CCA Facility &

Aboveground Tank Site Assessments

for

Weisenberger Tie & Lumber Company

Project #42991000

May 1992

George O. Peterson, P.E.
Project Engineer

Dale R. Kauzlaric
Environmental Engineer

David L. Ozsvath, Ph.D.
Hydrogeologist

Prepared by:

Central Wisconsin Engineers, Inc.
903 Grand Avenue
Rothschild, WI 54474
Phone: 715-359-9400

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

APPENDICES

TABLE OF CONTENTS (continued)

FIGURES

TABLES

1.0 INTRODUCTION

Central Wisconsin Engineers, Inc. was retained by Weisenberger Tie and Lumber Co., Marathon, Wisconsin, to assess the effects of arsenic, chromium and copper contamination adjacent to the Copper Chromated Arsenic (CCA) facility and petroleum contamination adjacent to the aboveground tanks.

This report has been prepared to summarize the environmental concerns discovered during the investigations conducted on April 8 and 9, 1992. The data collected, field investigations and items addressed are in accordance with the Wisconsin Department of Natural Resources (WDNR) letter dated November 27, 1991.

The purpose of this investigation was as follows:

1. To provide all related information that is beneficial for site assessment.
2. To evaluate the extent of contamination to soil and groundwater both horizontally and vertically.
3. To evaluate the type and source of contamination.
4. To construct a generalized potentiometric map of the groundwater system beneath the site and estimate groundwater flow patterns.
5. To provide recommendations for additional field work necessary to design and implement remedial actions (if required).

2.0 GENERAL BACKGROUND INFORMATION

2.1 Responsible Party

Weisenberger Tie and Lumber Company
Weisenberger Road
Marathon, WI 54448

Attn: Mr. Rudy Weisenberger
Phone: 715-443-2049

2.2 Engineering Consultant

Central Wisconsin Engineers, Inc.
903 Grand Avenue
Rothschild, Wisconsin 54474

Attn: Hooshang Zeyghami, P.E.
Phone: 715-359-9400

2.3 Drilling Contractor

WTD Environmental Drilling
101 Alderson Street
Schofield, WI 54476

Attn: Mr. Bob Prueher
Phone: 715-359-7090

2.4 Site Location

The site is located on Weisenberger Road in the NW¼ of the NE¼ of Section 1, Township 28 North, Range 5 East, Town of Cassel, Marathon County, Wisconsin (see Figures 1 and 2 in Appendix A).

3.0 SITE BACKGROUND

3.1 General Site Information

3.1.1 Site Description

Located on the site are three aboveground tanks used to store fuel for Weisenberger's vehicles. The tanks include a ten thousand (10,000) gallon diesel fuel tank, a four thousand (4,000) gallon #1 fuel oil tank and a five hundred (500) gallon gasoline tank. The tanks have been on-site for approximately 20 years. The steel tanks have no leak detection systems nor any secondary containment structures.

3.1.2 General Site History

Weisenberger Tie and Lumber Company sells landscape ties, preservative-treated ties and wholesale lumber. The site has been a lumber mill since 1971. One method used to treat ties is to pressure treat the ties with a copper chromated arsenic solution. The second method used to treat ties is to dip the ties in a wood preservative.

3.1.3 Past Reports of Spills

On the south end of the site in the area of the pallet mill (see Figure 3) ties were dipped in a wood preservative. Pentachlorophenol (PCP) wood preservative was mixed with diesel fuel and used as a preservative to treat ties. Past practice was to dip bundles of ties in the preservatives and then set the ties out in the yard to dry. Currently the WDNR has hired an environmental consultant to investigate that portion of the project site.

3.1.4 Proximity to Private Wells

The Weisenberger site has four (4) private wells. The well locations are shown on Figure 4. The two industrial buildings to the east of the project site, Furger Ginseng Supply and Ceranski Engineering and Machine Inc. have no private wells. Joe's Auto to the northeast of the site could not be reached by phone or by visit to verify the existence of a private well.

3.2 Description of Discharge Incidents

On May 6, 1991, Inspector David Hyer, Department of Agriculture, Trade and Consumer Protection (DATCP) took two soil samples near the pressure treating building (CCA facility) in the area east of the tram (see Figure 8 for building layout). The sample taken adjacent to the tram showed elevated levels of copper and arsenic.

The CCA facility has been in use since March 1988. The amount of contaminant discharged is not known; however, contaminated soils were found in the area east of the tram and in the area adjacent to the concrete drip pad. Presently there are no known groundwater contamination problems from the discharge of copper, chromium and arsenic.

The area around the aboveground petroleum storage tanks has been suspected as a location of soil contamination. Although no product is known to have leaked from the tanks through product gallon usage and measuring, the area to the south of the tanks was suspected to be contaminated because of the practice of hanging the dispenser nozzles upside down after refueling vehicles. This practice probably has been used since

the tanks were brought on-site. Presently there are no wells known to be contaminated by hydrocarbons from this area.

3.3 Impacts

The area east of the CCA facility is of particular concern because of the close proximity of the Furger Ginseng Supply building. This building is approximately 150 feet to the east-southeast of where contaminated soils were found.

The area around the aboveground tanks is not adjacent to any other properties. Private well PW-1 is located approximately 400 feet to the southwest and PW-4 is located approximately 300 feet to the east of the tanks.

3.4 Past Activities

3.4.1 Pressure Treating Wood Preservation

The process involves hauling ties into the CCA facility and pressure treating the ties with the CCA solution in a pressure chamber. After the ties are treated, they are brought out of the building on a tram. Here the ties are allowed to drip. Preservative that drips from the ties drains back into a holding tank. After the ties are allowed to drip, they are moved to the adjacent concrete pad to dry.

It appears that wind is blowing preservative off the ties as they sit on the tram. To prevent this from happening in the future, Weisenberger is currently building a wall on the leeward side of the tram.

Another concern in the CCA facility area is the possibility of preservative dripping off the pad onto the ground. The quantities of preservative that may have been discharged to the environment in this fashion are unknown. To correct this problem, Weisenberger is looking into building a higher concrete wall around the concrete drip pad. Presently there is only a 2" lip around the perimeter.

Because of the elevated levels of contaminants shown in the DATCP sampling on May 6, 1991, the WDNR required that a site investigation of the area around the CCA facility be conducted to determine the extent and degree of contamination. This report contains the results of that investigation.

3.4.2 Aboveground Petroleum Storage Tanks

Although the three storage tanks have not been tested for leaks, they are all in good condition and are therefore not suspected of having lost any product.

Instead, the practice of hanging the nozzles upside down after refueling the vehicles appears to a source of contamination south of the tanks. The possible quantities of petroleum products discharged in this fashion are unknown. Because the tanks currently have no secondary containment structures around the tanks, the WDNR is requiring Weisenberger to bring these tanks up to code. In a discussion with a Weisenberger representative it was learned that the company probably will abandon the tanks and purchase fuel in town, instead of providing the secondary containment needed around the tanks.

The WDNR is requiring a site investigation of the area around the aboveground tanks to determine the extent and degree of contamination. This report contains the results of such an investigation.

3.5 Hazardous Waste Generation

Currently 78 barrels of hazardous waste are being stored in a garage on the property. The hazardous waste consists of used pentachlorophenol wood preservative that was utilized in another preservation method. Recently a request for a variance to store the drums on-site until the waste can be disposed of properly was submitted to the WNDR. At the present time, WDNR approval has not been received.

3.6 Description of Tank & Soil Removal Activities

Soils adjacent to the tanks are stained and a petroleum odor is noticeable. No soils have been excavated from this area at the present time.

The tanks appear to be in good condition. The only sign of discharge is the side of the tanks where the nozzles are hung. There probably was discharge to the ground due to overfilling and/or fuel dripping out of the nozzles when pulled out of the vehicle tanks.

3.7 Land Use Information

Prior to 1971, the project site was used for agricultural purposes by Antone Weisenberger. The lands immediately surrounding the project site to the west, north and

east are used as agriculture land. The exceptions are the three lots to the east of Windy Lane which have had industrial buildings built on them. The area to the south of the project is a gravel pit.

4.0 ENVIRONMENTAL ANALYSIS

4.1 Site Historical Significance

There are no buildings on or next to the project site which have any significant historical or archeological features.

4.2 Presence of "Sensitive" Environmental Receptors

It is believed the site is not located in habitat critical to the continued existence of any threatened or endangered species. A letter from the Bureau of Endangered Resources attesting to this fact has been requested and will be added to Appendix B when received. The site is not a wetland and is not located in a 100 year floodplain (see Figure 5).

4.3 Geology

4.3.1 Topography

Much of Marathon County can be described as a gently rolling plain (LaBerge and Myers, 1983), but central portions of the county are more hilly due to erosion by the Wisconsin River and its tributaries. The Weisenberger Tie & Lumber Company is located within the valley of the Big Rib River, a major tributary to the Wisconsin River

that drains northwestern Marathon County. As shown on Figure 1, the project site occurs on south-facing valley slopes in an area where local relief approaches 250 feet.

4.3.2 Bedrock

Virtually all of Marathon County is included within a geologic province known as the Canadian Shield. This province is characterized by the near-surface occurrence of Precambrian igneous and metamorphic rocks that were produced by a complex sequence of tectonic events in the geologic past. Although these rocks are often shown on maps as an undifferentiated unit (i.e. Precambrian crystalline bedrock), the geologic history of northern Wisconsin has been unraveled only by detailed mapping on a local scale. One such map produced for Marathon County by LaBerge and Myers (1983) shows the project site to be underlain by quartz diorite. This is an intrusive igneous rock similar to granite and is often classified as such by well drillers.

4.3.3 Unconsolidated Materials

In uplands of central Marathon County bedrock is covered with gravelly, clayey, sandy silt that was derived from the weathering of underlying bedrock (Attig and Muldoon, 1989). The thickness of this residual layer is typically less than 6 feet, but up to 45 feet of unconsolidated material have been encountered in areas where it accumulated via hillslope processes (Attig and Muldoon, 1989).

The valley bottoms of the Wisconsin River and its major tributaries contain a combination of glacial meltwater-stream deposits and alluvial sediments left by modern

streams (Attig and Muldoon, 1989). Because the meltwater-stream sediments were deposited by high-discharge rivers that drained from a receding ice sheet to the north, they are typically better sorted and coarser grained than modern stream alluvium.

The Weisenberger property is situated on upland residual materials near their contact with meltwater-stream deposits in the Big Rib River valley. Soils mapping by the Soils Conservation Service (1989) classified this site as Fenwood silt loam, which is derived from bedrock weathering. A typical Fenwood soil profile includes 8 inches of silt loam (ML, CL-ML, or CL), 10 inches of loam to sandy loam (ML, CL-ML, SM, or SM-SC), 13 inches of gravelly loam to clay loam (CL, SC, or GC), and 12 inches of very cobbly loam to cobbly sandy clay loam (CL, SC, GC, or CL-ML). Beyond this depth of 43 inches, weathered and unweathered bedrock is usually encountered. On-site borings confirm this general description (see Appendix C).

4.3.4 Hydrology

The closest surface water to the Weisenberger property is a small, intermittent stream which flows generally southward about 600 feet west of the site (see Figure 1). This intermittent stream joins the Big Rib River approximately 1800 feet to the south of the southern property boundary. The Big Rib River is perennial stream which flows easterly from Marathon to the Wisconsin River.

As shown on Figure 5, the project site is not within the 100-year floodplain of the Big Rib River. Detailed floodplain information is included in Appendix D.

4.4 Hydrogeology

4.4.1 General Hydrogeology

The Wisconsin River is the regional discharge area for the Central Wisconsin River Basin, although there are many local discharge points. Near Marathon, groundwater flow is directed towards the Big Rib River as dictated by local topographic conditions (Devaul and Green, 1971).

The natural groundwater quality in this basin is considered to be generally good, although high values of hardness, iron and total dissolved solids can be found locally. Iron has its source from groundwater moving slowly through iron rich bedrock or from reducing conditions in wetland areas (marshes or swamps)(Holt, 1965). The hardness is also related to the type of rock the water travels through. Carbonate minerals (i.e. calcite and dolomite) provide calcium and magnesium to the water when dissolved, and these minerals are commonly found in the sands and gravels of the area.

4.4.2 Site Hydrogeology

Monitoring wells were not constructed as part of this investigation. Central Wisconsin Engineers' objective was to drill to a depth of 10 feet or until bedrock was encountered. All boreholes were advanced to 9.5 feet, although bedrock was encountered at depths ranging from 4 to 7 feet (see Appendix C). Groundwater, which occurs approximately 30 feet below the land surface, was not encountered in any of the boreholes.

A groundwater flow map was constructed based on the water levels measured the private on-site wells (see Figure 6). Because these wells are relatively deep (see

Appendix I) and probably screened at various depths, the water levels measured may not represent the actual water table. However, the local flow direction shown on Figure 6 (towards Big Rib River) is consistent with the regional water table contour map provided by Devaul and Green (1971).

The elevation of groundwater beneath the Weisenberger site indicates that it moves through bedrock. In crystalline rock, such as quartz diorite, the primary porosity and permeability is very low. Therefore, groundwater movement is restricted to fractures within the bedrock. This makes the actual flow paths within a localized area very difficult to predict.

4.5 Utilities

At the CCA facility, utilities of concern at the time of drilling were buried electrical and water lines.

At the storage tank area, utilities of concern were a buried electrical line and overhead power lines. Borehole locations were adjusted to avoid utilities.

5.0 SITE SURVEY

The site was not surveyed for this investigation, but was previously surveyed for another investigation. The boreholes were measured from surrounding buildings. See Figure 8 and 9 for borehole locations.

6.0 CONTAMINATION MIGRATION

6.1 Migration Pathway

At the CCA facility, buried electric lines run from north to south through the impacted area east of the tram. Two buried water lines run through the impacted area north and west of the concrete drip pad.

At the aboveground tanks, a buried electrical line runs from the tank to the storage garage.

6.2 Contamination Receptors

Possible receptors of migrating contamination include all four private wells on the Weisenberger property. Figure 4 shows the locations of these wells. PW-2 was drilled in what has become an impacted area adjacent to the CCA facility (see Figure 8). PW-3 is approximately 180 feet west of the CCA facility concrete drip pad. PW-4 is approximately 300 feet to the east of the aboveground storage tanks. The private well for the house (PW-1) is 400 feet west of the tank area.

6.3 Potential Health Impacts

Private Well PW-2 is of primary concern because it is in a contaminated soil area. PW-2 is used to provide water to the CCA facility for the pressure treating process,

Private well PW-4 is of concern because of its location downgradient of CCA facility. Water from that well is occasionally used by Ceranski Engineering and Machine, Inc.

7.0 FIELD INVESTIGATIONS

Nine (9) test borings were drilled on April 8 and 9, 1992, in the area of the CCA facility and three (3) test borings were drilled in the area of aboveground tanks by WTD Environmental Drilling. Drilling was supervised by Central Wisconsin Engineers, Inc. personnel. Boring placement was adjusted for utilities and water lines. Boring locations are shown on Figures 7 and 8.

The borings were drilled using an all-terrain mobile drilling rig. To advance the boreholes, 3¼ and 4¼ inch hollow stem augers were employed. No water or additives were used during drilling. Split spoon samples were collected from the borings using standard undisturbed sampling techniques. The samples were obtained by driving a two inch diameter (OD) sample spoon with a 140-pound weigh free falling 30 inches. Field boring logs were kept during drilling and are included in Appendix C.

8.0 SOIL SAMPLING

8.1 Sample Results from Borings

Table 1 shows the laboratory results for soil samples collected near the CCA facility. These samples were analyzed for total arsenic, total chromium and total copper. Included in Table 1 are the depths from which samples were taken.

Table 2 contains the field information and laboratory results for soil samples collected from the area adjacent to the aboveground tanks. These samples were analyzed for diesel range organics and petroleum volatile organic compounds (PVOC).

Table 1 - Soil Samples - CCA Facility
Weisenberger Tie & Lumber - Marathon, WI

Sample	Depth (feet)	Arsenic	Chromium	Copper
TB1-1	0-2	14	18	12
TB1-2	2½-4½	1.1	15	15
TB2-1	0-2	0.6	7.0	11
TB2-2	2½-4½	1.1	14	14
TB3-1	0-2	6.6	17	15
TB3-2	2½-4½	1.1	39	21
TB4-1	0-2	130	37	26
TB4-2	2½-4½	0.3	26	23
TB5-1	0-2	0.4	2.3	13
TB5-2	2½-4½	0.7	18	22
TB6-1	0-2	30	17	16
TB6-2	2½-4½	1.1	16	16
TB7-1	0-2	190	150	91
TB7-2	2½-4½	1.9	16	17
TB8-1	0-2	420	170	110
TB8-2	2½-4½	1.7	12	10
TB9-1	0-2	1600	1200	760
TB9-2	2½-4½	1.5	21	14

Units in mg/kg = parts-per-million

The complete laboratory results are in Appendix E.

Table 2 - Soil Samples - Aboveground Tanks
Weisenberger Tie and Lumber Company, Marathon, WI

mg/kg

Sample	Depth (feet)	Field Screening	Diesel Range Organics	.0055 Benzene	.0049 Ethyl-benzene	15 Toluene	4.1 Xylenes	MTBE	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene
TB10-1	0-2	13	440	ND<.0011	ND<.0011	ND<.0011	.0033	ND<.0011	0.004	0.0014
TB10-3	5-7	2	ND<5	ND<.0011	ND<.0011	3.2B<.0011	ND<.033	ND<.0011	ND	ND
TB11-1	0-2	66	1,300	ND<.0012	0.0053	ND<.0012	0.120	ND<.0012	0.210	0.150
TB11-3	5-7	6	230	ND<.0011	ND<.0011	ND<.0011	ND<.033	ND<.0011	0.0019	0.0011
TB12-1	0-2	126	46,000	ND<.150	3.1	0.15	7.2	ND<.150	6.4	32.0
TB12-2	2½-4½	114	5,400	ND<.140	0.52	0.21	2.40	ND<.140	6.2	5.1

* = parts-per-million meter units as isobutylene
ND = Not Detected
Units in ppm = parts-per-million
NOTE: HNu Calibration: Span 2.98, Date 4-9-92
B = Detected in lab blank at 1 μg/kg

The complete laboratory results are in Appendix F.

8.2 Soil Sample Results - CCA Facility

The interpretation of soil chemistry data such as that shown in Table 1 requires an understanding of naturally occurring soil metal contents. Based on literature values and our experience in the Central Wisconsin region, we have established the following background levels: (1) arsenic - less than 13 mg/kg; (2) chromium - less than 20 mg/kg; and (3) copper - less than 25 mg/kg.

