

EXTENT OF PETROLEUM CONTAMINATION TO SOIL

Figures 5 and 6 illustrate the extent of petroleum contamination in cross sections A-A' and B-B', respectively. Soil sample analytical and headspace results are displayed along the borings. Figure 7 illustrates the estimated horizontal extent of petroleum contamination detected in the soil that is greater than the NR 720 GRCLs.

Petroleum contaminated soil extends from the area of the UST basin along the southern piping run and beneath the southern pump island at boring GP-9. Contamination at GP-9 appears to extend to approximately 7 feet below grade. Samples collected from GP-8 did not detect contamination. It appears that this contamination is isolated to the area surrounding the western end of the pump island. Petroleum contamination was also detected at the north end of the eastern pump island. However, analysis of samples from GP-7 did not detect contamination greater than the NR 720 GRCLs. Benzene concentrations greater than the GRCLs were detected in GP-3 at 8 to 10 feet.

PETROLEUM CONTAMINATION PATHWAY AND MIGRATION ANALYSIS

Underground sewer and water lines run parallel to Sixth Street and Ellis Avenue within the right-of-way (see Figure 2). A sanitary sewer lateral runs north-south through the property approximately 60 feet west of the building. Overhead electric and telephone lines run east-west along Sixth Street. Overhead electric services the building. Underground telephone runs from the utility pole west of the building on Sixth Street northeast to the building. None of the utilities lie within the area of contamination from the USTs. The utilities are not expected to have acted as contaminant migration pathways.

CONCLUSIONS OF THE SITE INVESTIGATION

The results of the site investigation provide the following conclusions:

GEOLOGY AND HYDROGEOLOGY

- The subsurface materials consist of dense red clay to the depth drilled (6 to 14 feet below grade).
- Groundwater was not detected during the UST site investigation.

NATURE AND EXTENT OF PETROLEUM CONTAMINATION

- Soil contamination is greatest along the southern piping run and pump island. Soil is also contaminated within the former UST basin. Analysis of soil samples from GP-9 detected soil contamination greater than the GRCLs to 10 feet below grade. Approximately 250 yards of soil is contaminated above the GRCLs.
- Based upon the site investigation, the vertical and lateral extent of petroleum contamination to the soil has been defined.

REMEDIAL ACTION OPTIONS ANALYSIS

This site requires remediation of petroleum contaminated soil. This section of the report describes the technologies that could potentially be used to achieve the remedial objectives. The applicability of each technology with regard to this site is discussed, then applicable technologies are subjected to a comparative technical feasibility and cost analysis whereby the most feasible alternative is selected. Finally, the selected alternative is presented.

APPLICABLE REMEDIAL TECHNOLOGIES

Passive Bioremediation

Passive bioremediation relies on natural processes such as biodegradation, diffusion, and dilution to mitigate contamination in unsaturated soil. This option requires minimal capital costs but often requires an extended period of time before the contaminant concentrations drop below regulatory standards. This option generally requires extensive long-term monitoring, thereby increasing the final cost.

Soil at the site consists of tight red clay. Hydraulic conductivity of clay soils generally falls well below 1×10^{-5} cm/sec (Freeze and Cherry, 1979). The WDNR guidance on bioremediation recommends a hydraulic conductivity of greater than 1×10^{-5} cm/sec for bioremediation to be an effective remedial action option. The high levels of soil contamination along the piping runs and pump island combined with the low conductivity would not make bioremediation a feasible remedial action option.

WDNR guidance also states that natural biodegradation is not a viable remedial option at sites with soil contamination exceeding 500 mg/Kg of GRO. The maximum GRO concentrations detected at this site during the closure assessment (5,800 mg/Kg) exceed the guidance value. Therefore, passive bioremediation alone is not an applicable technology for this site.

Excavation and Disposal/treatment

Excavation is frequently used to remove petroleum contaminated soil when readily accessible by a back-hoe or other appropriate heavy machinery. The excavation at this site is not anticipated to be performed in the immediate vicinity of surface obstacles.

Once the contaminated soil is removed from the subsurface, on-site or off-site treatment and disposal would follow. Cost effective disposal options that will be evaluated include off-site asphalt incorporation, off-site bio-treatment, and on-site thermal desorption unit.

Off-site Bio-treatment

Under this alternative, the source of contamination is removed and bioremediated off-site. Petroleum-contaminated soil is placed in a bioremediation cell and nutrients are added to promote biological breakdown of the petroleum hydrocarbons. The cell is typically engineered with vacuum and air inlet piping to control vapors and provide oxygen for aerobic microorganisms.

On-site Thermal Desorption

Under this alternative, the source of contamination is removed and thermally treated in a rotating oven to volatilize the contaminants, which are then destroyed by an afterburner located on the stack. The treated soils are usually placed back on-site as treated backfill, thereby reducing the costs associated with obtaining additional fill material. Petroleum hydrocarbons are easily treated using thermal desorption. However, soils that contain clays and silts require special handling and may generate treated soil that is not acceptable backfill material. In addition, the efficiency of soil desorption units is significantly reduced and production costs are higher with silty and clayey soils. The thermal desorption treatment option is available as either mobile (on-site) or fixed (off-site asphalt plants) units.

REMEDIAL ACTION ALTERNATIVES

The applicable remedial technologies described previously were assembled into three remedial action alternatives that could effectively achieve the remedial objectives for this site. This section includes a description of the preliminary design for each system. The three alternatives are as follows:

- Alternative 1: Soil Excavation with Off-site Bio-Treatment
- Alternative 2: Soil Excavation with Off-site Asphalt Incorporation
- Alternative 3: Soil Excavation with On-site Thermal Desorption

Alternative 1: Soil Excavation With Off-site Bio-treatment

Removal of the contaminated soil by excavation appears feasible at this site because of the relatively shallow depth of contamination (assumed to be less than 12 feet) and the small volume anticipated (approximately 250 yards of contaminated soil). Additional soil may need to be removed (overburden and unstable sidewall material) during excavation of the contaminated soil. The contaminated soil will be treated at a WDNR-approved bio-treatment facility. Segregated, non-contaminated soil and clean imported soil would be used to fill the excavation. It is assumed that

this alternative would provide immediate site remediation, thereby eliminating operation and maintenance costs.

Alternative 2: Soil Excavation With Off-site Asphalt Incorporation

On-site excavation, segregating, and backfilling activities in Alternative 2 would be similar to those of Alternative 1. However, disposal of the contaminated soil would be made to a WDNR-approved off-site asphalt incorporation facility. It is assumed that this alternative would provide immediate site remediation, thereby eliminating operation and maintenance costs.

Alternative 3: Soil Excavation And Onsite Thermal Desorption

On-site excavation, segregating, and backfilling activities in Alternative 3 would be similar to those of Alternative 1. However, the contaminated soil would be treated onsite with a thermal desorption unit and placed back into the excavation. It is assumed that this alternative would provide immediate site remediation, thereby eliminating operation and maintenance costs.

Compliance With Environmental Laws And Standards

All three options are expected to provide compliance with soil cleanup standards for petroleum contamination. The excavation of the petroleum contaminated soils is expected to result in compliance after the excavation is completed.

Economic Analysis

The total monetary cost of a remedial action includes all perceived costs associated with that alternative. The cost estimates presented in this report have been prepared for guidance in project evaluation and implementation from information available at the time of this report. The final project costs will depend on actual labor and material costs, competitive market conditions, final project scope, implementation schedule, and other variable factors. As a result, the final project costs will likely vary from the estimates presented herein.

Estimated costs for each of the remaining alternatives are summarized in Table 5.

The following assumptions have been made in preparing these cost estimates:

- The volume of contaminated soil is 250 cubic yards;
- Contaminated soil extends from the surface to approximately 10 to 12 feet below grade. Minimal uncontaminated soil will need excavation to access contaminated soil;
- The excavation will extend to 10 to 12 feet below grade;

- Soil samples will be collected from the excavation side walls and base to confirm that the contaminated soil has been removed around the former UST basin. Soil samples will also be collected from the excavation base along the former piping runs and pump islands to confirm contaminated soil removal; and

- Excavation and treatment/disposal costs are estimates reflective of current market prices.

RECOMMENDED REMEDIAL ACTION

The recommended option for soil remediation at this site is Alternative 1: Soil Excavation with Off-site Bio-Treatment. This option has the lowest overall estimated cost of the three alternatives evaluated.

ESTIMATED IMPLEMENTATION COSTS

The estimated implementation costs for the excavation and off-site bioremediation of petroleum contaminated soils at the Quearm Oil Company site are:

Capital	
Commodities	$38,200
Consulting	24,800
Total Capital Cost	**$63,000**
First Year	
Consulting	6,100
Total Annual Cost	**$6,100**
Total Cost	**$69,100**

ESTIMATED COMPLIANCE TIME

If excavation removes all soil contaminated in excess of the desired cleanup levels, the remediation will be completed at that time. If, after excavation, contaminated soil must naturally remediate, additional time and monitoring might be required.

PERFORMANCE MEASUREMENT

Remediation at the Quearm Oil Company site would be evaluated by soil analysis at the time of excavation. If continued bioremediation is required after excavation, passive remediation may require additional soils analysis.

REFERENCES

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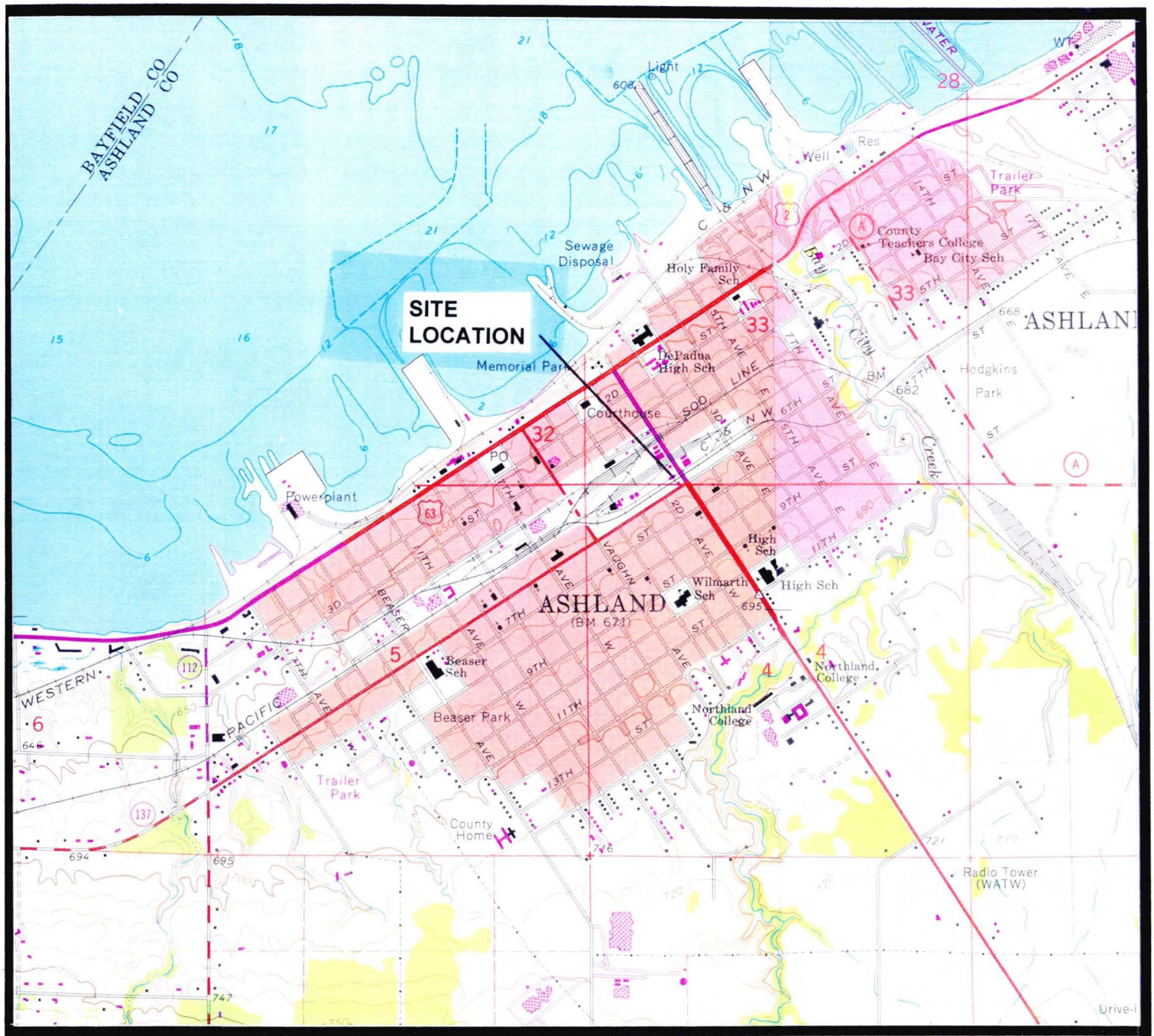
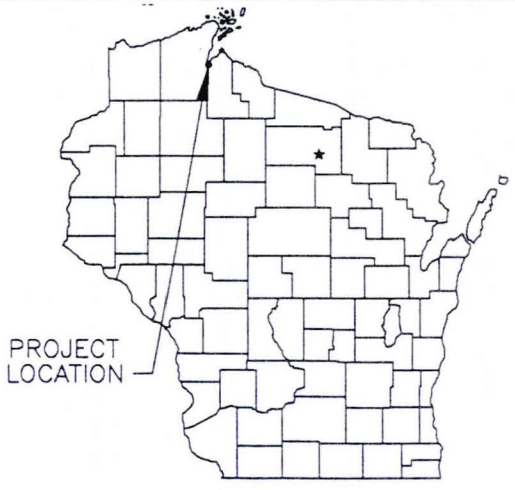
FIGURES





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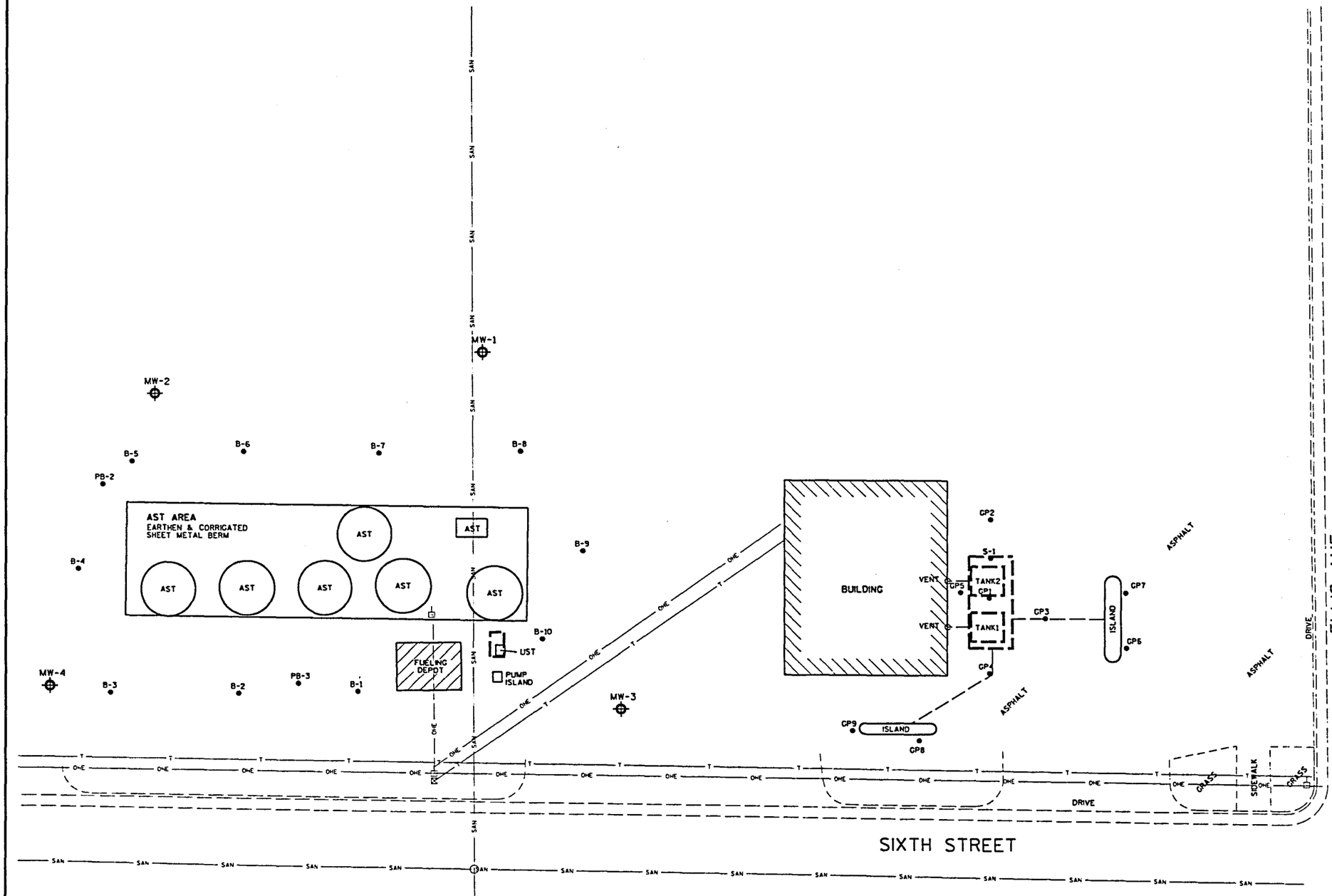
Ashland West & Ashland East Quadrangle
Wisconsin—Ashland Co.
7.5 Minute Series (Topographic)
NW/4 Ashland 15' Quadrangle
Contour Interval 10 Feet

NSA

FIGURE 1
SITE LOCATION MAP
QUEARM OIL COMPANY, ASHLAND, WI

MSA
1835 N. Stevens
Rhinelander, Wisconsin
54501
715-362-3244
Engineers·Architects·Planners·Surveyors·Scientists



LEGEND

- CURB & GUTTER
- REMOVED UST PIPING
- OHE — OVERHEAD ELECTRIC
- T — UNDERGROUND TELEPHONE
- SAN — SANITARY SEWER
- GP-7 — GEOPROBE SOIL BORING
- MW-3 — MONITORING WELL
- B-7 — SOIL BORING
- POWER POLE
- MANHOLE

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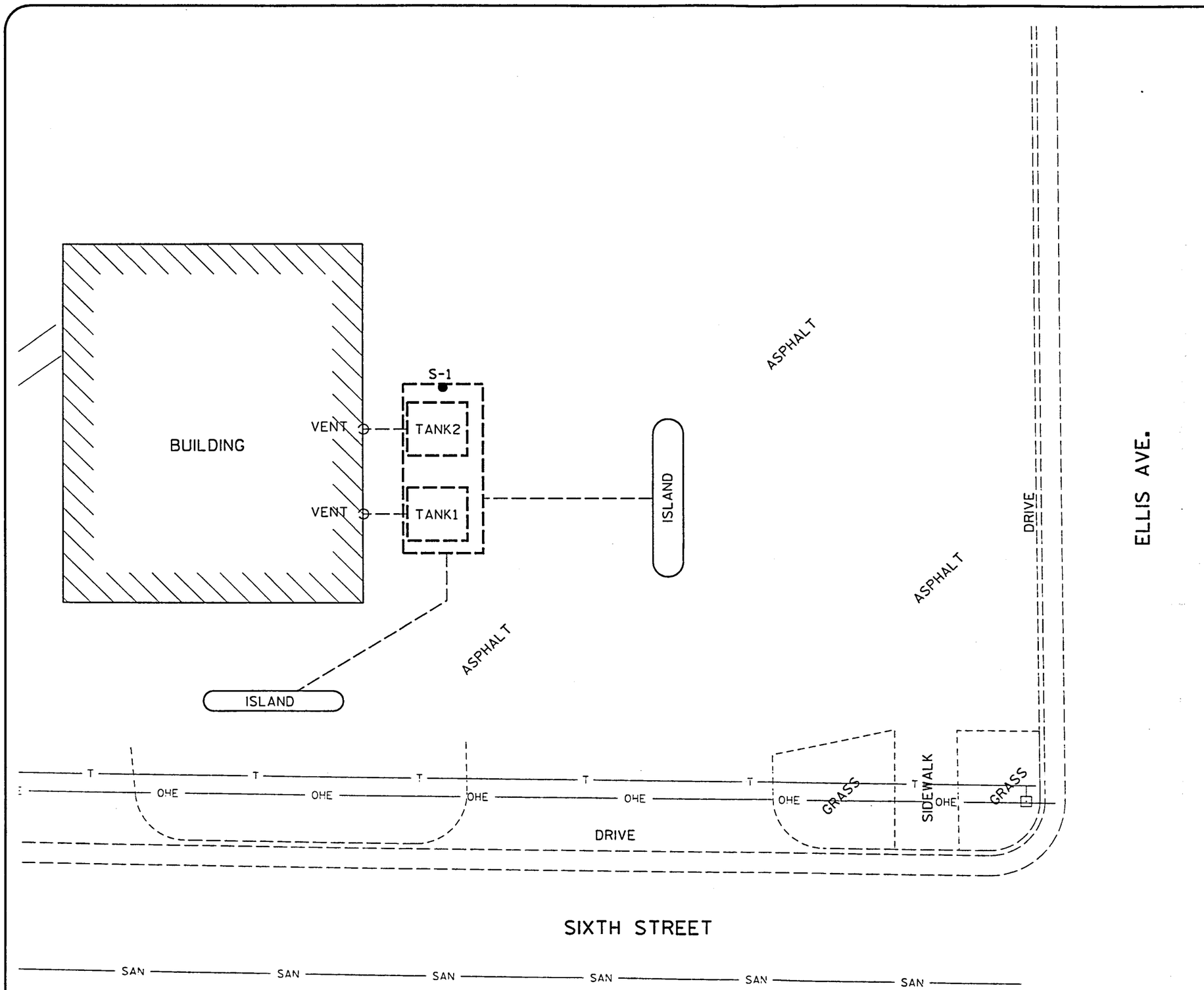
FIGURE 2
SITE LAYOUT
QUEARM OIL CO.
ASLAND, WI

21236572



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LEGEND

- CURB & GUTTER
- REMOVED UST PIPING
- OHE — OVERHEAD ELECTRIC
- T — UNDERGROUND TELEPHONE
- SAN — SANITARY SEWER
- POWER POLE
- MANHOLE
- FORMER EXCAVATION OR TANK LOCATION

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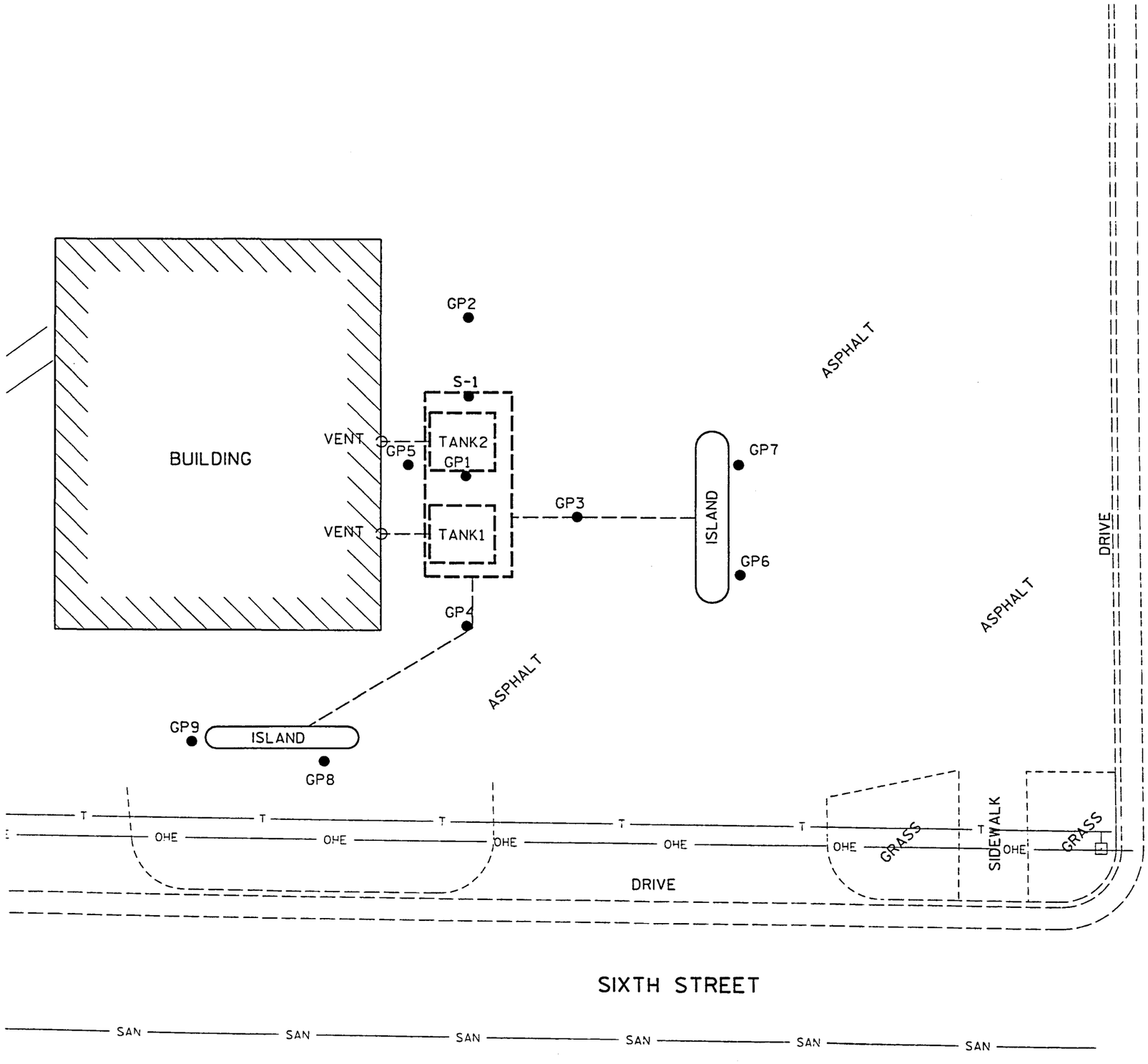
SCALE IN FEET

FIGURE 3
SITE LAYOUT
UST AREA
QUEARM OIL CO.
ASLAND, WI

212365F3



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LEGEND

- CURB & GUTTER
- REMOVED UST PIPING
- OHE — OVERHEAD ELECTRIC
- T — UNDERGROUND TELEPHONE
- SAN — SANITARY SEWER
- GP-7 GEOPROBE SOIL BORING
- POWER POLE
- MANHOLE
- FORMER EXCAVATION OR TANK LOCATION

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SCALE IN FEET

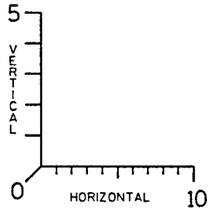
FIGURE 4
GEOPROBE SOIL BORING LOCATIONS UST AREA
QUEARM OIL CO.
ASLAND, WI

21236504

NOTES:

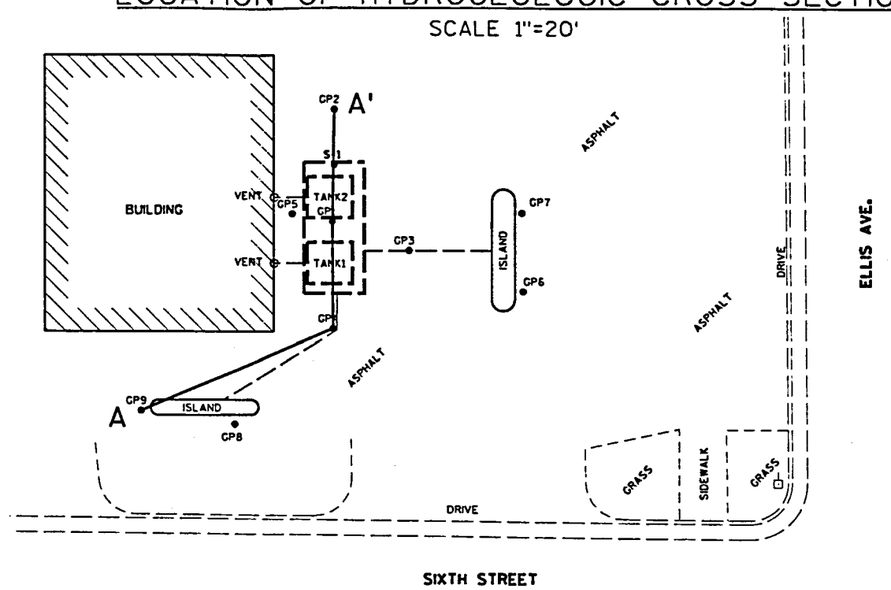
1. INFORMATION BETWEEN SOIL BORINGS IS INTERPRETED BASED UPON AVAILABLE DATA. ACTUAL CONDITIONS BETWEEN SOIL BORINGS ARE UNKNOWN
2. FOR THE PURPOSE OF ILLUSTRATING SUBSOIL CONDITIONS ON THE CROSS SECTIONS, SOME OF THE BORING LOGS HAVE BEEN SIMPLIFIED. FOR A DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT INDIVIDUAL BORINGS REFER TO SOIL BORING LOGS.
3. GRO RESULTS IN mg/Kg AND VOC RESULTS IN µg/Kg.