The values cited above would suggest that at least five and possibly seven of the borings penetrated areas of soil contamination: TB-4, TB-6, TB-7, TB-8, TB-9 are certainly contaminated, and TB-1 and TB-3 may also be contaminated. The only value which appears to be above background in TB-1 is the 14 mg/kg arsenic. In TB-3 the 39 mg/kg chromium may represent contamination. There is also a significant decrease in arsenic content with depth for TB-3. It should be noted that no soil staining or odor was apparent during field sampling.

8.3 Soil Sample Results - Aboveground Tanks

Soil samples from TB-10, TB11 and TB-12 show concentrations of diesel range organics exceeding the limit of 10 ppm as established by the Wisconsin Department of Natural Resources (see Table 2). Most of the samples also showed very high levels of petroleum volatile organic compounds (PVOC). All test borings showed levels of contamination as identified by field screening. In the area where the borings were placed there was soil staining and an odor present.

8.4 Sampling Methods Used

Soil samples were collected for laboratory analysis from the split spoon during drilling of the boreholes at 2½ foot intervals. Sampling followed Standard Operating Procedures described in Appendix G. Samples for analytical analysis were placed in laboratory supplied jars. Samples for borings TB-1 through TB-9 were placed in 500 ml plastic jars. Samples for borings TB-10, TB-11 and TB-12 were placed in 4 oz. glass jars.

8.5 HNu Calibration

The HNu photoionization detector used for field screening of soil samples for volatile organic compounds (VOCs) is calibrated each time it is used in accordance with the manufacturer's instructions.

The HNu is calibrated with a 100 ppm isobutylene/air mixture. The pressurized gas is released through a hose directly to the 8" extension of the photoionization probe. As the instrument draws in the volume of sample required for detection, the span potentiometer is adjusted to a reading of 58 ppm with the 10.2 ev lamp. All HNu responses contained in this report are shown relative to 100 ppm isobutylene. Because HNu screening is not a quantitative method and screening detects total ionizable hydrocarbons, lab analysis and soil screening results do not directly correlate. However, screening does give a qualitative indication of the magnitude of contamination present.

8.6 HNu Sampling Procedures

The samples gathered for HNu analysis were collected using a disposable latex gloves. The samples were placed in clean, clear glass bottles (1/2 full) and covered tightly with aluminum foil. Samples were placed in a protected area and allowed to reach an approximate temperature of 70° F. The head space soil gases were then measured by gently placing the probe through the aluminum foil. The meter readings are direct from a needle gauged potentiometer in parts per million (ppm).
The span potentiometer was adjusted to 2.98 on April 9, 1992.

8.7 Temperatures During Collection

Samples taken for borings TB-1 through TB-6 on April 8, 1992, were not field screened. Ambient air temperatures during sample collection ranged from 25°-42°F.

Samples taken for borings TB-7 through TB-9 on April 9, 1992, were not field screened. Ambient air temperatures during sample collection ranged from 29°-35°F.

Samples taken for borings TB-10 through TB-12 on April 9, 1992, were field screened. Individual temperature of sample jars were not taken, but the headspace jars were allowed to sit in a heated vehicle for a minimum of 20 minutes before reading. Ambient air temperatures during sample collection ranged from 35°-48°F.

9.0 QUALITY ASSURANCE AND QUALITY CONTROL

9.1 General QA/QC

Samples were analyzed by Ortek Environmental laboratory, 2496 West Mason

Street, Green Bay, Wisconsin, Ortek's Wisconsin Certification Number is 405099530. There were no blanks submitted with samples. See Appendix E for laboratory reference to spikes. Samples were collected by Dale R. Kauzlaric, DILHR Certification Number 01827 for Site Assessment.

9.2 Field Instrument Quality Control

The photoionization analyzer is a Model PI 101, made by HNu Systems, Inc. with a 10.2 ev lamp. The instrument is limited to an operating ambient temperature to 40°C and ambient humidity to 95% RH. The instrument is temperature compensated. The instrument was calibrated to manufacturer's instructions prior to usage on April 9, 1992. The instrument is calibrated with a 100 ppm isobutylene/air mixture. No calibration curves or correction factor were used.

9.3 Field Sampling and Transportation Quality Control & Assurance

9.3.1 CCA Facility

Samples were analyzed for copper, chromium and arsenic. See Figure 8 for specific boring locations. No field samples were taken. Laboratory samples were taken at each sampling point. The first two samples from each boring were sent to the laboratory for analysis.

Soil samples were collected for analysis from the split spoon during drilling of the boreholes. Boreholes were drilled to 10 feet or bedrock with four (4) samples being taken at 2½ foot intervals. Upon retrieval of the split spoon after driving the sampler in

undisturbed soil, the soil was placed in laboratory supplied 500 ml plastic jars. Samples were collected from the sampler with disposable latex gloves. Containers were filled to the top such that no headspace remained. The jars were properly sealed and labeled and immediately placed in a cooler with ice. Samples were collected on April 8 and 9, 1992. See the chain of custody forms in Appendix E for specific sampling times.

No field preservation was required by the laboratory and none was performed.

The split spoon sampler was steamed cleaned prior to initial use. After each sample, the sampler was cleaned with water and Alconox detergent and rinsed with distilled water. All augers were steamed cleaned prior to use or reuse on the site.

There were no deviations from the standard operating procedures contained in Appendix G.

Samples were properly labeled and sealed and shipped on April 9, 1992 at 3:50 pm. Samples were placed in plastic ziploc bags and shipped on ice.

9.3.2 Aboveground Tanks

Samples were analyzed for diesel range organics (DRO) and petroleum volatile organic compounds (PVOC). See Figure 9 for specific boring locations. Laboratory and field samples were taken at each sampling point with the laboratory sample collected prior to the field sample. The two samples from each boring with the highest field screening were sent to the laboratory for analysis. The exception is TB-11, where sample TB11-2 had insufficient sample recovery to submit to the laboratory. TB11-3 was collected and sent to the laboratory instead.

Soil samples were collected for analysis from the split spoon during drilling of the borehole. Boreholes were drilled to ten feet or bedrock with four (4) samples being taken at 2½ foot intervals. Upon retrieval of the split spoon after driving the sampler in undisturbed soil, the soil was placed in laboratory supplied 4 oz. glass jars. Samples were collected from the sampler with disposable latex gloves. Containers were filled to the top such that no headspace remained. The jars were properly sealed and labeled and immediately placed in a cooler with ice. Samples were collected on April 9, 1992. See the chain of custody form in Appendix F for specific sampling times.

No field preservation was required by the laboratory and none was performed.

The split spoon was steamed cleaned prior to initial use. After each sample, the sampler was cleaned with water and Alconox detergent and rinsed with distilled water. All augers were steamed cleaned prior to use.

Deviations from the standard operating procedures include using 4 oz. jars instead of 40 ml VOC vials for DRO as the jars were supplied by laboratory; and no duplicate samples were sent in because of lack of sample recovery to fill all the jars necessary for duplicate samples.

Samples were properly labeled and sealed and shipped on April 9, 1992 at 3:55 pm. Samples were placed in plastic ziploc bags and shipped on ice.

9.4 Laboratory Receipt and Analysis

Chain of custody forms (4400-151) for the LUST program were not used because the areas investigated were not from underground storage tanks. Samples were received

by Ortek on April 10, 1992 at 13:01. Samples were received with seal intact and at 2.0°C. Copper and chromium analysis were done on April 29, 1992, arsenic analysis was done on April 30, 1992 and DRO and PVOC analyses were done on April 14, 15 or 16, 1992. Laboratory detection limits for arsenic, copper and chromium were not noted on laboratory data sheets. Laboratory detection limits for DRO and PVOC varied with concentrations, see Appendix E & F for individual detection limits. See Tables 1 and 2 for sample results and Appendices E and F for actual laboratory data sheets. See laboratory sheets for spike notations.

10.0 INVESTIGATIVE WASTES

Soil cuttings were placed in WisDOT approved fifty five (55) gallon barrels and remain on-site.

11.0 BOREHOLE ABANDONMENT

All boreholes were properly abandoned with chipped bentonite. Borehole abandonment forms are included in Appendix H.

12.0 SUMMARY AND EVALUATION OF RESULTS - CCA FACILITY

12.1 Degree and Extent Determination

Contamination was detected in all of the shallow soil samples collected adjacent to the concrete pad (TB-6 through TB-9); therefore it is not possible to define the horizontal extent of contamination on the western side of the CCA facility (see

Figure 8). To the east of the tram, one sample definitely showed contamination (from TB-4), and two others may also be contaminated (from TB-1 and TB-3). The contaminant levels are much lower on the east side, and the effects of previous spills or discharges appear to become negligible beyond 15 feet of the tram. The data in Table 1 indicate that soil contamination by arsenic, chromium or copper does not extend more than 2½ feet below the land surface. Whatever discharge of contaminants occurred here in the past has apparently been attenuated within the upper two feet of soil material. This suggests that contamination has not reached bedrock or the groundwater.

12.2 Potential Impacts

Private Well PW-4 is in the area of known soil contamination (see Figure 8). However, PW-4 is set in bedrock at a depth of 142 feet (see Appendix I), and it is unlikely that contaminants have reached the groundwater which recharges this well.

There is a buried electric line that traverses the contaminated area which may be a potential pathway for contamination migration. The likelihood of this occurring is small, because the electric line runs to the east of known contamination limits (see Figure 8).

The possibility of contaminant migration with surface runoff exists because of the sloping topography adjacent to the CCA building.

13.0 CONCLUSIONS AND RECOMMENDATIONS

Because the horizontal extent was not the determined, further investigation is

needed. Central Wisconsin Engineers, Inc. (CWE) recommends additional borings further to the west and north of the concrete pad to determine the extent of contamination in that area. When the horizontal extent is determined, the soil should be excavated to a depth of at least 2 feet below the land surface. The soil will have to be containerized and properly treated or disposed of.

14.0 SUMMARY AND EVALUATION OF RESULTS-ABOVEGROUND TANKS

14.1 Degree and Extent Determination

All three of the borings drilled in this area encountered petroleum product (see Table 2). Therefore, the horizontal extent of contamination can not be determined.

Samples from TB-10 and TB-11 show that contamination extends to a depth of 5 to 7 feet. TB-12 shows that contamination exists to at least 4½ feet. Bedrock in this area was encountered at approximately 7½ feet below ground surface. Therefore, petroleum products may have migrated to the bedrock and also contaminated the groundwater.

14.2 Potential Impacts

There are no private wells in the area immediately adjacent to the storage tanks. There is one buried electrical line in the area of contamination that may act as a migration pathway. The area around the aboveground tanks is fairly flat, and potential impacts from surface runoff appear to be minimal.

15.0 CONCLUSIONS AND RECOMMENDATIONS

Because the horizontal extent was not determined, further investigation is needed. CWE recommends additional borings to determine the extent of the contamination in the area around the tanks.

CWE also recommends the placement of monitoring wells to monitor any effects of the contamination on the groundwater. After the additional investigative work, a remedial action plan could be developed.

Before any work is initiated, a work plan will be submitted to the WDNR for approval.

16.0 GENERAL QUALIFICATIONS AND LIMITATIONS

Field and laboratory tests were conducted on samples collected at the locations specified in this report. Sample locations, numbers and parameters analyzed for in each sample were determined by Central Wisconsin Engineers, Inc. personnel in accordance with the Wisconsin Department of Natural Resources (WDNR) letter dated November 27, 1991 and the Leaking Underground Storage Tank (LUST) Analytical Guidance (June 1991). Variation in soil tests may occur in both the horizontal and vertical directions between any test locations. Because of these potential variations, no warranty or guarantee, expressed or implied, can be made by Central Wisconsin Engineers, Inc. in respect to all in-place soils, excavated soils or groundwater quality at the site.

The results and conclusions contained herein are based upon the data supplied to Central Wisconsin Engineers, Inc. by the analytical laboratory(ies) indicated in the Appendices.

17.0 REFERENCES

Attig, J.W., and Muldoon, M.A., 1989, Pleistocene Geology of Marathon County, Wisconsin; Wis. Geol. and Nat. History Survey, Info. Circ. 65, 27 p.

Devaul, R.W. and Green, J.H., 1971, Water Resources of Wisconsin; Central Wisconsin River Basin, U.S. Geol. Survey Hydrologic Investigations Atlas HA-367, 4 sheets

Holt, C.L.K., Jr., 1965, Geology and Water Resources of Portage County, Wisconsin; U.S. Geol. Survey Water - Supply Paper 1796, 77p.

LaBerge, G.L., Myers, P.E., 1983, Precambrian Geology of Marathon County, Wisconsin, Wis. Geol. and Nat. History Survey, Info. Circ., 45, 88 p.

Federal Emergency Management Agency, 2-3-81, Flood Insurance Study, Table 2 and 10 p.

Soil Conservation Service, 1989, Soil Survey of Marathon County, Wisconsin, U.S. Dept. of Agric., 217 p.

APPENDIX A

FIGURES

SOURCE: MARATHON, WIS. QUADRANGLE SERIES V861

N

SCALE 1:24000

FIGURE 1
SITE LOCATION

CENTRAL WISCONSIN ENGINEERS. INC.

PROJ # 42991000

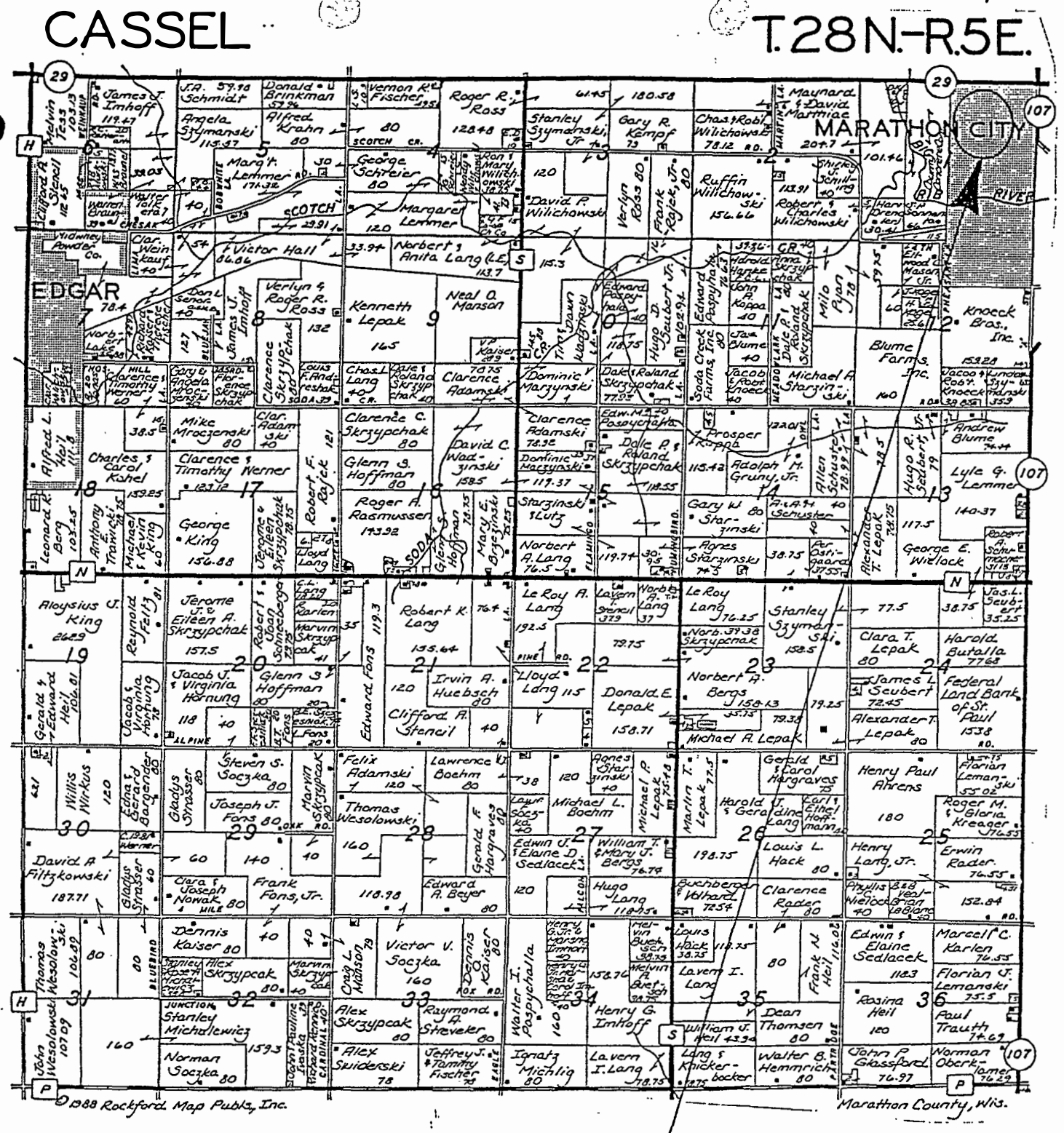


FIGURE 2
SITE LOCATION

CENTRAL WISCONSIN ENGINEERS, INC.