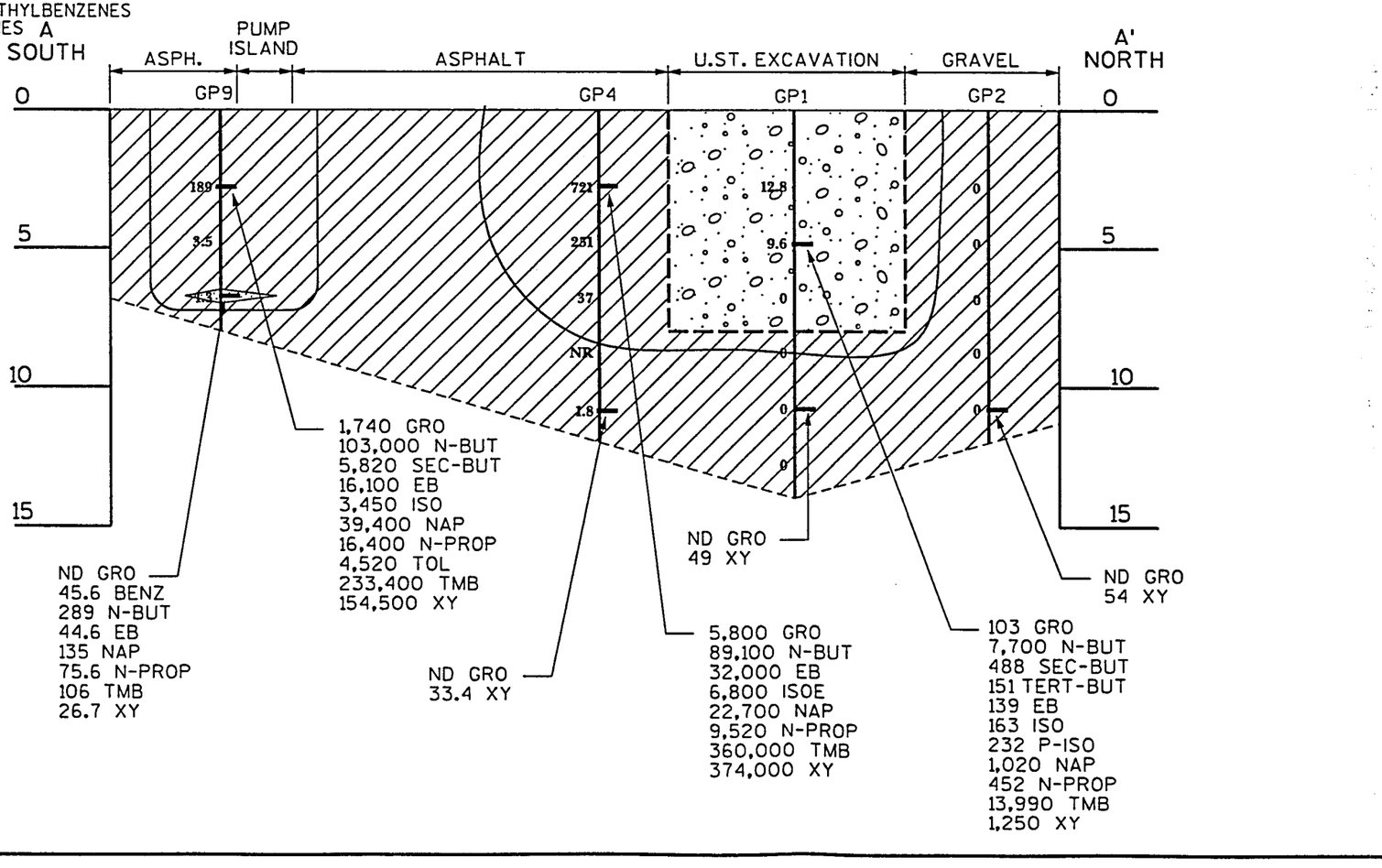
ND	NOT DETECTED
GRO	GASOLINE RANGE ORGANICS
BENZ	BENZENE
N-BUT	N-BUTYLBENZENE
SEC-BUT	SEC-BUTYLBENZENE
TERT-BUT	TERT-BUTYLBENZENE
EB	ETHYLBENZENE
ISO	ISOPROPYLBENZENE
ISOE	ISOPROPYL ETHER
P-ISO	P-ISOPROPYLTOLUENE
NAP	NAPTHALENE
N-PROP	N-PROPYLBENZENE
TOL	TOLUENE
TMB	TOTAL TRIMETHYLBENZENES
XY	TOTAL XYLENES



LOCATION OF HYDROGEOLOGIC CROSS SECTION

SCALE 1"=20'





MSA
1835 N. Stevens
Rhinelander, Wisconsin
54501
715-362-3244
Engineers·Architects·Planners·Surveyors·Scientists

LEGEND

- SAND, reddish brown medium grained sand with gravel
- CLAY, dark red
- SAND, medium to coarse grained
- APPROX. EXTENT OF PETROLEUM HYDROCARBON CONTAMINATION GREATER THAN THE NR720 GRCLs

EXPLANATION

SOIL BORING

ORGANIC VAPOR METER READINGS: 0, 0, 0, 0

— LABORATORY SAMPLE

ND	NOT DETECTED
GRO	GASOLINE RANGE ORGANICS
VOC	VOLATILE ORGANIC COMPOUNDS
NR	NO SAMPLE RECOVERY

N W E S

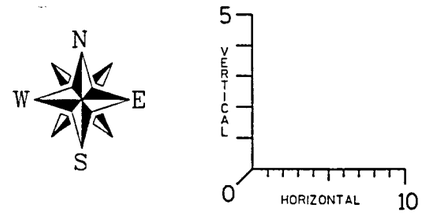
FIGURE 5
HYDROGEOLOGIC CROSS SECTION
A-A'
QUEARM OIL CO.
ASLAND, WI

212365F5

NOTES:

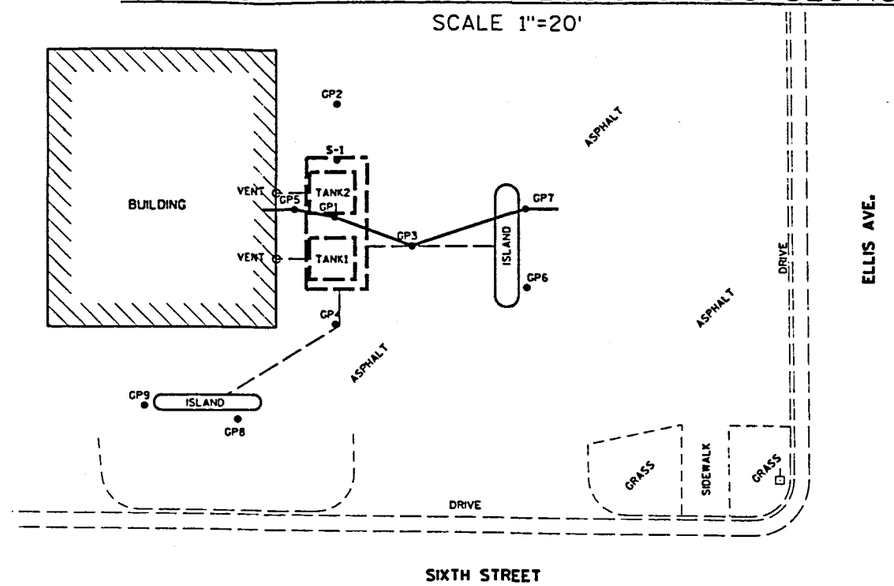
1. INFORMATION BETWEEN SOIL BORINGS IS INTERPRETED BASED UPON AVAILABLE DATA. ACTUAL CONDITIONS BETWEEN SOIL BORINGS ARE UNKNOWN
2. FOR THE PURPOSE OF ILLUSTRATING SUBSOIL CONDITIONS ON THE CROSS SECTIONS, SOME OF THE BORING LOGS HAVE BEEN SIMPLIFIED. FOR A DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT INDIVIDUAL BORINGS REFER TO SOIL BORING LOGS.
3. GRO RESULTS IN mg/Kg AND VOC RESULTS IN $\mu g/Kg$.

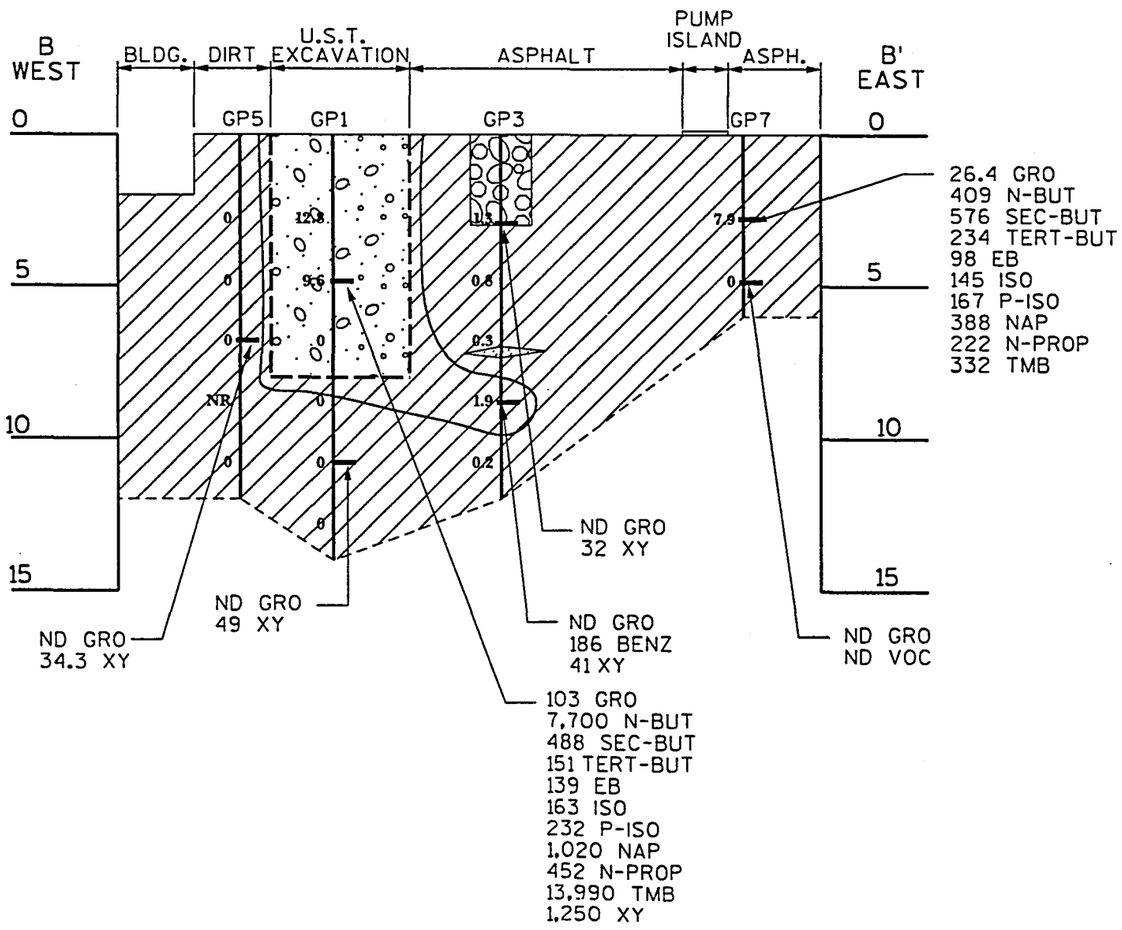
ND	NOT DETECTED
GRO	GASOLINE RANGE ORGANICS
BENZ	BENZENE
N-BUT	N-BUTYLBENZENE
SEC-BUT	SEC-BUTYLBENZENE
TERT-BUT	TERT-BUTYLBENZENE
EB	ETHYLBENZENE
ISO	ISOPROPYLBENZENE
ISOE	ISOPROPYL ETHER
P-ISO	P-ISOPROPYLTOLUENE
NAP	NAPTHALENE
N-PROP	N-PROPYLBENZENE
TOL	TOLUENE
TMB	TOTAL TRIMETHYLBENZENES
XY	TOTAL XYLENES



LOCATION OF HYDROGEOLOGIC CROSS SECTION

SCALE 1"=20'





MSA
1835 N. Stevens
Rhinelander, Wisconsin
54501
715-362-3244
Engineers·Architects·Planners·Surveyors·Scientists

LEGEND

- SAND, reddish brown medium grained sand with gravel
- CLAY, dark red
- PEA GRAVEL piping run backfill
- SAND, medium to coarse grained
- APPROX. EXTENT OF PETROLEUM HYDROCARBON CONTAMINATION GREATER THAN THE NR720 GRCLs

EXPLANATION

SOIL BORING

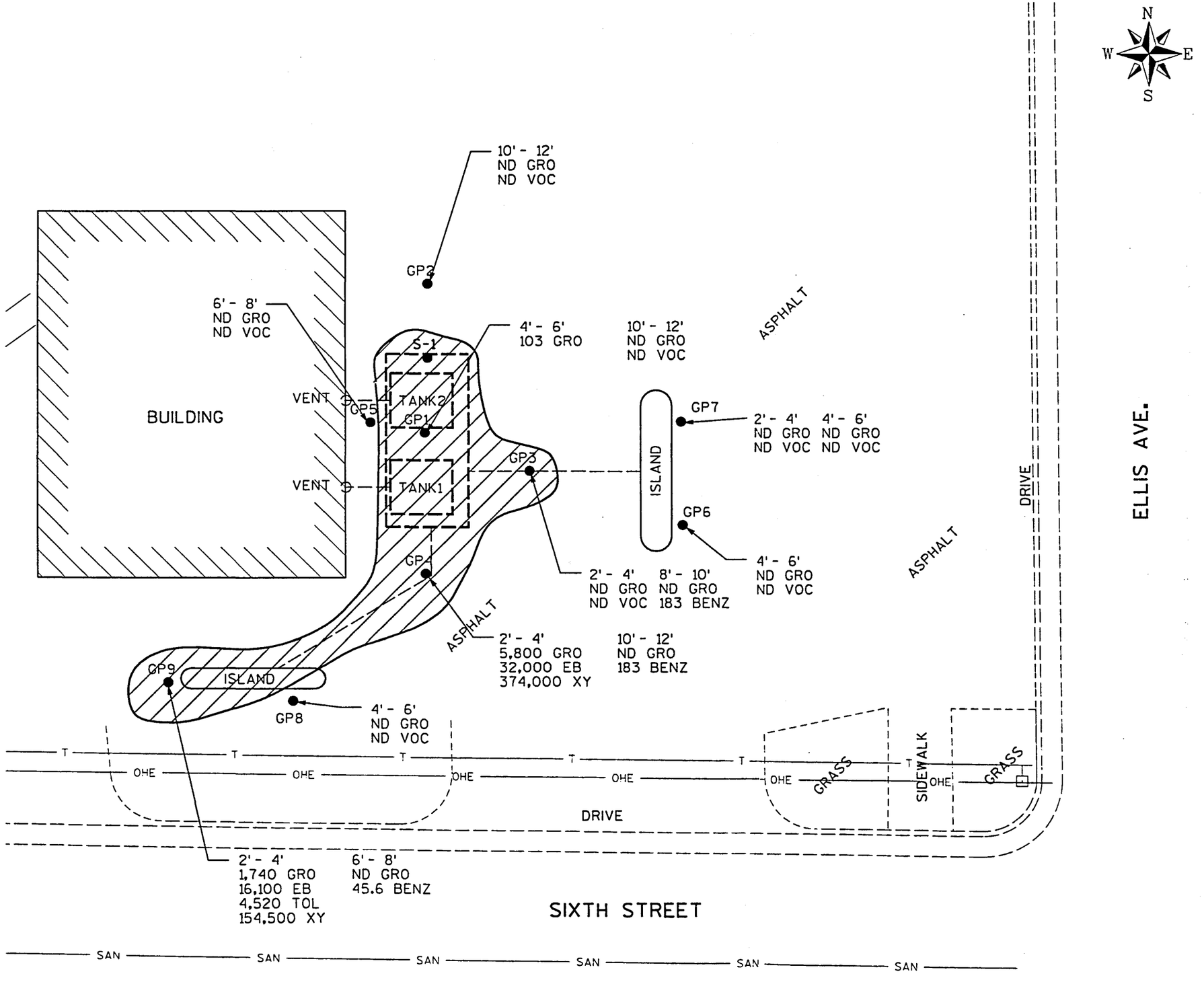
ORGANIC VAPOR METER READINGS: 0, 0, 0, 0

— LABORATORY SAMPLE

ND	NOT DETECTED
VOC	VOLATILE ORGANIC COMPOUNDS
GRO	GASOLINE RANGE ORGANICS
NR	NO SAMPLE RECOVERY

FIGURE 6
HYDROGEOLOGIC CROSS SECTION
B-B'
QUEARM OIL CO.
ASLAND, WI

212365F7



MSA
1835 N. Stevens
Rhinelander, Wisconsin
54501
715-362-3244
Engineers·Architects·Planners·Surveyors·Scientists

LEGEND

- T — OVERHEAD ELECTRIC
- OHE — OVERHEAD TELEPHONE
- SAN — SANITARY SEWER
- CURB & GUTTER
- PIPING
- EXCAVATION OR TANK
- GP-14 — SOIL BORING LOCATION
- S-1 — SOIL SAMPLE COLLECTED DURING UST CLOSURE
- APPROX. ENTENT OF PETROLEUM CONTAMINATION IN SOIL GREATER THAN THE NR720 GRCL's

EXPLANATION

ND	NOT DETECTED >NR720 GRCLs
GRO	GASOLINE RANGE ORGANICS (mg/Kg)
VOC	VOLATILE ORGANIC COMPOUNDS
BENZ	BENZENE
EB	ETHYLBENZENE
TOL	TOLUENE
XY	TOTAL XYLENES

ALL SAMPLE RESULTS IN µg/Kg UNLESS NOTED. ONLY CONCENTRATIONS EXCEEDING GRCLs SHOWN ON MAP.

10 0 10
SCALE IN FEET

FIGURE 7
APPROX. HORIZONTAL EXTENT OF PETROLEUM HYDROCARBON CONTAMINATION IN SOIL

QUEARM OIL CO.
ASLAND, WI

212365F6

TABLES

TABLE 1
FACILITY DESCRIPTION ABSTRACT
QUEARM OIL LUST SITE, ASHLAND, WI

Responsible Party:	Quearm Oil Company 105 W. 6th Street Ashland, WI 54806
Contact Person:	Mr. Fred Gygi Quearm Oil Company 631 E. McLeod Avenue Ironwood, MI 49938 (906) 932-8088
Site Location:	105 W. 6th Street Ashland, WI 54806 SE¼, SW¼, SW¼, Section 33, Township 48 North, Range 4 West Ashland County
Site Description:	The site is operated as a retail fuel sales facility. Two 1,000-gallon gasoline USTs were formerly located approximately 4 feet west of the main building on site. The two 1,000-gallon gasoline USTs were closed by removal on November 14, 1995. Seven aboveground storage tanks (ASTs) are located on the western portion of the property. A site investigation was conducted in the AST area between August 1992 and May 1993 by Ayres and Associates, Inc.
MSA Contact Person:	John Sager, Project Hydrogeologist and Brian Hegge, Project Manager (715) 362-3244

TABLE 2
WATER WELL SURVEY
QUEARM OIL COMPANY, ASHLAND, WI

Well/Log Identification No./Name	Year Well Installed	Depth of Well (feet)	Depth to Ground water (feet)	Elevation in Mean Sea Level (feet)	Yield (gpm)	Draw-down (feet)	Specific Capacity (gpm/ft)	Aquifer	Use	Comments
Northern States Power Co. NE1/4, NW1/4, Sec. 5, T47N, R4W	1987	183	Flowing 21 GPM	nm	4			Q	Commercial Boiler	Artesian
Pioneer Creamery Co. 909 2nd Street W.	1939	188	18	nm	40	82	.48	Q	Commercial	
Reiss Coal Co. 6th Avenue W., Front St.	1948	81	Flowing 50 GPM	nm	50				Commercial	Artesian
St. Joseph Hospital	1942	112	48	nm	90					
Wisconsin Bell #1 NW1/4, SW1/4, Sec. 33, T48N, R4W	1985	130	nm	nm	50	7	7.14	Q	Cooling Water	
Wisconsin Bell #2 Same location as well #1	1985	128	33	nm	50	7	7.14	Q	Cooling Water	

nm = not measured nor available
Q = Quaternar Age glacial sediments (stratified sand/gravel and with some silt and clay)
PC = Precambrian Age granitic bedrock

TABLE 3
FIELD ORGANIC VAPOR ANALYSIS
GEOPROBE® SOIL BORINGS
QUEARM OIL COMPANY, ASHLAND, WI
JANUARY 17, 1996

SOIL BORING	GP-1	GP-2	GP-3	GP-4	GP-5	GP-6	GP-7	GP-8	GP-9
DEPTH (ft)									
2-4	12.8	0.0	1.3*	721*	0.0	0.0	7.9*	0.0	189*
4-6	9.6*	0.0	0.8	251	0.0	0.0*	0.0*	2.4*	3.5
6-8	0.0	0.0	0.3	37	0.0*	EOB	EOB	0.0	1.3*
8-10	0.0	0.0*	1.9*	NR	NR			0.0	EOB
10-12	0.0*	0.0	0.2	1.8*	0.0			EOB	
12-14	0.0	EOB	EOB	EOB	EOB				
	EOB								

All values are expressed as parts per million (ppm) PID units.
* = Laboratory sample analyzed
Blank = Interval not sampled
EOB = End of boring
NR = No sample recovery

TABLE 4
ANALYTICAL SOIL RESULTS: GEOPROBE BORINGS
QUEARM OIL COMPANY, ASHLAND, WI
JANUARY 17, 1996

IDENTIFICATION	GP-1		GP-2	GP-3		GP-4		GP-5	GP-6	GP-7		GP-8	GP-9		SOIL GRCL
SAMPLE DEPTH (feet)	4-6	10-12	10-12	2-4	8-10	2-4	10-12	6-8	4-6	2-4	4-6	4-6	2-4	6-8	
ANALYTE															
GRO (mg/Kg)	103	--	--	--	--	5,800	--	--	--	26.4	--	--	1,740	--	250
Lead (mg/Kg)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
PVOCs (μg/Kg)															
Benzene	--	--	--	--	186	--	--	--	--	--	--	--	--	45.6	5.5
n-Butylbenzene	7,700	--	--	--	--	89,100	--	--	--	409	--	--	103,000	289	
sec-Butylbenzene	488	--	--	--	--	--	--	--	--	576	--	--	5,820	--	
tert-Butylbenzene	151	--	--	--	--	--	--	--	--	234	--	--	--	--	
Ethylbenzene	139	--	--	--	--	32,000	--	--	--	98	--	--	16,100	44.6	2,900
Isopropylbenzene	163	--	--	--	--	--	--	--	--	145	--	--	3,450	--	
Isopropyl Ether	--	--	--	--	--	6,800	--	--	--	--	--	--	--	--	
p-Isopropyltoluene	232	--	--	--	--	--	--	--	--	167	--	--	--	--	
Methyl tert-butylether	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Naphthalene	1,020	--	--	--	--	22,700	--	--	--	388	--	--	39,400	135	
n-Propylbenzene	452	--	--	--	--	9,520	--	--	--	222	--	--	16,400	75.6	
Toluene	--	--	--	--	--	--	--	--	--	--	--	--	4,520	--	1,500
1,2,4-Trimethylbenzene	9,890	--	--	--	--	262,000	--	--	--	221	--	--	175,000	--	
1,3,5-Trimethylbenzene	4,100	--	--	--	--	98,000	--	--	--	111	--	--	58,400	106	
m- & p-Xylene	813	--	--	--	--	233,000	--	--	--	--	--	--	103,000	--	4,100
o-Xylene & styrene	437	49.4	54.6	32.9	41.2	141,000	33.4	34.3	27.7	--	57.2	--	51,500	26.8	