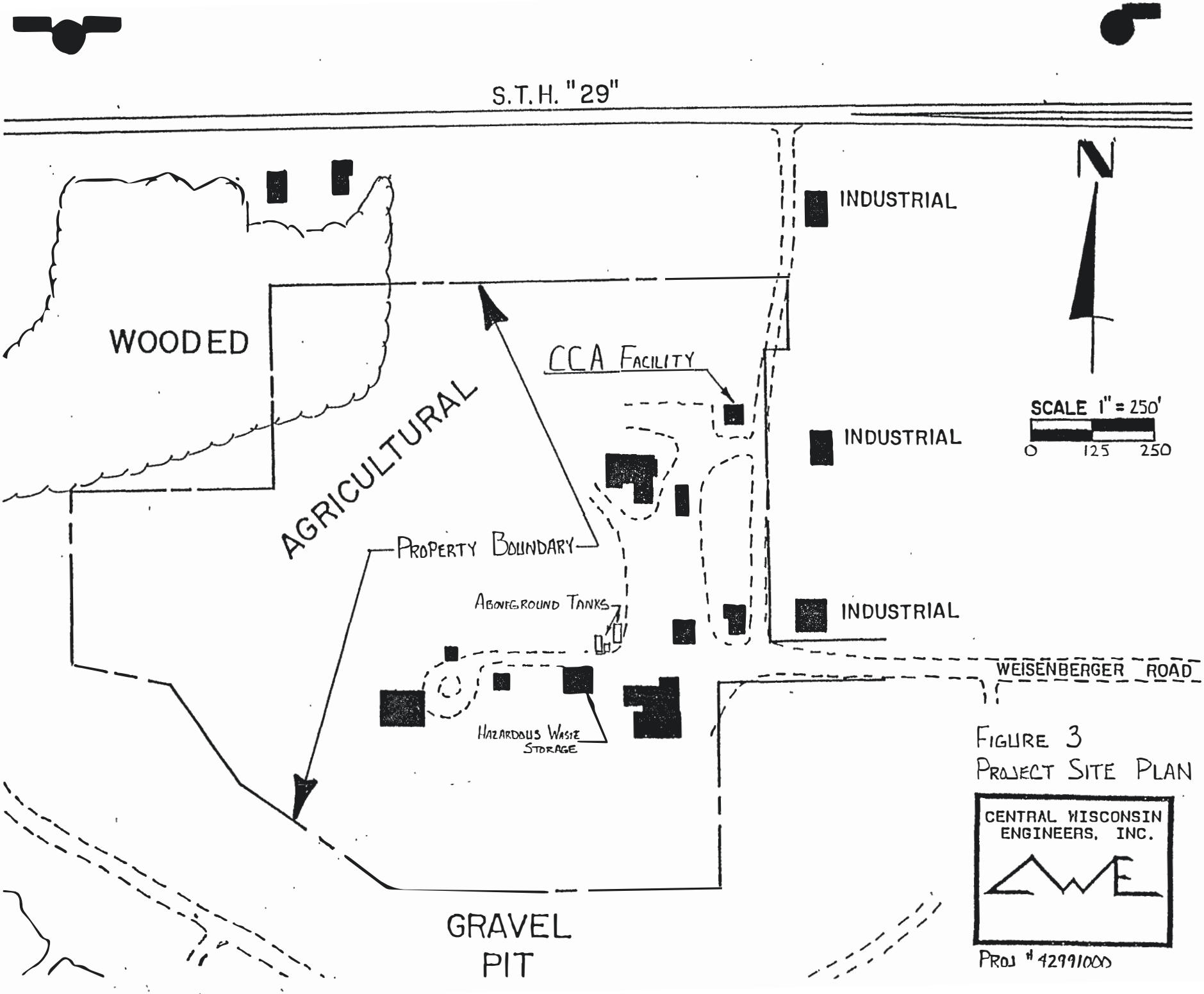


FIGURE 3
PROJECT SITE PLAN

CENTRAL WISCONSIN ENGINEERS, INC.

PROJ # 42991000

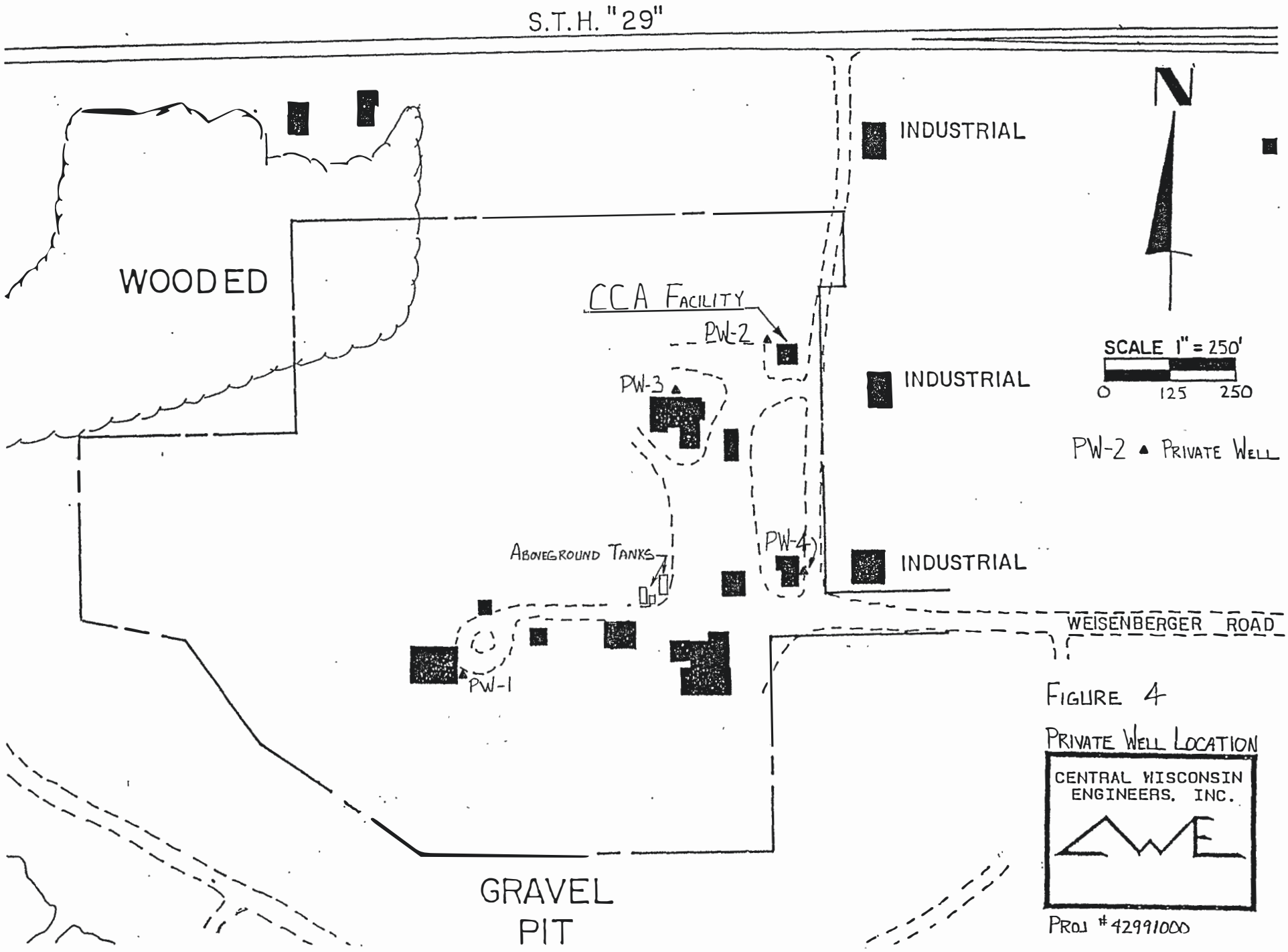
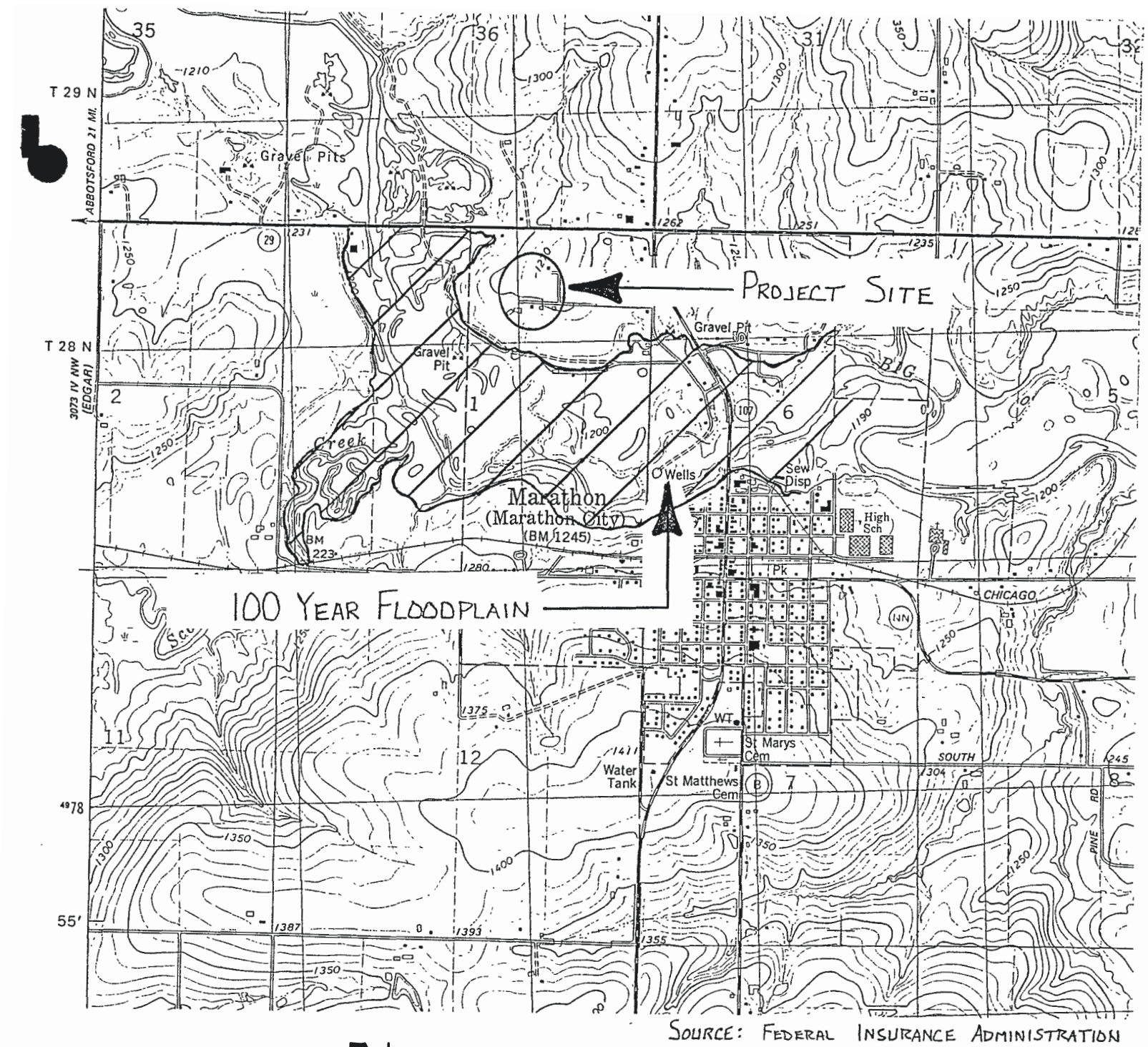


FIGURE 4

PRIVATE WELL LOCATION

CENTRAL WISCONSIN ENGINEERS, INC.

PROJ # 42991000



SOURCE: FEDERAL INSURANCE ADMINISTRATION

N

SCALE 1:24,000

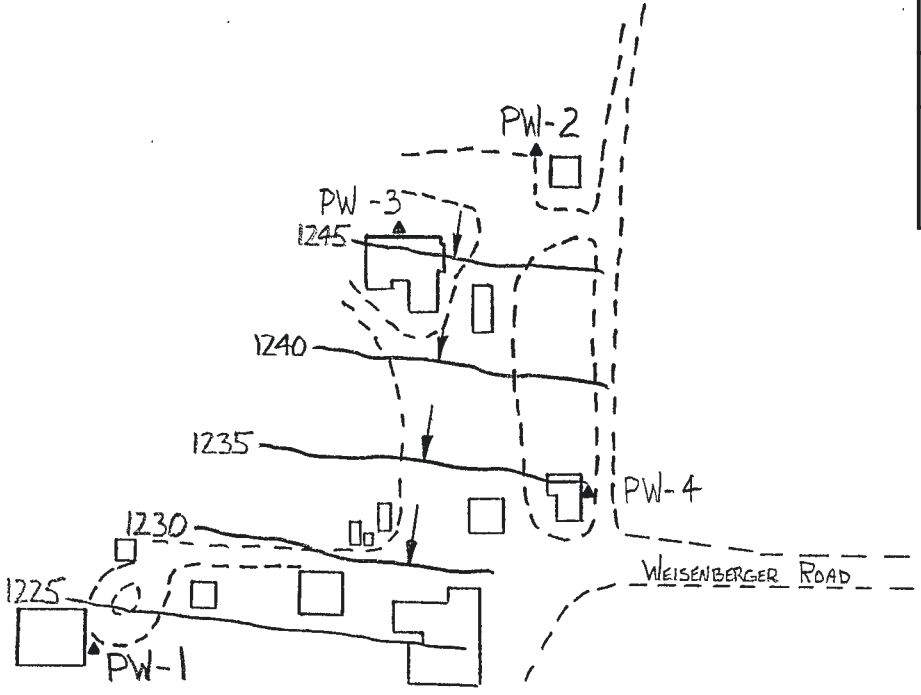
FIGURE 5

100 YEAR FLOODPLAIN MAP

CENTRAL WISCONSIN ENGINEERS, INC.

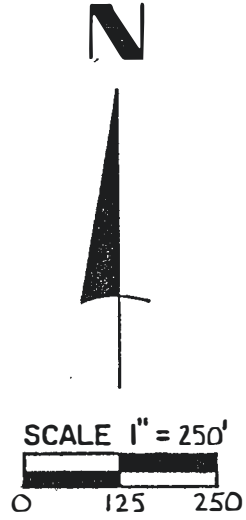
PROJ #4299000

S.T.H. "29"



WELL DATA

WELL	N	E	GROUND ELEV.	TOP PVC	TOP CASING	WATER ELEV.
PW-1	796.1	442.6	NA	NA	1243.71	1223.96
PW-2	1425.6	1030.6	NA	NA	1275.85	1245.70
PW-3	1328.0	865.3	NA	NA	1275.80	1245.80
PW-4	997.7	1108.5	NA	NA	1261.33	1233.88



LEGEND

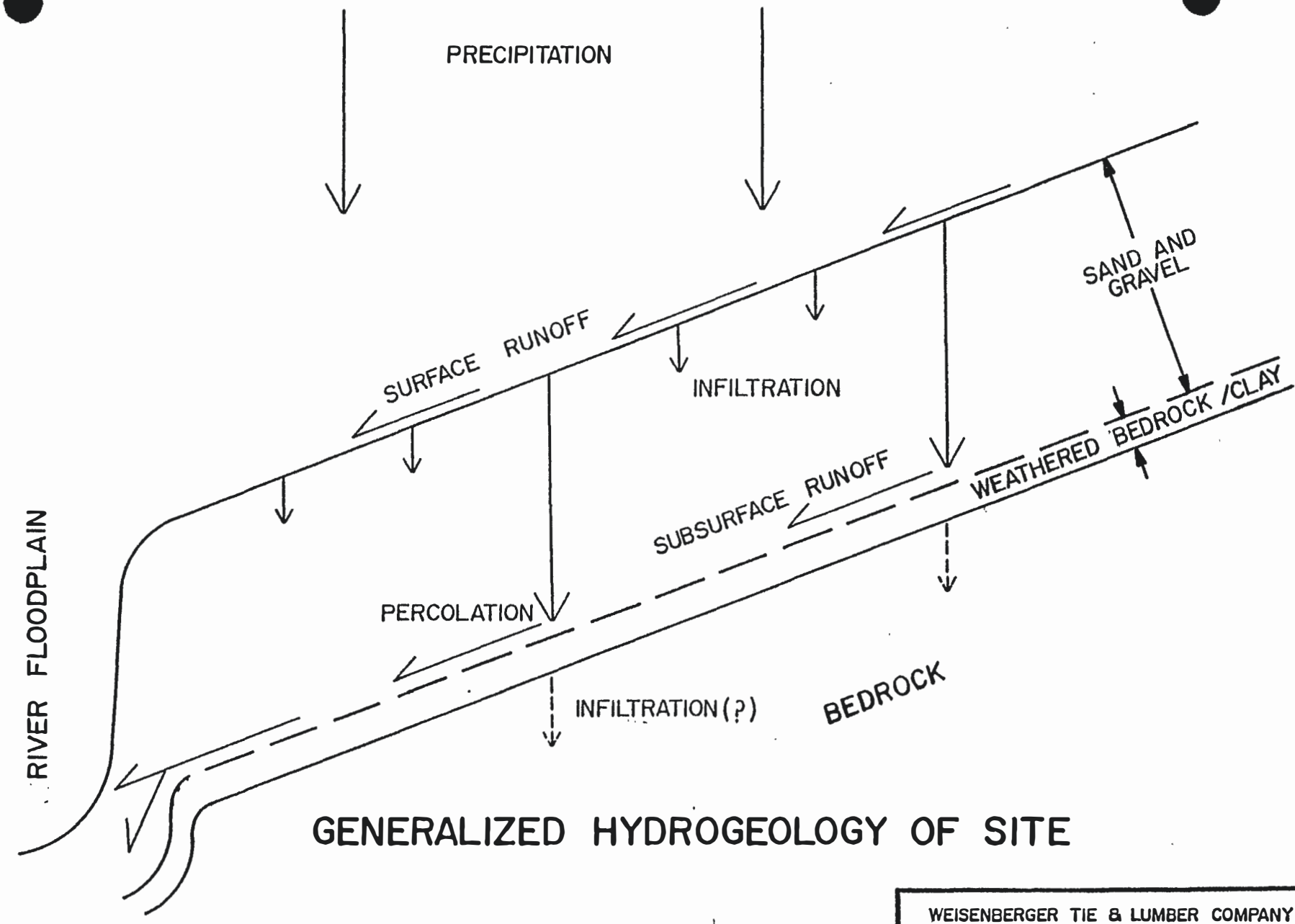
GROUNDWATER CONTOUR

GROUNDWATER FLOW DIRECTION

PW PRIVATE WELL

FIGURE 6
DEEP GROUNDWATER FLOW DIRECTION

CENTRAL WISCONSIN ENGINEERS, INC.