GRCL = Wisconsin Administrative Code NR 720 Generic Residual Contaminant Levels (GRCL)
-- = Parameter analyzed but not detected above method detection limits (MDLs)
MDLs are presented on analytical reports in Appendix E.
Shaded = GRCL exceedence

TABLE 5
REMEDIAL OPTIONS COST ANALYSIS SUMMARY
QUEARM OIL COMPANY, ASHLAND, WISCONSIN

	Alternative 1 Excavation/Off-Site BioPile		Alternative 2 Excavation/Asphalt Incorporation		Alternative 3 Excavation/Onsite Thermal	
	Commodities	Consulting	Commodities	Consulting	Commodities	Consulting
Capital Costs						
Excavation	$18,700		$18,700		$18,700	
Disposal Samples	$1,100		$1,100		$1,100	
Soil Disposal/Treatment	$18,400		$23,000		$25,300	
Specifications		$11,000		$11,000		$11,000
Construction Inspect. & Sampling		$13,800		$13,800		$13,800
Closure Costs						
Closure Report		$6,100		$6,100		$6,100
Subtotal	$38,200	$30,900	$42,800	$30,900	$45,100	$30,900
Total Cost (Commodity & Consulting)		**$69,100**		**$73,700**		**$76,000**

APPENDIX A

WATER SUPPLY WELL LOGS

State of Wisconsin
Department of Natural Resources
Private Water Supply
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300–15 Rev. 2-79

MAR 17 1987

1. COUNTY: ASHLAND | CHECK (✓) ONE: ☐ Town ☐ Village ☑ City | Name: ASHLAND

2. LOCATION: ¼ Section or Gov't. Lot: NE¼ NW¼ ✓ | Section: 5 | Township: T47N | Range: R4W
OR – Grid or Street No. | Street or Road Name: BAY FRONT GEN PLANT
AND – If available subdivision name, lot & block No.: ASHLAND, WIS

3. NAME ☐ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓ O
NORTHERN STATES POWER CO.
ADDRESS: 101 WEST SECOND ST.
POST OFFICE: ASHLAND | WIS | ZIP CODE: 54806

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain C.I.	Sanitary Bldg. Drain Other	Sanitary Bldg. Sewer C.I.	Sanitary Bldg. Sewer Other	Floor Drain Connected To: C.I. Sewer	Floor Drain Connected To: Other Sewer	Storm Bldg. Drain C.I.	Storm Bldg. Drain Other	Storm Bldg. C.I.	Storm Bldg. Oth
10	NONE		NONE		30		30		30	

Street Sewer San.	Street Sewer Storm	Other Sewers C.I.	Other Sewers Other	Foundation Drain Connected to: Sewer	Foundation Drain Connected to: Sewage Sump	Sewage Sump C.I.	Sewage Sump Other	Clearwater Sump	Septic Tank	Holding Tank	Sewage Absorption Unit	Manure Hopper or Retention or Pneumatic Tan
NONE				Or.	Sump						Seepage Pit / Seepage Bed / Seepage Trench	

Privy	Pet Waste Pit	Pit: Nonconforming Existing / Well / Pump / Tank	Subsurface Pumproom / Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit	Earthen Manure Ba

Temporary Manure Stack or Platform	Watertight Liquid Manure Tank or Basin	Manure Pressure Pipe	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Manure Storage Basin / Concrete Floor Only / Concrete Floor and Partial Concrete Walls	Other (Describe)

5. Well is intended to supply water for: DEMINERRLIZER FOR BOILER WATER

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
10	Surface	26	6	26	183

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
6"	NEW 20 LBS FT BLACK STEEL CASING PIPE A-120 T+C USS	Surface	174
2" x	9' SS SCREEN	174	183

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
CLAY SLURRY	Surface	26

9. FORMATIONS

Kind	From (ft.)	To (ft.)
GRAVEL + FILL SAND	Surface	4
SAND	4	18
SOFT RED CLAY	18	94
HARD PAN	94	138
WATER SAND WITH CLAY MIXED	138	150
HARD PAN	150	163
WATER SAND – CLEAN	163	183

10. TYPE OF DRILLING MACHINE USED
☑ Cable Tool ☐ Rotary-air w/drilling mud ☐ Rotary-w/drilling mud
☐ Rotary-hammer w/drilling mud & air ☐ Rotary-hammer & air ☐ Reverse Rotary
☐ Jetting with ☐ Air ☐ Water

Well construction completed on MARCH 7 1987

11. MISCELLANEOUS DATA
Yield Test: 2 Hrs. at 25 GPM FLOWING @ 2" GRIN
Depth from surface to normal water level _____ Ft.
Depth of water level when pumping 4 Ft. Stabilized ☑ Yes ☐ No

Well is terminated 24 inches ☑ above ☐ below final grade
Well disinfected upon completion ☑ Yes ☐ No
Well sealed watertight upon completion ☑ Yes ☐ No

Water sample sent to ASHLAND WATER UTILITY laboratory on MARCH 16 1987

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature: Robert T Melin — Registered Well Driller

Business Name and Complete Mailing Address: 1318 MacArthur Ave, Ashland Wis 54806

WELL CONSTRUCTION REPORT
WISCONSIN STATE BOARD OF HEALTH
WELL DRILLING DIVISION

JUN 27 1939

Note: Section 32 of the Wisconsin Well Drilling Sanitary Code, having the force and effect of law, provides that within thirty days after completion of every well the driller shall submit a report covering all essential details of construction to the State Board of Health on a form provided by the Board.

Owner Pioneer Creamery Co. Driller Melvin Well Drilling Co.

Street or RFD 909-2nd St. West Post Office ~~#0 [illegible]~~ 1104-3rd Ave. W.

Post Office Ashland, Wis. Date June 17-39 Permit No. 027

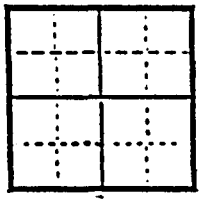
LOCATION OF PREMISES

Ashland Co.
County Town

Creamery in City of Ashland
Describe further by subdivision, plat, district, lake, lot,

block, nearest principal highway, etc., whichever apply.

The square below represents a section of land divided into 40 acre tracts. Mark the position of the premises in the section.



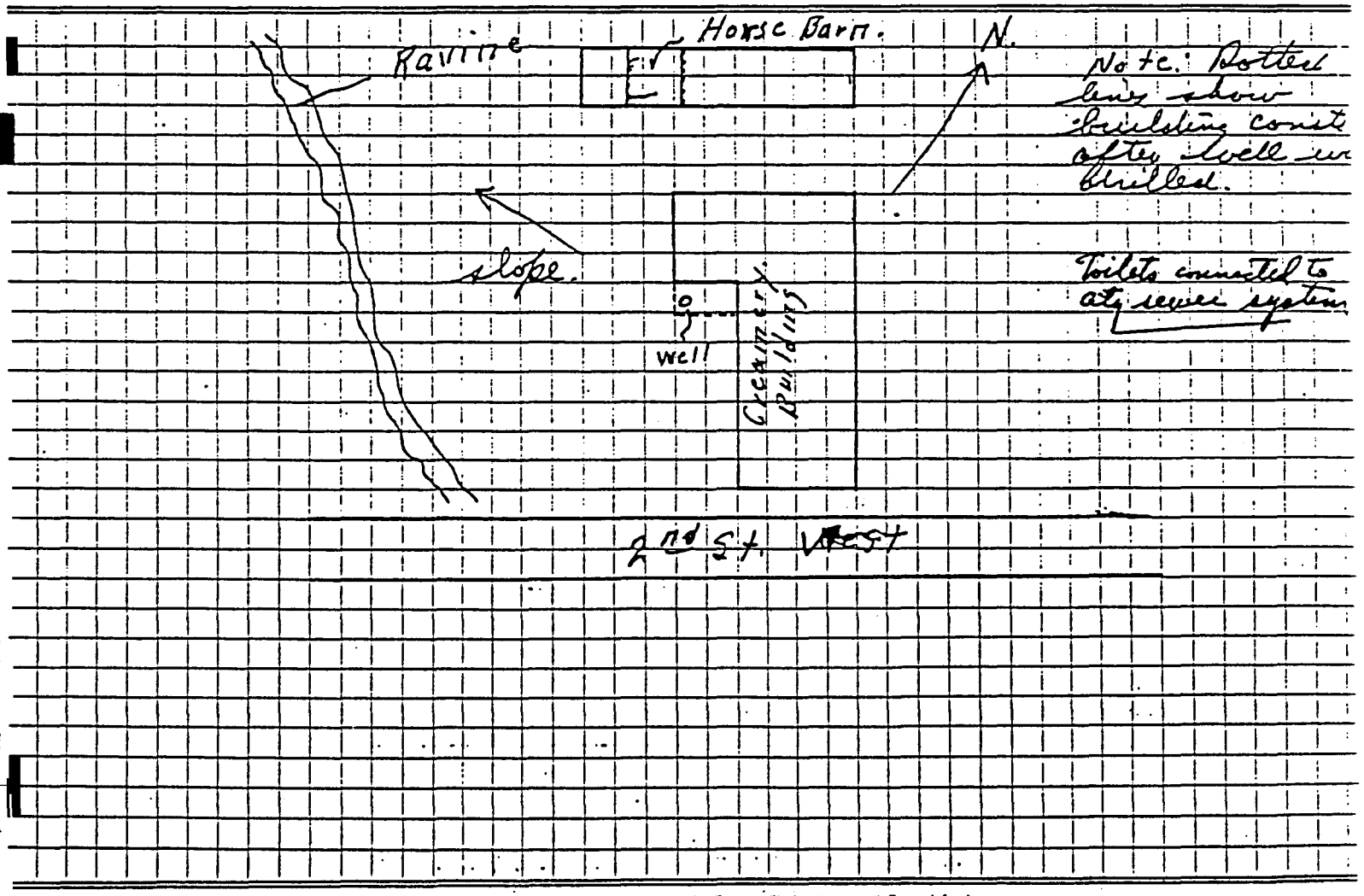
Sec. NW NE 5

Twp. 47

Range 4W (E / W)

DIAGRAM OF PREMISES

See discussion and illustration in Part III Well Drilling Code. In making the diagram in the space below consider 10 ft. as the distance between lines. Be sure to indicate NORTH.



Additional copies of this form may be obtained in lots of 12 for 25¢. Send remittance with order to State Board of Health, Well Drilling Division, Madison, Wis.

WELL LOG *and* REPORT

In this column indicate the kind of casing, liner, shoe and other accessories used.

Std. wt
Wrot Steel
Pipe 25#/ft.
National tube

8" drive shoe
Forged steel

8" Johnson
welded well
screen, brass.
8'-8" packer.
screen wedged

Note: When pump
installed, 16" concrete
face. Pump plate cement
grouted and bolted
into place.
Pomona turbine
pump installed
3" O.D. Drop pipe.

= Screen - 8'-8"

= Mud Grout.

= Casing Pipe

WELL DIAGRAM
Use a red line to show casing or liner pipe. Use black for drill or borehole.

Inches Diameter
2 3 4 5 6 8 10 12 14 16 18

Depth

4'
18
50
75
87
100
143
144
150
152
179
175
180-2"
185'
200
400
800
1200

Draw the diagram to show the right half only

In this column state the kind of formations penetrated, their thickness in feet and if water bearing.

Filling + Top Soil	4'
Red Clay -	83'
Hardpan. -	56'
Dirty Sand -	1'
Hardpan -	8'
Fine Sand -	7'
Hardpan -	16'
Sand water bearing	13'

Record of FINAL Pumping test

Duration of test
Hours 18

Pumping rate
G.P.M. 40

Depth of pump in well. Ft. 106

Standing water-level (from surface)
Ft. 18'

Water-level when pumping Ft. 100'

Water. End of test.
Clear ✓
Cloudy
Turbid

Was the well sterilized?
Yes ✓ No

To which laboratory was sample sent?
Superior.
Date About May 7

Was the well sealed on completion?
Yes ✓ No

How high did you leave the casing-pipe above grade?
2 ft.

Well was completed
Date May 8, 1934

Well Driller
Theodore Melo
Signature

Wel. 6-30M (6-50)

17

WELL CONSTRUCTOR'S REPORT TO WISCONSIN STATE BOARD OF HEALTH

See Instructions on Reverse Side

Sec 4-5 -47 =46J

1. County Ashland { Town ☐ Village ☐ City ☑ } Ashland — Check one and give name

2. Location Foot of 7th Ave. W Ashland Wis
Name of street and number of premise or Section, Town and Range numbers

3. Owner ☐ or Agent ☐ Reiss Coal Co
Name of individual, partnership or firm

4. Mail Address 6th ave W. Front Str.
Complete address required

5. From well to nearest: Building 40 ft; sewer 60 ft; drain 60 ft; septic tank 100 ft; dry well or filter bed 125 ft; abandoned well 200 ft.

6. Well is intended to supply water for: Plant

7. DRILLHOLE:

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
8	0	20	6	20	81

8. CASING AND LINER PIPE OR CURBING:

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
6	Standard Weight	0	81

9. GROUT:

Kind	From (ft.)	To (ft.)
Clay Slurry	0	20

10. FORMATIONS:

Kind	From (ft.)	To (ft.)
Red Clay	0	34
Soft yellow Clay	34	61
Hard Pan	61	75
Course water gravel	75	81

Construction of the well was completed on: 7-31 19 48

The well is terminated 16 inches ☑ above, below ☐ the permanent ground surface.

Was the well disinfected upon completion? Yes ✓ No

Was the well sealed watertight upon completion? Yes ✓ No

11. MISCELLANEOUS DATA:

Yield test: Flowing Hrs. at 50 GPM. above ground

Depth from surface to water-level: ——— ft.

Water-level when pumping: No Pump ft.

Water sample was sent to the state laboratory at: ✓ Superior City on 8-4 19 48

Signature T. A. Melin
Registered Well Driller

1104-Front St. W. Ashland Wis
Complete Mail Address

Please do not write in space below

Rec'd ——— No ———

Ans'd ———

Interpretation ———

	10 ml	10 ml	10 ml	10 ml	10 ml
Gas—24 hrs.					
48 hrs.					
Confirm					
B. Coli					

Examiner ———

APR 10 1942

WELL CONSTRUCTION REPORT
WISCONSIN STATE BOARD OF HEALTH
WELL CONSTRUCTION DIVISION

Note: Section 31 of the Wisconsin Well Construction Code, having the force and effect of law, provides that within thirty days after completion of every well the driller shall submit a report covering all essential details of construction to the State Board of Health on a form provided by the Board.

Owner St. Joseph Hospital — Driller Masterson Bros

Street or RFD ____ — Post Office Wentworth Wis.

Post Office Ashland Wis. — Date Oct — Permit No. 232

Ashland
~~Iron~~ Bayfield
County

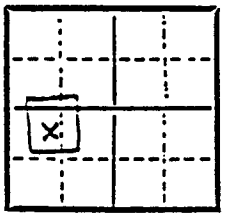
LOCATION OF PREMISES

Ashland
Town

Describe further by subdivision, plat, district, lake, lot.

on 1st st
block, nearest principal highway, etc., whichever apply.

The square below represents a section of land divided into 40 acre tracts. Mark the position of the premises in the section.



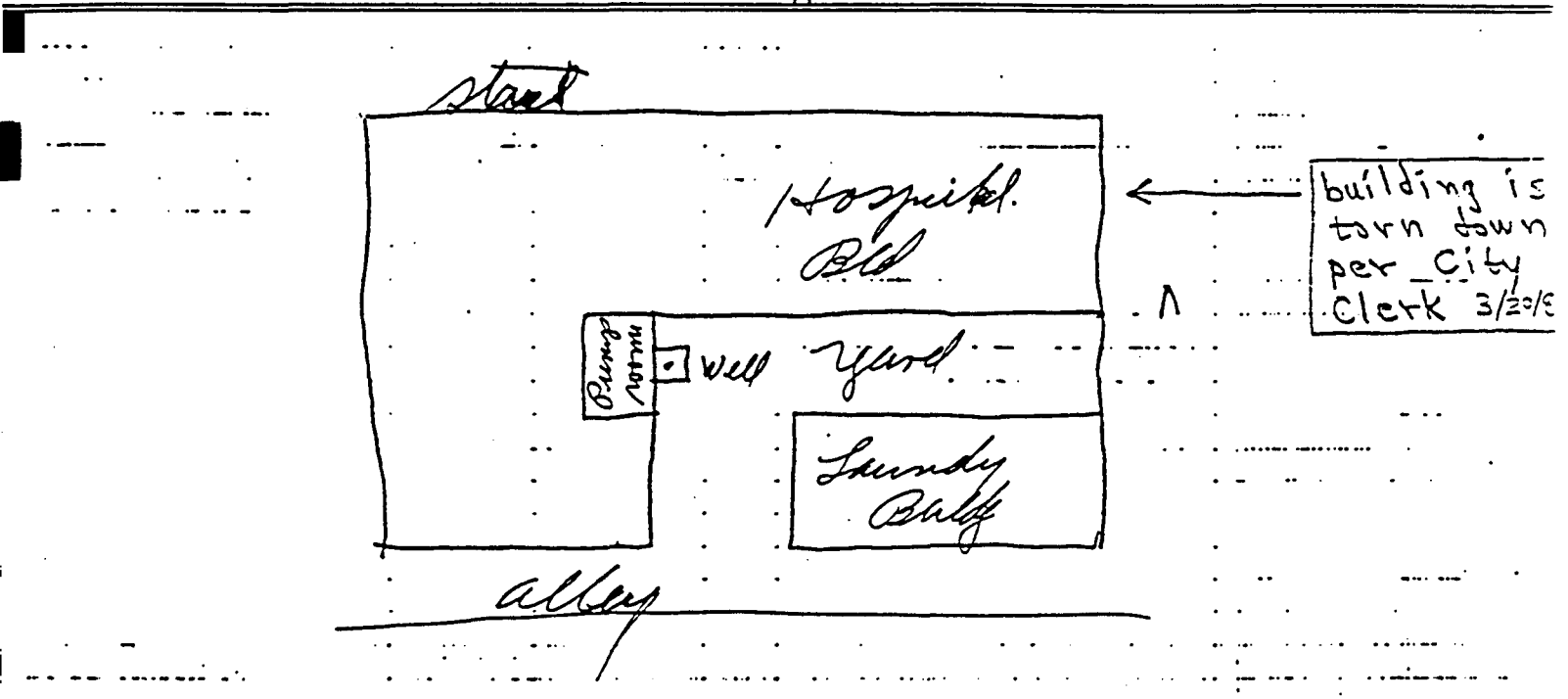
Sec. No. 33

Twp. No. 48N

Range 4 E W

DIAGRAM OF PREMISES

See Well Construction Report bulletin. In making the diagram in the space below consider 10 ft. as the distance between lines. Be sure to indicate NORTH.



Additional copies of this form may be obtained in lots of 12 for 25c. Send remittance with order to State Board of Health, Well Construction Division, Madison, Wis.

WELL LOG *and* REPORT

For method of making report, refer to bulletin entitled "Well Construction Report." 7-5-39.

In this column indicate the kind of casing, liner, shoe and other accessories used.	WELL DIAGRAM Use a red line to show casing or liner pipe. Use black for drill or borehole. Inches Diameter 2 3 4 5 6 8 10 12 14 16 18 — Depth	In this column state the kind of formations penetrated, their thickness in feet and if water bearing.	Record of FINAL Pumping test
6" std Drillers spec Well Pipe	25	sandy Clay	Duration of test Hours 10
	50		Pumping rate G.P.M. 90
	75	some Boulders Dirty sand	Depth of pump in well. Ft. 60
Well Shoe Lead Packer 10' Guardur Johnson Screen Bal in Bottom	96		Standing water-level (from surface) Ft. 58
	100	Clean sand	Water-level when pumping Ft. 25
	119		Water. End of test. Clear ✓ Cloudy Turbid
	150		Was the well sterilized? Yes ✓ No
	200		To which laboratory was sample sent? Ashland Date Nov. 1-41
	400		Was the well sealed on completion? Yes ✓ No
	800		How high did you leave the casing-pipe above grade? 0 ft
	1200		Well was completed Date Oct 29-41

Draw the diagram to show the right half only

Well Constructor Martin Maslona
Signature

Well name Wisconsin Bell, Inc. Well #1
City of Ashland
Owner.... Wisconsin Bell, Inc.
Address.. 220 East 2nd Street
Ashland, WI 54806
Driller.. Robert T. Melin
Engineer.

County: Ashland
Completed...3/28/85
Field check.
Altitude....655' ETM
Use.....Cooling
Static w.l..33'
Spec. cap...7 GPM/ft

R.4W.
T. 48 N.
Sec.33

Location: N½, SE¼, SE¼, NW¼, SW¼, sec. 33, T48N, R4W Quad. Ashland West 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
12"	0	128'				6"	New black - steel T & C 20 lbs per foot ASTM-A-120 USS-	+1'	123'	6"	10 slot Johnson ss screen	123'	128'

Grout	from	to
Cement	0	123'

Drilling method: Rotary
Samples from 0 to 130' Rec'd: 4/15/85

Studied by: Kathleen Massie-Ferch

Issued: 8/24/88

Formations: Miller Creek Formation, Copper Falls Formation.

Remarks: Well tested for 2 hours at 50 GPM with 7 feet of drawdown.
Driller reports total well depth of 128'.
Well is located on the southern corner of the intersection of East 2nd Street and Third Avenue East.

LOG OF WELL:

Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
0-5		Clay	Rdbntordaybn	—	—	Dolic. (The slgtly gyr cls are more calcus). Mch gvl(Gran/M p
5-10		"	Red	—	—	Dolomitic. Much gravel(Gran/S peb),sand,silt. snd,s
10-15		"	"	—	—	Same.
15-20		Clay & sand	"	M/C	Vfn/VC	Dolomitic(clay). Much gravel(Gran/M peb),silt.
20-25		"	"	"	"	Same.
25-30		"	"	"	"	Same plus little caved red gray brown clay(0-5').
30-35		"	Red brown	"	"	Dolomitic(clay). Much gravel(Gran/M peb),silt.
35-40		"	"	"	"	Same.
40-45		"	"	"	"	"
45-50		"	"	M&VC	"	Same but gravel(Gran/L peb).
50-55		"	"	"	"	Same but gravel(Gran/M peb).
55-60		"	"	"	"	Same but gravel(Gran/L peb).
60-65		Gravel	"	Gran	Gran/M peb	Quartz,feldspar,volc,gabbro,ss,trap,chert. Mch sand,silt,clay
65-70		"	"	"	Gran/L peb	Same.
70-75		Clay & sand	Dk rd bn	M/C	Vfn/VC	Dolomitic(clay). Much gravel(Gran/S peb),silt.
75-80		Gravel	Red brown	Gran	Gran/S peb	Quartz,feldspar,volc,gabbro,ss,trap,chert. Mch sand,silt,clay
80-85		"	Mxd rd bn	S peb	Gran/M peb	Same.
85-90		"	"	"	"	Same plus iron formation.
90-95		"	"	Gran	"	Same.
95-100		"	"	"	"	"
100-105		"	"	"	"	Quartz,feld,volc,Fe fm,gabbro,ss,trap. Mch sand. Ltl silt,cla
105-110		Sand	Red brown	VC	Vfn/VC	Much gravel(Gran/M peb). Little silt,clay.
110-115		"	"	C	"	Same.
115-120		"	"	"	"	"
120-125		"	"	"	"	Little gravel(Gran/S peb),silt,clay.
125-130		"	"	"	"	Same.
			END OF LOG			

COPPER FALLS FM.

...atural Resources
Private Water Supply
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy - Division's Copy
Green Copy - Driller's Copy
Yellow Copy - Owner's Copy

...000-15

...PORT
Rev. 2-79

WELL NO 2

1. COUNTY: ASHLAND
CHECK (✓) ONE: ☐ Town ☐ Village ☑ City
Name: ASHLAND

2. LOCATION: ¼ Section or Gov't. Lot | Section: 33 | Township: T.45N | Range: R4W
OR – Grid or Street No. | Street or Road Name: 220 E. SECOND ST. CITY (R4W)
AND – If available subdivision name, lot & block No.