GENERALIZED HYDROGEOLOGY OF SITE

WEISENBERGER TIE & LUMBER COMPANY SPILL INVESTIGATION		
CENTRAL WISCONSIN ENGINEERS, INC.	Scale: NONE Drawn: A.L. Approved: H.Z. D.K. Date: 4/92	FIGURE 7 PROJECT 42991000

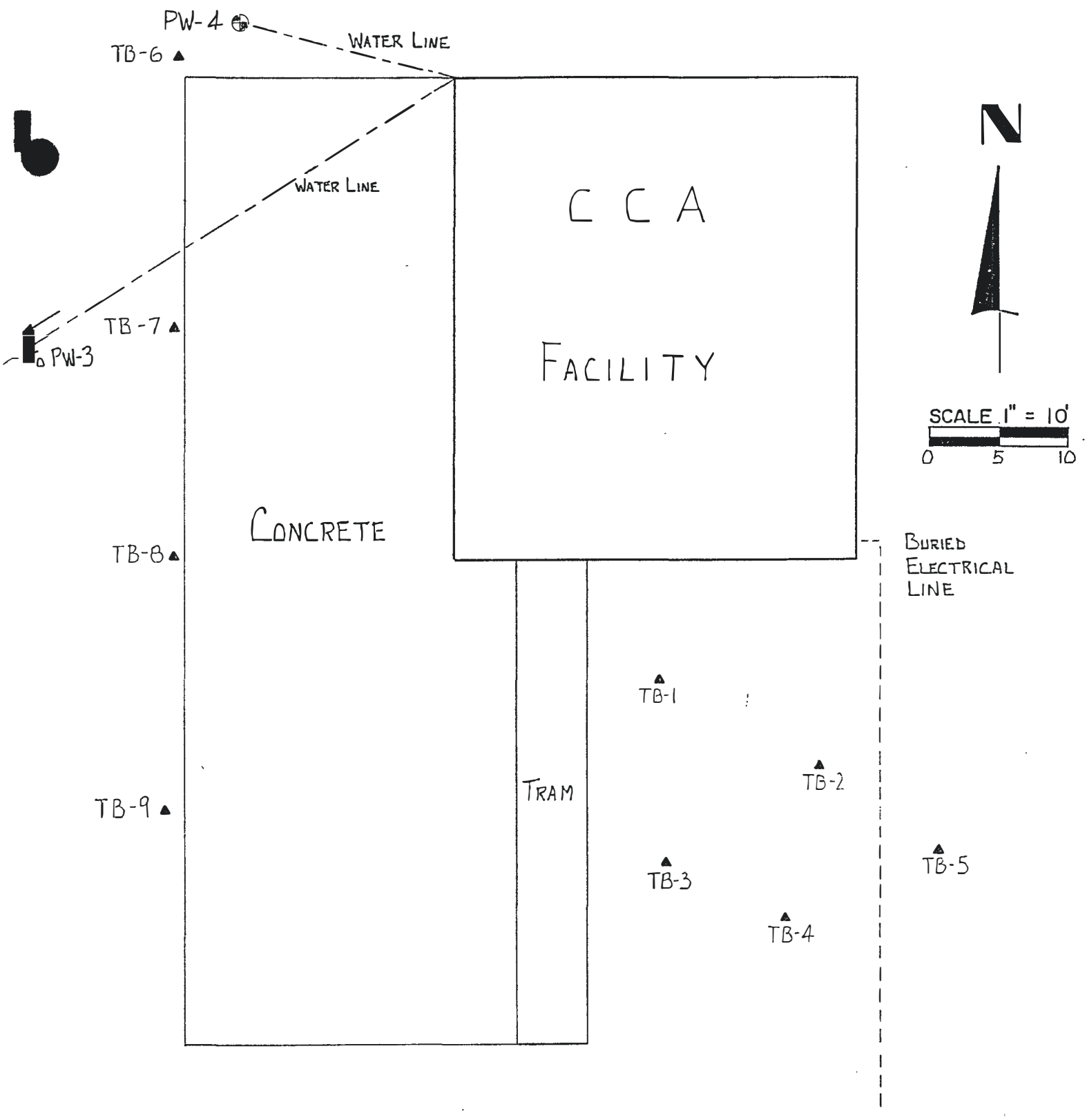


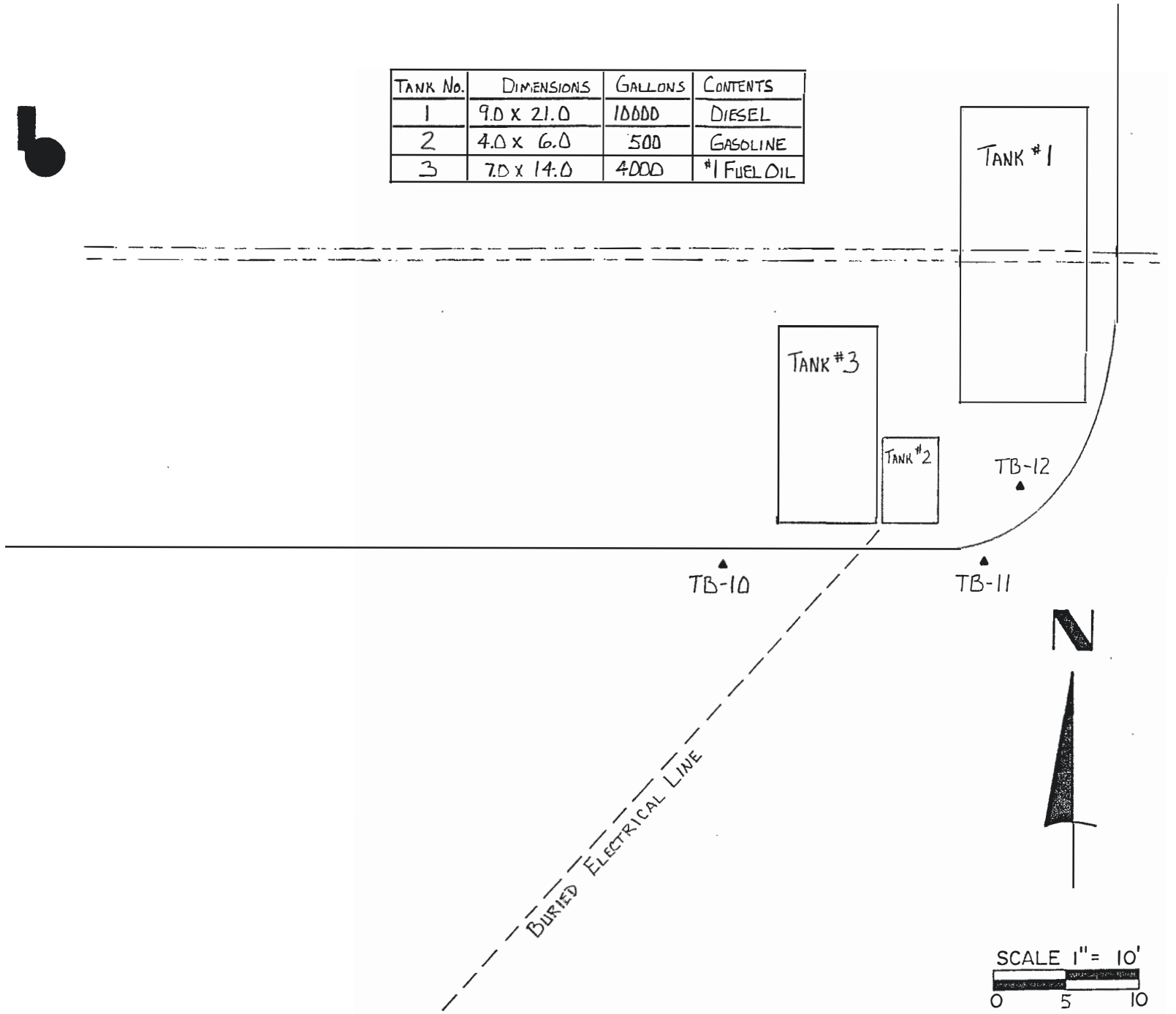
FIGURE 8
BORING LOCATIONS

▲ TEST BORING

CENTRAL WISCONSIN ENGINEERS, INC.

PROJ # 42991000

Tank No.	Dimensions	Gallons	Contents
1	9.0 x 21.0	10000	Diesel
2	4.0 x 6.0	500	Gasoline
3	7.0 x 14.0	4000	#1 Fuel Oil



Hazardous
Waste
Storage
Garage

▲ Test Boring

Figure 9
Boring Locations

CENTRAL WISCONSIN ENGINEERS, INC.

Proj # 42991000

Pallet Mill

APPENDIX B

BUREAU OF ENDANGERED SPECIES LETTER

APPENDIX C

BORING LOGS

State of Wisconsin
Department of Natural Resources

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

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
WEISENBERGER TIE & LUMBER COMP.	_ _ _ _ _ _ _ _	TB-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
WTD ENVIRONMENTAL DRILLING MIKE MUELLER	04/__/92	04/__/92	4¼" HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _	_ _ _ _ _ _ _ _	—	— Feet MSL	_____ Feet MSL	8 inches

Boring Location
State Plane _____ N, _____ E S/C/N | Lat __ __ __ | Long __ __ __
NW 1/4 of NE 1/4 of Section 1, T 28 N, R 5 E/W

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

County	DNR County Code	Civil Town/~~City~~/ or ~~Village~~
MARATHON	37	CASSEL

Sample Number	Sample Length 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: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	12	6	1	MEDIUM BROWN SAND	SP									
			2											
			3	MEDIUM BROWN SAND W GRAVEL & TRACE OF SILT	SP-SM									
2	15	51	4											
			5											
3	19	10	6	WEATHERED GRANITE										
			7											
			8											
4	21	47	9											
			10	E.O.B. 9.5'										

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

Signature: Dale R Kowalski | Firm: CENTRAL WIS ENGINEERS

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
☐ Other

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
WEISENBERGER TIE & LUMBER COMP.		TB-2

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
WTD ENVIRONMENTAL DRILLING MIKE MUELLER	4/1/92	4/1/92	4¼" HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		—	— Feet MSL	____ Feet MSL	8 inches

Boring Location
State Plane ____ N, ____ E S/C/N | Lat ____ Long ____
NW 1/4 of NE 1/4 of Section 1, T 28 N, R 5 E/W

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

County	DNR County Code	Civil Town/~~City~~/~~Village~~
MARATHON	37	CASSEL

Sample Number	Sample Length Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Wall Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
			1	BRN SILTY SAND W/ GRAVEL	SM									
1	14	18		MED BRN SAND W/ SOME GRAVEL & ORGANICS & WOOD	SP									
			2											
			3	MED BRN SAND W/ TRACE OF SILT & WEATHERED GRANITE	SP-SM									
2	18	52	4											
			5	GRANITE										
3	17	27	6											
			7											
			8	WEATHERED GRANITE										
4	15	44	9											
			10	E.O.B. 9.5'										

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

Signature: Dale R. Kaufman | Firm: CENTRAL WIS ENGINEERS

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
☐ Other _____

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
WEISENBERGER TIE & LUMBER COMP.	_____	TB-3

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
WTD ENVIRONMENTAL DRILLING MIKE MUELLER	4/__/92	4/__/92	4¼" HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
____	____	—	— Feet MSL	_____ Feet MSL	8 inches

Boring Location
State Plane _____ N, _____ E S/C/N | Lat ___ ___ ___ | Long ___ ___ ___
NW 1/4 of NE 1/4 of Section 1, T 28 N, R 5 E/W

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

County	DNR County Code	Civil Town/~~City~~/ or ~~Village~~
MARATHON	37	CASSEL

Sample Number	Sample Length 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: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	19	11	1	FINE to MEDIUM BROWN SAND	SP									
			2											
2	19	50	3	MED. BRN SAND W/ TRACE OF SILT	SP-SM									
			4											
			5	GRANITE										
3	14	35	6											
			7	WEATHERED GRANITE										
			8											
4	18	46	9	GRANITE										
			10	E.O.B. 9.5'										

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

Signature Dale K Kamplain Firm CENTRAL WIS ENGINEERS

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
☐ Other _____

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
WEISENBERGER TIE & LUMBER COMP.	_ _ _ _ _ _ _	TB-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
WTD ENVIRONMENTAL DRILLING MIKE MUELLER	4/8/92	4/8/92	3¼" HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		—	— Feet MSL	_____ Feet MSL	6 inches

Boring Location
State Plane _____ N, _____ E S/C/N | Lat ___ ___ ___
NW 1/4 of NE 1/4 of Section 1, T 28 N, R 5 E/W | Long ___ ___ ___

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

County	DNR County Code	Civil Town/~~City~~/ or ~~Village~~
MARATHON	37	CASSEL

Sample Number	Sample Length 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: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
			1	BRN SILTY SAND W/ GRAVEL	SM									
1	19	11	1	DK BRN MED SAND W/ WOOD	SP									
			2	BRN MED SAND										
			3	GRANITE										
2	19	53	4	BRN MED SAND W/ GRAVEL	SP									
			5											
3	17	28	6	GRANITE										
			7											
			8	WEATHERED GRANITE										
4	20	68	9											
			10	E.O.B. 9.5'										

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

Signature Dale R Kaufman | Firm CENTRAL WIS ENGINEERS

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
☐ Other

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
WEISENBERGER TIE & LUMBER COMP.		TB-5

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
WTD ENVIRONMENTAL DRILLING MIKE MUELLER	4/8/92	4/8/92	3¼" HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		—	— Feet MSL	Feet MSL	6 inches

Boring Location
State Plane ____ N, ____ E S/C/N | Lat ____ Long ____
NW 1/4 of NE 1/4 of Section 1, T 28 N. R 5 E/W

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

County	DNR County Code	Civil Town/~~City~~/ or ~~Village~~
MARATHON	37	CASSEL

Sample Number	Sample Length 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: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	17	15	1	BRN SILTY SAND w/ GRAVEL	SM									
			2	DK BRN MED SAND w/ GRAVEL, WOOD & ORGANICS	SP									
			3	BRN SILTY SAND w/ GRAVEL	SM									
2	18	49	4	BRN MED SAND w/ GRAVEL	SP									
			5											
3	19	29	6	GRANITE										
			7											
			8											
4	17	47	9	WEATHERED GRANITE										
			10	E.O.B. 9.5'										

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

Signature: Dale M. Krumlauf | Firm: CENTRAL WIS ENGINEERS

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
☐ Other

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
WEISENBERGER TIE & LUMBER COMP.		TB-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
WTD ENVIRONMENTAL DRILLING MIKE MUELLER	04/08/92	04/08/92	3¼" HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		—	— Feet MSL	Feet MSL	6 inches

Boring Location
State Plane ____ N, ____ E S/C/N | Lat ____ Long ____
NW 1/4 of NE 1/4 of Section 1, T 28 N, R 5 E/W
Local Grid Location (If applicable) ☐ N ☐ E ____ Feet ☐ S ____ Feet ☐ W

County	DNR County Code	Civil Town/~~City~~/ or ~~Village~~
MARATHON	37	CASSEL

Sample Number	Sample Length 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: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	17	44	1	BRN MED. to COARSE SAND w/ TRACE OF GRAVEL	SP									
			2	BRN FINE to MED. SAND										
2	17	28	3	LT BRN SILTY SAND w/ TRACE OF GRAVEL	SM									
			4	w/ GRANITE										
			5											
3	22	34	6	GRANITE										
			7											
			8											
4	17	61	9											
			10	E.O.B. 9.5'										

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

Signature: Dale R. Kaufmann | Firm: CENTRAL WIS ENGINEERS

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
☐ Other

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
WEISENBERGER TIE & LUMBER COMP.		TB-7

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
WTD ENVIRONMENTAL DRILLING MIKE MUELLER	4/9/92	4/9/92	4¼" HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		—	— Feet MSL	Feet MSL	8 inches

Boring Location
State Plane ____ N, ____ E S/C/N
NW 1/4 of NE 1/4 of Section 1, T 28 N, R 5 E/W
Lat ____ Long ____

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

County: MARATHON
DNR County Code: 37
Civil Town/~~City~~/ or ~~Village~~: CASSEL

Sample Number	Sample Length 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: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
				BRN FINE TO MED SAND W/ GRAVEL										
1	10	11	1	BRN FINE TO MED SAND	SP									
			2											
			3	BRN MED SAND W/ SILT	SP-SM									
2	6	24	4	BRN FINE TO MED SAND W/ GRANITE	SP									
			5											
3	21	30	6	GRANITE										
			7											
			8	WEATHERED GRANITE										
4	23	51	9											
			10	E.O.B. 9.5'										

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

Signature: Daniel Kaufman
Firm: CENTRAL WIS ENGINEERS

This form is authorized by Chapter~~s~~ 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
☐ Other

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
WEISENBERGER TIE & LUMBER COMP.		TB-8

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
WTD ENVIRONMENTAL DRILLING MIKE MUELLER	4/1/92	4/1/92	4¼" HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		—	— Feet MSL	Feet MSL	8 inches

Boring Location
State Plane ____ N, ____ E S/C/N
NW 1/4 of NE 1/4 of Section 1, T 28 N, R 5 E/W
Lat ____ Long ____

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

County	DNR County Code	Civil Town/~~City~~/ or ~~Village~~
MARATHON	37	CASSEL

Sample Number	Sample Length 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: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
				BRN SILTY SAND w/ GRAVEL	SM									
1	14	6	1	BRN FINE to MED SAND	SP									
			2											
			3	BRN MED SAND w/ GRAVEL & SILT	SP-SM									
2	22	32	4											
			5	BRN FINE to MED SAND w/ GRANITE	SP									
3	14	35	6	GRANITE										
			7											
			8											
4	19	47	9	WEATHERED GRANITE										
			10	E.O.B. 9.5'										

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

Signature: Dale R. Kaufmann
Firm: CENTRAC W/S ENGINEERS

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
☐ Other

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
WEISENBERGER TIE & LUMBER COMP.	— — — — — — — —	TB-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
WTD ENVIRONMENTAL DRILLING MIKE MUELLER	04/09/92	04/09/92	3¼" HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		—	— Feet MSL	____ Feet MSL	6 inches

Boring Location
State Plane ____ N, ____ E S/C/N | Lat ____ Long ____
NW 1/4 of NE 1/4 of Section 1, T 28 N, R 5 E/W

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

County	DNR County Code	Civil Town/~~City~~/ or ~~Village~~
MARATHON	37	CASSEL

Sample Number	Sample Length 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: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
				BRN SILTY SAND W/ GRAVEL	SM									
1	17	9	1–2	BRN FINE TO MED SAND										
2	22	40	3–5	BRN FINE TO MED SAND W/ TRACE OF GRAVEL	SP									
			5	BRN FINE TO MED SAND										
3	22	46	6–7	GRANITE										
4	19	40	8–9	WEATHERED GRANITE										
			10	E.O.B. 9.5'										

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

Signature: Daloll Krueger | Firm: CENTRAL WIS ENGINEERS

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
☒ Other ABOVEGROUND TANKS

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
WEISENBERGER TIE & LUMBER COMPANY		TB-10

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
WTD ENVIRONMENTAL DRILLING MIKE MUELLER	4/1/92	4/1/92	4¼" HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			____ Feet MSL	____ Feet MSL	8 inches

Boring Location
State Plane ____ N, ____ E S/C/N
NW 1/4 of NE 1/4 of Section 1, T 28 N, R 5 (E)/W