3. NAME ☐ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓ ONE): WISCONSIN BELL
ADDRESS: 125 N. ~~[illegible]~~ EXECUTIVE DR.
POST OFFICE: BROOKFIELD - WIS
ZIP CODE: 53005

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain		Sanitary Bldg. Sewer		Floor Drain Connected To:		Storm Bldg. Drain		Storm Bldg. S
	C.I.	Other	C.I.	Other	C.I. Sewer	Other Sewer	C.I.	Other	C.I.	Othe.
15	80		80		80		80		80	

Street Sewer		Other Sewers		Foundation Drain Connected to:		Sewage Sump		Clearwater Sump	Septic Tank	Holding Tank	Sewage Absorption Unit:	Manure Hopper Retention or Pneumatic Tank
San.	Storm	C.I.	Other	Sewer	Sewage Sump	C.I.	Other				Seepage Pit	
90				Dr.	Sump						Seepage Bed	
											Seepage Trench	

Privy	Pet Waste Pit	Pit: Nonconforming Existing	Subsurface Pumproom Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit	Earthen Manure S.
		Well									
		Pump									
		Tank									

Temporary Manure Stack or Platform	Watertight Liquid Manure Tank or Basin	Manure Pressure Pipe	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Manure Storage Basin	Other (Describe)
					Concrete Floor Only	WELL NO 1 - 15 FT
					Concrete Floor and Partial Concrete Walls	

5. Well is intended to supply water for: COOLING EQUIPMENT
NOTE: CAP APPROVAL ALTERNATELY WELLS OPERATED ALTERNATELY FOR BUILDING

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
12	Surface	125			

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
6	NEW - BLACK - STEEL	Surface	123
	T & C 20 LBS PER FT		
	ASTM - 126 USS		
	SCREEN		
6	10 SLOT JOHNSON SS	123	128

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
CEMENT	Surface	123

9. FORMATIONS

No - 2 Kind	From (ft.)	To (ft.)
Top Soil	Surface	2
RED CLAY	2	20
CLAY + SAND MIXED	20	55
CLAY + GRAVEL MIXED	55	60
SAND + GRAVEL + BOULDER	60	70
HARD PAN + GRAVEL	70	105
SAND - WATER BEARING	105	125

10. TYPE OF DRILLING MACHINE USED
☐ Cable Tool ☑ Rotary-air w/drilling mud ☐ Rotary-w/drilling mud ☐ Rotary-hammer w/drilling mud & air ☐ Rotary-hammer & air ☐ Reverse Rotary ☐ Jetting with ☐ Air ☐ Water

Well construction completed on 3-28 1985

11. MISCELLANEOUS DATA
Yield Test: 2 Hrs. at 50 GPM
Depth from surface to normal water level 33 Ft.
Depth of water level when pumping 40 Ft. Stabilized ☑ Yes ☐ No

Well is terminated 12 inches ☑ above ☐ below final grade
Well disinfected upon completion ☑ Yes ☐ No
Well sealed watertight upon completion ☑ Yes ☐ No

Water sample sent to ASHLAND WATER UTILITY laboratory on 3-29 1985

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature: Robert T. Wells Registered Well Driller

Business Name and Complete Mailing Address: 1318 MacArthur Ave - Ashland - Wis

APPENDIX B

GRAIN SIZE ANALYSIS

Designation: D 2488–90

CENTRAL WISCONSIN ENGINEERS, INC.

P.O. Box 107 * Schofield, WI 54486

Standard Practice for Description and Identification of Soils (Visual–Manual Procedure)[1]

Project	E–scan, Queam Oil, Soil Analysis
Job No.	17829600
Boring No.	GP–2
Sample No.	
Depth of Sample	10–12'
Date of Testing	1/22/96

TABLE 13 – CHECKLIST FOR DESCRIPTION OF SOILS

Percent of cobbles or boulders, or both (by volume)					
Percent of gravel, sand, or fines, or all three (by dry weights)	Gravel	Coarse			
		Fine	1%		
	Sand	Coarse			
		Medium			
		Fine	23%		
	Fines		76%		
Particle angularity: angular, subangular, subrounded, rounded					
Particle shape: (if appropriate) flat, elongated, flat and elongated					
Maximum particle size or dimension			3/8"		
Hardness of coarse sand and larger particles			HARD		
Plasticity of fines:	nonplastic, low medium, high		HIGH	=	CH
Dry strength:	none, low, medium, high, very high		HIGH	=	CH
Dilatancy:	none, slow, rapid		NONE	=	CH
Toughness:	low, medium, high		HIGH	=	CH
Color (in moist condition)			REDDISH BROWN		
Odor (mention only if organic or unusual)			NONE		
Moisture: dry, moist, wet			MOIST		
Reaction with HC1: none, weak, strong			STRONG		

For Intact Samples

Consistency (fine–grained soils only): very soft, soft, firm, hard, very hard	SOFT
Structure: stratified, laminated, fissured, slickensided, lensed, homogeneous	HOMOGENEOUS
Cementation: weak, moderate, strong	STRONG
Local name	
Geologic interpretation	

Additional Comments: presence of roots or root holes, presence of mica gypsum, etc., surface coatings on coarse–grained particles, caving or sloughing of auger hole or trench sides, difficulty in augering or excavating etc.

Soil Descriptions: REDDISH BROWN SANDY CLAY W/ TRACE F. GRAVEL

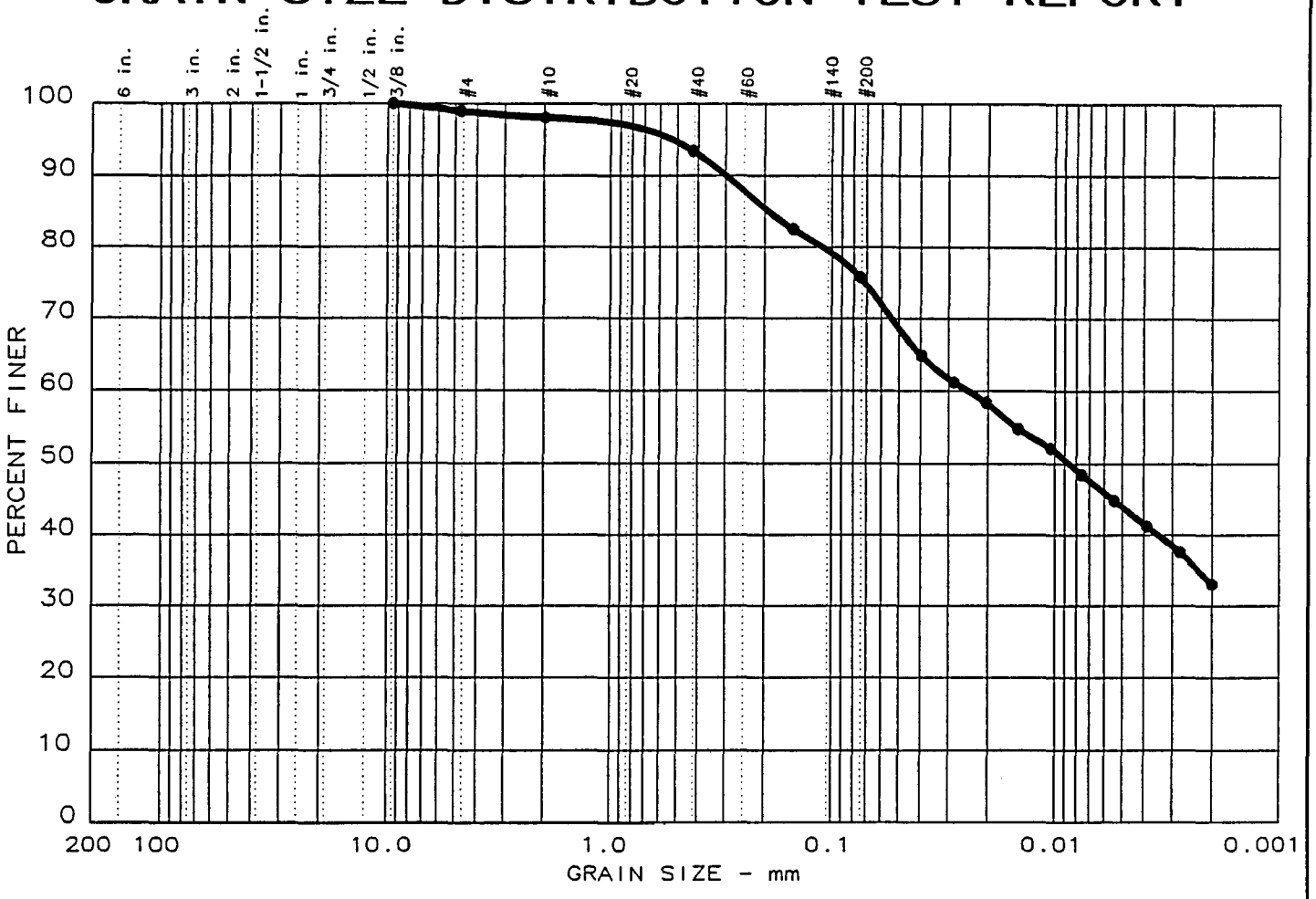
Remarks:

USCS: CH

Table 12 – Identification of Inorganic Fine–Grained Soils from Manual Tests

Soil Symbol	Dry Strength	Dilatancy	Toughness
ML	None to low	Slow to rapid	Low or thread cannot be formed
CL	Medium to high	None to slow	Medium
MH	Low to medium	None to slow	Low to medium
CH	High to very high	None	High

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	1.0	23.2	31.9	43.9

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.191		0.0086					

MATERIAL DESCRIPTION	USCS	AASHTO
● SANDY CLAY W/ TRACE F. GRAVEL	CL-CH	

Project No.: 17829600
Project: E-SCAN, QUEAM OIL, SOIL ANALYSIS
● Location: GP-2, DEPTH 10-12'

Date: 1/24/96

GRAIN SIZE DISTRIBUTION TEST REPORT

CENTRAL WISCONSIN ENGINEERS, INC.

Remarks:

ATTERBERG TESTING WOULD MAKE USCS MORE DEFINED

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST DATA Test No.: 18

Date: 1/24/96
Project No.: 17829600
Project: E-SCAN, QUEAM OIL, SOIL ANALYSIS

Sample Data

Location of Sample: GP-2, DEPTH 10-12'
Sample Description: SANDY CLAY W/ TRACE F. GRAVEL
USCS Class: CL-CH Liquid limit:
AASHTO Class: Plasticity index:

Notes

Remarks: ATTERBERG TESTING WOULD MAKE USCS MORE DEFINED

Fig. No.: 1

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	256.80	119.30
Tare =	74.80	74.80
Dry sample weight =	182.00	44.50

Minus #200 from wash= 75.5 %
Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
0.375 inches	0.00	0.00	100.0
# 4	1.90	0.00	99.0
# 10	1.70	0.00	98.0
# 40	8.40	0.00	93.4
# 100	19.80	0.00	82.5
# 200	12.30	0.00	75.8

Hydrometer Analysis Data

Separation sieve is number 40
Percent -# 40 based on complete sample= 93.4
Weight of hydrometer sample: 50.3
Calculated biased weight= 53.85
Automatic temperature correction
Composite correction at 20 deg C =-6.5

Meniscus correction only= 1
Specific gravity of solids= 2.75
Specific gravity correction factor= 0.978
Hydrometer type: 152H Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.0	21.0	42.0	35.7	0.0131	43.0	9.2	0.0398	64.8
2.0	21.0	40.0	33.7	0.0131	41.0	9.6	0.0286	61.2
4.0	21.0	38.5	32.2	0.0131	39.5	9.8	0.0205	58.5
8.0	21.0	36.5	30.2	0.0131	37.5	10.1	0.0147	54.8
16.0	21.0	35.0	28.7	0.0131	36.0	10.4	0.0105	52.1
32.0	21.0	33.0	26.7	0.0131	34.0	10.7	0.0076	48.5
64.0	21.0	31.0	24.7	0.0131	32.0	11.0	0.0054	44.8
128.0	21.0	29.0	22.7	0.0131	30.0	11.4	0.0039	41.2
256.0	21.0	27.0	20.7	0.0131	28.0	11.7	0.0028	37.6
512.0	21.0	24.5	18.2	0.0131	25.5	12.1	0.0020	33.0

Fractional Components

Gravel/Sand based on #4 sieve
Sand/Fines based on #200 sieve
% + 3 in. = 0.0 % GRAVEL = 1.0 % SAND = 23.2
% SILT = 31.9 % CLAY = 43.9

D85= 0.19 D60= 0.025 D50= 0.009

Designation: D 2488–90

CENTRAL WISCONSIN ENGINEERS, INC.

P.O. Box 107 * Schofield, WI 54486

Standard Practice for Description and Identification of Soils (Visual–Manual Procedure)[1]

Project	E–scan, Queam Oil, Soil Analysis
Job No.	17829600
Boring No.	GP–1
Sample No.	
Depth of Sample	10–12'
Date of Testing	1/22/96

TABLE 13 – CHECKLIST FOR DESCRIPTION OF SOILS

Percent of cobbles or boulders, or both (by volume)					
Percent of gravel, sand, or fines, or all three (by dry weights)	Gravel	Coarse			
		Fine	0%		
	Sand	Coarse			
		Medium			
		Fine	23%		
	Fines		77%		
Particle angularity: angular, subangular, subrounded, rounded					
Particle shape: (if appropriate) flat, elongated, flat and elongated					
Maximum particle size or dimension			#4		
Hardness of coarse sand and larger particles			HARD		
Plasticity of fines:	nonplastic, low medium, high		HIGH	=	CH
Dry strength:	none, low, medium, high, very high		HIGH	=	CH
Dilatancy:	none, slow, rapid		NONE	=	CH
Toughness:	low, medium, high		HIGH	=	CH
Color (in moist condition)			REDDISH BROWN		
Odor (mention only if organic or unusual)			NONE		
Moisture: dry, moist, wet			MOIST		
Reaction with HC1: none, weak, strong			STRONG		

For Intact Samples

Consistency (fine–grained soils only): very soft, soft, firm, hard, very hard	SOFT
Structure: stratified, laminated, fissured, slickensided, lensed, homogeneous	HOMOGENEOUS
Cementation: weak, moderate, strong	STRONG
Local name	
Geologic interpretation	

Additional Comments: presence of roots or root holes, presence of mica gypsum, etc., surface coatings on coarse–grained particles, caving or sloughing of auger hole or trench sides, difficulty in augering or excavating etc.

Soil Descriptions: REDDISH BROWN SANDY CLAY

Remarks:

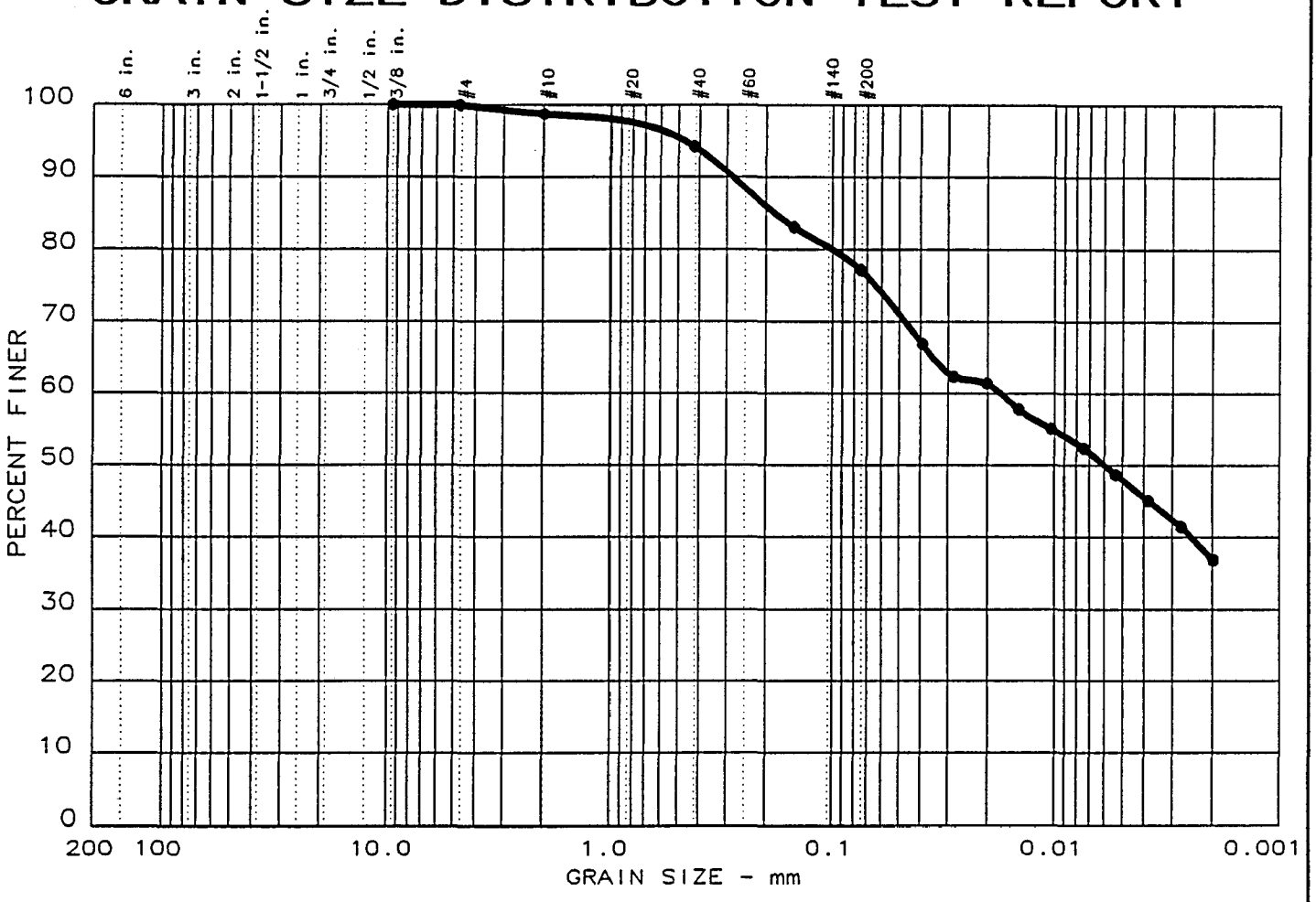
USCS: CH

Table 12 – Identification of Inorganic Fine–Grained Soils from Manual Tests

Soil Symbol	Dry Strength	Dilatancy	Toughness
ML	None to low	Slow to rapid	Low or thread cannot be formed
CL	Medium to high	None to slow	Medium
MH	Low to medium	None to slow	Low to medium
CH	High to very high	None	High

G:\SOILS\FORMS\TABLE13

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	22.8	29.3	47.9

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.182		0.0060					

	MATERIAL DESCRIPTION	USCS	AASHTO
●	SANDY CLAY	CL-CH	

Project No.: 17829600
Project: E-SCAN, QUEAM OIL, SOIL ANALYSIS
● Location: GP-1, DEPTH 10-12'

Date: 1/24/96

Remarks:
ATTERBERG TESTING WOULD MAKE USCS MORE DEFINED

GRAIN SIZE DISTRIBUTION TEST REPORT

CENTRAL WISCONSIN ENGINEERS, INC.

Figure No. 2

GRAIN SIZE DISTRIBUTION TEST DATA Test No.: 19

Date: 1/24/96
Project No.: 17829600
Project: E-SCAN, QUEAM OIL, SOIL ANALYSIS

Sample Data

Location of Sample: GP-1, DEPTH 10-12'
Sample Description: SANDY CLAY
USCS Class: CL-CH Liquid limit:
AASHTO Class: Plasticity index:

Notes

Remarks: ATTERBERG TESTING WOULD MAKE USCS MORE DEFINED

Fig. No.: 2

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	355.30	138.90
Tare =	74.90	74.90
Dry sample weight =	280.40	64.00

Minus #200 from wash= 77.2 %

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
0.375 inches	0.00	0.00	100.0
# 4	0.10	0.00	100.0
# 10	3.40	0.00	98.8
# 40	12.80	0.00	94.2
# 100	31.20	0.00	83.1
# 200	16.40	0.00	77.2

Hydrometer Analysis Data

Separation sieve is number 40
Percent -# 40 based on complete sample= 94.2
Weight of hydrometer sample: 50.5
Calculated biased weight= 53.62
Automatic temperature correction
Composite correction at 20 deg C =-6.5

Meniscus correction only= 1
Specific gravity of solids= 2.75
Specific gravity correction factor= 0.978
Hydrometer type: 152H Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.0	21.0	43.0	36.7	0.0131	44.0	9.1	0.0394	66.9
2.0	21.0	40.5	34.2	0.0131	41.5	9.5	0.0285	62.4
4.0	21.0	40.0	33.7	0.0131	41.0	9.6	0.0202	61.5
8.0	21.0	38.0	31.7	0.0131	39.0	9.9	0.0146	57.8
16.0	21.0	36.5	30.2	0.0131	37.5	10.1	0.0104	55.1
32.0	21.0	35.0	28.7	0.0131	36.0	10.4	0.0075	52.3
64.0	21.0	33.0	26.7	0.0131	34.0	10.7	0.0054	48.7
128.0	21.0	31.0	24.7	0.0131	32.0	11.0	0.0038	45.0
256.0	21.0	29.0	22.7	0.0131	30.0	11.4	0.0028	41.4
512.0	21.0	26.5	20.2	0.0131	27.5	11.8	0.0020	36.8

Fractional Components

Gravel/Sand based on #4 sieve
Sand/Fines based on #200 sieve
% + 3 in. = 0.0 % GRAVEL = 0.0 % SAND = 22.8
SILT = 29.3 % CLAY = 47.9

D85= 0.18 D60= 0.017 D50= 0.006

APPENDIX C

SOIL SAMPLING AND PRESERVATION PROCEDURES

SOIL SAMPLING AND PRESERVATION PROCEDURES (Rev. 8/94)

The following procedures conform to Wisconsin Department of Natural Resources' July 1993 *Leaking Underground Storage Tank (LUST) and Petroleum Analytical and Quality Assurance Guidance*, and *Release News*, Vol. 4, No. 3, July 1994.

I. For soils sampled for:

- Percent Solids
- Lead
- Cadmium
- Polynuclear Aromatic Hydrocarbon (PAHs)
- Sieve analysis
- Bioremediation Characterization
- Polychlorinated Biphenyls (PCBs)
- Dry Bulk Density

Soil samples are to be placed on ice, but do not need to be field preserved with methanol. The soil sample collection procedure for these analyses is as follows, using one jar per analysis:

1. A soil sample is transferred from the sampling tool (i.e., split-spoon or backhoe bucket) into an appropriate, clean, laboratory-supplied jar.

2. The soil is packed into the jar with a nitrile-gloved hand to minimize headspace. However, if there is not enough soil for all required analyses, an attempt will be made to place as much soil as possible into the jars for other analyses.

3. The jar is sealed with a Teflon-lined, screw cap.

4. The sample is placed in a cooler with ice.

5. The procedure is repeated until samples are collected for all required analyses.

6. Field personnel will decide which samples are to be laboratory analyzed based upon field instrument readings and other field observations, such as petroleum odor and soil staining. Only the samples that will be laboratory analyzed are left in the cooler. All other samples are discarded.

II. For soil samples collected for:

- Volatile organic compound (VOC)
- Petroleum volatile organic compound (PVOCs)
- Diesel range organic (DRO)
- Gasoline range organic (GRO)
- GRO/PVOCs

Soil will be transferred from the sampling tool into clean, laboratory-supplied jars by the following soil sampling procedure, using two jars per analysis:

1. The brass tube is capped on both ends, labeled, and placed in a cooler with ice.

2. Within two hours of sample collection, the field personnel will decide which samples are to be laboratory analyzed. This decision is based upon field instrument readings and other field observations, such as petroleum odor and soil staining. Only the samples that will be laboratory analyzed are extracted and placed in jars. All other samples are discarded.

3. The soil is quickly extracted from the brass tube using a nitrile-gloved hand, syringe, or spatula, and placed into a pre-tared sample jar.

4. Approximately 25 grams of soil will be added to the jar.

5. The laboratory-analyzed DRO soil samples do not need to be field-preserved. The laboratory preserves the DRO sample within the DNR-required time frame. The GRO, GRO/PVOC, and VOC soil samples must be field-preserved when the decision is made to have the sample laboratory analyzed. The procedure is as follows:

    - The proper amount (25 ml) of purge-and-trap grade methanol is transferred into the jars containing the soil samples. A 1:1 ratio of grams of soil to mls of methanol is required.

    - The jars are capped with a Teflon-lined septum, screw cap and the contents are agitated to coat the soil particles with methanol.

    - The jars are placed in the cooler with ice.

A Percent Solids analysis must always accompany GRO, DRO, GRO/PVOC, VOC, and PVOC analyses.

All soil samples remain in a cooler with ice until transported to a laboratory.

APPENDIX D

HEADSPACE SCREENING PROCEDURES

Standard Operating Procedure: Soil Sample Headspace Screening Using Field Instruments

Organic vapor concentrations in the headspace of a bag or jar partially filled with soil shall be measured using the procedure described below.

A. All field instruments must be maintained and calibrated following a schedule recommended by the manufacturer. MSA uses either a Foxboro Model 128 OVA (FID), a Thermo Environmental Instruments Model 580B OVM (PID), or HNU Model PI 101 (PID).

   The initial OVA calibration is done by the manufacturer using methane in air. Additional calibration is required following repairs. Calibration for specific organic vapors is not necessary for screening samples because the Model 128 OVA is capable of responding to the organic vapors of interest. The intent of headspace screening is to measure relative concentrations between different samples, not absolute concentrations of specific compounds. If absolute vapor concentrations of specific compounds are required, then commercial standards for that compound in an air matrix shall be used to calibrate the instrument (according to the procedure given on page 10 of the instrument instruction manual).

   The OVA calibration should be checked twice daily. The concentration should read to within 10 percent of the actual concentration. If not, the filters should be cleaned, the sample line should be checked for air leaks, and the calibration should be rechecked.

   Routine maintenance of the Model 128 OVA shall be performed as necessary to enable proper air flow through the instrument for combustion of the sample. Procedures for cleaning filters and sampling fixtures are given on page 15 of the instrument instruction manual. Although not specified by the manufacturer, filters shall be cleaned at least annually, when background concentrations appear to be unusually high, or when air flow through the instrument is below normal.

   The OVM calibration shall be checked at least twice daily using zero air and a 100 ppm isobutylene standard.

   The HNU calibration shall be checked at least twice daily using a 100 ppm isobutylene standard in an air matrix.

B. Start the OVA, OVM, and HNU following the instructions provided with the instrument. Adjust the "Calibrate Adjust" knob on the OVA or the "Zero Set" control on the HNU to "zero out" background concentrations at the location the headspace analysis is performed. If background fluctuations make this impractical, the field technician will adjust the background as nearly as possible to an arbitrary datum, 1 ppm for example, and subtract this datum from each reading. (All readings should reflect the concentration of vapor in the headspace of the sample without including background concentrations.) The OVM should be operated in the "MAX HOLD" mode.

C. If a sample is to be screened using a field instrument and possibly submitted for laboratory analysis, then two containers must be filled with sample collected from the same location. The first sample must be collected, labeled and cooled according to the established protocol for the applicable analyses. The second sample, collected for headspace measurements, shall be collected by filling one-half of a clean jar fitted with a tight-fitting, capped septum or a quart size

Ziploc bag. Background concentrations in the jars shall be measured at the start of the job to verify that jars are free of vapors.

D. Once collected and sealed, the headspace samples shall be agitated to break the soil clods and release the vapors, unless the soil is moist and cohesive. Headspace samples in containers sealed with aluminum foil shall first be capped to allow agitation without damage to the foil seal. Foil seals shall be left in place during warming and shall not be pierced until the headspace is analyzed.

E. Headspace samples must be allowed to equilibrate prior to analysis. Minimum equilibration times are dependent upon ambient air temperature and shall conform to the following specifications:

Ambient Air Temp.	Min. Equilibration Time
< 40°F	40 min.
41° - 55°	20 min.
56° - 69°	10 min.
> 70°	5 min.

During equilibration, the jar should be placed in a warm place but out of direct sunlight. Equilibration times can be reduced to 10 minutes if samples are placed in a 70° water bath.

F. Measure the vapor concentration by puncturing the aluminum foil or plastic bag with the field instrument probe and inserting the probe half-way between the foil or top of bag and soil surface. Record the highest reading observed on the instrument, less the background concentration.

G. Minimum requirements for documenting organic vapor field screening are as follows:

1. Record weather conditions, including outside temperature, temperature where samples are stored during equilibration, and general weather conditions (i.e., sunny, partly cloudy, light rain, windy, blizzard, etc.).

2. Record instrument data, including make and model, date of last factory calibration, type of calibration gas and concentration used to check calibration, date and time of last field calibration, lamp energy in Ev, instrument gain setting (if applicable), erratic readings (if applicable), and field repairs (if applicable).

3. Record field observations for each sample, including maximum concentration of each sample, relative moisture, noticeable odors, stains, and instrument quenching.

References: Attachment 2, "Closure Assessments for Underground Storage Tanks," WDNR, September 1990, and ILHR 10, May 1991.

Leaking Underground Storage Tank (LUST) and Petroleum Analytical and Quality Assurance Guidance, WDNR, July 1993.

APPENDIX E

SOIL BORING LOGS AND BOREHOLE ABANDONMENT FORMS

State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☒ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Superfund ☐ Other _____

SOIL BORING LOG INFORMATION
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Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Quearm Oil Company	_ _ _ _ _ _ _	GP-1

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started (M M / D D / Y Y)	Date Drilling Completed (M M / D D / Y Y)	Drilling Method
METCO/Mark Hoffman & Ryan Shore	01 / 17 / 96	01 / 17 / 96	Geoprobe Boring

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _	_ _ _ _ _ _ _		N/A Feet MSL	_____ Feet MSL	1.0 inches

Boring Location
State Plane _____ N, _____ E S/C/N
SW 1/4 of SW 1/4 of Section 33, T 48 N, R 4 E/W
Lat ° ' "
Long ° ' "

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

County	DNR County Code	Civil Town/City/ or Village
Ashland	02	Ashland

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			1	Blind drilled through frost										
1 PID	X		2					X		X				
	12		3	Reddish-brown medium-grained sand with gravel (UST back-fill material)	SW			12.8		M				Strong odor
2 PID GRO VOC Pb	X		4					X		X				
	8		5	3" black medium-grained sand/gravel				9.6		W				Strong odor
3 PID	X		6	Reddish-brown medium-grained sand with gravel (UST back-fill material)				X		X				
	12		7					0.0		W				Very slight odor
4 PID	X		8	Dark red clay (2.5 YR 4/4)	CL			X		X				
	6		9					0.0		M				No odor
5 PID GRO VOC Pb	24		10					0.0		M				No odor
			11											
			12											

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

Signature John Kayser Firm

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☒ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Superfund ☐ Other _____

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Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Quearm Oil Company	_ _ _ _ _ _ _	GP-2

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started (M M / D D / Y Y)	Date Drilling Completed (M M / D D / Y Y)	Drilling Method
METCO/Mark Hoffman & Ryan Shore	01 / 17 / 96	01 / 17 / 96	Geoprobe Boring

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _	_ _ _ _ _ _ _ _ _ _		N/A Feet MSL	_____ Feet MSL	1.0 inches

Boring Location
State Plane _____ N, _____ E S/C/N
SW 1/4 of SW 1/4 of Section 33, T 48 N, R 4 E/W

Lat ° ' "
Long ° ' "

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

County	DNR County Code	Civil Town/City/ or Village
Ashland	02	Ashland

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			1	Blind drilled through frost										
			2											
1 PID	X		3											
	12		4	Dark red clay (2.5 YR 4/4)	CL			0.0		M				No odor
2 PID	X		5											
	12		6					0.0		M				No odor
3 PID	24		7					0.0		M				No odor
4 PID GRO VOC ~~Pb~~	X 18		8											
			9					0.0		M				No odor
5 Sieve ample	X 18		10											
			11					0.0		M				No odor
			12	Eob @ 12'										

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

Signature _____ Firm _____

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State of Wisconsin
Department of Natural Resources

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☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☒ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Superfund ☐ Other _____

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Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Quearm Oil Company	_ _ _ _ _ _ _ _	GP-3

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
METCO/Mark Hoffman & Ryan Shore	01 / 17 / 96 (M M / D D / Y Y)	01 / 17 / 96 (M M / D D / Y Y)	Geoprobe Boring

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _ _	_ _ _ _ _ _ _ _ _ _		N/A Feet MSL	_____ Feet MSL	1.0 inches

Boring Location
State Plane _____ N, _____ E S/C/N
SW 1/4 of SW 1/4 of Section 33, T 48 N, R 4 E/W
Lat ° ' "
Long ° ' "

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

County	DNR County Code	Civil Town/City/ or Village
Ashland	02	Ashland

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			1	Blind drilled through frost										
			2											
1 PID GRO Voc ~~Pb~~	18		3	3" Pea gravel (Piping trench BF)	GP									
				Dark red clay (2.5 YR 4/4)	CL			1.3		M				No odor
2 PID	18		4											
			5					.8		M				No odor
3 PID	24		6											
			7	2" Dark gray sand & pea gravel	GP			.3		M				No odor
					CL									
4 PID GRO VOC ~~Pb~~	18		8	Dark red clay										
			9					1.9		M				No odor
5 PID	18		10											
			11					.2		M				No odor
			12	EOB @ 12'										

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

Signature: John Sayer | Firm:

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Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☒ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Superfund ☐ Other _____

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Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Quearm Oil Company	_ _ _ _ _ _ _	GP-4

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started (M M / D D / Y Y)	Date Drilling Completed (M M / D D / Y Y)	Drilling Method
METCO/Mark Hoffman & Ryan Shore	01 / 17 / 96	01 / 17 / 96	Geoprobe Boring

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _	_ _ _ _ _ _ _		N/A Feet MSL	_____ Feet MSL	1.0 inches

Boring Location
State Plane _____ N, _____ E S/C/N
SW 1/4 of SW 1/4 of Section 33, T 48 N, R 4 E(W)
Lat ° ' "
Long ° ' "

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

County	DNR County Code	Civil Town/City/ or Village
Ashland	02	Ashland

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			1	Blind drilled through frost										
			2											
1 PID GRO VOC Pb	12		3	3" black stained clay	CL			721		M				Strong odor
			4	Dark red clay (2.5 YR 4/4)										
2 PID	18		5					251		M				Petroleum odor
			6											
3 PID	24		7					37		M				Slight odor
			8											
4 None			9	No recovery										
			10											
5 PID GRO VOC Pb	18		11	Dark red clay (2.5 YR 4/4)				1.8		M				Possible slight odor
			12											

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

Signature _____ Firm _____

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State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☒ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Superfund ☐ Other _____

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Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Quearm Oil Company	_ _ _ _ _ _ _	GP-5

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
METCO/Mark Hoffman & Ryan Shore	01 / 17 / 96 (M M / D D / Y Y)	01 / 17 / 96 (M M / D D / Y Y)	Geoprobe Boring

DNR Facility Well No.	Wt Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _	_ _ _ _ _ _ _		N/A Feet MSL	_____ Feet MSL	1.0 inches

Boring Location
State Plane _____ N, _____ E S/C/N
SW 1/4 of SW 1/4 of Section 33, T 48 N, R 4 E/W
Lat ° ' "
Long ° ' "

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

County	DNR County Code	Civil Town/City/ or Village
Ashland	02	Ashland

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			1	Blind drilled through frost										
			2											
1 PID			3											
	12		4	Dark red clay (2.5 YR 4/4)	CL			0.0		M				No odor
2 PID	18		5					0.0		M				No odor
3 PID GRO VOC Pb	18		6											
			7	1/2" red med. grained sand lens	SP			0.0		M				No odor
				Dark red clay (2.5 YR 4/4)	CL									
4 NONE			8	No recovery										
			9											
			10											
5 PID	24		11	Dark red clay (2.5 YR 4/4)				0.0		M				No odor
			12	EOB @ 12'										

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

Signature _____ Firm _____

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State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☒ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Superfund ☐ Other _____

SOIL BORING LOG INFORMATION
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Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Quearm Oil Company	_ _ _ _ _ _ _	GP-6

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started (M M / D D / Y Y)	Date Drilling Completed (M M / D D / Y Y)	Drilling Method
METCO/Mark Hoffman & Ryan Shore	01 / 17 / 96	01 / 17 / 96	Geoprobe Boring

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _	_ _ _ _ _ _ _		N/A Feet MSL	_____ Feet MSL	1.0 inches

Boring Location
State Plane _____ N, _____ E S/C/N
Lat ° ' "
SW 1/4 of SW 1/4 of Section 33, T 48 N, R 4 E(W)
Long ° ' "

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

County	DNR County Code	Civil Town/City/ or Village
Ashland	02	Ashland

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			1	Blind drilled through frost										
			2											
1 PID	18		3	Dark red clay (2.5 YR 4/4)	CL			0.0		M				No odor
			4											
2 PID GRO VOC ~~PB~~	24		5					0.0		M				No odor
			6	EOB @ 6'										
			7											
			8											
			9											
			10											
			11											
			12											

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

Signature _____ Firm _____

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Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☒ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Superfund ☐ Other _____

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Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Quearm Oil Company	_ _ _ _ _ _ _	GP-7

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started (M M / D D / Y Y)	Date Drilling Completed (M M / D D / Y Y)	Drilling Method
METCO/Mark Hoffman & Ryan Shore	01 / 17 / 96	01 / 17 / 96	Geoprobe Boring

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _	_ _ _ _ _ _ _		N/A Feet MSL	_____ Feet MSL	1.0 inches

Boring Location
State Plane _____ N, _____ E S/C/N
SW 1/4 of SW 1/4 of Section 33, T 48 N, R 4 E/W
Lat ° ' "
Long ° ' "

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

County	DNR County Code	Civil Town/City/ or Village
Ashland	02	Ashland

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	Soil Properties: PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			1	Blind drilled through frost										
			2											
1 PID GRO VOC Pb	18		3	Dark red clay (2.5 YR 4/4)				7.9		M				Possible slight odor
			4											
2 PID GRO VOC Pb	24		5					0.0		M				No odor
			6	EOB @ 6'										
			7											
			8											
			9											
			10											
			11											
			12											

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

Signature _____ Firm _____

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State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☒ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Superfund ☐ Other _____

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Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Quearm Oil Company	_ _ _ _ _ _ _	GP-8

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started (M M / D D / Y Y)	Date Drilling Completed (M M / D D / Y Y)	Drilling Method
METCO/Mark Hoffman & Ryan Shore	01 / 17 / 96	01 / 17 / 96	Geoprobe Boring

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _	_ _ _ _ _ _ _ _		N/A Feet MSL	_____ Feet MSL	1.0 inches

Boring Location
State Plane _____ N, _____ E S/C/N
SW 1/4 of SW 1/4 of Section 33, T 48 N, R 4 E(W)
Lat ° ' "
Long ° ' "

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

County	DNR County Code	Civil Town/City/ or Village
Ashland	02	Ashland

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			1	Blind drilled through frost										
			2											
1 PID	18		3	Dark red clay (2.5 YR 4/4)	CL			0.0		M				No Odor
			4											
2 PID GRO VOC Pb	18		5					2.4		M				No odor
			6											
3 PID	18		7					0.0		M				No odor
			8											
4 PID	24		9					0.0		M				No odor
			10											
			11	EOB @ 10'										
			12											

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

Signature: John Ryan Firm:

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☐ Superfund ☐ Other _____

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Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Quearm Oil Company	_ _ _ _ _ _ _	GP-9

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started (M M / D D / Y Y)	Date Drilling Completed (M M / D D / Y Y)	Drilling Method
METCO/Mark Hoffman & Ryan Shore	01 / 17 / 96	01 / 17 / 96	Geoprobe Boring

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _	_ _ _ _ _ _ _		N/A Feet MSL	_____ Feet MSL	1.0 inches

Boring Location
State Plane _____ N, _____ E S/C/N
SW 1/4 of SW 1/4 of Section 33, T 48 N, R 4 E(W)
Lat ° ' "
Long ° ' "

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

County	DNR County Code	Civil Town/City/ or Village
Ashland	02	Ashland

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			1	Blind drilled through frost										
			2											
1 PID GRO VOC Pb	X		3	Dark red clay (2.5 YR 4/4)	CL			189		M				Slight odor
2 PID	X		4											
			5					3.5		M				Slight odor
3 PID GRO VOC Pb	X		6											
			7	3" black coarse sand seam	SP									
				Dark red clay (2.5 YR 4/4)	CL			1.3		M				No odor
			8	EOB @ 8'										
			9											
			10											
			11											
			12											

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

Signature John Loye Firm

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B Rev. 8-89

■ abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION

Well/Drillhole/Borehole Location: GP-1

County: Ashland

SW 1/4 of SW 1/4 of Sec. 33 ; T. 48 N; R. 4 ☐ E ☒ W

(If applicable) _____ Gov't Lot _____ Grid Number

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

Civil Town Name: Ashland

Street Address of Well: 105 West 6th Street

City, Village: Ashland

(2) FACILITY NAME

Original Well Owner (If Known): Quearm Oil Company

Present Well Owner: Quearm Oil Company

Street or Route: 631 East McLeod Avenue

City, State, Zip Code: Ironwood, MI 49938

Facility Well No. and/or Name (If Applicable): GP-1

WI Unique Well No.: _ _ _ _ _

Reason For Abandonment: No longer needed

Date of Abandonment: 01/17/96

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On (Date): 01/17/96

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available? ☒ Yes ☐ No

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (Specify) Geoprobe boring

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 14' (From groundsurface) Casing Diameter (ins.) N/A

Casing Depth (ft.) N/A

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

(4) Depth to Water (Feet) N/A

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

If No, Explain _____

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

(5) Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Dump Bailer ☒ Other (Explain) Gravity

(6) Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☐ Chipped Bentonite

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

Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Granular bentonite	Surface	14'	140 oz	

(7) Comments: _____

(8) Name of Person or Firm Doing Sealing Work: Mid-State Associates, Inc.

Signature of Person Doing Work: John Lyon

Date Signed: _____

Street or Route: P.O. Box 1026

Telephone Number: (715)362-3244

City, State, Zip Code: Rhinelander, WI 54501

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected	District/County
Reviewer/Inspector	
Follow-up Necessary	

DNR/COUNTY

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B Rev. 8-89

abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION

Well/Drillhole/Borehole Location: GP-2

County: Ashland

SW 1/4 of SW 1/4 of Sec. 33 ; T. 48 N; R. 4 ☐ E ☒ W

(If applicable) _____ Gov't Lot _____ Grid Number

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

Civil Town Name: Ashland

Street Address of Well: 105 West 6th Street

City, Village: Ashland

(2) FACILITY NAME

Original Well Owner (If Known): Quearm Oil Company

Present Well Owner: Quearm Oil Company

Street or Route: 631 East McLeod Avenue

City, State, Zip Code: Ironwood, MI 49938

Facility Well No. and/or Name (If Applicable): GP-2

WI Unique Well No.: _ _ _ _ _ _

Reason For Abandonment: No longer needed

Date of Abandonment: 01/17/96

WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Well/Drillhole/Borehole Construction Completed On (Date): 01/17/96

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available? ☒ Yes ☐ No

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (Specify) Geoprobe boring

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 12' Casing Diameter (ins.) N/A
(From groundsurface)

Casing Depth (ft.) N/A

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

(4) Depth to Water (Feet) N/A

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

If No, Explain _____

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

(5) Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Dump Bailer ☒ Other (Explain) Gravity

(6) Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☐ Chipped Bentonite

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

(7)

Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Granular bentonite	Surface	12'	120 oz	

(8) Comments: _____

(9) Name of Person or Firm Doing Sealing Work: Mid-State Associates, Inc.

Signature of Person Doing Work: [signature] Date Signed: _____

Street or Route: P.O. Box 1026 Telephone Number: (715)362-3244

City, State, Zip Code: Rhinelander, WI 54501

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected: _____ District/County: _____

Reviewer/Inspector: _____

Follow-up Necessary: _____

DNR/COUNTY

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B Rev. 8-89

All abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION

Well/Drillhole/Borehole Location: GP-3

County: Ashland

SW 1/4 of SW 1/4 of Sec. 33 ; T. 48 ☐ N ☒ W; R. 4 ☐ E ☒ W

(If applicable) _____ Gov't Lot _____ Grid Number

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

Civil Town Name: Ashland

Street Address of Well: 105 West 6th Street

City, Village: Ashland

(2) FACILITY NAME

Original Well Owner (If Known): Quearm Oil Company

Present Well Owner: Quearm Oil Company

Street or Route: 631 East McLeod Avenue

City, State, Zip Code: Ironwood, MI 49938

Facility Well No. and/or Name (If Applicable): GP-3

WI Unique Well No.: _ _ _ _ _ _

Reason For Abandonment: No longer needed

Date of Abandonment: 01/17/96

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On (Date): 01/17/96

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available? ☒ Yes ☐ No

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (Specify) Geoprobe boring

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 12' Casing Diameter (ins.) N/A
(From groundsurface)

Casing Depth (ft.) N/A

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

(4) Depth to Water (Feet) N/A

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

If No, Explain _____

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

(5) Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Dump Bailer ☒ Other (Explain) Gravity

(6) Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☐ Chipped Bentonite

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

(7)

Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Granular bentonite	Surface	12'	140 oz	

Comments: _____

Name of Person or Firm Doing Sealing Work: Mid-State Associates, Inc.

Signature of Person Doing Work: [signature] Date Signed: _____

Street or Route: P.O. Box 1026 Telephone Number: (715)362-3244

City, State, Zip Code: Rhinelander, WI 54501

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected	District/County
Reviewer/Inspector	
Follow-up Necessary	

DNR/COUNTY

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B
Rev. 8-89

abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

GENERAL INFORMATION

Well/Drillhole/Borehole Location: GP-4

County: Ashland

SW 1/4 of SW 1/4 of Sec. 33 ; T. 48 ☐ N ☒ W; R. 4 ☐ E ☒ W

(If applicable) _____ Gov't Lot _____ Grid Number

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

Civil Town Name: Ashland

Street Address of Well: 105 West 6th Street

City, Village: Ashland

(2) FACILITY NAME

Original Well Owner (If Known): Quearm Oil Company

Present Well Owner: Quearm Oil Company

Street or Route: 631 East McLeod Avenue

City, State, Zip Code: Ironwood, MI 49938

Facility Well No. and/or Name (If Applicable): GP-4

WI Unique Well No.: _ _ _ _ _ _

Reason For Abandonment: No longer needed

Date of Abandonment: 01/17/96

WELL/DRILLHOLE/BOREHOLE INFORMATION

(1) Original Well/Drillhole/Borehole Construction Completed On (Date): 01/17/96

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available? ☒ Yes ☐ No

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (Specify) Geoprobe boring

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 12' (From groundsurface) Casing Diameter (ins.) N/A

Casing Depth (ft.) N/A

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

(4) Depth to Water (Feet) N/A

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

If No, Explain _____

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

(5) Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Dump Bailer ☒ Other (Explain) Gravity

(6) Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☐ Chipped Bentonite

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

(7)

Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Granular bentonite	Surface	12'	230 oz	

Comments: _____

Name of Person or Firm Doing Sealing Work: Mid-State Associates, Inc.

Signature of Person Doing Work: [signature] Date Signed: _____

Street or Route: P.O. Box 1026 Telephone Number: (715)362-3244

City, State, Zip Code: Rhinelander, WI 54501

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected	District/County
Reviewer/Inspector	
Follow-up Necessary	

DNR/COUNTY

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B Rev. 8-89

abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION

Well/Drillhole/Borehole Location: GP-5

County: Ashland

SW 1/4 of SW 1/4 of Sec. 33 ; T. 48 ☐ N ☒ W; R. 4 ☐ E ☒ W

(If applicable) _____ Gov't Lot _____ Grid Number

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

Civil Town Name: Ashland

Street Address of Well: 105 West 6th Street

City, Village: Ashland

(2) FACILITY NAME

Original Well Owner (If Known): Quearm Oil Company

Present Well Owner: Quearm Oil Company

Street or Route: 631 East McLeod Avenue

City, State, Zip Code: Ironwood, MI 49938

Facility Well No. and/or Name (If Applicable): GP-5

WI Unique Well No.: _ _ _ _ _ _

Reason For Abandonment: No longer needed

Date of Abandonment: 01/17/96

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On (Date): 01/17/96

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available? ☒ Yes ☐ No

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (Specify) Geoprobe boring

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 12' (From groundsurface) Casing Diameter (ins.) N/A

Casing Depth (ft.) N/A

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

(4) Depth to Water (Feet) N/A

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

If No, Explain _____

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

(5) Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Dump Bailer ☒ Other (Explain) Gravity

(6) Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☐ Chipped Bentonite

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

(7)

Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Granular bentonite	Surface	12'	140 oz	

Comments: _____

(8) Name of Person or Firm Doing Sealing Work: Mid-State Associates, Inc.

Signature of Person Doing Work: [signature] Date Signed: _____

Street or Route: P.O. Box 1026 Telephone Number: (715)362-3244

City, State, Zip Code: Rhinelander, WI 54501

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected	District/County
Reviewer/Inspector	
Follow-up Necessary	

DNR/COUNTY

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B Rev. 8-89

abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

GENERAL INFORMATION

Well/Drillhole/Borehole Location: GP-6

County: Ashland

SW 1/4 of SW 1/4 of Sec. 33 ; T. 48 ☐ N ☒ W; R. 4 ☐ E ☒ W

(If applicable) _____ Gov't Lot _____ Grid Number

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

Civil Town Name: Ashland

Street Address of Well: 105 West 6th Street

City, Village: Ashland

(2) FACILITY NAME

Original Well Owner (If Known): Quearm Oil Company

Present Well Owner: Quearm Oil Company

Street or Route: 631 East McLeod Avenue

City, State, Zip Code: Ironwood, MI 49938

Facility Well No. and/or Name (If Applicable): GP-6

WI Unique Well No.: _ _ _ _ _ _

Reason For Abandonment: No longer needed

Date of Abandonment: 01/17/96

WELL/DRILLHOLE/BOREHOLE INFORMATION

(1) Original Well/Drillhole/Borehole Construction Completed On (Date): 01/17/96

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available? ☒ Yes ☐ No

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (Specify) Geoprobe boring

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 6' Casing Diameter (ins.) N/A
(From groundsurface)

Casing Depth (ft.) N/A

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

(4) Depth to Water (Feet) N/A

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

If No, Explain _____

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

(5) Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Dump Bailer ☒ Other (Explain) Gravity

(6) Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☐ Chipped Bentonite

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

Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Granular bentonite	Surface	6'	90 oz	

Comments: _____

Name of Person or Firm Doing Sealing Work: Mid-State Associates, Inc.

Signature of Person Doing Work: [signature] Date Signed:

Street or Route: P.O. Box 1026 Telephone Number: (715)362-3244

City, State, Zip Code: Rhinelander, WI 54501

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected: _____ District/County: _____

Reviewer/Inspector: _____

Follow-up Necessary: _____

DNR/COUNTY

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B Rev. 8-89

Abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION

Well/Drillhole/Borehole Location: GP-7

County: Ashland

SW 1/4 of SW 1/4 of Sec. 33 ; T. 48 N; R. 4 ☐ E ☒ W

(If applicable) Gov't Lot _____ Grid Number _____

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

Civil Town Name: Ashland

Street Address of Well: 105 West 6th Street

City, Village: Ashland

(2) FACILITY NAME

Original Well Owner (If Known): Quearm Oil Company

Present Well Owner: Quearm Oil Company

Street or Route: 631 East McLeod Avenue

City, State, Zip Code: Ironwood, MI 49938

Facility Well No. and/or Name (If Applicable): GP-7

WI Unique Well No.: _ _ _ _ _ _

Reason For Abandonment: No longer needed

Date of Abandonment: 01/17/96

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On (Date): 01/17/96

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available? ☒ Yes ☐ No

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (Specify) Geoprobe boring

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 6' (From groundsurface) Casing Diameter (ins.) N/A

Casing Depth (ft.) N/A

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

(4) Depth to Water (Feet) N/A

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

If No, Explain _____

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

(5) Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Dump Bailer ☒ Other (Explain) Gravity

(6) Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☐ Chipped Bentonite

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

(7)

Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Granular bentonite	Surface	6'	80 oz	

Comments: _____

Name of Person or Firm Doing Sealing Work: Mid-State Associates, Inc.

Signature of Person Doing Work: John Lyn. | Date Signed:

Street or Route: P.O. Box 1026 | Telephone Number: (715)362-3244

City, State, Zip Code: Rhinelander, WI 54501

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected	District/County
Reviewer/Inspector	
Follow-up Necessary	

DNR/COUNTY

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B Rev. 8-89

abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION

Well/Drillhole/Borehole Location: GP-8

County: Ashland

SW 1/4 of SW 1/4 of Sec. 33 ; T. 48 N; R. 4 ☐ E ☒ W

(If applicable) Gov't Lot _____ Grid Number _____

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

Civil Town Name: Ashland

Street Address of Well: 105 West 6th Street

City, Village: Ashland

(2) FACILITY NAME

Original Well Owner (If Known): Quearm Oil Company

Present Well Owner: Quearm Oil Company

Street or Route: 631 East McLeod Avenue

City, State, Zip Code: Ironwood, MI 49938

Facility Well No. and/or Name (If Applicable): GP-8

WI Unique Well No.: _ _ _ _ _ _

Reason For Abandonment: No longer needed

Date of Abandonment: 01/17/96

WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Well/Drillhole/Borehole Construction Completed On (Date): 01/17/96

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available? ☒ Yes ☐ No

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (Specify) Geoprobe boring

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 10' (From groundsurface) Casing Diameter (ins.) N/A

Casing Depth (ft.) N/A

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

(4) Depth to Water (Feet) N/A

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

If No, Explain _____

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

(5) Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Dump Bailer ☒ Other (Explain) Gravity

(6) Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☐ Chipped Bentonite

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

Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Granular bentonite	Surface	10'	150 oz	

Comments: _____

Name of Person or Firm Doing Sealing Work: Mid-State Associates, Inc.