Lat ____
Long ____

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

County: MARATHON
DNR County Code: 37
Civil Town/~~City~~/ or ~~Village~~: CASSEL

Sample Number	Sample Length 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: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1			1	BRN SILTY SAND W/ GRAVEL	SM			13						GRAB SAMPLE
			2	FINE to MEDIUM BRN SAND	SP									
2	19	19	3					1						
			4											
			5	FINE to MED BRN SAND W/ TRACE of GRAVEL	SP									
3	12	20	6	FINE to MEDIUM BRN SAND	SP			2						
			7	FINE to MED BRN SAND W/ GRANITE	SP									
4	22	21	8	WEATHERED GRANITE				1						
			9											
			10	E.O.B. 9.5'										

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

Signature: Dale R Kaufman
Firm: CENTRAL WIS ENGINEERS

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
☒ Other ABOVEGROUND TANKS

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
WEISENBERGER TIE & LUMBER COMPANY		TB-11

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
WTD ENVIRONMENTAL DRILLING MIKE MUELLER	4/9/92	4/9/92	4¼" HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			____ Feet MSL	____ Feet MSL	8 inches

Boring Location
State Plane ____ N, ____ E S/C/N
NW 1/4 of NE 1/4 of Section 1, T 28 N, R 5 E/W
Lat ____ Long ____

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

County: MARATHON
DNR County Code: 37
Civil Town/~~City~~/ or ~~Village~~: CASSEL

Sample Number	Sample Length 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: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1			1	BRN SILTY SAND W/ GRAVEL	SM			bkg						GRAB SAMPLE
			2	MED. DK BRN SAND W/ SILT	SP-SM									
2	5	27	3	FINE to MED. BRN SAND W/ GRAVEL	SP			29						
			4											
			5											
3	19	24	6	FINE to MED. BRN SAND W/ GRANITE	SP			6						
			7											
4	22	16	8	WEATHERED GRANITE				2						
			9											
			10	E.O.B 9.5'										

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

Signature: Dale K Kaufhorn
Firm: CENTRAL WIS ENGINEERS

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
☒ Other ABOVEGROUND TANKS

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
WEISENBERGER TIE & LUMBER COMPANY		TB-12

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
WTD ENVIRONMENTAL DRILLING MIKE MUELLER	4/1/92	4/1/92	4¼" HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			____ Feet MSL	____ Feet MSL	8 inches

Boring Location
State Plane ____ N, ____ E S/C/N
NW 1/4 of NE 1/4 of Section 1, T 28 N, R 5 (E/W)
Lat ____ Long ____

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

County: MARATHON
DNR County Code: 37
Civil Town/~~City~~/ or ~~Village~~: CASSEL

Sample Number	Sample Length 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: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1			1–2	DK BRN SILT	ML			126						GRAB SAMPLE
2	21	19	3–5	FINE TO MED BRN SAND W/ TRACE OF GRAVEL	SP			114						
3	19	19	6	FINE TO MED BRN SAND W/ TRACE OF GRANITE	SP			27						
			7	FINE TO MEDIUM BRN SAND	SP									
4	14	26	8–9	WEATHERED GRANITE				21						
			10	E.O.B. 9.5'										

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

Signature: Dale R Kaufmann | Firm: CENTRAL WIS ENGINEERS

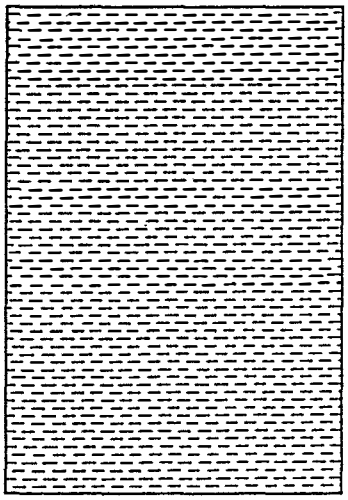
This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of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

Key for Graphic Log Chart

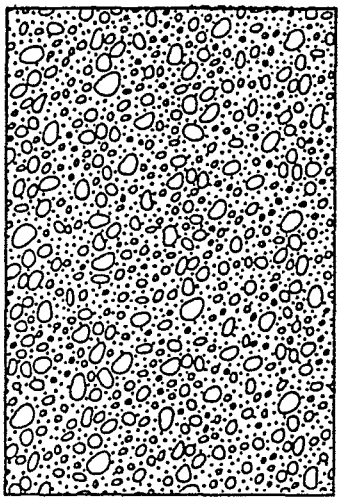
DNR Soil Boring Information

Form 4400-122 (7/91)

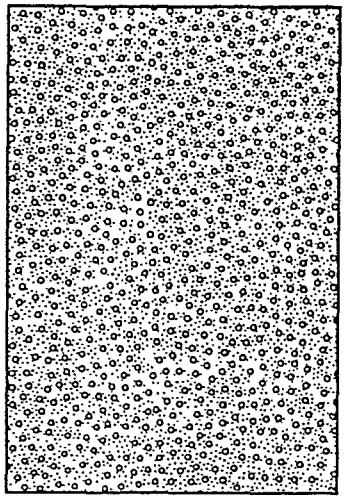
CL, ML, CH, MH



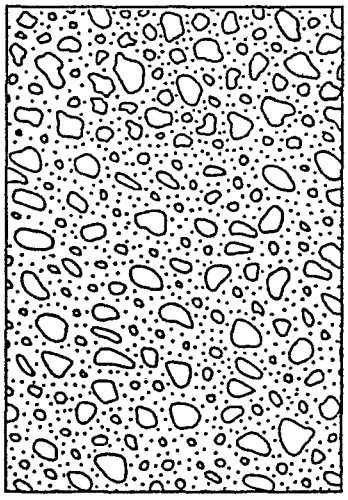
GP



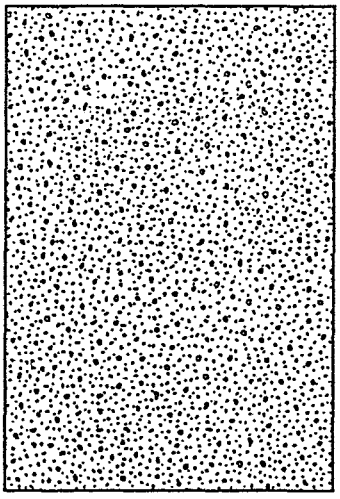
SP



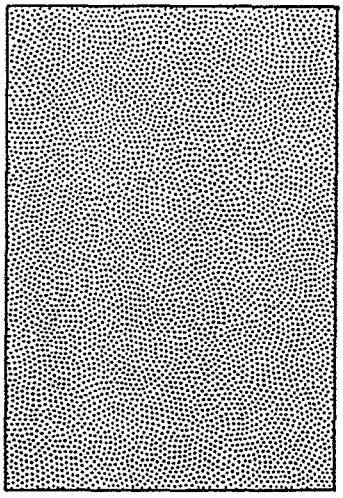
GW, GM, GC



SW

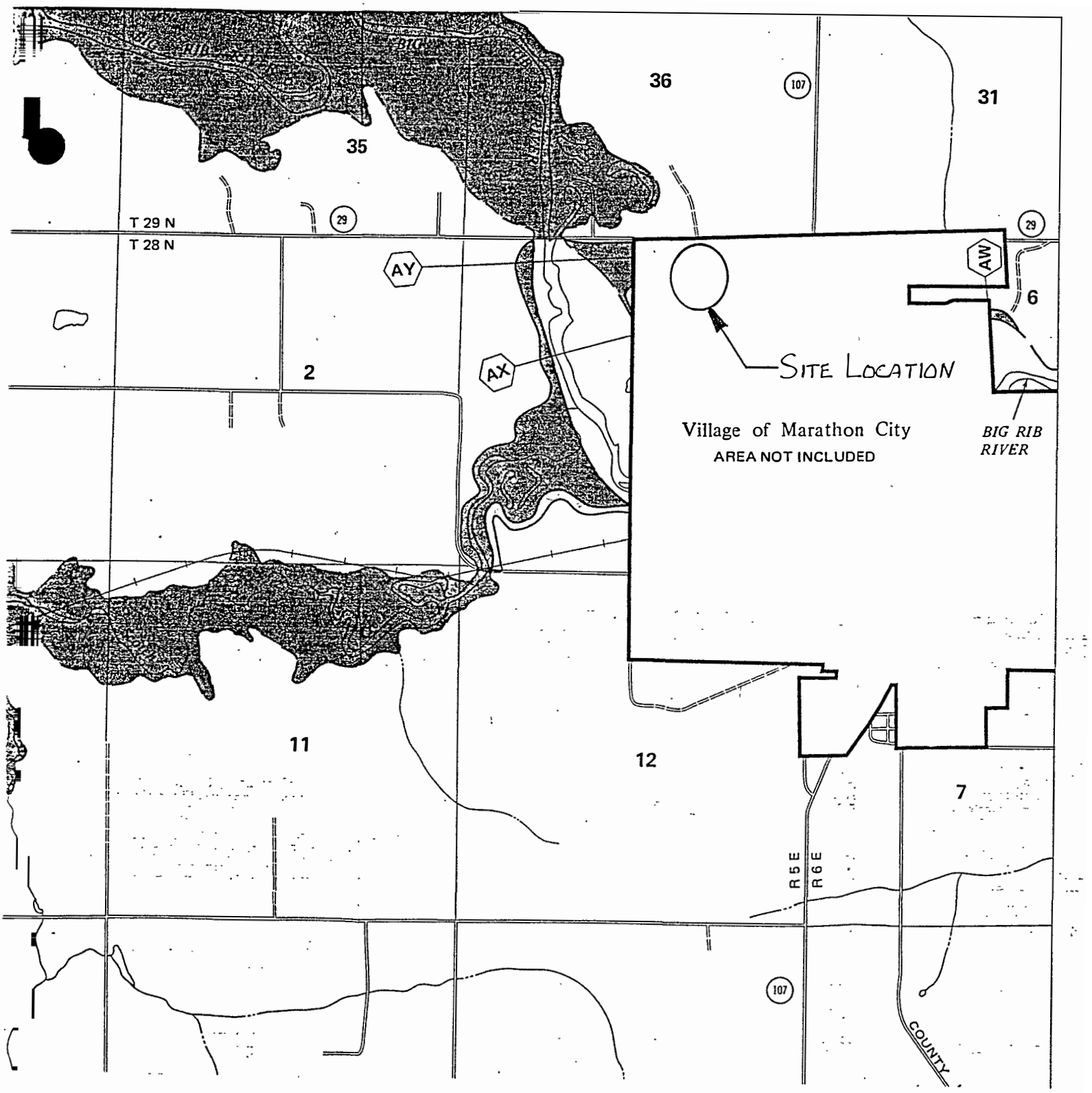


SM, SC



APPENDIX D

FLOODPLAIN INFORMATION



FEDERAL INSURANCE ADMINISTRATION FLOODWAY MAP
PANEL NO. 550245 0350

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FEET)
BIG RIB RIVER								
AA	8.91	1231	10,750	3.3	1190.6	1190.6	1190.6	0.0
AB	9.08	1289	11,570	3.1	1191.0	1191.0	1191.0	0.0
AC	9.28	1650	15,760	2.3	1191.7	1191.7	1191.7	0.0
AD	9.44	2427	20,620	1.7	1192.2	1192.2	1192.2	0.0
AE	9.60	2415	17,890	2.0	1192.7	1192.7	1192.7	0.0
AF	9.77	2006	21,230	1.7	1193.3	1193.3	1193.3	0.0
AG	9.94	2501	21,580	1.7	1193.7	1193.7	1193.7	0.0
AH	10.08	2629	28,050	1.3	1194.2	1194.2	1194.2	0.0
AI	10.32	1517	13,280	2.7	1194.4	1194.4	1194.4	0.0
AJ	10.47	1668	21,410	1.7	1194.9	1194.9	1194.9	0.0
AK	10.59	1916	20,560	1.7	1195.0	1195.0	1195.0	0.0
AL	10.76	2111	13,660	2.6	1195.3	1195.3	1195.3	0.0
AM	10.93	2550	27,570	1.3	1196.1	1196.1	1196.1	0.0
AN	11.34	3054	28,250	1.2	1196.2	1196.2	1196.2	0.0
AO	11.50	2647	13,930	2.5	1196.2	1196.2	1196.2	0.0
AP	11.64	1821	8200	4.3	1196.5	1196.5	1196.5	0.0
AQ	11.81	1515	10,410	3.4	1197.1	1197.1	1197.1	0.0
AR	12.18	2499	12,720	2.7	1198.7	1198.7	1198.7	0.0
AS	12.27	2224	13,710	2.5	1199.9	1199.9	1199.9	0.0
AT	12.54	1643	10,390	3.4	1201.1	1201.1	1201.1	0.0
AU	12.74	1699[2]	11,000	3.2	1202.3	1202.3	1202.3	0.0
AV	12.92	1900[2]	11,770	3.0	1202.8	1202.8	1202.8	0.0
AW	13.73	2080[2]	20,710	1.7	1203.8	1203.8	1203.8	0.0
AX	15.34	1443[2]	12,710	2.7	1206.7	1206.7	1206.7	0.0
AY	15.66	797	7260	4.7	1208.2	1208.2	1208.2	0.0

[1]MILES ABOVE MOUTH
[2]THIS WIDTH EXTENDS WITHIN VILLAGE OF MARATHON CITY

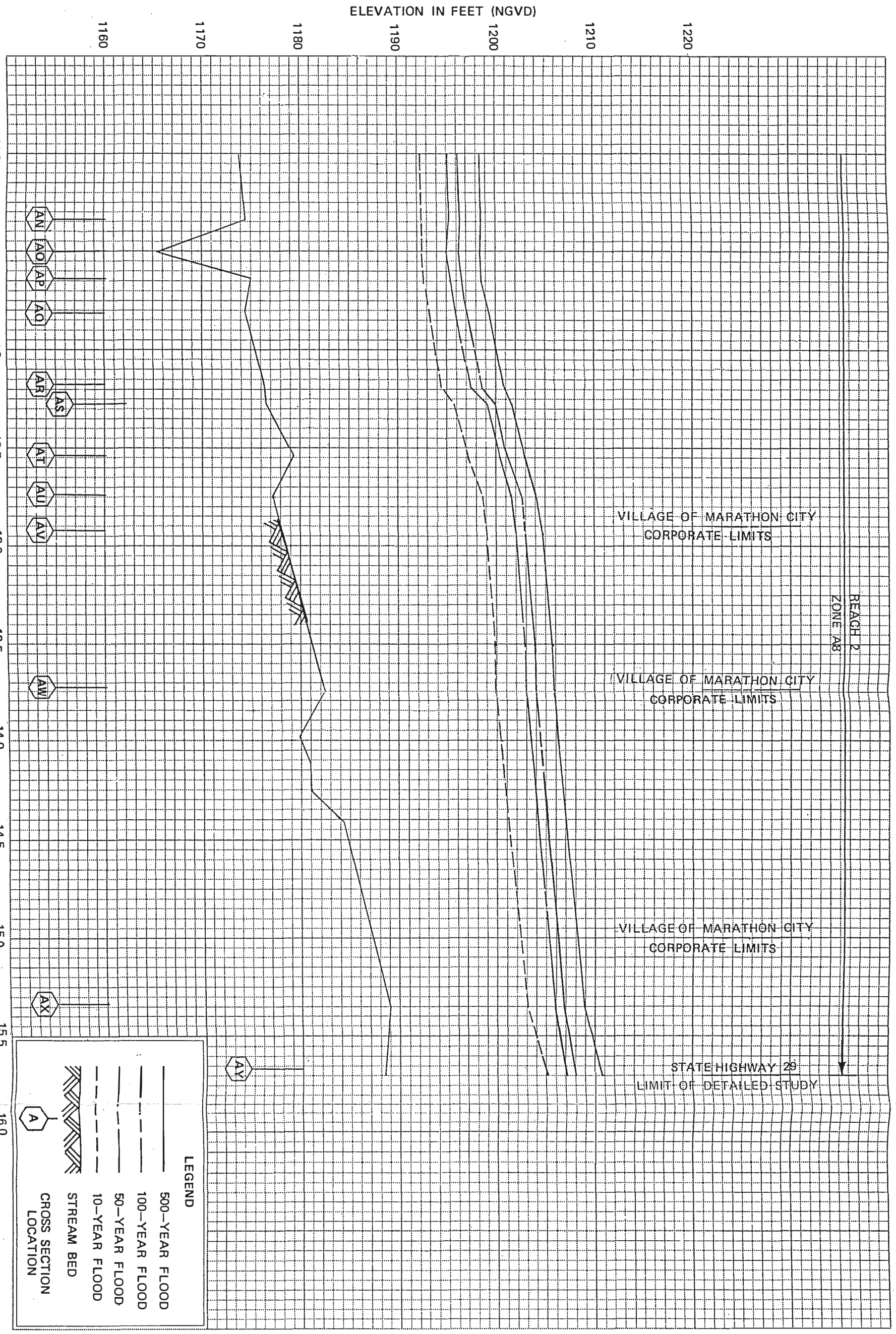
TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

COUNTY OF MARATHON, WI
(UNINCORPORATED AREAS)

FLOODWAY DATA

BIG RIB RIVER



10P

FEDERAL EMERGENCY MANAGEMENT AGENCY

Federal Insurance Administration

COUNTY OF MARATHON, WI

(UNINCORPORATED AREAS)

FLOOD PROFILES

BIG RIB RIVER

APPENDIX E

LABORATORY RESULTS - CCA FACILITY

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

Client: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Lab Sample No. 124375-124392
ORTEK Batch No. 9204101

Client Contact: DALE KAUZLARIC
Client ID #: TB1-1 THRU TB9-2
Client Project: 42991000/WEISENBERGER

==========

1.0 SCOPE OF ANALYTICAL SERVICES

1.1 Eighteen (18) soil samples were received at ORTEK on 04/10/92.

1.2 The eighteen (18) soil samples were analyzed in accordance with ICAP and GFAA Methods.

2.0 ANALYTICAL RESULTS

2.1 Based on the analytical services performed, attached is a summary of the Metals Data and a Chain of Custody for your records.

2.2 Furthermore, ORTEK identifies and lists below difficulties encountered while performing the analytical service:

- Arsenic - Duplicate and spike out of control. Sample matrix problem.