Signature of Person Doing Work: [signature] Date Signed: _____

Street or Route: P.O. Box 1026 Telephone Number: (715)362-3244

City, State, Zip Code: Rhinelander, WI 54501

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected: _____ District/County: _____

Reviewer/Inspector: _____

Follow-up Necessary: _____

DNR/COUNTY

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B Rev. 8-89

ll abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION

Well/Drillhole/Borehole Location: GP-9

County: Ashland

SW 1/4 of SW 1/4 of Sec. 33 ; T. 48 N; R. 4 ☐ E ☒ W

(If applicable) _____ Gov't Lot _____ Grid Number

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

Civil Town Name: Ashland

Street Address of Well: 105 West 6th Street

City, Village: Ashland

(2) FACILITY NAME

Original Well Owner (If Known): Quearm Oil Company

Present Well Owner: Quearm Oil Company

Street or Route: 631 East McLeod Avenue

City, State, Zip Code: Ironwood, MI 49938

Facility Well No. and/or Name (If Applicable): GP-9

WI Unique Well No.: _ _ _ _ _ _

Reason For Abandonment: No longer needed

Date of Abandonment: 01/17/96

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On

(Date) 01/17/96

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available? ☒ Yes ☐ No

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (Specify) Geoprobe boring

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 8' Casing Diameter (ins.) N/A
(From groundsurface)

Casing Depth (ft.) N/A

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

(4) Depth to Water (Feet) N/A

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

If No, Explain _____

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

(5) Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Dump Bailer ☒ Other (Explain) Gravity

(6) Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☐ Chipped Bentonite

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

(7)

Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Granular bentonite	Surface	8'	110 oz	

(8) Comments: _____

(9) Name of Person or Firm Doing Sealing Work: Mid-State Associates, Inc.

Signature of Person Doing Work: John Lyon | Date Signed:

Street or Route: P.O. Box 1026 | Telephone Number: (715)362-3244

City, State, Zip Code: Rhinelander, WI 54501

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected	District/County
Reviewer/Inspector	
Follow-up Necessary	

DNR/COUNTY

APPENDIX F

SOIL SAMPLE ANALYTICAL RESULTS AND CHAIN OF CUSTODY REPORTS

ENVIROSCAN

February 1, 1996

ENVIRONMENTAL AND
ANALYTICAL SERVICES

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

Attn: John Sager

Re: 212365

Please find enclosed the analytical results for the samples received January 19, 1996.

All analyses were completed in accordance with appropriate EPA and Wisconsin methodologies. Methods and dates of analysis are included in the report tables.

The chain of custody document is enclosed. If you have any questions about the results, please call. Thank you for using Enviroscan Corp. for your analytical needs.

Sincerely,

Enviroscan Corp.

RECEIVED
MID-STATE ASSOCIATES

Laurie M. Pietrowski

Laurie M. Pietrowski
Analytical Chemist

FEB 2 1996

303 West Military Road Rothschild, WI 54474 (715) 359-7226
An Affiliate of the Black Clawson Co.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-1 4-6' 01/17/96	Qualifiers	Date Analyzed
EPA 160.3					
Total Solids	%	-	86.04		01/22/96
EPA 6010					
Lead	mg/kg	5.8	X		01/23/96
EPA 8021					
Benzene	mg/kg	0.10	X		01/26/96
Bromobenzene	mg/kg	0.10	X		01/26/96
Bromodichloromethane	mg/kg	0.10	X		01/26/96
n-Butylbenzene	mg/kg	0.10	7.70		01/26/96
sec-Butylbenzene	mg/kg	0.10	0.488		01/26/96
tert-Butylbenzene	mg/kg	0.10	0.151		01/26/96
Carbon Tetrachloride	mg/kg	0.10	X		01/26/96
Chlorobenzene	mg/kg	0.10	X		01/26/96
Chlorodibromomethane	mg/kg	0.10	X		01/26/96
Chloroethane	mg/kg	0.10	X	CSL SPL	01/26/96
Chloroform	mg/kg	0.10	X		01/26/96
Chloromethane	mg/kg	0.10	X	CSL SPL DUP	01/26/96
o-Chlorotoluene	mg/kg	0.10	X		01/26/96
p-Chlorotoluene	mg/kg	0.10	X		01/26/96
1,2-Dibromo-3-chloropropane	mg/kg	0.10	X		01/26/96
1,2-Dibromoethane	mg/kg	0.10	X		01/26/96
1,2-Dichlorobenzene	mg/kg	0.10	X		01/26/96
1,3-Dichlorobenzene	mg/kg	0.10	X		01/26/96
1,4-Dichlorobenzene	mg/kg	0.10	X		01/26/96
Dichlorodifluoromethane	mg/kg	0.10	X	CSL SPL	01/26/96
1,1-Dichloroethane	mg/kg	0.10	X		01/26/96
1,2-Dichloroethane	mg/kg	0.10	X		01/26/96
1,1-Dichloroethylene	mg/kg	0.10	X	SPL	01/26/96
cis-1,2-Dichloroethylene	mg/kg	0.10	X		01/26/96
trans-1,2-Dichloroethylene	mg/kg	0.10	X	SPL	01/26/96
1,2-Dichloropropane	mg/kg	0.10	X		01/26/96
1,3-Dichloropropane	mg/kg	0.10	X		01/26/96
2,2-Dichloropropane	mg/kg	0.10	X	SPL	01/26/96
Ethylbenzene	mg/kg	0.10	0.139		01/26/96
Hexachlorobutadiene	mg/kg	0.10	X		01/26/96
Isopropylbenzene	mg/kg	0.10	0.163		01/26/96
Isopropyl Ether	mg/kg	0.10	X		01/26/96
p-Isopropyltoluene	mg/kg	0.10	0.232		01/26/96
Methyl tert Butyl Ether	mg/kg	0.10	X	CSL SPL	01/26/96
Methylene Chloride	mg/kg	0.10	X	SPL	01/26/96
Naphthalene	mg/kg	0.10	1.02		01/26/96
Analytical No.:			58948		

X = Analyzed but not detected.
Results calculated on a dry weight basis.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-1 4-6' 01/17/96	Qualifiers	Date Analyzed
n-Propylbenzene	mg/kg	0.10	0.452		01/26/96
Tetrachloroethylene	mg/kg	0.10	X		01/26/96
1,1,2,2-Tetrachloroethane	mg/kg	0.10	X		01/26/96
Toluene	mg/kg	0.10	X		01/26/96
1,2,3-Trichlorobenzene	mg/kg	0.10	X		01/26/96
1,2,4-Trichlorobenzene	mg/kg	0.10	X		01/26/96
1,1,1-Trichloroethane	mg/kg	0.10	X	SPL	01/26/96
1,1,2-Trichloroethane	mg/kg	0.10	X		01/26/96
Trichloroethylene	mg/kg	0.10	X		01/26/96
Trichlorofluoromethane	mg/kg	0.10	X	SPL	01/26/96
1,2,4-Trimethylbenzene	mg/kg	0.10	9.89		01/26/96
1,3,5-Trimethylbenzene	mg/kg	0.10	4.10		01/26/96
Vinyl Chloride	mg/kg	0.10	X	CSL SPL	01/26/96
m- & p-Xylene	mg/kg	0.10	0.813		01/26/96
o-Xylene & Styrene	mg/kg	0.10	0.437	CSL	01/26/96

Analytical No.: 58948

X = Analyzed but not detected.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-1 10-12' 01/17/96	Qualifiers	Date Analyzed
EPA 160.3					
Total Solids	%	-	80.98		01/22/96
EPA 6010					
Lead	mg/kg	6.2	X		01/23/96
EPA 8021					
Benzene	mg/kg	0.025	X		01/26/96
Bromobenzene	mg/kg	0.025	X		01/26/96
Bromodichloromethane	mg/kg	0.025	X		01/26/96
n-Butylbenzene	mg/kg	0.025	X		01/26/96
sec-Butylbenzene	mg/kg	0.025	X		01/26/96
tert-Butylbenzene	mg/kg	0.025	X		01/26/96
Carbon Tetrachloride	mg/kg	0.025	X		01/26/96
Chlorobenzene	mg/kg	0.025	X		01/26/96
Chlorodibromomethane	mg/kg	0.025	X		01/26/96
Chloroethane	mg/kg	0.025	X	CSL SPL	01/26/96
Chloroform	mg/kg	0.025	X		01/26/96
Chloromethane	mg/kg	0.025	X	CSL SPL DUP	01/26/96
o-Chlorotoluene	mg/kg	0.025	X		01/26/96
p-Chlorotoluene	mg/kg	0.025	X		01/26/96
1,2-Dibromo-3-chloropropane	mg/kg	0.025	X		01/26/96
1,2-Dibromoethane	mg/kg	0.025	X		01/26/96
1,2-Dichlorobenzene	mg/kg	0.025	X		01/26/96
1,3-Dichlorobenzene	mg/kg	0.025	X		01/26/96
1,4-Dichlorobenzene	mg/kg	0.025	X		01/26/96
Dichlorodifluoromethane	mg/kg	0.025	X	CSL SPL	01/26/96
1,1-Dichloroethane	mg/kg	0.025	X		01/26/96
1,2-Dichloroethane	mg/kg	0.025	X		01/26/96
1,1-Dichloroethylene	mg/kg	0.025	X	SPL	01/26/96
cis-1,2-Dichloroethylene	mg/kg	0.025	X		01/26/96
trans-1,2-Dichloroethylene	mg/kg	0.025	X	SPL	01/26/96
1,2-Dichloropropane	mg/kg	0.025	X		01/26/96
1,3-Dichloropropane	mg/kg	0.025	X		01/26/96
2,2-Dichloropropane	mg/kg	0.025	X	SPL	01/26/96
Ethylbenzene	mg/kg	0.025	X		01/26/96
Hexachlorobutadiene	mg/kg	0.025	X		01/26/96
Isopropylbenzene	mg/kg	0.025	X		01/26/96
Isopropyl Ether	mg/kg	0.025	X		01/26/96
p-Isopropyltoluene	mg/kg	0.025	X		01/26/96
Methyl tert Butyl Ether	mg/kg	0.025	X	CSL SPL	01/26/96
Methylene Chloride	mg/kg	0.025	X	SPL	01/26/96
Naphthalene	mg/kg	0.025	X		01/26/96
Analytical No.:			58949		

X = Analyzed but not detected.
Results calculated on a dry weight basis.

All analyses conducted in accordance with Enviroscan Quality Assurance Program.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-1 10-12' 01/17/96	Qualifiers	Date Analyzed
n-Propylbenzene	mg/kg	0.025	X		01/26/96
Tetrachloroethylene	mg/kg	0.025	X		01/26/96
1,1,2,2-Tetrachloroethane	mg/kg	0.025	X		01/26/96
Toluene	mg/kg	0.025	X		01/26/96
1,2,3-Trichlorobenzene	mg/kg	0.025	X		01/26/96
1,2,4-Trichlorobenzene	mg/kg	0.025	X		01/26/96
1,1,1-Trichloroethane	mg/kg	0.025	X	SPL	01/26/96
1,1,2-Trichloroethane	mg/kg	0.025	X		01/26/96
Trichloroethylene	mg/kg	0.025	X		01/26/96
Trichlorofluoromethane	mg/kg	0.025	X	SPL	01/26/96
1,2,4-Trimethylbenzene	mg/kg	0.025	X		01/26/96
1,3,5-Trimethylbenzene	mg/kg	0.025	X		01/26/96
Vinyl Chloride	mg/kg	0.025	X	CSL SPL	01/26/96
m- & p-Xylene	mg/kg	0.025	X		01/26/96
o-Xylene & Styrene	mg/kg	0.025	0.0494	CSL MB	01/26/96

Analytical No.: 58949

X = Analyzed but not detected.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-2 10-12' 01/17/96	Qualifiers	Date Analyzed
EPA 160.3					
Total Solids	%	-	84.30		01/22/96
EPA 6010					
Lead	mg/kg	5.9	X		01/23/96
EPA 8021					
Benzene	mg/kg	0.026	X		01/26/96
Bromobenzene	mg/kg	0.026	X		01/26/96
Bromodichloromethane	mg/kg	0.026	X		01/26/96
n-Butylbenzene	mg/kg	0.026	X		01/26/96
sec-Butylbenzene	mg/kg	0.026	X		01/26/96
tert-Butylbenzene	mg/kg	0.026	X		01/26/96
Carbon Tetrachloride	mg/kg	0.026	X		01/26/96
Chlorobenzene	mg/kg	0.026	X		01/26/96
Chlorodibromomethane	mg/kg	0.026	X		01/26/96
Chloroethane	mg/kg	0.026	X	CSL SPL	01/26/96
Chloroform	mg/kg	0.026	X		01/26/96
Chloromethane	mg/kg	0.026	X	CSL SPL DUP	01/26/96
o-Chlorotoluene	mg/kg	0.026	X		01/26/96
p-Chlorotoluene	mg/kg	0.026	X		01/26/96
1,2-Dibromo-3-chloropropane	mg/kg	0.026	X		01/26/96
1,2-Dibromoethane	mg/kg	0.026	X		01/26/96
1,2-Dichlorobenzene	mg/kg	0.026	X		01/26/96
1,3-Dichlorobenzene	mg/kg	0.026	X		01/26/96
1,4-Dichlorobenzene	mg/kg	0.026	X		01/26/96
Dichlorodifluoromethane	mg/kg	0.026	X	CSL SPL	01/26/96
1,1-Dichloroethane	mg/kg	0.026	X		01/26/96
1,2-Dichloroethane	mg/kg	0.026	X		01/26/96
1,1-Dichloroethylene	mg/kg	0.026	X	SPL	01/26/96
cis-1,2-Dichloroethylene	mg/kg	0.026	X		01/26/96
trans-1,2-Dichloroethylene	mg/kg	0.026	X	SPL	01/26/96
1,2-Dichloropropane	mg/kg	0.026	X		01/26/96
1,3-Dichloropropane	mg/kg	0.026	X		01/26/96
2,2-Dichloropropane	mg/kg	0.026	X	SPL	01/26/96
Ethylbenzene	mg/kg	0.026	X		01/26/96
Hexachlorobutadiene	mg/kg	0.026	X		01/26/96
Isopropylbenzene	mg/kg	0.026	X		01/26/96
Isopropyl Ether	mg/kg	0.026	X		01/26/96
p-Isopropyltoluene	mg/kg	0.026	X		01/26/96
Methyl tert Butyl Ether	mg/kg	0.026	X	CSL SPL	01/26/96
Methylene Chloride	mg/kg	0.026	X	SPL	01/26/96
Naphthalene	mg/kg	0.026	X		01/26/96
Analytical No.:			58950		

X = Analyzed but not detected.
Results calculated on a dry weight basis.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-2 10-12' 01/17/96	Qualifiers	Date Analyzed
n-Propylbenzene	mg/kg	0.026	X		01/26/96
Tetrachloroethylene	mg/kg	0.026	X		01/26/96
1,1,2,2-Tetrachloroethane	mg/kg	0.026	X		01/26/96
Toluene	mg/kg	0.026	X		01/26/96
1,2,3-Trichlorobenzene	mg/kg	0.026	X		01/26/96
1,2,4-Trichlorobenzene	mg/kg	0.026	X		01/26/96
1,1,1-Trichloroethane	mg/kg	0.026	X	SPL	01/26/96
1,1,2-Trichloroethane	mg/kg	0.026	X		01/26/96
Trichloroethylene	mg/kg	0.026	X		01/26/96
Trichlorofluoromethane	mg/kg	0.026	X	SPL	01/26/96
1,2,4-Trimethylbenzene	mg/kg	0.026	X		01/26/96
1,3,5-Trimethylbenzene	mg/kg	0.026	X		01/26/96
Vinyl Chloride	mg/kg	0.026	X	CSL SPL	01/26/96
m- & p-Xylene	mg/kg	0.026	X		01/26/96
o-Xylene & Styrene	mg/kg	0.026	0.0546	CSL MB	01/26/96

Analytical No.: 58950

X = Analyzed but not detected.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

Attn: John Sager

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

	Units	Reporting Limit	GP-3 2-4' 01/17/96	Qualifiers	Date Analyzed
EPA 160.3					
Total Solids	%	-	85.00		01/22/96
EPA 6010					
Lead	mg/kg	5.9	X		01/23/96
EPA 8021					
Benzene	mg/kg	0.026	X		01/26/96
Bromobenzene	mg/kg	0.026	X		01/26/96
Bromodichloromethane	mg/kg	0.026	X		01/26/96
n-Butylbenzene	mg/kg	0.026	X		01/26/96
sec-Butylbenzene	mg/kg	0.026	X		01/26/96
tert-Butylbenzene	mg/kg	0.026	X		01/26/96
Carbon Tetrachloride	mg/kg	0.026	X		01/26/96
Chlorobenzene	mg/kg	0.026	X		01/26/96
Chlorodibromomethane	mg/kg	0.026	X		01/26/96
Chloroethane	mg/kg	0.026	X	CSL SPL	01/26/96
Chloroform	mg/kg	0.026	X		01/26/96
Chloromethane	mg/kg	0.026	X	CSL SPL DUP	01/26/96
o-Chlorotoluene	mg/kg	0.026	X		01/26/96
p-Chlorotoluene	mg/kg	0.026	X		01/26/96
1,2-Dibromo-3-chloropropane	mg/kg	0.026	X		01/26/96
1,2-Dibromoethane	mg/kg	0.026	X		01/26/96
1,2-Dichlorobenzene	mg/kg	0.026	X		01/26/96
1,3-Dichlorobenzene	mg/kg	0.026	X		01/26/96
1,4-Dichlorobenzene	mg/kg	0.026	X		01/26/96
Dichlorodifluoromethane	mg/kg	0.026	X	CSL SPL	01/26/96
1,1-Dichloroethane	mg/kg	0.026	X		01/26/96
1,2-Dichloroethane	mg/kg	0.026	X		01/26/96
1,1-Dichloroethylene	mg/kg	0.026	X	SPL	01/26/96
cis-1,2-Dichloroethylene	mg/kg	0.026	X		01/26/96
trans-1,2-Dichloroethylene	mg/kg	0.026	X	SPL	01/26/96
1,2-Dichloropropane	mg/kg	0.026	X		01/26/96
1,3-Dichloropropane	mg/kg	0.026	X		01/26/96
2,2-Dichloropropane	mg/kg	0.026	X	SPL	01/26/96
Ethylbenzene	mg/kg	0.026	X		01/26/96
Hexachlorobutadiene	mg/kg	0.026	X		01/26/96
Isopropylbenzene	mg/kg	0.026	X		01/26/96
Isopropyl Ether	mg/kg	0.026	X		01/26/96
p-Isopropyltoluene	mg/kg	0.026	X		01/26/96
Methyl tert Butyl Ether	mg/kg	0.026	X	CSL SPL	01/26/96
Methylene Chloride	mg/kg	0.026	X	SPL	01/26/96
Naphthalene	mg/kg	0.026	X		01/26/96
Analytical No.:			58952		

X = Analyzed but not detected.
Results calculated on a dry weight basis.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-3 2-4' 01/17/96	Qualifiers	Date Analyzed
n-Propylbenzene	mg/kg	0.026	X		01/26/96
Tetrachloroethylene	mg/kg	0.026	X		01/26/96
1,1,2,2-Tetrachloroethane	mg/kg	0.026	X		01/26/96
Toluene	mg/kg	0.026	X		01/26/96
1,2,3-Trichlorobenzene	mg/kg	0.026	X		01/26/96
1,2,4-Trichlorobenzene	mg/kg	0.026	X		01/26/96
1,1,1-Trichloroethane	mg/kg	0.026	X	SPL	01/26/96
1,1,2-Trichloroethane	mg/kg	0.026	X		01/26/96
Trichloroethylene	mg/kg	0.026	X		01/26/96
Trichlorofluoromethane	mg/kg	0.026	X	SPL	01/26/96
1,2,4-Trimethylbenzene	mg/kg	0.026	X		01/26/96
1,3,5-Trimethylbenzene	mg/kg	0.026	X		01/26/96
Vinyl Chloride	mg/kg	0.026	X	CSL SPL	01/26/96
m- & p-Xylene	mg/kg	0.026	X		01/26/96
o-Xylene & Styrene	mg/kg	0.026	0.0329	CSL MB	01/26/96

Analytical No.: 58952

X = Analyzed but not detected.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-3 8-10' 01/17/96	Qualifiers	Date Analyzed
EPA 160.3					
Total Solids	%	-	85.00		01/22/96
EPA 6010					
Lead	mg/kg	5.9	X		01/23/96
EPA 8021					
Benzene	mg/kg	0.027	0.186		01/26/96
Bromobenzene	mg/kg	0.027	X		01/26/96
Bromodichloromethane	mg/kg	0.027	X		01/26/96
n-Butylbenzene	mg/kg	0.027	X		01/26/96
sec-Butylbenzene	mg/kg	0.027	X		01/26/96
tert-Butylbenzene	mg/kg	0.027	X		01/26/96
Carbon Tetrachloride	mg/kg	0.027	X		01/26/96
Chlorobenzene	mg/kg	0.027	X		01/26/96
Chlorodibromomethane	mg/kg	0.027	X		01/26/96
Chloroethane	mg/kg	0.027	X	CSL SPL	01/26/96
Chloroform	mg/kg	0.027	X		01/26/96
Chloromethane	mg/kg	0.027	X	CSL SPL DUP	01/26/96
o-Chlorotoluene	mg/kg	0.027	X		01/26/96
p-Chlorotoluene	mg/kg	0.027	X		01/26/96
1,2-Dibromo-3-chloropropane	mg/kg	0.027	X		01/26/96
1,2-Dibromoethane	mg/kg	0.027	X		01/26/96
1,2-Dichlorobenzene	mg/kg	0.027	X		01/26/96
1,3-Dichlorobenzene	mg/kg	0.027	X		01/26/96
1,4-Dichlorobenzene	mg/kg	0.027	X		01/26/96
Dichlorodifluoromethane	mg/kg	0.027	X	CSL SPL	01/26/96
1,1-Dichloroethane	mg/kg	0.027	X		01/26/96
1,2-Dichloroethane	mg/kg	0.027	X		01/26/96
1,1-Dichloroethylene	mg/kg	0.027	X	SPL	01/26/96
cis-1,2-Dichloroethylene	mg/kg	0.027	X		01/26/96
trans-1,2-Dichloroethylene	mg/kg	0.027	X	SPL	01/26/96
1,2-Dichloropropane	mg/kg	0.027	X		01/26/96
1,3-Dichloropropane	mg/kg	0.027	X		01/26/96
2,2-Dichloropropane	mg/kg	0.027	X	SPL	01/26/96
Ethylbenzene	mg/kg	0.027	X		01/26/96
Hexachlorobutadiene	mg/kg	0.027	X		01/26/96
Isopropylbenzene	mg/kg	0.027	X		01/26/96
Isopropyl Ether	mg/kg	0.027	X		01/26/96
p-Isopropyltoluene	mg/kg	0.027	X		01/26/96
Methyl tert Butyl Ether	mg/kg	0.027	X	CSL SPL	01/26/96
Methylene Chloride	mg/kg	0.027	X	SPL	01/26/96
Naphthalene	mg/kg	0.027	X		01/26/96
Analytical No.:			58953		

X = Analyzed but not detected.
Results calculated on a dry weight basis.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-3 8-10' 01/17/96	Qualifiers	Date Analyzed
n-Propylbenzene	mg/kg	0.027	X		01/26/96
Tetrachloroethylene	mg/kg	0.027	X		01/26/96
1,1,2,2-Tetrachloroethane	mg/kg	0.027	X		01/26/96
Toluene	mg/kg	0.027	X		01/26/96
1,2,3-Trichlorobenzene	mg/kg	0.027	X		01/26/96
1,2,4-Trichlorobenzene	mg/kg	0.027	X		01/26/96
1,1,1-Trichloroethane	mg/kg	0.027	X	SPL	01/26/96
1,1,2-Trichloroethane	mg/kg	0.027	X		01/26/96
Trichloroethylene	mg/kg	0.027	X		01/26/96
Trichlorofluoromethane	mg/kg	0.027	X	SPL	01/26/96
1,2,4-Trimethylbenzene	mg/kg	0.027	X		01/26/96
1,3,5-Trimethylbenzene	mg/kg	0.027	X		01/26/96
Vinyl Chloride	mg/kg	0.027	X	CSL SPL	01/26/96
m- & p-Xylene	mg/kg	0.027	X		01/26/96
o-Xylene & Styrene	mg/kg	0.027	0.0412	CSL MB	01/26/96