James Chang, Ph.D
Laboratory Director

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124375
Your sample ID: TB1-1
Sample Matrix : SOIL

Report Date: 05/05/92

COLLECTION INFORMATION

Date/Time/By: 04/08/92 09:15 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124375	Arsenic	*** 14	MG/KG	04/30/92
	Total Solids	89.2	%	04/15/92
	Chromium	18	MG/KG	04/29/92
	Copper	12	MG/KG	04/29/92

*** DUPLICATE AND SPIKE OUT OF CONTROL. SAMPLE MATRIX PROBLEMS.

Signed Phil Scott Date 5-5-92

Signed _____ Date _____

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124376
Your sample ID: TB1-2
Sample Matrix : SOIL

Report Date: 05/05/92

COLLECTION INFORMATION

Date/Time/By: 04/08/92 09:08 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124376	Arsenic	1.1	MG/KG	04/30/92
	Total Solids	94.1	%	04/15/92
	Chromium	15	MG/KG	04/29/92
	Copper	15	MG/KG	04/29/92

Signed Phil Rist Date 5-5-92

Signed _____ Date _____

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124377 Report Date: 05/05/92
Your sample ID: TB2-1
Sample Matrix : SOIL

COLLECTION INFORMATION

Date/Time/By: 04/08/92 11:05 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124377	Arsenic	0.6	MG/KG	04/30/92
	Total Solids	90.4	%	04/15/92
	Chromium	7.0	MG/KG	04/29/92
	Copper	11	MG/KG	04/29/92

Signed Dale Kauzlaric Date 5-5-92

Signed _____ Date _____

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124378 Report Date: 05/05/92
Your sample ID: TB2-2
Sample Matrix : SOIL

COLLECTION INFORMATION

Date/Time/By: 04/08/92 11:00 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124378	Arsenic	1.1	MG/KG	04/30/92
	Total Solids	93.1	%	04/15/92
	Chromium	14	MG/KG	04/29/92
	Copper	14	MG/KG	04/29/92

Signed Phil Scott Date 5-5-92

Signed _____ Date _____

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124379
Your sample ID: TB3-1
Sample Matrix : SOIL

Report Date: 05/05/92

COLLECTION INFORMATION

Date/Time/By: 04/08/92 12:12 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124379	Arsenic	6.6	MG/KG	04/30/92
	Total Solids	89.5	%	04/15/92
	Chromium	17	MG/KG	04/29/92
	Copper	15	MG/KG	04/29/92

Signed _____ Date 5-5-92

Signed _____ Date _____

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124380
Your sample ID: TB3-2
Sample Matrix : SOIL

Report Date: 05/05/92

COLLECTION INFORMATION

Date/Time/By: 04/08/92 12:06 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124380	Arsenic	1.1	MG/KG	04/30/92
	Total Solids	89.1	%	04/15/92
	Chromium	39	MG/KG	04/29/92
	Copper	21	MG/KG	04/29/92

Signed _____ Date 5-5-92

Signed _____ Date _____

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street | P.O. Box 12435 | Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124381
Your sample ID: TB4-1
Sample Matrix : SOIL

Report Date: 05/05/92

COLLECTION INFORMATION

Date/Time/By: 04/08/92 13:18 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124381	Arsenic	130	MG/KG	04/30/92
	Total Solids	88.5	%	04/15/92
	Chromium	37	MG/KG	04/29/92
	Copper	26	MG/KG	04/29/92

Signed _____ Date 5-5-92

Signed _____ Date _____

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124382 Report Date: 05/05/92
Your sample ID: TB4-2
Sample Matrix : SOIL

COLLECTION INFORMATION

Date/Time/By: 04/08/92 13:13 D K
Location : 42991000/WEISENBERGER

Lab#	Test		Result	Units	Analysis Date
124382	Arsenic	<	0.3	MG/KG	04/30/92
	Total Solids		87.8	%	04/15/92
	Chromium		26	MG/KG	04/29/92
	Copper		23	MG/KG	04/29/92

Signed Paul Rott Date 5-5-92

Signed _____ Date _____

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124383 Report Date: 05/05/92
Your sample ID: TB5-1
Sample Matrix : SOIL

COLLECTION INFORMATION

Date/Time/By: 04/08/92 14:29 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124383	Arsenic	0.4	MG/KG	04/30/92
	Total Solids	92.5	%	04/15/92
	Chromium	2.3	MG/KG	04/29/92
	Copper	13	MG/KG	04/29/92

Signed _____ Date 5-5-92

Signed _____ Date _____

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124384
Your sample ID: TB5-2
Sample Matrix : SOIL

Report Date: 05/05/92

COLLECTION INFORMATION

Date/Time/By: 04/08/92 14:23 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124384	Arsenic	0.7	MG/KG	04/30/92
	Total Solids	88.4	%	04/15/92
	Chromium	18	MG/KG	04/29/92
	Copper	22	MG/KG	04/29/92

Signed _____ Date 5-5-92

Signed _____ Date _____

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124385 Report Date: 05/05/92
Your sample ID: TB6-1
Sample Matrix : SOIL

COLLECTION INFORMATION

Date/Time/By: 04/08/92 16:00 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124385	Arsenic	30	MG/KG	04/30/92
	Total Solids	90.0	%	04/15/92
	Chromium	17	MG/KG	04/29/92
	Copper	16	MG/KG	04/29/92

Signed _____ Date 5-5-92

Signed _____ Date _____

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124386 Report Date: 05/05/92
Your sample ID: TB6-2
Sample Matrix : SOIL

COLLECTION INFORMATION

Date/Time/By: 04/08/92 15:53 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124386	Arsenic	1.1	MG/KG	04/30/92
	Total Solids	88.8	%	04/15/92
	Chromium	16	MG/KG	04/29/92
	Copper	16	MG/KG	04/29/92

Signed Paul Hart Date 5-5-92

Signed _____ Date _____

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street | P.O. Box 12435 | Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124387
Your sample ID: TB7-1
Sample Matrix : SOIL

Report Date: 05/05/92

COLLECTION INFORMATION

Date/Time/By: 04/09/92 08:05 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124387	Arsenic	190	MG/KG	04/30/92
	Total Solids	91.7	%	04/15/92
	Chromium	150	MG/KG	04/29/92
	Copper	91	MG/KG	04/29/92

Signed _____ Date 5-5-92

Signed _____ Date _____

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street • P.O. Box 12435 • Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124388
Your sample ID: TB7-2
Sample Matrix : SOIL

Report Date: 05/05/92

COLLECTION INFORMATION

Date/Time/By: 04/09/92 07:58 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124388	Arsenic	1.9	MG/KG	04/30/92
	Total Solids	87.5	%	04/15/92
	Chromium	16	MG/KG	04/29/92
	Copper	17	MG/KG	04/29/92

Signed Dale Kauzlaric Date 5-5-92

Signe Date

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124389
Your sample ID: TB8-1
Sample Matrix : SOIL

Report Date: 05/05/92

COLLECTION INFORMATION

Date/Time/By: 04/09/92 08:54 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124389	Arsenic	420	MG/KG	04/30/92
	Total Solids	94.8	%	04/15/92
	Chromium	170	MG/KG	04/29/92
	Copper	110	MG/KG	04/29/92

Signed _____ Date 5-5-92

Signed _____ Date _____

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124390
Your sample ID: TB8-2
Sample Matrix : SOIL

Report Date: 05/05/92

COLLECTION INFORMATION

Date/Time/By: 04/09/92 08:48 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124390	Arsenic	1.7	MG/KG	04/30/92
	Total Solids	89.6	%	04/15/92
	Chromium	12	MG/KG	04/29/92
	Copper	10	MG/KG	04/29/92

Signed [signature] Date 5-5-92

Signe Date

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124391
Your sample ID: TB9-1
Sample Matrix : SOIL

Report Date: 05/05/92

COLLECTION INFORMATION

Date/Time/By: 04/09/92 09:58 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124391	Arsenic	1600	MG/KG	04/30/92
	Total Solids	93.9	%	04/15/92
	Chromium	1200	MG/KG	04/29/92
	Copper	760	MG/KG	04/29/92

Signed _____ Date 5-5-92

Signed _____ Date _____

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

- SAMPLE ANALYSIS REPORT -

To: CENTRAL WISCONSIN ENGINEERS
903 GRAND AVENUE
ROTHSCHILD WI 54474

Attn: DALE KAUZLARIC

Batch ID : 9204101
Our lab # : 124392 Report Date: 05/05/92
Your sample ID: TB9-2
Sample Matrix : SOIL

COLLECTION INFORMATION

Date/Time/By: 04/09/92 09:45 D K
Location : 42991000/WEISENBERGER

Lab#	Test	Result	Units	Analysis Date
124392	Arsenic	1.5	MG/KG	04/30/92
	Total Solids	88.4	%	04/15/92
	Chromium	21	MG/KG	04/29/92
	Copper	14	MG/KG	04/29/92

Signed _____ Date 5-5-92

Signed _____ Date _____

ORTEK

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

1 of 2

Company Name: CENTRAL WISCONSIN ENGINEERS

Project No./Client 4299/000/WEISENBERGER

Sampling Location: MARATHON, WI

Sampler DALE KAUFMANN

No.: 4642

ORTEK Batch No. 920701

Date	Time	Sample I.D./Description	No. of Bottles	Bottle Size/Preservative: 500 mL/HNO3	Total	*Sample Type	ANALYSIS REQUESTED: Arsenic	Chrome	Copper	Remarks	Lab Use Only ID Number
4/8/92	9:15	TB1-1 0-2'	1	X	1	S	X	X	X		124375
	9:08	TB1-2 2½-4½	1	X	1	"	X	X	X		124376
	11:05	TB2-1 0-2	1	X	1	"	X	X	X		124377
	11:00	TB2-2 2½-4½	1	X	1	"	X	X	X		124378
	12:12	TB3-1 0-2	1	X	1	"	X	X	X		124379
	12:06	TB3-2 2½-4½	1	X	1	"	X	X	X		124380
	13:18	TB4-1 0-2	1	X	1	"	X	X	X		124381
	13:13	TB4-2 2½-4½	1	X	1	"	X	X	X		124382
↓	14:29	TB5-1 0-2	1	X	1	"	X	X	X		124383

COMMENTS/SPECIAL INSTRUCTIONS:

☐ If Pb>5ppm do TCLP

*Sample Type: S - Soil; SE - Sediment; SO - Solid; SW - Surface Water; DW - Drinking Water; WW - Wastewater; GW - Groundwater; H - Hazardous Liquid; A - Air; O - Oil; X - Other

Date Received: 4/10/92

Date Due: 5/1/92

☐ RUSH (approved by lab)

Quotation #:

Purchase Order #:

To Be Completed by Client

Seal Intact Upon Receipt by Sampling Co.: ☐ Yes ☐ No

Packed By: Dale Kaufmann

Sealed For Shipping By: Dale Kaufmann Seal # _____

Results To: CLE
903 Grand Ave
Rothschild, WI 54474
Attention: Dale Kaufmann

Billing Address: same

Phone: 715 359-9400 FAX 715 355-4199

CUSTODY TRANSFERS

	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
1.	Dale R Kaufmann	4/9/92	3:50			
2.						

Received for Laboratory: Gloria Dettler 4/10/92 0806

Shipping Details - To Be Completed By ORTEK

Seal Intact Upon Receipt by Laboratory ☐ Yes ☐ No

Method of Shipment: AUTO

Contents Temperature 2.0 ° C Refrig. # MC-4

ORTEK
2496 West Mason Street
Green Bay, WI 54307-2435
(414) 498-2222

ORTEK

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

2 of 2

Company Name: CENTRAL WISCONSIN ENGINEERS

Project No./Client 4299/000/WEISENBERGER

Sampling Location: MARATHON, WI

Sampler DALE KAUFMAN

No.: ~~4741~~ 4642

ORTEK Batch No. 920710-1

Date	Time	Sample I.D./Description	No. of Bottles	Bottle Size/Preservative: 500ml-HNO3	Arsenic	Chrome	Copper	Total	*Sample Type	Remarks	Lab Use Only ID Number
4/8/92	14:23	TB5-2 2½'-4½'	1		X	X	X	1	S		124384
	16:00	TB6-1 0-2	1		X	X	X	1	"		124385
	15:53	TB6-2 2½-4½	1		X	X	X	1	"		124386
4/9/92	8:05	TB7-1 0-2	1		X	X	X	1	"		124387
	7:58	TB7-2 2½-4½	1		X	X	X	1	"		124388
	8:54	TB8-1 0-2	1		X	X	X	1	"		124389
	8:48	TB8-2 2½-4½	1		X	X	X	1	"		124390
	9:58	TB9-1 0-2	1		X	X	X	1	"		124391
	9:45	TB9-2 2½-4½	1		X	X	X	1	"		124392

COMMENTS/SPECIAL INSTRUCTIONS:

☐ If Pb>5ppm do TCLP

*Sample Type		
S - Soil	SW - Surface Water	H- Hazardous Liquid
SE - Sediment	DW- Drinking Water	A- Air
SO - Solid	WW- Wastewater	O - Oil
	GW- Groundwater	X - Other

Date Received: 4/10/92

Date Due: 5/1/92 ☐RUSH (approved by lab)

Quotation #:

Purchase Order #:

To Be Completed by Client

Seal Intact Upon Receipt by Sampling Co.: ☐Yes ☐No

Packed By: Dale Kaufman

Sealed For Shipping By: Dale Kaufman Seal # _____

Results To: CWE

903 Grand Ave

Rothschild, WI 54474

Attention: Dale Kaufman

Billing Address: Same

Phone: 715-359-9400 FAX 715-355-4199

CUSTODY TRANSFERS

	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
1.	Dale Kaufman	4/9/92	3:50			
2.						

Received for Laboratory: Gloria Dettler 4/10/92 0806

Shipping Details - To Be Completed By ORTEK

Seal Intact Upon Receipt by Laboratory ☑Yes ☐No

Method of Shipment: HAND

Contents Temperature 2.6 °C Refrig. # IRC-4

ORTEK

2496 West Mason Street
Green Bay, WI 54307-2435
(414) 498-2222

APPENDIX F

LABORATORY RESULTS - ABOVEGROUND TANKS

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

MA - 1

Client: CENTRAL WISCONSIN ENGINEERS Lab Sample No. 124432-124437
903 GRAND AVENUE ORTEK Batch No. 9204110
ROTHSCHILD WI 54474

Client Contact: DALE KAUZLARIC
Client ID #: TB10-1, TB10-3, TB11-1, TB11-3, TB12-1, TB12-2
Client Project: 42991000/WEISENBERGER

05/01/92

==========

1.0 SCOPE OF ANALYTICAL SERVICES

1.1 Six (6) soil samples were received at ORTEK on 04/10/92.

1.2 The six (6) soil samples were analyzed in accordance with California Method for DRO and 8020.

2.0 ANALYTICAL RESULTS

2.1 Based on the analytical services performed, attached is a summary of the GC Organic Data and a Chain of Custody for your records.

James Chang mcs

James Chang, Ph.D
Laboratory Director

ORTEK
ENVIRONMENTAL LABORATORY
414-498-2222
FAX: 414-498-4067
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435

CLIENT: CENTRAL WISCONSIN ENGINEERS
ADDRESS: 903 GRAND AVENUE
ROTHSCHILD WI 54474

ATTENTION: DALE KAUZLARIC
TELEPHONE: (715) 359-9400

Wisconsin Certification No. 405099530

Sample ID: TB10-1 0'-2'
Sample Desc: SOIL
Date Collected: 04/09/92
Date Received: 04/10/92
Job #: 42991000/WEISENBERGER

TPH AS DIESEL FUEL

Solvent Extraction Gas Chromatographic Method (A California Method)

PARAMETER	DETECTION LIMIT	CONCENTRATION mg/l
Diesel Fuel	50	440

ND = Not Detected

Comments: Lab Sample ID: 9204110 - 124432
Date Extracted: 04/14/92
Date Analyzed: 04/14/92, 04/15/92, 04/16/92
Analyzed by GC/FID.

Signed: _____ Date: 4-21-92

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

CLIENT: CENTRAL WISCONSIN ENGINEERS
ADDRESS: 903 GRAND AVENUE
ROTHSCHILD WI 54474

ATTENTION: DALE KAUZLARIC
TELEPHONE: (715) 359-9400

Wisconsin Certification No. 405099530

Sample ID: TB10-1/0'-2'
Sample Desc: SOIL
Date Collected: 04/09/92
Date Received: 04/10/92
Job #: 42991000/WEISENBERGER

VOLATILE ORGANIC SOIL ANALYSIS

PARAMETER	DETECTION LIMIT	CONCENTRATION ug/kg*
Benzene	1.1	ND
Ethylbenzene	1.1	ND
Toluene	1.1	ND
Total Xylenes	3.3	3.3
Methyl-t-butylether	1.1	ND
1,2,4-Trimethylbenzene	1.1	4.0
1,3,5-Trimethylbenzene	1.1	1.4

* = Dry Weight Basis
ND = Not Detected

Comments: Lab Sample ID: 9204110 - 124432
Date Analyzed: 04/14/92
Analyzed by GC Method 8020.

Signed: _____ Date: 5-1-92

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

CLIENT: CENTRAL WISCONSIN ENGINEERS
ADDRESS: 903 GRAND AVENUE
ROTHSCHILD WI 54474

ATTENTION: DALE KAUZLARIC
TELEPHONE: (715) 359-9400

Wisconsin Certification No.
405099530

Sample ID: TB10-3 5'-7'
Sample Desc: SOIL
Date Collected: 04/09/92
Date Received: 04/10/92
Job #: 42991000/WEISENBERGER

TPH AS DIESEL FUEL

Solvent Extraction Gas Chromatographic Method
(A California Method)

PARAMETER	DETECTION LIMIT	CONCENTRATION mg/l
Diesel Fuel	5.0	ND

ND = Not Detected

Comments: Lab Sample ID: 9204110 - 124433
Date Extracted: 04/14/92
Date Analyzed: 04/14/92, 04/15/92, 04/16/92
Analyzed by GC/FID.

Signed: _____ Date: 4-21-92

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

CLIENT: CENTRAL WISCONSIN ENGINEERS
ADDRESS: 903 GRAND AVENUE
ROTHSCHILD WI 54474

ATTENTION: DALE KAUZLARIC
TELEPHONE: (715) 359-9400

Wisconsin Certification No.
405099530

Sample ID: TB10-3/5'-7'
Sample Desc: SOIL
Date Collected: 04/09/92
Date Received: 04/10/92
Job #: 42991000/WEISENBERGER

VOLATILE ORGANIC SOIL ANALYSIS

PARAMETER	DETECTION LIMIT	CONCENTRATION ug/kg*
Benzene	1.1	ND
Ethylbenzene	1.1	ND
Toluene	1.1	3.2 B
Total Xylenes	3.3	ND
Methyl-t-butylether	1.1	ND
1,2,4-Trimethylbenzene	1.1	ND
1,3,5-Trimethylbenzene	1.1	ND

* = Dry Weight Basis
ND = Not Detected
B = Detected in lab blank at 1 ug/kg.

Comments: Lab Sample ID: 9204110 - 124433
Date Analyzed: 04/14/92, 04/15/92 & 04/23/92
Analyzed by GC Method 8020.

Signed: _____ Date: 5/1-92

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

CLIENT: CENTRAL WISCONSIN ENGINEERS
ADDRESS: 903 GRAND AVENUE
ROTHSCHILD WI 54474

ATTENTION: DALE KAUZLARIC
TELEPHONE: (715) 359-9400

Wisconsin Certification No.
405099530

Sample ID: TB11-1 0'-2'
Sample Desc: SOIL
Date Collected: 04/09/92
Date Received: 04/10/92
Job #: 42991000/WEISENBERGER

TPH AS DIESEL FUEL

Solvent Extraction Gas Chromatographic Method
(A California Method)

PARAMETER	DETECTION LIMIT	CONCENTRATION mg/l
Diesel Fuel	50	1300

ND = Not Detected

Comments: Lab Sample ID: 9204110 - 124434
Date Extracted: 04/14/92
Date Analyzed: 04/14/92, 04/15/92, 04/16/92
Analyzed by GC/FID.

Signed: _____ Date: 4-21-92

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

CLIENT: CENTRAL WISCONSIN ENGINEERS
ADDRESS: 903 GRAND AVENUE
ROTHSCHILD WI 54474

ATTENTION: DALE KAUZLARIC
TELEPHONE: (715) 359-9400

Wisconsin Certification No. 405099530

Sample ID: TB11-1/0'-2'
Sample Desc: SOIL
Date Collected: 04/09/92
Date Received: 04/10/92
Job #: 42991000/WEISENBERGER

VOLATILE ORGANIC SOIL ANALYSIS

PARAMETER	DETECTION LIMIT	CONCENTRATION ug/kg*
Benzene	1.2	ND
Ethylbenzene	1.2	5.3
Toluene	1.2	ND
Total Xylenes	3.6	120
Methyl-t-butylether	1.2	ND
1,2,4-Trimethylbenzene	1.2	210
1,3,5-Trimethylbenzene	1.2	150

* = Dry Weight Basis
ND = Not Detected

Comments: Lab Sample ID: 9204110 - 124434
Date Analyzed: 04/14/92
Analyzed by GC Method 8020.

Signed: _____ Date: 5-1-92

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street — P.O. Box 12435 — Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

CLIENT: CENTRAL WISCONSIN ENGINEERS
ADDRESS: 903 GRAND AVENUE
ROTHSCHILD WI 54474

ATTENTION: DALE KAUZLARIC
TELEPHONE: (715) 359-9400

Wisconsin Certification No. 405099530

Sample ID: TB11-3 5'-7'
Sample Desc: SOIL
Date Collected: 04/09/92
Date Received: 04/10/92
Job #: 42991000/WEISENBERGER

TPH AS DIESEL FUEL

Solvent Extraction Gas Chromatographic Method (A California Method)

PARAMETER	DETECTION LIMIT	CONCENTRATION mg/l
Diesel Fuel	10	230

ND = Not Detected

Comments: Lab Sample ID: 9204110 - 124435
Date Extracted: 04/14/92
Date Analyzed: 04/14/92, 04/15/92, 04/16/92
Analyzed by GC/FID.

Signed: _____ Date: 4-21-92

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street · P.O. Box 12435 · Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

CLIENT: CENTRAL WISCONSIN ENGINEERS
ADDRESS: 903 GRAND AVENUE
ROTHSCHILD WI 54474

ATTENTION: DALE KAUZLARIC
TELEPHONE: (715) 359-9400

Wisconsin Certification No. 405099530

Sample ID: TB11-3/5'-7'
Sample Desc: SOIL
Date Collected: 04/09/92
Date Received: 04/10/92
Job #: 42991000/WEISENBERGER

VOLATILE ORGANIC SOIL ANALYSIS

PARAMETER	DETECTION LIMIT	CONCENTRATION ug/kg*
Benzene	1.1	ND
Ethylbenzene	1.1	ND
Toluene	1.1	ND
Total Xylenes	3.3	ND
Methyl-t-butylether	1.1	ND
1,2,4-Trimethylbenzene	1.1	1.9
1,3,5-Trimethylbenzene	1.1	1.1

* = Dry Weight Basis
ND = Not Detected

Comments: Lab Sample ID: 9204110 - 124435
Date Analyzed: 04/14/92
Analyzed by GC Method 8020.

Signed: _____ Date: 5-1-92

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

CLIENT: CENTRAL WISCONSIN ENGINEERS
ADDRESS: 903 GRAND AVENUE
ROTHSCHILD WI 54474

ATTENTION: DALE KAUZLARIC
TELEPHONE: (715) 359-9400

Wisconsin Certification No.
405099530

Sample ID: TB12-1 0'-2'
Sample Desc: SOIL
Date Collected: 04/09/92
Date Received: 04/10/92
Job #: 42991000/WEISENBERGER

TPH AS DIESEL FUEL

Solvent Extraction Gas Chromatographic Method
(A California Method)

PARAMETER	DETECTION LIMIT	CONCENTRATION mg/l
Diesel Fuel	2,500	46,000

ND = Not Detected

Comments: Lab Sample ID: 9204110 - 124436
Date Extracted: 04/14/92
Date Analyzed: 04/14/92, 04/15/92, 04/16/92
Analyzed by GC/FID.

Signed: _____ Date: 4-21-92

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

CLIENT: CENTRAL WISCONSIN ENGINEERS
ADDRESS: 903 GRAND AVENUE
ROTHSCHILD WI 54474

ATTENTION: DALE KAUZLARIC
TELEPHONE: (715) 359-9400

Wisconsin Certification No.
405099530

Sample ID: TB12-1/0'-2'
Sample Desc: SOIL
Date Collected: 04/09/92
Date Received: 04/10/92
Job #: 42991000/WEISENBERGER

VOLATILE ORGANIC SOIL ANALYSIS

PARAMETER	DETECTION LIMIT	CONCENTRATION ug/kg*
Benzene	150	ND
Ethylbenzene	150	3100
Toluene	150	150
Total Xylenes	450	7200
Methyl-t-butylether	150	ND
1,2,4-Trimethylbenzene	150	6400
1,3,5-Trimethylbenzene	150	32000

* = Dry Weight Basis
ND = Not Detected

Comments: Lab Sample ID: 9204110 - 124436
Date Analyzed: 04/14/92 & 04/15/92
Analyzed by GC Method 8020.

Signed: _____ Date: 5-1-92

ORTEK
ENVIRONMENTAL LABORATORY
2496 West Mason Street | P.O. Box 12435 | Green Bay, WI 54307-2435
414-498-2222
FAX: 414-498-4067

CLIENT: CENTRAL WISCONSIN ENGINEERS
ADDRESS: 903 GRAND AVENUE
ROTHSCHILD WI 54474

ATTENTION: DALE KAUZLARIC
TELEPHONE: (715) 359-9400

Wisconsin Certification No. 405099530

Sample ID: TB12-2 2 1/2'-4 1/2'
Sample Desc: SOIL
Date Collected: 04/09/92
Date Received: 04/10/92
Job #: 42991000/WEISENBERGER

TPH AS DIESEL FUEL

Solvent Extraction Gas Chromatographic Method (A California Method)

PARAMETER	DETECTION LIMIT	CONCENTRATION mg/l
Diesel Fuel	5.0	5400

ND = Not Detected

Comments: Lab Sample ID: 9204110 - 124437
Date Extracted: 04/14/92
Date Analyzed: 04/14/92, 04/15/92, 04/16/92
Analyzed by GC/FID.

Signed: _____ Date: 4-24-92

ORTEK
ENVIRONMENTAL LABORATORY
414-498-2222
FAX: 414-498-4067
2496 West Mason Street P.O. Box 12435 Green Bay, WI 54307-2435

CLIENT: CENTRAL WISCONSIN ENGINEERS
ADDRESS: 903 GRAND AVENUE
ROTHSCHILD WI 54474

ATTENTION: DALE KAUZLARIC
TELEPHONE: (715) 359-9400

Wisconsin Certification No.
405099530

Sample ID: TB12-2/2-1/2'-4-1/2'
Sample Desc: SOIL
Date Collected: 04/09/92
Date Received: 04/10/92
Job #: 42991000/WEISENBERGER

VOLATILE ORGANIC SOIL ANALYSIS

PARAMETER	DETECTION LIMIT	CONCENTRATION ug/kg*
Benzene	140	ND
Ethylbenzene	140	520
Toluene	140	210
Total Xylenes	420	2400
Methyl-t-butylether	140	ND
1,2,4-Trimethylbenzene	140	6200
1,3,5-Trimethylbenzene	140	5100

* = Dry Weight Basis
ND = Not Detected

Comments: Lab Sample ID: 9204110 - 124437
Date Analyzed: 04/14/92 & 04/15/92
Analyzed by GC Method 8020.

Signed: _____ Date: 5-1-92

ORTEK CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

No.: 4308

Company Name: Central Wisconsin Engineers

Project No./Client 4299000/Weisenberger

Sampling Location: Marathon, WI

Sampler Dale Kaufman

Bottle Size/Preservative: 40z-Amber; CAL A.S.; 4oz. DICD; PVOC

ORTEK Batch No. 920411C

Date	Time	Sample I.D./Description	No. of Bottles	Total	*Sample Type	ANALYSIS REQUESTED	Remarks	Lab Use Only ID Number
4/9/92	11:18	TB10-1 0'-2'	2	2	S	X X		124432
	11:31	TB10-3 5-7	2	2	S	X X		124433
	12:04	TB11-1 0-2	2	2	S	X X		124434
	12:22	TB11-3 5-7	2	2	S	X X		124435
	12:46	TB12-1 0-2	2	2	S	X X		124436
	12:58	TB12-2 2½-4½	2	2	S	X X		124437

COMMENTS/SPECIAL INSTRUCTIONS:
Analysis Change per Bill Vachon/Dale Kaufman/MS

☐ If Pb > 5ppm do TCLP

*Sample Type
S - Soil
SE - Sediment
SO - Solid
SW - Surface Water
DW - Drinking Water
WW - Wastewater
GW - Groundwater
H- Hazardous Liquid
A- Air
O - Oil
X- Other

Date Received: 4/10/92
Date Due: 4/24/92
☐RUSH (approved by lab)
Quotation #:
Purchase Order #:

Results To: CWE
903 Grand Ave
Rothschild WI 54474

Billing Address: Same

Attention: Dale Kaufman

Phone: FAX

To Be Completed by Client

Seal Intact Upon Receipt by Sampling Co.: ☐Yes ☐No
Packed By: Dale Kaufman
Sealed For Shipping By: Dale Kaufman Seal #

CUSTODY TRANSFERS

	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
1.	Dale Kaufman	4/9/92	3:55			
2.						

Received for Laboratory: Gloria Dittrich 4/10/92 13:01

Shipping Details - To Be Completed By ORTEK

Seal Intact Upon Receipt by Laboratory ☐Yes ☐No
Method of Shipment: LANTER
Contents Temperature 2.6 ° C Refrig. # 107

ORTEK
2496 West Mason Street
Green Bay, WI 54307-2435
(414) 498-2222

APPENDIX G

STANDARD OPERATING PROCEDURES

CENTRAL WISCONSIN ENGINEERS, INC.

STANDARD OPERATING PROCEDURES

Prepared by:

Central Wisconsin Engineers, Inc.
903 Grand Avenue
Rothschild, WI 54474
Phone: 715-359-9400

TABLE OF CONTENTS

STANDARD GROUNDWATER SAMPLING PROCEDURES

Issue Date	Revision	Description	By	Approved
4-16-92		Original Issue	CE	H-Z

5-4-92

STANDARD GROUNDWATER SAMPLING PROCEDURES
CWE SOP GWSAMP-1

I Review past sampling data and well logs.

II Be sure equipment is field ready and clean.

Bailers:
- PVC (dedicated per use, see Section X)
- Teflon

Water level measuring device:
- Solinst - 300-foot or 100 foot electric tape

Thermometer
- Ertco ASTM 2 75MM 1MM thermometer

pH meter:
- Orion SA 250 pH Meter

Conductivity meter:
- Yellow Springs Instrument Co., Model 33

Filtering equipment:
- QED QuickFilter system
  - QuickFilter Transfer Vessel
  - electric or hand pump
  - standard QuickFilters 0.45 micron
  - high capacity QuickFilters 0.45 micron

Sample containers (as received from lab): container type and size vary with parameter to be analyzed. Be sure to check with lab and/or project manager regarding container type, size, preservation and if sample needs field filtration.

The following is a general list of most commonly used containers:

- 250 ml Nalgene bottles (for inorganic indicator parameters)
- 500 ml Nalgene bottles (for leachate inorganic parameters)
- 500 ml Nalgene bottles (for transfer bottles)
- 500 ml Nalgene bottles - pre-acidified with HNO_3 (for metals, filtered)
- 500 ml Nalgene bottles - pre-acidified with HNO_3 for unfiltered lead samples
- 25 or 100 ml Nalgene bottles - pre-acidified with HNO_3 (for iron only, filtered)
- 1000 ml amber glass bottles (one each for phenols and PAHs)
- 1000 ml amber glass bottles - pre-acidified with 5 mls 50% HCl (for diesel-range organics)
- 1000 ml glass bottles - pre-acidified with H_2SO_4 (for oil & grease)
- 40 ml VOC bottles with Teflon septa - pre-acidified with HCl (for full VOC scan, PVOC, or GRO).
- Reagent grade water (organic free and distilled)

III Rinse filters with 500 mls of reagent grade water (can be done before going out in the field).

IV Order of sampling

Sample upgradient (or least contaminated) wells first and continue sequentially to downgradient (or most contaminated) wells.

V Determine depth to water.

A. Turn on electric water level device and rinse once with reagent grade water.

B. Lower into well until device sounds.

C. Use thumb and fore finger to hold tape and determine the precise depth from the high point (or marked reference point) of the permanent well casing.

D. Record this value to the nearest 0.01 ft in field notebook or other suitable location.

E. Rinse device with reagent grade water.

VI Well purging procedures

- Use dedicated 5-foot PVC bailer. Do not allow rope to lay on bare ground, contain in bucket or on plastic tarp. Contain water in 55-gallon drums if it is known to be contaminated above preventative action limits or if PID screening shows any detections.

A. Bail the well dry (well can be considered dry if it has less than 1/2 foot of water in it). Allow well to recover and repeat process (if time permits).

or

B. Remove four times the volume of the well (see calculation sheets for appropriate volumes). Measure the volume of water removed by pouring purge water into a calibrated 5-gallon bucket (preferred method) or counting the number of bailer-volumes removed.

It generally takes 15 - 30 minutes to purge watertable wells and 60 - 90 minutes to purge piezometers.

Note: It is occasionally acceptable to purge all wells, then go back and sample the wells (e.g., in areas with slow recharge). In these instances, the wells should be purged no more than 24 hours prior to sampling. Make a note in the sampling log. Follow the same sampling procedure/sequence each time.

VII Sample well as soon as there is adequate volume for all parameters. If possible, perform all procedures at the well. Wear latex gloves during sampling procedures, change gloves between sampling points.

A. VOCs

1. Use Teflon bailer and Teflon leader or dedicated bailer.
2. Lower gently into well and retrieve sample causing a minimal amount of turbulence. Do not allow bailer to free fall into water or touch bottom of well.
3. Insert bottom emptying device and drain off a bit of water to clear opening.
4. Carefully fill sample bottles causing a minimal amount of turbulence, fill to just overflowing and a positive meniscus.
5. Replace cap and tighten. Invert bottle and tap on hard surface to check for air bubbles. Do not reopen bottle. If large bubbles are present, sample again with new vial.
6. The bailer rope should be kept on a reel, coiled and placed on a clean plastic tar to prevent the rope from coming in contact with the ground.

Note: Note any sources of contamination such as gas cans, gas stations, auto exhaust, etc. In any case keep the caps off the bottles for as short of time as possible. Make notes on any potential sources of contamination. Do not run vehicle near sampling point.

VOC samples are generally taken within five minutes of the well being purged and collected first.

B. Field measurements

1. Temperature
   a. Rinse thermometer with reagent grade water.
   b. Immerse in sample and allow reading to stabilize.
   c. Read and record temperature to nearest 0.5°C while still immersed.
   d. Rinse and return to case.

2. Conductivity
   a. Set-up and calibrate meter.
   b. Set dial to desired range (i.e., x100 μmhos/cm).
   c. Rinse probe with reagent grade water.
   d. Take reading by following instrument instructions.
   e. Adjust reading by multiplication factor and record.
   f. Rinse cell with reagent grade water and replace in case.
   h. Correct field reading to 25°C using the formula:

      field conductivity value x 1.02^{n} = actual conductivity value

      where n=25°C - field temp.(°C)

3. pH

a. Set up and calibrate meter using two standardized Fisher buffer solutions (pH 7.0 and either pH 4.0 or pH 10.0, depending upon the expected pH c sample).
b. Rinse electrodes with reagent grade water.
c. Immerse electrodes in sample and allow reading to stabilize.
d. Read and record pH to nearest 0.1 pH unit.
e. Rinse electrode with reagent grade water and return to case.

Field measurements are generally completed within twenty minutes of purging tl well.

C. Metals and other inorganics

1. Teflon or PVC bailers can be used.
2. Retrieve samples as with VOCs (same bailer volume can be used).
3. Filter sample.

a. Rinse entire filtration apparatus three times with at least 100 ml reagent grade water, use pre-rinsed 0.45 micron standard QuickFilter. A high capacity QuickFilter may be used if sample is especially turbid.
b. Rinse filter with sample (approx. 100 mls), swirl around filter flask and discard.
c. Filter adequate amount of sample to fill sample bottles.
d. Fill sample bottles

i. metals, phenols - do not rinse any acidified bottle, just fill and cap.
ii. other inorganics - rinse bottle with sample and discard. Fill bot to the top, leaving as little headspace as possible.

e. Rinse filtration flask with reagent-grade water.

We expect the sample to be filtered, acidified (if necessary), and stored o ice within 30 minutes of the well being purged.