Analytical No.: 58953

X = Analyzed but not detected.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-4 2-4' 01/17/96	Qualifiers	Date Analyzed
EPA 160.3					
Total Solids	%	-	80.89		01/22/96
EPA 6010					
Lead	mg/kg	6.2	X		01/23/96
EPA 8021					
Benzene	mg/kg	5.1	X		01/26/96
Bromobenzene	mg/kg	5.1	X		01/26/96
Bromodichloromethane	mg/kg	5.1	X		01/26/96
n-Butylbenzene	mg/kg	5.1	89.1		01/26/96
sec-Butylbenzene	mg/kg	5.1	X		01/26/96
tert-Butylbenzene	mg/kg	5.1	X		01/26/96
Carbon Tetrachloride	mg/kg	5.1	X		01/26/96
Chlorobenzene	mg/kg	5.1	X		01/26/96
Chlorodibromomethane	mg/kg	5.1	X		01/26/96
Chloroethane	mg/kg	5.1	X	CSL SPL	01/26/96
Chloroform	mg/kg	5.1	X		01/26/96
Chloromethane	mg/kg	5.1	X	CSL SPL DUP	01/26/96
o-Chlorotoluene	mg/kg	5.1	X		01/26/96
p-Chlorotoluene	mg/kg	5.1	X		01/26/96
1,2-Dibromo-3-chloropropane	mg/kg	5.1	X		01/26/96
1,2-Dibromoethane	mg/kg	5.1	X		01/26/96
1,2-Dichlorobenzene	mg/kg	5.1	X		01/26/96
1,3-Dichlorobenzene	mg/kg	5.1	X		01/26/96
1,4-Dichlorobenzene	mg/kg	5.1	X		01/26/96
Dichlorodifluoromethane	mg/kg	5.1	X	CSL SPL	01/26/96
1,1-Dichloroethane	mg/kg	5.1	X		01/26/96
1,2-Dichloroethane	mg/kg	5.1	X		01/26/96
1,1-Dichloroethylene	mg/kg	5.1	X	SPL	01/26/96
cis-1,2-Dichloroethylene	mg/kg	5.1	X		01/26/96
trans-1,2-Dichloroethylene	mg/kg	5.1	X	SPL	01/26/96
1,2-Dichloropropane	mg/kg	5.1	X		01/26/96
1,3-Dichloropropane	mg/kg	5.1	X		01/26/96
2,2-Dichloropropane	mg/kg	5.1	X	SPL	01/26/96
Ethylbenzene	mg/kg	5.1	32.0		01/26/96
Hexachlorobutadiene	mg/kg	5.1	X		01/26/96
Isopropylbenzene	mg/kg	5.1	X		01/26/96
Isopropyl Ether	mg/kg	5.1	6.80		01/26/96
p-Isopropyltoluene	mg/kg	5.1	X		01/26/96
Methyl tert Butyl Ether	mg/kg	5.1	X	CSL SPL	01/26/96
Methylene Chloride	mg/kg	5.1	X	SPL	01/26/96
Naphthalene	mg/kg	5.1	22.7		01/26/96
Analytical No.:			58954		

X = Analyzed but not detected.
Results calculated on a dry weight basis.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-4 2-4' 01/17/96	Qualifiers	Date Analyzed
n-Propylbenzene	mg/kg	5.1	9.52		01/26/96
Tetrachloroethylene	mg/kg	5.1	X		01/26/96
1,1,2,2-Tetrachloroethane	mg/kg	5.1	X		01/26/96
Toluene	mg/kg	5.1	X		01/26/96
1,2,3-Trichlorobenzene	mg/kg	5.1	X		01/26/96
1,2,4-Trichlorobenzene	mg/kg	5.1	X		01/26/96
1,1,1-Trichloroethane	mg/kg	5.1	X	SPL	01/26/96
1,1,2-Trichloroethane	mg/kg	5.1	X		01/26/96
Trichloroethylene	mg/kg	5.1	X		01/26/96
Trichlorofluoromethane	mg/kg	5.1	X	SPL	01/26/96
1,2,4-Trimethylbenzene	mg/kg	5.1	262.		01/26/96
1,3,5-Trimethylbenzene	mg/kg	5.1	98.0		01/26/96
Vinyl Chloride	mg/kg	5.1	X	CSL SPL	01/26/96
m- & p-Xylene	mg/kg	5.1	233.		01/26/96
o-Xylene & Styrene	mg/kg	5.1	141.	CSL	01/26/96

Analytical No.: 58954

X = Analyzed but not detected.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-4 10-12' 01/17/96	Qualifiers	Date Analyzed
EPA 160.3					
Total Solids	%	-	83.89		01/22/96
EPA 6010					
Lead	mg/kg	6.0	X		01/23/96
EPA 8021					
Benzene	mg/kg	0.026	X		01/26/96
Bromobenzene	mg/kg	0.026	X		01/26/96
Bromodichloromethane	mg/kg	0.026	X		01/26/96
n-Butylbenzene	mg/kg	0.026	X		01/26/96
sec-Butylbenzene	mg/kg	0.026	X		01/26/96
tert-Butylbenzene	mg/kg	0.026	X		01/26/96
Carbon Tetrachloride	mg/kg	0.026	X		01/26/96
Chlorobenzene	mg/kg	0.026	X		01/26/96
Chlorodibromomethane	mg/kg	0.026	X		01/26/96
Chloroethane	mg/kg	0.026	X	CSL SPL	01/26/96
Chloroform	mg/kg	0.026	X		01/26/96
Chloromethane	mg/kg	0.026	X	CSL SPL DUP	01/26/96
o-Chlorotoluene	mg/kg	0.026	X		01/26/96
p-Chlorotoluene	mg/kg	0.026	X		01/26/96
1,2-Dibromo-3-chloropropane	mg/kg	0.026	X		01/26/96
1,2-Dibromoethane	mg/kg	0.026	X		01/26/96
1,2-Dichlorobenzene	mg/kg	0.026	X		01/26/96
1,3-Dichlorobenzene	mg/kg	0.026	X		01/26/96
1,4-Dichlorobenzene	mg/kg	0.026	X		01/26/96
Dichlorodifluoromethane	mg/kg	0.026	X	CSL SPL	01/26/96
1,1-Dichloroethane	mg/kg	0.026	X		01/26/96
1,2-Dichloroethane	mg/kg	0.026	X		01/26/96
1,1-Dichloroethylene	mg/kg	0.026	X	SPL	01/26/96
cis-1,2-Dichloroethylene	mg/kg	0.026	X		01/26/96
trans-1,2-Dichloroethylene	mg/kg	0.026	X	SPL	01/26/96
1,2-Dichloropropane	mg/kg	0.026	X		01/26/96
1,3-Dichloropropane	mg/kg	0.026	X		01/26/96
2,2-Dichloropropane	mg/kg	0.026	X	SPL	01/26/96
Ethylbenzene	mg/kg	0.026	X		01/26/96
Hexachlorobutadiene	mg/kg	0.026	X		01/26/96
Isopropylbenzene	mg/kg	0.026	X		01/26/96
Isopropyl Ether	mg/kg	0.026	X		01/26/96
p-Isopropyltoluene	mg/kg	0.026	X		01/26/96
Methyl tert Butyl Ether	mg/kg	0.026	X	CSL SPL	01/26/96
Methylene Chloride	mg/kg	0.026	X	SPL	01/26/96
Naphthalene	mg/kg	0.026	X		01/26/96
Analytical No.:			58955		

X = Analyzed but not detected.
Results calculated on a dry weight basis.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-4 10-12' 01/17/96	Qualifiers	Date Analyzed
n-Propylbenzene	mg/kg	0.026	X		01/26/96
Tetrachloroethylene	mg/kg	0.026	X		01/26/96
1,1,2,2-Tetrachloroethane	mg/kg	0.026	X		01/26/96
Toluene	mg/kg	0.026	X		01/26/96
1,2,3-Trichlorobenzene	mg/kg	0.026	X		01/26/96
1,2,4-Trichlorobenzene	mg/kg	0.026	X		01/26/96
1,1,1-Trichloroethane	mg/kg	0.026	X	SPL	01/26/96
1,1,2-Trichloroethane	mg/kg	0.026	X		01/26/96
Trichloroethylene	mg/kg	0.026	X		01/26/96
Trichlorofluoromethane	mg/kg	0.026	X	SPL	01/26/96
1,2,4-Trimethylbenzene	mg/kg	0.026	X		01/26/96
1,3,5-Trimethylbenzene	mg/kg	0.026	X		01/26/96
Vinyl Chloride	mg/kg	0.026	X	CSL SPL	01/26/96
m- & p-Xylene	mg/kg	0.026	X		01/26/96
o-Xylene & Styrene	mg/kg	0.026	0.0334	CSL MB	01/26/96

Analytical No.: 58955

X = Analyzed but not detected.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-5 6-8' 01/17/96	Qualifiers	Date Analyzed
EPA 160.3					
Total Solids	%	-	84.65		01/22/96
EPA 6010					
Lead	mg/kg	5.9	X		01/23/96
EPA 8021					
Benzene	mg/kg	0.026	X		01/26/96
Bromobenzene	mg/kg	0.026	X		01/26/96
Bromodichloromethane	mg/kg	0.026	X		01/26/96
n-Butylbenzene	mg/kg	0.026	X		01/26/96
sec-Butylbenzene	mg/kg	0.026	X		01/26/96
tert-Butylbenzene	mg/kg	0.026	X		01/26/96
Carbon Tetrachloride	mg/kg	0.026	X		01/26/96
Chlorobenzene	mg/kg	0.026	X		01/26/96
Chlorodibromomethane	mg/kg	0.026	X		01/26/96
Chloroethane	mg/kg	0.026	X	CSL SPL	01/26/96
Chloroform	mg/kg	0.026	X		01/26/96
Chloromethane	mg/kg	0.026	X	CSL SPL DUP	01/26/96
o-Chlorotoluene	mg/kg	0.026	X		01/26/96
p-Chlorotoluene	mg/kg	0.026	X		01/26/96
1,2-Dibromo-3-chloropropane	mg/kg	0.026	X		01/26/96
1,2-Dibromoethane	mg/kg	0.026	X		01/26/96
1,2-Dichlorobenzene	mg/kg	0.026	X		01/26/96
1,3-Dichlorobenzene	mg/kg	0.026	X		01/26/96
1,4-Dichlorobenzene	mg/kg	0.026	X		01/26/96
Dichlorodifluoromethane	mg/kg	0.026	X	CSL SPL	01/26/96
1,1-Dichloroethane	mg/kg	0.026	X		01/26/96
1,2-Dichloroethane	mg/kg	0.026	X		01/26/96
1,1-Dichloroethylene	mg/kg	0.026	X	SPL	01/26/96
cis-1,2-Dichloroethylene	mg/kg	0.026	X		01/26/96
trans-1,2-Dichloroethylene	mg/kg	0.026	X	SPL	01/26/96
1,2-Dichloropropane	mg/kg	0.026	X		01/26/96
1,3-Dichloropropane	mg/kg	0.026	X		01/26/96
2,2-Dichloropropane	mg/kg	0.026	X	SPL	01/26/96
Ethylbenzene	mg/kg	0.026	X		01/26/96
Hexachlorobutadiene	mg/kg	0.026	X		01/26/96
Isopropylbenzene	mg/kg	0.026	X		01/26/96
Isopropyl Ether	mg/kg	0.026	X		01/26/96
p-Isopropyltoluene	mg/kg	0.026	X		01/26/96
Methyl tert Butyl Ether	mg/kg	0.026	X	CSL SPL	01/26/96
Methylene Chloride	mg/kg	0.026	X	SPL	01/26/96
Naphthalene	mg/kg	0.026	X		01/26/96
Analytical No.:			58956		

X = Analyzed but not detected.
Results calculated on a dry weight basis.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-5 6-8' 01/17/96	Qualifiers	Date Analyzed
n-Propylbenzene	mg/kg	0.026	X		01/26/96
Tetrachloroethylene	mg/kg	0.026	X		01/26/96
1,1,2,2-Tetrachloroethane	mg/kg	0.026	X		01/26/96
Toluene	mg/kg	0.026	X		01/26/96
1,2,3-Trichlorobenzene	mg/kg	0.026	X		01/26/96
1,2,4-Trichlorobenzene	mg/kg	0.026	X		01/26/96
1,1,1-Trichloroethane	mg/kg	0.026	X	SPL	01/26/96
1,1,2-Trichloroethane	mg/kg	0.026	X		01/26/96
Trichloroethylene	mg/kg	0.026	X		01/26/96
Trichlorofluoromethane	mg/kg	0.026	X	SPL	01/26/96
1,2,4-Trimethylbenzene	mg/kg	0.026	X		01/26/96
1,3,5-Trimethylbenzene	mg/kg	0.026	X		01/26/96
Vinyl Chloride	mg/kg	0.026	X	CSL SPL	01/26/96
m- & p-Xylene	mg/kg	0.026	X		01/26/96
o-Xylene & Styrene	mg/kg	0.026	0.0343	CSL MB	01/26/96

Analytical No.: 58956

X = Analyzed but not detected.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-6 4-6' 01/17/96	Qualifiers	Date Analyzed
EPA 160.3					
Total Solids	%	-	82.49		01/22/96
EPA 6010					
Lead	mg/kg	6.1	X		01/23/96
EPA 8021					
Benzene	mg/kg	0.026	X		01/26/96
Bromobenzene	mg/kg	0.026	X		01/26/96
Bromodichloromethane	mg/kg	0.026	X		01/26/96
n-Butylbenzene	mg/kg	0.026	X		01/26/96
sec-Butylbenzene	mg/kg	0.026	X		01/26/96
tert-Butylbenzene	mg/kg	0.026	X		01/26/96
Carbon Tetrachloride	mg/kg	0.026	X		01/26/96
Chlorobenzene	mg/kg	0.026	X		01/26/96
Chlorodibromomethane	mg/kg	0.026	X		01/26/96
Chloroethane	mg/kg	0.026	X	CSL SPL	01/26/96
Chloroform	mg/kg	0.026	X		01/26/96
Chloromethane	mg/kg	0.026	X	CSL SPL DUP	01/26/96
o-Chlorotoluene	mg/kg	0.026	X		01/26/96
p-Chlorotoluene	mg/kg	0.026	X		01/26/96
1,2-Dibromo-3-chloropropane	mg/kg	0.026	X		01/26/96
1,2-Dibromoethane	mg/kg	0.026	X		01/26/96
1,2-Dichlorobenzene	mg/kg	0.026	X		01/26/96
1,3-Dichlorobenzene	mg/kg	0.026	X		01/26/96
1,4-Dichlorobenzene	mg/kg	0.026	X		01/26/96
Dichlorodifluoromethane	mg/kg	0.026	X	CSL SPL	01/26/96
1,1-Dichloroethane	mg/kg	0.026	X		01/26/96
1,2-Dichloroethane	mg/kg	0.026	X		01/26/96
1,1-Dichloroethylene	mg/kg	0.026	X	SPL	01/26/96
cis-1,2-Dichloroethylene	mg/kg	0.026	X		01/26/96
trans-1,2-Dichloroethylene	mg/kg	0.026	X	SPL	01/26/96
1,2-Dichloropropane	mg/kg	0.026	X		01/26/96
1,3-Dichloropropane	mg/kg	0.026	X		01/26/96
2,2-Dichloropropane	mg/kg	0.026	X	SPL	01/26/96
Ethylbenzene	mg/kg	0.026	X		01/26/96
Hexachlorobutadiene	mg/kg	0.026	X		01/26/96
Isopropylbenzene	mg/kg	0.026	X		01/26/96
Isopropyl Ether	mg/kg	0.026	X		01/26/96
p-Isopropyltoluene	mg/kg	0.026	X		01/26/96
Methyl tert Butyl Ether	mg/kg	0.026	X	CSL SPL	01/26/96
Methylene Chloride	mg/kg	0.026	X	SPL	01/26/96
Naphthalene	mg/kg	0.026	X		01/26/96
Analytical No.:			58957		

X = Analyzed but not detected.
Results calculated on a dry weight basis.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-6 4-6' 01/17/96	Qualifiers	Date Analyzed
n-Propylbenzene	mg/kg	0.026	X		01/26/96
Tetrachloroethylene	mg/kg	0.026	X		01/26/96
1,1,2,2-Tetrachloroethane	mg/kg	0.026	X		01/26/96
Toluene	mg/kg	0.026	X		01/26/96
1,2,3-Trichlorobenzene	mg/kg	0.026	X		01/26/96
1,2,4-Trichlorobenzene	mg/kg	0.026	X		01/26/96
1,1,1-Trichloroethane	mg/kg	0.026	X	SPL	01/26/96
1,1,2-Trichloroethane	mg/kg	0.026	X		01/26/96
Trichloroethylene	mg/kg	0.026	X		01/26/96
Trichlorofluoromethane	mg/kg	0.026	X	SPL	01/26/96
1,2,4-Trimethylbenzene	mg/kg	0.026	X		01/26/96
1,3,5-Trimethylbenzene	mg/kg	0.026	X		01/26/96
Vinyl Chloride	mg/kg	0.026	X	CSL SPL	01/26/96
m- & p-Xylene	mg/kg	0.026	X		01/26/96
o-Xylene & Styrene	mg/kg	0.026	0.0277	CSL MB	01/26/96

Analytical No.: 58957

X = Analyzed but not detected.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-7 2-4' 01/17/96	Qualifiers	Date Analyzed
EPA 160.3					
Total Solids	%	-	85.54		01/22/96
EPA 6010					
Lead	mg/kg	5.8	X		01/23/96
EPA 8021					
Benzene	mg/kg	0.051	X		01/26/96
Bromobenzene	mg/kg	0.051	X		01/26/96
Bromodichloromethane	mg/kg	0.051	X		01/26/96
n-Butylbenzene	mg/kg	0.051	0.409		01/26/96
sec-Butylbenzene	mg/kg	0.051	0.576		01/26/96
tert-Butylbenzene	mg/kg	0.051	0.234		01/26/96
Carbon Tetrachloride	mg/kg	0.051	X		01/26/96
Chlorobenzene	mg/kg	0.051	X		01/26/96
Chlorodibromomethane	mg/kg	0.051	X		01/26/96
Chloroethane	mg/kg	0.051	X	CSL SPL	01/26/96
Chloroform	mg/kg	0.051	X		01/26/96
Chloromethane	mg/kg	0.051	X	CSL SPL DUP	01/26/96
o-Chlorotoluene	mg/kg	0.051	X		01/26/96
p-Chlorotoluene	mg/kg	0.051	X		01/26/96
1,2-Dibromo-3-chloropropane	mg/kg	0.051	X		01/26/96
1,2-Dibromoethane	mg/kg	0.051	X		01/26/96
1,2-Dichlorobenzene	mg/kg	0.051	X		01/26/96
1,3-Dichlorobenzene	mg/kg	0.051	X		01/26/96
1,4-Dichlorobenzene	mg/kg	0.051	X		01/26/96
Dichlorodifluoromethane	mg/kg	0.051	X	CSL SPL	01/26/96
1,1-Dichloroethane	mg/kg	0.051	X		01/26/96
1,2-Dichloroethane	mg/kg	0.051	X		01/26/96
1,1-Dichloroethylene	mg/kg	0.051	X	SPL	01/26/96
cis-1,2-Dichloroethylene	mg/kg	0.051	X		01/26/96
trans-1,2-Dichloroethylene	mg/kg	0.051	X	SPL	01/26/96
1,2-Dichloropropane	mg/kg	0.051	X		01/26/96
1,3-Dichloropropane	mg/kg	0.051	X		01/26/96
2,2-Dichloropropane	mg/kg	0.051	X	SPL	01/26/96
Ethylbenzene	mg/kg	0.051	0.098		01/26/96
Hexachlorobutadiene	mg/kg	0.051	X		01/26/96
Isopropylbenzene	mg/kg	0.051	0.145		01/26/96
Isopropyl Ether	mg/kg	0.051	X		01/26/96
p-Isopropyltoluene	mg/kg	0.051	0.167		01/26/96
Methyl tert Butyl Ether	mg/kg	0.051	X	CSL SPL	01/26/96
Methylene Chloride	mg/kg	0.051	X	SPL	01/26/96
Analytical No.:			58958		

X = Analyzed but not detected.
Results calculated on a dry weight basis.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-7 2-4' 01/17/96	Qualifiers	Date Analyzed
Naphthalene	mg/kg	0.051	0.388		01/26/96
n-Propylbenzene	mg/kg	0.051	0.222		01/26/96
Tetrachloroethylene	mg/kg	0.051	X		01/26/96
1,1,2,2-Tetrachloroethane	mg/kg	0.051	X		01/26/96
Toluene	mg/kg	0.051	X		01/26/96
1,2,3-Trichlorobenzene	mg/kg	0.051	X		01/26/96
1,2,4-Trichlorobenzene	mg/kg	0.051	X		01/26/96
1,1,1-Trichloroethane	mg/kg	0.051	X	SPL	01/26/96
1,1,2-Trichloroethane	mg/kg	0.051	X		01/26/96
Trichloroethylene	mg/kg	0.051	X		01/26/96
Trichlorofluoromethane	mg/kg	0.051	X	SPL	01/26/96
1,2,4-Trimethylbenzene	mg/kg	0.051	0.221		01/26/96
1,3,5-Trimethylbenzene	mg/kg	0.051	0.111		01/26/96
Vinyl Chloride	mg/kg	0.051	X	CSL SPL	01/26/96
m- & p-Xylene	mg/kg	0.051	X		01/26/96
o-Xylene & Styrene	mg/kg	0.051	X	CSL	01/26/96

Analytical No.: 58958

X = Analyzed but not detected.

All analyses conducted in accordance with Enviroscan Quality Assurance Program.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-7 4-6' 01/17/96	Qualifiers	Date Analyzed
EPA 160.3					
Total Solids	%	-	85.68		01/22/96
EPA 6010					
Lead	mg/kg	5.8	X		01/23/96
EPA 8021					
Benzene	mg/kg	0.029	X		01/26/96
Bromobenzene	mg/kg	0.029	X		01/26/96
Bromodichloromethane	mg/kg	0.029	X		01/26/96
n-Butylbenzene	mg/kg	0.029	X		01/26/96
sec-Butylbenzene	mg/kg	0.029	X		01/26/96
tert-Butylbenzene	mg/kg	0.029	X		01/26/96
Carbon Tetrachloride	mg/kg	0.029	X		01/26/96
Chlorobenzene	mg/kg	0.029	X		01/26/96
Chlorodibromomethane	mg/kg	0.029	X		01/26/96
Chloroethane	mg/kg	0.029	X	CSL SPL	01/26/96
Chloroform	mg/kg	0.029	X		01/26/96
Chloromethane	mg/kg	0.029	X	CSL SPL DUP	01/26/96
o-Chlorotoluene	mg/kg	0.029	X		01/26/96
p-Chlorotoluene	mg/kg	0.029	X		01/26/96
1,2-Dibromo-3-chloropropane	mg/kg	0.029	X		01/26/96
1,2-Dibromoethane	mg/kg	0.029	X		01/26/96
1,2-Dichlorobenzene	mg/kg	0.029	X		01/26/96
1,3-Dichlorobenzene	mg/kg	0.029	X		01/26/96
1,4-Dichlorobenzene	mg/kg	0.029	X		01/26/96
Dichlorodifluoromethane	mg/kg	0.029	X	CSL SPL	01/26/96
1,1-Dichloroethane	mg/kg	0.029	X		01/26/96
1,2-Dichloroethane	mg/kg	0.029	X		01/26/96
1,1-Dichloroethylene	mg/kg	0.029	X	SPL	01/26/96
cis-1,2-Dichloroethylene	mg/kg	0.029	X		01/26/96
trans-1,2-Dichloroethylene	mg/kg	0.029	X	SPL	01/26/96
1,2-Dichloropropane	mg/kg	0.029	X		01/26/96
1,3-Dichloropropane	mg/kg	0.029	X		01/26/96
2,2-Dichloropropane	mg/kg	0.029	X	SPL	01/26/96
Ethylbenzene	mg/kg	0.029	X		01/26/96
Hexachlorobutadiene	mg/kg	0.029	X		01/26/96
Isopropylbenzene	mg/kg	0.029	X		01/26/96
Isopropyl Ether	mg/kg	0.029	X		01/26/96
p-Isopropyltoluene	mg/kg	0.029	X		01/26/96
Methyl tert Butyl Ether	mg/kg	0.029	X	CSL SPL	01/26/96
Methylene Chloride	mg/kg	0.029	X	SPL	01/26/96
Naphthalene	mg/kg	0.029	X		01/26/96
Analytical No.:			58959		

X = Analyzed but not detected.
Results calculated on a dry weight basis.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-7 4-6' 01/17/96	Qualifiers	Date Analyzed
n-Propylbenzene	mg/kg	0.029	X		01/26/96
Tetrachloroethylene	mg/kg	0.029	X		01/26/96
1,1,2,2-Tetrachloroethane	mg/kg	0.029	X		01/26/96
Toluene	mg/kg	0.029	X		01/26/96
1,2,3-Trichlorobenzene	mg/kg	0.029	X		01/26/96
1,2,4-Trichlorobenzene	mg/kg	0.029	X		01/26/96
1,1,1-Trichloroethane	mg/kg	0.029	X	SPL	01/26/96
1,1,2-Trichloroethane	mg/kg	0.029	X		01/26/96
Trichloroethylene	mg/kg	0.029	X		01/26/96
Trichlorofluoromethane	mg/kg	0.029	X	SPL	01/26/96
1,2,4-Trimethylbenzene	mg/kg	0.029	X		01/26/96
1,3,5-Trimethylbenzene	mg/kg	0.029	X		01/26/96
Vinyl Chloride	mg/kg	0.029	X	CSL SPL	01/26/96
m- & p-Xylene	mg/kg	0.029	X		01/26/96
o-Xylene & Styrene	mg/kg	0.029	0.0572	CSL MB	01/26/96

Analytical No.: 58959

X = Analyzed but not detected.

All analyses conducted in accordance with Enviroscan Quality Assurance Program.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-8 4-6' 01/17/96	Qualifiers	Date Analyzed
EPA 160.3					
Total Solids	%	-	85.79		01/22/96
EPA 6010					
Lead	mg/kg	5.8	X		01/23/96
EPA 8021					
Benzene	mg/kg	0.026	X		01/26/96
Bromobenzene	mg/kg	0.026	X		01/26/96
Bromodichloromethane	mg/kg	0.026	X		01/26/96
n-Butylbenzene	mg/kg	0.026	X		01/26/96
sec-Butylbenzene	mg/kg	0.026	X		01/26/96
tert-Butylbenzene	mg/kg	0.026	X		01/26/96
Carbon Tetrachloride	mg/kg	0.026	X		01/26/96
Chlorobenzene	mg/kg	0.026	X		01/26/96
Chlorodibromomethane	mg/kg	0.026	X		01/26/96
Chloroethane	mg/kg	0.026	X	CSL SPL	01/26/96
Chloroform	mg/kg	0.026	X		01/26/96
Chloromethane	mg/kg	0.026	X	CSL SPL DUP	01/26/96
o-Chlorotoluene	mg/kg	0.026	X		01/26/96
p-Chlorotoluene	mg/kg	0.026	X		01/26/96
1,2-Dibromo-3-chloropropane	mg/kg	0.026	X		01/26/96
1,2-Dibromoethane	mg/kg	0.026	X		01/26/96
1,2-Dichlorobenzene	mg/kg	0.026	X		01/26/96
1,3-Dichlorobenzene	mg/kg	0.026	X		01/26/96
1,4-Dichlorobenzene	mg/kg	0.026	X		01/26/96
Dichlorodifluoromethane	mg/kg	0.026	X	CSL SPL	01/26/96
1,1-Dichloroethane	mg/kg	0.026	X		01/26/96
1,2-Dichloroethane	mg/kg	0.026	X		01/26/96
1,1-Dichloroethylene	mg/kg	0.026	X	SPL	01/26/96
cis-1,2-Dichloroethylene	mg/kg	0.026	X		01/26/96
trans-1,2-Dichloroethylene	mg/kg	0.026	X	SPL	01/26/96
1,2-Dichloropropane	mg/kg	0.026	X		01/26/96
1,3-Dichloropropane	mg/kg	0.026	X		01/26/96
2,2-Dichloropropane	mg/kg	0.026	X	SPL	01/26/96
Ethylbenzene	mg/kg	0.026	X		01/26/96
Hexachlorobutadiene	mg/kg	0.026	X		01/26/96
Isopropylbenzene	mg/kg	0.026	X		01/26/96
Isopropyl Ether	mg/kg	0.026	X		01/26/96
p-Isopropyltoluene	mg/kg	0.026	X		01/26/96
Methyl tert Butyl Ether	mg/kg	0.026	X	CSL SPL	01/26/96
Methylene Chloride	mg/kg	0.026	X	SPL	01/26/96
Naphthalene	mg/kg	0.026	X		01/26/96
Analytical No.:			58960		

X = Analyzed but not detected.
Results calculated on a dry weight basis.

All analyses conducted in accordance with Enviroscan Quality Assurance Program.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-8 4-6' 01/17/96	Qualifiers	Date Analyzed
n-Propylbenzene	mg/kg	0.026	X		01/26/96
Tetrachloroethylene	mg/kg	0.026	X		01/26/96
1,1,2,2-Tetrachloroethane	mg/kg	0.026	X		01/26/96
Toluene	mg/kg	0.026	X		01/26/96
1,2,3-Trichlorobenzene	mg/kg	0.026	X		01/26/96
1,2,4-Trichlorobenzene	mg/kg	0.026	X		01/26/96
1,1,1-Trichloroethane	mg/kg	0.026	X	SPL	01/26/96
1,1,2-Trichloroethane	mg/kg	0.026	X		01/26/96
Trichloroethylene	mg/kg	0.026	X		01/26/96
Trichlorofluoromethane	mg/kg	0.026	X	SPL	01/26/96
1,2,4-Trimethylbenzene	mg/kg	0.026	X		01/26/96
1,3,5-Trimethylbenzene	mg/kg	0.026	X		01/26/96
Vinyl Chloride	mg/kg	0.026	X	CSL SPL	01/26/96
m- & p-Xylene	mg/kg	0.026	X		01/26/96
o-Xylene & Styrene	mg/kg	0.026	X	CSL	01/26/96

Analytical No.: 58960

X = Analyzed but not detected.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-9 2-4' 01/17/96	Qualifiers	Date Analyzed
EPA 160.3					
Total Solids	%	-	84.13		01/22/96
EPA 6010					
Lead	mg/kg	5.9	X		01/23/96
EPA 8021					
Benzene	mg/kg	2.6	X		01/26/96
Bromobenzene	mg/kg	2.6	X		01/26/96
Bromodichloromethane	mg/kg	2.6	X		01/26/96
n-Butylbenzene	mg/kg	2.6	103.		01/26/96
sec-Butylbenzene	mg/kg	2.6	5.82		01/26/96
tert-Butylbenzene	mg/kg	2.6	X		01/26/96
Carbon Tetrachloride	mg/kg	2.6	X		01/26/96
Chlorobenzene	mg/kg	2.6	X		01/26/96
Chlorodibromomethane	mg/kg	2.6	X		01/26/96
Chloroethane	mg/kg	2.6	X	CSL SPL	01/26/96
Chloroform	mg/kg	2.6	X		01/26/96
Chloromethane	mg/kg	2.6	X	CSL SPL DUP	01/26/96
o-Chlorotoluene	mg/kg	2.6	X		01/26/96
p-Chlorotoluene	mg/kg	2.6	X		01/26/96
1,2-Dibromo-3-chloropropane	mg/kg	2.6	X		01/26/96
1,2-Dibromoethane	mg/kg	2.6	X		01/26/96
1,2-Dichlorobenzene	mg/kg	2.6	X		01/26/96
1,3-Dichlorobenzene	mg/kg	2.6	X		01/26/96
1,4-Dichlorobenzene	mg/kg	2.6	X		01/26/96
Dichlorodifluoromethane	mg/kg	2.6	X	CSL SPL	01/26/96
1,1-Dichloroethane	mg/kg	2.6	X		01/26/96
1,2-Dichloroethane	mg/kg	2.6	X		01/26/96
1,1-Dichloroethylene	mg/kg	2.6	X	SPL	01/26/96
cis-1,2-Dichloroethylene	mg/kg	2.6	X		01/26/96
trans-1,2-Dichloroethylene	mg/kg	2.6	X	SPL	01/26/96
1,2-Dichloropropane	mg/kg	2.6	X		01/26/96
1,3-Dichloropropane	mg/kg	2.6	X		01/26/96
2,2-Dichloropropane	mg/kg	2.6	X	SPL	01/26/96
Ethylbenzene	mg/kg	2.6	16.1		01/26/96
Hexachlorobutadiene	mg/kg	2.6	X		01/26/96
Isopropylbenzene	mg/kg	2.6	3.45		01/26/96
Isopropyl Ether	mg/kg	2.6	X		01/26/96
p-Isopropyltoluene	mg/kg	2.6	X		01/26/96
Methyl tert Butyl Ether	mg/kg	2.6	X	CSL SPL	01/26/96
Methylene Chloride	mg/kg	2.6	X	SPL	01/26/96
Naphthalene	mg/kg	2.6	39.4		01/26/96
Analytical No.:			58961		

X = Analyzed but not detected.
Results calculated on a dry weight basis.

All analyses conducted in accordance with Enviroscan Quality Assurance Program.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-9 2-4' 01/17/96	Qualifiers	Date Analyzed
n-Propylbenzene	mg/kg	2.6	16.4		01/26/96
Tetrachloroethylene	mg/kg	2.6	X		01/26/96
1,1,2,2-Tetrachloroethane	mg/kg	2.6	X		01/26/96
Toluene	mg/kg	2.6	4.52		01/26/96
1,2,3-Trichlorobenzene	mg/kg	2.6	X		01/26/96
1,2,4-Trichlorobenzene	mg/kg	2.6	X		01/26/96
1,1,1-Trichloroethane	mg/kg	2.6	X	SPL	01/26/96
1,1,2-Trichloroethane	mg/kg	2.6	X		01/26/96
Trichloroethylene	mg/kg	2.6	X		01/26/96
Trichlorofluoromethane	mg/kg	2.6	X	SPL	01/26/96
1,2,4-Trimethylbenzene	mg/kg	2.6	175.		01/26/96
1,3,5-Trimethylbenzene	mg/kg	2.6	58.4		01/26/96
Vinyl Chloride	mg/kg	2.6	X	CSL SPL	01/26/96
m- & p-Xylene	mg/kg	2.6	103.		01/26/96
o-Xylene & Styrene	mg/kg	2.6	51.5	CSL	01/26/96

Analytical No.: 58961

X = Analyzed but not detected.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-9 6-8' 01/17/96	Qualifiers	Date Analyzed
EPA 160.3					
Total Solids	%	-	85.17		01/22/96
EPA 6010					
Lead	mg/kg	5.9	X		01/23/96
EPA 8021					
Benzene	mg/kg	0.025	0.0456		01/26/96
Bromobenzene	mg/kg	0.025	X		01/26/96
Bromodichloromethane	mg/kg	0.025	X		01/26/96
n-Butylbenzene	mg/kg	0.025	0.289		01/26/96
sec-Butylbenzene	mg/kg	0.025	X		01/26/96
tert-Butylbenzene	mg/kg	0.025	X		01/26/96
Carbon Tetrachloride	mg/kg	0.025	X		01/26/96
Chlorobenzene	mg/kg	0.025	X		01/26/96
Chlorodibromomethane	mg/kg	0.025	X		01/26/96
Chloroethane	mg/kg	0.025	X	CSL SPL	01/26/96
Chloroform	mg/kg	0.025	X		01/26/96
Chloromethane	mg/kg	0.025	X	CSL SPL DUP	01/26/96
o-Chlorotoluene	mg/kg	0.025	X		01/26/96
p-Chlorotoluene	mg/kg	0.025	X		01/26/96
1,2-Dibromo-3-chloropropane	mg/kg	0.025	X		01/26/96
1,2-Dibromoethane	mg/kg	0.025	X		01/26/96
1,2-Dichlorobenzene	mg/kg	0.025	X		01/26/96
1,3-Dichlorobenzene	mg/kg	0.025	X		01/26/96
1,4-Dichlorobenzene	mg/kg	0.025	X		01/26/96
Dichlorodifluoromethane	mg/kg	0.025	X	CSL SPL	01/26/96
1,1-Dichloroethane	mg/kg	0.025	X		01/26/96
1,2-Dichloroethane	mg/kg	0.025	X		01/26/96
1,1-Dichloroethylene	mg/kg	0.025	X	SPL	01/26/96
cis-1,2-Dichloroethylene	mg/kg	0.025	X		01/26/96
trans-1,2-Dichloroethylene	mg/kg	0.025	X	SPL	01/26/96
1,2-Dichloropropane	mg/kg	0.025	X		01/26/96
1,3-Dichloropropane	mg/kg	0.025	X		01/26/96
2,2-Dichloropropane	mg/kg	0.025	X	SPL	01/26/96
Ethylbenzene	mg/kg	0.025	0.0446		01/26/96
Hexachlorobutadiene	mg/kg	0.025	X		01/26/96
Isopropylbenzene	mg/kg	0.025	X		01/26/96
Isopropyl Ether	mg/kg	0.025	X		01/26/96
p-Isopropyltoluene	mg/kg	0.025	X		01/26/96
Methyl tert Butyl Ether	mg/kg	0.025	X	CSL SPL	01/26/96
Methylene Chloride	mg/kg	0.025	X	SPL	01/26/96
Naphthalene	mg/kg	0.025	0.135		01/26/96

Analytical No.: 58962

X = Analyzed but not detected.
Results calculated on a dry weight basis.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

	Units	Reporting Limit	GP-9 6-8' 01/17/96	Qualifiers	Date Analyzed
n-Propylbenzene	mg/kg	0.025	0.0756		01/26/96
Tetrachloroethylene	mg/kg	0.025	X		01/26/96
1,1,2,2-Tetrachloroethane	mg/kg	0.025	X		01/26/96
Toluene	mg/kg	0.025	X		01/26/96
1,2,3-Trichlorobenzene	mg/kg	0.025	X		01/26/96
1,2,4-Trichlorobenzene	mg/kg	0.025	X		01/26/96
1,1,1-Trichloroethane	mg/kg	0.025	X	SPL	01/26/96
1,1,2-Trichloroethane	mg/kg	0.025	X		01/26/96
Trichloroethylene	mg/kg	0.025	X		01/26/96
Trichlorofluoromethane	mg/kg	0.025	X	SPL	01/26/96
1,2,4-Trimethylbenzene	mg/kg	0.025	X		01/26/96
1,3,5-Trimethylbenzene	mg/kg	0.025	0.106		01/26/96
Vinyl Chloride	mg/kg	0.025	X	CSL SPL	01/26/96
m- & p-Xylene	mg/kg	0.025	X		01/26/96
o-Xylene & Styrene	mg/kg	0.025	0.02676	CSL MB	01/26/96

Analytical No.: 58962

X = Analyzed but not detected.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

Qualifier Descriptions

CSL	Check standard for this analyte exhibited a low bias. Sample results may also be biased low. Non-detects were verified by comparison with a low standard.
SPL	The matrix spike included with this analytical batch had a low recovery. Since that sample matrix appears similar to your sample, your result may also be low.
DUP	Result of duplicate analysis in this quality assurance batch exceeds the limits for precision. Sample results may also show a degree of variability.
MB	Analyte was observed in the method blank. Sample results may be biased high.

ANALYTICAL REPORT

Mid-State Associates
1835 N. Stevens Street
P.O. Box 1026
Rhinelander, WI 54501

CUST NUMBER: 212365
SAMPLED BY: Client
DATE REC'D: 01/19/96
REPORT DATE: 02/01/96
PREPARED BY: LMP
REVIEWED BY:

Attn: John Sager

Modified Gasoline Range Organics (GRO)
Parameter # 78920

	GRO	Qualifiers	Date Analyzed	Analytical No.
GP-1 4-6'	103.	G3 G6	01/22/96	58948
GP-1 10-12'	X	DUP	01/19/96	58949
GP-2 10-12'	X	DUP	01/20/96	58950
GP-3 2-4'	X	DUP	01/20/96	58952
GP-3 8-10'	X	DUP	01/20/96	58953
GP-4 2-4'	5,800.	G8 G5	01/22/96	58954
GP-4 10-12'	X	DUP	01/20/96	58955
GP-5 6-8'	X	DUP	01/20/96	58956
GP-6 4-6'	X	DUP	01/20/96	58957
GP-7 2-4'	26.4	G3 G6	01/22/96	58958
GP-7 4-6'	X		01/22/96	58959
GP-8 4-6'	X		01/22/96	58960
GP-9 2-4'	1,740.	G2 G5	01/23/96	58961
GP-9 6-8'	X		01/23/96	58962
Reporting Limit	5.0			
Units	mg/kg			

X = Analyzed but not detected.
Results calculated on a dry weight basis.

Qualifiers: Only above indicated qualifiers apply.

(G1) The chromatogram is characteristic for gasoline.
(G2) The chromatogram has characteristics of an aged gasoline sample.
(G3) The chromatogram is not characteristic for either gasoline or aged gasoline. However, it has a reportable concentration of peaks/area within the GRO window.
(G4) The chromatogram contains a single compound which accounts for most of the GRO result.
(G5) The chromatogram contains a significant number of peaks outside the GRO window.
(G6) The chromatogram contains a significant number of peaks and a raised baseline outside the GRO window.
(G7) The chromatogram is characteristic for gasoline, however either additional peaks are present or PVOC peaks are not proportional to gasoline, indicating the presence of additional compounds.
(G8) The chromatogram is characteristic for aged gasoline, however either additional peaks are present or PVOC peaks are not proportional to aged gasoline indicating the presence of additional compounds.
(DUP) Result of duplicate analysis in this quality assurance batch exceeds the limits for precision of 20%. Sample results may also show a degree of variability. DUP = 20.4%.

The entire area within the GRO window was quantitated.

The replicate spike recovery of this batch of samples was found to be 112% & 91.2% and 91.3% & 111%.

All analyses conducted in accordance with Enviroscan Quality Assurance Program.

QUALITY ASSURANCE

Sample Receipt Report

Client: Midstate Date Received: 1/19/96

Analytical No.: 58948 Through 58962

Check all deviations from EPA or WDNR sample protocol.

[ ] Sample(s) received at _____°C which is above the EPA and WDNR limit of 4°C.

[ ] VOC vial(s) received with headspace. Explain: _____

_____

[ ] Sample(s) received in bottles not furnished by Enviroscan. Preservation method, if used, is unknown.

[ ] Sample(s) not properly preserved per EPA/WDNR protocol for the following: _____

_____

[ ] Sample(s) received beyond EPA holding time for: _____

_____

[ ] Sample date/time not supplied by client. Actual holding time unknown.

[ ] GRO/PVOC/VOC/DRO (circle appropriate) sample(s) are <19.5 gms and this report is the flag for that information. Sample(s) under-weight:_____

_____

[X] GRO/PVOC/VOC (circle appropriate) sample(s) were between 26.4-35.4 gms so methanol was added in a 1:1 ratio. Sample(s) included: 58948-added 2ml 58954-added 2ml 58960-added 2ml 58961-3ml added meoh

[ ] GRO/PVOC/VOC/DRO (circle appropriate) sample(s) were >35.4 gms and are required to be rejected. Sample(s) included:_____

[ ] Other: _____

_____

Client contact concerning the above deviations:

Client _____ (contact name) notified of the above deviation(s) on __/__/__ at ___:___ am/pm by _____ and the client ordered:
(signature)

[ ] Proceed with analyses as ordered.

[ ] Proceed with analyses after taking the following corrective action: _____

_____

[ ] Do NOT proceed with analyses.

REQUEST FOR SERVICES

303 W. MILITARY RD. ROTHSCHILD, WI 54474 1-800-338-SCAN

REPORT TO:
Name: John Sager
Company: Mid-State Associates
Address: 1835 N. Stevens St P.O. Box 1026
Rhinelander, WI 54501
Phone: (715) 362-3244
P.O. #
Project # 21236 Quote # 4054-0

BILL TO: (if different from Report To info): Quearm Oil Co.
Name: Quearm Oil Company c/o John Sager
Company: Mid-State Associates
Address: 1835 N. Stevens St P.O. Box 1026
Rhinelander, WI 54501
Phone: (715) 362-3244

Sample Type
(Check all that apply)
- [ ] Groundwater
- [ ] Wastewater
- [ ] Soil/Solid
- [ ] Drinking Water
- [ ] Oil
- [ ] Vapor
- [ ] Other

Turnaround Time
- [x] Normal
- [ ] Rush (Pre-approved by Lab)

Date Needed 2-9-96
Approved By

ANALYTICAL REQUESTS
(use separate sheet if necessary)

LAB USE ONLY	DATE	TIME	No. of Containers COMP	No. of Containers GRAB	SAMPLE ID	Soil/NO 5/8021	GRO/VOC	Pb	Sieve			REMARKS
11058948	1/17/96	9:15		2	GP-1 4-6' ✓	✓	✓					
11058949	1/17/96	9:23		3	GP-1 10-12' ✓	✓	✓	✓				
11058950	1/17/96	10:10		2	GP-2 8-10' ✓	✓	✓					
11058951	1/17/96	10:16		1	GP-2 10-12' ✓			✓				
11058952	1/17/96	10:35		2	GP-3 2-4' ✓	✓	✓					
11058953	1/17/96	10:55		2	GP-3 8-10' ✓	✓	✓					
11058954	1/17/96	11:30		2	GP-4 2-4' ✓	✓	✓					
11058955	1/17/96	12:00		2	GP-4 10-12' ✓	✓	✓					
11058956	1/17/96	13:15		2	GP-5 6-8' ✓	✓	✓					
11058957	1/17/96	13:40		2	GP-6 4-6' ✓	✓	✓					
MIDSTATE A	QUEARM											

Del'v: Hand (Comm.)
Ship. Cont. OK? (Y) N N/A
Samples leaking? Y (N) N/A
Seals OK? (Y) N N/A
Rec'd on ice? (Y) N N/A ___°C

Comments:

CHAIN OF CUSTODY RECORD

SAMPLERS: (Signature) John Sager

RELINQUISHED BY: (Signature)	DATE/TIME		RECEIVED BY: (Signature)
John Sager	1/18/96	2:56 am	

RELINQUISHED BY: (Signature)	DATE/TIME		RECEIVED BY: (Signature)

RELINQUISHED BY: (Signature)	DATE/TIME		RECEIVED FOR LABORATORY BY: (Signature)	DATE/TIME	
			Bev Keady	1/19/96	10:20 AM

REQUEST FOR SERVICES

303 W. MILITARY RD. ROTHSCHILD, WI 54474 1-800-338-SCAN

REPORT TO:
Name: John Sager
Company: Mid-State Associates
Address: 1835 N Stevens St P.O. Box 1026
Rhinelander, WI 54501
Phone: (715) 362-3244
P.O. #
Project # 21236 Quote # 4054-0

BILL TO: (if different from Report To info):
Name: Quarve Oil Company c/o John Sager
Company: Mid-State Associates
Address: 1835 N. Stevens St P.O. Box 1026
Rhinelander, WI 54501
Phone: (715) 362-3244

Sample Type
(Check all that apply)
- ☐ Groundwater
- ☐ Wastewater
- ☐ Soil/Solid
- ☐ Drinking Water
- ☐ Oil
- ☐ Vapor
- ☐ Other

Turnaround Time
- ☒ Normal
- ☐ Rush (Pre-approved by Lab)

Date Needed
Approved By

ANALYTICAL REQUESTS
(use separate sheet if necessary)

LAB USE ONLY	DATE	TIME	No. of Containers COMP	No. of Containers GRAB	SAMPLE ID	Soil DRO Soxhlet/NaOH	GRO/VOC 5-LE001	Pb MPREP				REMARKS
11058958	1/17/96	13:50		2	GP-7 2-4' ✓	✓	✓					
11058959	1/17/96	13:55		2	GP-7 4-6' ✓	✓	✓					
11058960	1/17/96	14:35		2	GP-8 4-6' ✓	✓	✓					
11058961	1/17/96	15:10		2	GP-9 2-4' ✓	✓	✓					
11058962	1/17/96	15:15		2	GP-9 6-8' ✓	✓	✓					

MIDSTATEA

Del'v: Hand (Comm.)
Ship. Cont. OK? (Y) N N/A
Samples leaking? Y (N) N/A
Seals OK? (Y) N N/A
Rec'd on ice? (Y) N N/A ___°C

Comments:

CHAIN OF CUSTODY RECORD

SAMPLERS: (Signature) John Sager

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	
John Sager	1/18/96 8:56 am		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED FOR LABORATORY BY: (Signature)	DATE/TIME
		Bev Reader	1/19/96 10:20AM

REQUEST FOR SERVICES

ROSCAN

303 W. MILITARY RD. ROTHSCHILD, WI 54474 1-800-338-SCAN

REPORT TO:
Name: _____
Company: _____
Address: _____
Phone: ( ) _____
P.O. #_____
Project #_____ Quote # _____

BILL TO: (if different from Report To info):
Name: _____
Company: _____
Address: _____
Phone: ( ) _____

Sample Type
(Check all that apply)
- ☐ Groundwater
- ☐ Wastewater
- ☐ Soil/Solid
- ☐ Drinking Water
- ☐ Oil
- ☐ Vapor
- ☐ Other

Turnaround Time
- ☒ Normal
- ☐ Rush (Pre-approved by Lab)

Date Needed _____
Approved By _____

ANALYTICAL REQUESTS
(use separate sheet if necessary)

LAB USE ONLY	DATE	TIME	No. of Containers COMP	No. of Containers GRAB	SAMPLE ID	(GRO/DRO)	PAH				REMARKS
	11/19/96	9:15		2	GP-1 4-6'	✓	✓				
	11/19/96	9:23		3	GP-1 10-12'	✓	✓	✓			
	11/19/96	10:13		2	GP-2 4-6'	✓	✓				
	11/19/96	10:16		1	GP-2 10-12'			✓			
	11/19/96	10:35		2	GP-3 2-4'	✓	✓				
	11/19/96	10:50		2	GP-3 8-10'	✓	✓				
	11/19/96	11:30		2	GP-4 2-4'	✓	✓				
	11/19/96	11:33		2	GP-4 10-12'	✓	✓				
	11/19/96	11:45		2	GP-5 6-8'	✓	✓				
	11/19/96	12:40		2	GP-6 4-6'	✓	✓				

Del'v: Hand Comm.
Ship. Cont. OK? Y N N/A
Samples leaking? Y N N/A
Seals OK? Y N N/A
Rec'd on ice? Y N N/A__°C

Comments: _____

CHAIN OF CUSTODY RECORD

SAMPLERS: *(Signature)*

RELINQUISHED BY: *(Signature)*	DATE/TIME	RECEIVED BY: *(Signature)*
	11/19/96	
RELINQUISHED BY: *(Signature)*	DATE/TIME	RECEIVED BY: *(Signature)*
RELINQUISHED BY: *(Signature)*	DATE/TIME	RECEIVED FOR LABORATORY BY: *(Signature)* / DATE/TIME

REQUEST FOR SERVICES

ENVIROSCAN

303 W. MILITARY RD. ROTHSCHILD, WI 54474 1-800-338-SCAN

REPORT TO:
Name: _____
Company: _____
Address: _____
_____
Phone: ( ) _____
P.O. # _____
Project # _____ Quote # 4051-0

BILL TO: (if different from Report To info):
Name: _____
Company: _____
Address: _____
_____
Phone: ( ) _____

Sample Type
(Check all that apply)
- ☐ Groundwater
- ☐ Wastewater
- ☐ Soil/Solid
- ☐ Drinking Water
- ☐ Oil
- ☐ Vapor
- ☐ Other

Turnaround Time
- ☒ Normal
- ☐ Rush (Pre-approved by Lab)

Date Needed _____
Approved By _____

ANALYTICAL REQUESTS
(use separate sheet if necessary)

LAB USE ONLY	DATE	TIME	No. of Containers COMP	No. of Containers GRAB	SAMPLE ID	GRO/VOC	PB				REMARKS
	1/7/96	13:50		2	GP-7 2-4'	✓	✓				
	1/7/96	13:55		2	GP-7 4-6'	✓	✓				
	1/7/96	14:35		2	GP-8 4-6'	✓	✓				
	1/7/96	15:10		2	GP-9 2-4'	✓	✓				
	1/7/96	15:15		2	GP-9 6-8'	✓	✓				

Del'v: Hand Comm.
Ship. Cont. OK? Y N N/A
Samples leaking? Y N N/A
Seals OK? Y N N/A
Rec'd on ice? Y N N/A __°C

Comments: _____

CHAIN OF CUSTODY RECORD

SAMPLERS: *(Signature)*

RELINQUISHED BY: *(Signature)*	DATE/TIME	RECEIVED BY: *(Signature)*
	1/10/96	
RELINQUISHED BY: *(Signature)*	DATE/TIME	RECEIVED BY: *(Signature)*
RELINQUISHED BY: *(Signature)*	DATE/TIME	RECEIVED FOR LABORATORY BY: *(Signature)* / DATE/TIME