Note for Lust Sites:

Analysis for total lead and/or cadmium is required at LUST sites. These samples shou not be filtered; however, if appreciable sediments are present, filter a separate sample and submit it for dissolved lead/cadmium analysis.

D. Phenols

Do not filter sample. Do not rinse bottle. Simply fill the one liter unpreserved amber glass bottle.

E. Leachate head wells

1. Do these wells last.
2. Record depth to water.
3. Do not purge these wells.
4. Use a Voss polyethylene single sample disposable bailer.
5. Run pH and conductivity (see above).
6. Do not filter.
7. Fill all appropriate sample bottles.
8. Wash pH and conductivity meters with alconox and triple rinse with distilled water.
9. Properly dispose of gloves and bailer.

F. Data recording

Record the time when the various procedures were performed (purged, sampled, filtered, etc.). Record any obvious sample odor. Note any variations from the sampling plan. Record all information on either a field procedure sheet or in a field sampling notebook.

Note: It is not always possible or practical to run pH and conductivity, or filter the sample at the well. In these situations it is acceptable to (1) fill all sample containers that do not need to be filtered, (2) fill a clean, sample-rinsed transfer bottle with enough water for all remaining sampling requirements (e.g., pH and conductivity analysis, filtering for metals, etc.), (3) perform remaining activities as soon as possible, preferably before goin on to next well and certainly within a few hours.

VIII Quality Assurance/Quality Control

A. Field blanks

1. Blanks for each sample type (VOC, metals, inorganics) should be taken at least once per site or once per ten samples, whichever is greater.
2. Use clean sampling equipment.
3. Fill sampling device with reagent grade water.
4. Repeat sampling process (including filtration) for each of the parameters.
5. Do not label as a blank but rather as an additional monitoring well. Be sure to make a note of it.

B. Duplicates

Collect a duplicate sample for each parameter from the same bailer volume at least once per site or once per ten samples, whichever is greater. Treat it the same as the original sample. Do not label it as a duplicate but rather as an additional monitorir well. Be sure to make a note of it.

C. Trip blanks

A trip blank should be supplied by the lab whenever VOC samples are taken. D not open this bottle during the sampling procedures. Simply include it with the other VOC samples when they are delivered to the lab.

D. Temperature blanks

A temperature blank is needed only when blue ice is used. Exact sample temperature is not needed for samples shipped on ice. All samples will be shipped on ice.

IX Sample delivery and analysis

A. Sample holding and transport

Store samples on ice in coolers. Complete the chain-of-custody documents for th appropriate lab. If possible, mail or hand deliver all samples to the lab on the same da that the samples were taken, otherwise deliver the samples as soon as possible (remember the two week sample holding time starts when the sample is taken).

B. Laboratories used

1. Central Wisconsin Enviro Lab, Inc., 5907 Prarie Street, Schofield, WI 54476
2. Environmental Task Force, UW-Stevens Point, Rm 220 CNR, Stevens Point, WI 54481. Lab Certification No. 750040280
3. Enviro-Scan, 303 W. Military Rd., Rothschild, WI 54474. Lab Certification No. 737053130
2. ORTEK Environmental Laboratory, 2496 West Mason Street, Green Bay, WI 54307-2435. Lab Certification No. 405099530

X Clean equipment

After each day of sampling, all equipment should be washed including sample cases and protective clothing. Wear clean gloves during cleaning.

A. Bailers:

Clean with steam pressure washer.

1. Spread blue washing tarp on floor of washing area.
2. Place bailers (PVC and Teflon) on tarp.
3. Rinse well with steam cleaner.
4. Fill 5-gallon bucket with warm water and Alconox. Use bailer cleaning brush to wash all the bailers with soap and water. Be sure to take bailers apart (remove threaded bottom piece and check valve ball). Scrub inside and out.
5. After all bailers have been cleaned, rinse again with steam cleaner.
6. Triple rinse all bailers with reagent grade water.
7. Cover individual bailers with protective plastic sheaths.
8. Store in bailer bag.

B. Field Equipment (pH meter, conductivity meter, water level indicator):

This equipment should be triple rinsed with reagent grade water in the field after every use. If any equipment gets exceptionally dirty it may be washed (gently) with a warm water and alconox solution, then triple rinsed with reagent grade water.

C. Other Equipment (buckets, tarps, ropes, etc.)

This equipment can be cleaned the same as the bailers.

STANDARD PROCEDURES FOR

COLLECTION OF SOIL SAMPLES FOR

LABORATORY ANALYSIS

Issue Date	Revision	Description	By	Approved
4-16-92		Original Issue	DRK	4-L 5-4-92

STANDARD PROCEDURES FOR COLLECTION OF SOIL SAMPLES CWE SOP SOILSAMP-1

Central Wisconsin Engineers, Inc.'s soil sampling procedures follow the Leaking Underground Storage Tank (LUST) Quality Assurance Plan.

1.0 Sampling Procedures

Soil samples collected at LUST sites will be handled in a manner that is consistent with the analytical testing to be performed and that preserves the integrity of the sample. Samples will be handled in a manner that minimizes loss of organic contaminants due to volatilization or biodegradation. Appropriate sampling devices must be capable of rapidly collecting samples with a minimum of atmospheric exposure. All soil samples for laboratory analysis should be collected from a freshly exposed surface (at least 18" below the initial surface). For this reason, lab samples should be collected before screening samples (i.e., soils for lab analysis must not be exposed to the atmosphere while screening is being done). Screening samples may be taken before laboratory samples are taken if the lab samples are taken from a freshly exposed surface and if the soils have not been exposed to the atmosphere while screening is performed. Separate samples will be collected for laboratory analysis and field screening. All samples will be cooled to 4° C immediately after sampling and kept at 4°C or may be stored on ice until they arrive at the laboratory.

Sampling locations will be selected in accordance with "Assessments for Underground Storage Tanks: Soil Sampling Requirements - Attachment 3", and the Environmental Response and Repair Program (ERRP) Corrective Action Guidance.

Sample preservation, container type and number of containers per sampling location will follow specified WDNR and analytical laboratory requirements.

2.0 Sample Preservation for Modified GRO Method

a) Sampling

Soil can be collected using a 30 ml plastic syringe with the end sliced off, a scoopla spatula, or a hand trowel. Work quickly and minimize agitation of the soil to prevent loss of volatile contaminants. Add a soil volume of 15-20 mls (corresponding to 25 gms) to the vial. Samplers may use a scale prior to sample collection to determine the volume of soil at the site weighing 25 gms, to help visually estimate approximately 25 gm samples. Place the soil in an empty (but tared) 40 or 60 ml VOC vial. Be sure to clean all sediment from the vial threads. Use a clean toothbrush or other clean utensil to sweep particles off the rim. Secure the vial cap. Cool all samples to 4°C immediately after collection.

b) Preservation

After field screening has been completed and those vials that will be sent to the laboratory for analysis have been identified, add methanol only to the vials which will be analyzed by the laboratory. The methanol must be added to the sample within 2 hours of sample collection.

c) Methanol Transfer - three acceptable methods

1) Transfer 25 mls of methanol (laboratories should be able to supply vials containing premeasured amounts of methanol) from one septa vial to the sample vial with a common laboratory glass syringe and noncoring type syringe needle. Use a fresh syringe needle for each new vial to avoid cross contamination.

2) Transfer 25 mls of methanol from one septa vial to the sample vial by opening the sample vial and pouring in all of the 25 mls of methanol.

3) If all samples taken will be sent to the laboratory, the 25 gms of soil may be put in a vial containing the 25 mls of methanol.

d) Handling and Shipping

After securing vial cap or transferring methanol, shake the vial to coat the soil with methanol. Immediately replace the sample on ice to cool to 4°C. Properly label each sample collected. Assign an I.D. to the sample and write the number directly on the sample label. Also, write the number in the field notebook along with verbal description of the sample location and write the number on the site sketch. Identify the soil type (e.g. sand, silt, clay or intergrade). Note any obvious sample odor, but do not sniff soil samples. Record all observations in the field notebook. Each vial cap shall be taped to the bottle. Vials should be placed in separate reusable plastic bags to avoid any problems that might occur if a vial leaks. Be sure to ship vials in an upright position. Vials must be securely packed with cushioning and surrounded by an absorbent material such as vermiculite. Packaging must be strong enough to hold up to the intended use. The maximum package weight is 65 pounds. The package must be marked with the following statement: "This package conforms to conditions and limitations specified in 49 CFR 173.4". In addition, mark the packages with the words "THIS SIDE UP" and arrows in case the vials are improperly sealed. If the methanol has leaked from the vials in transport to the lab, the Department will ask for resampling. Shipping time should be minimized and sample must be received by the lab within 4 days. Complete all proper chain of custody forms including WDNR forms.

e) Number of Sample Vials

A sufficient number of vials (three recommended) should be collected to provide for backup analysis in the event of breakage and to allow for screening. In addition, one vial should be collected for dry weight determination (without methanol). A total of 4 sample vials are to be collected from each sampling point (three preserved, one not preserved).

Perform one transfer of methanol in the same fashion as in sampling from a premeasured vial to an empty (but tared) vial. This vial will serve as the methanol trip blank.

3.0 Sampling for Modified DRO Material

a) Sampling

Soil can be collected using a 30 ml plastic syringe with the end sliced off, a scoopla spatula, or a hand trowel. Work quickly and minimize agitation of the soil to prevent loss of volatile contaminants. Add a soil volume of 15-20 mls (corresponding to 25 gms) to the vial. Samplers may use a scale prior to sample collection to determine the volume of soil at the site weighing 25 gms, to help visually estimate approximately 25 gm samples. Place the soil in an empty (but tared) 40 or 60 ml VOC vial. Be sure to clean all sediment from the vial threads. Use a clean toothbrush or other clean utensil to sweep particles off the rim. Secure the vial cap. Cool all samples to 4°C immediately after collection.

b) Preservation

No field preservation is necessary with modified DRO method. Extraction solvent must be injected through the septum of the soil vials within 18 hours of their receipt by the lab to insure preservation.

c) Handling and Shipping

No special handling or shipping is required for Modified DRO samples. Samples must be received by the lab within 4 days.

d) Number of Sample Vials

A sufficient number of vials (three recommended) should be collected to provide for backup analyses in the event of breakage. In addition, one vial should be collected for dry weight determination. A total of 4 sample vials are to be collected from each sampling point.

In addition, one duplicate sample must be collected with every 10 samples (or less) collected.

4.0 Sampling for Petroleum Volatile Organic Compounds (PVOC)

a) Sampling

Soil can be collected using a spatula, hand trowel or latex glove. Work quickly and minimize agitation of the soil to prevent loss of volatile contaminants. Add soil to fill a 4 oz glass jar with a teflon lined cap. Be sure to clean all sediment from the jar threads prior to sealing cap.

b) Preservation
No field preservation is necessary with PVOC method.

c) Handling and Shipping

No special handling or shipping is required for PVOC method. Sample holding time is limited to 14 days from date of collection.

d) Number of Sample Jars

Two (2) four ounce sample jars should be collected for each sampling point.

In addition, one duplicate sample must be collected with every 10 samples (or less) collected.

5.0 Sampling for Total Recoverable Petroleum Hydrocarbons (TRPH)

a) Sampling

Soil can be collected using a spatula, hand trowel or latex glove. Excessive soil handling should be avoided. Soil samples should be collected without headspace in contaminant-free wide mouth 8 ounce bottles with teflon lined caps. Be sure to clean all sediment from the jar threads prior to sealing.

b) Preservation

No field preservation is necessary with TRPH Modified method.

c) Handling and Shipping

No special handling or shipping is required for TRPH Modified method. Sample extraction by lab must be performed within seven (7) days from date of collection.

d) Number of Sample Bottles

Three (3) eight ounce bottles should be collected from each sampling point to provide for backup analyses in the event of breakage and to allow for dry weight determination.

In addition, one duplicate sample must be collected with every 10 samples (or less) collected.

6.0 Field Quality Assurance

Field QA samples will be handled in a manner identical to that used for actual samples. Results of the analysis of replicates, field, and trip blanks will be included in the written final report and will be taken into account in the data assessment portion of the report. One duplicate sample will be taken for every 10 samples (or less) collected. One temperature blank will be included per sampling event (batch of samples).

7.0 General Requirements

a) Soil samples must be collected in a manner which causes the least disturbance to the sample.

b) Composite samples are not to be collected for purposes of complying with the closure assessment requirements, but may be appropriate in other circumstances (with prior WDNR approval).

c) All soil samples shall be properly labeled with the sample number and collection date.

8.0 Materials Required

a) disposable latex gloves

b) stainless steel trowel

c) reagent grade water (double distilled organic free)

d) tap water

e) Alconox detergent

f) bucket

g) brush

h) properly preserved laboratory supplied sample jars

i) wash water containment if necessary (based on PID/FID detection)

j) syringe/hand auger

9.0 Soil Sampling Methods for UST Closures

a) When the UST system is closed by removal of the tank system from the ground, the following sample collection method must be used:

i) If the excavation, pipe trench or other sampling location can be entered in accordance with applicable OSHA regulations, samples may be collected using a hand auger or trowel.

ii) If, in the opinion of the field personnel, the excavation, pipe trench or other sampling location cannot be entered safely for sampling, the sample must be collected from the excavation using a hand auger with extension or from the backhoe bucket.

b) When the UST system is closed in place, soil samples shall be collected through one of the following techniques:

i) If the tank can be safely entered and has been properly cleaned, samples can be collected through holes cut in the tank. They shall be collected using a hand held soil auger or trowel.

ii) If the samples are to be collected by drilling, then split spoon (barrel, tube) samplers or thin-walled (Shelby) samplers must be used when conditions permit. Grab samples from drill cuttings cannot be used unless undisturbed samples are impossible to collect.

c) Whenever hand held tools are used to collect samples, the first three to four inches of soil must be scraped away immediately before sampling so that the sample is collected from a previously unexposed soil area.

d) All soil sampling tools must be thoroughly cleaned between all sampling points using water/detergent solutions, methanol, or other appropriate solvents.

10.0 Soil Sampling Methods for Site Investigations

a) Soil samples collected during the construction of test borings or monitoring wells will be collected in the following manner:

i) Samples will be obtained by using a split spoon sampler. The samples will be obtained by driving a two or three-inch diameter (OD) sample spoon with a 140-pound weight free falling 30 inches. The split spoon sampler will be steam cleaned prior to initial use and cleaned with water and Alconox detergent and rinsed with double distilled organic free water, prior to each sample collected.

ii) Soil samples will be collected from the split spoon sampler with a stainless steel trowel or disposable latex gloves and placed in the appropriate laboratory supplied container.

iii) All soil sampling tools must be thoroughly cleaned between all sampling points using water/detergent solutions, methanol, or other appropriate solvents.

11.0 Sample Containers for Laboratory Analysis

a) Samples shall be collected in glass or inert synthetic containers obtained from or approved by the certified laboratory which will analyze the samples. Polyethylene bags are not to be used for laboratory samples.

b) All sample containers shall have Teflon or equivalent lined caps.

c) Sample containers shall be filled to the top such that no headspace remains.

d) The use of "wide mouth" vials is highly recommended.

12.0 Sample Handling

a) Properly seal samples - no sand or other debris on the threads of the vial/bottle.

b) Label samples prior to collection or immediately following collection.

c) Chill samples immediately using adequate quantities of ice to maintain temperature at 4°C or below. Note: Closure assessment documentation requires analytical laboratories to report sample temperatures if "blue ice" is used or solid ice is melted. Improper storage resulting in sample warming could result in rejection of report results.

d) Follow chain of custody procedures. Fill out Chain of Custody Record, form 4400-151, Standard Data Reporting Form, form 4400-152 and Laboratory Chain of Custody Form.

e) Ship samples to analytical laboratory as soon as possible. Do not allow samples to be held so long that the maximum holding time is exceeded.

f) Unless otherwise specified, the maximum holding time for soil samples collected for TPH analysis is 14 days.

NOTE: Headspace analysis using field instruments will not be performed on samples collected for lab analysis. Duplicate samples shall be collected for headspace analysis.

103:stdproc

STANDARD SOIL VAPOR/AIR EMISSIONS

MONITORING PROCEDURES

Issue Date	Revision	Description	By	Approved
4-16-92		Original Issue	K.T.	H-L 5-4-92

STANDARD SOIL VAPOR/AIR EMISSIONS MONITORING PROCEDURES
CWE SOP SVSAMP-1

TOTAL HYDROCARBON QUANTIFICATION

EQUIPMENT

- Century OVA Model 108 Hydrogen Flame Ionization Detector
- Disposable Sample Bags
- 3/16" I.D. vinyl tubing
- Magnehelic pressure gauges

PROCEDURE

a. Connect 3/16" I.D. vinyl tubing to sample port on discharge side of blower.

b. Connect vinyl tubing to sample bag.

c. Insert sampling probe of Century OVA Model 108 hydrogen flame ionization detector into sample bag. Read concentration directly from readout assembly.

d. If flame out is experienced, connect 10:1 serial dilution device in series according to manufactures recommendations.

e. Record total VOC concentration (c) in parts per million (ppm) methane equivalents.

f. Record inlet vacuum pressure at blower using appropriate pressure gauge.

g. Obtain flow rate (Q) from blower curve based on vacuum pressure.

h. Calculate pounds per hour (q) using $q = CQK$ where $K = .000015$.

i. Adjust flow with dilution air as needed to meet emission regulations of 5.7 pounds per hour.

BENZENE QUANTIFICATION

EQUIPMENT

- 150 mg charcoal tubes
- MSA flow-lite pump
- Dwyer Visi-Float 4" scale flowmeter - 0.2 to 4 liter per minute air range
- 3/16" I.D. vinyl tubing
- SKC soap film flow meter

PROCEDURE

a. Calibrate MSA pump in office using SKC soap film flow meter.

b. Check calibration of pump prior to sampling using Dwyer Visi-Float Flowmeter.

c. Connect 3/16" I.D. vinyl tubing to sample port on discharge side of blower.

d. Insert inlet side of 150 mg charcoal tube into vinyl tubing.

e. Insert outlet side of 150 mg charcoal tube into charcoal tube holder attached to MSA Flow-Lite pump.

f. Draw discharge air through charcoal tube at a maximum flow rate of 1000 cc/min. Record flow rate, start time,and stop time. NOTE: Multiple samples at various volumes of 1 to 10 liters must be taken in case of break through. The saturation limit of the sample portion is approximately 15 milligrams of total solvent.

g. Record blower discharge flow rate.

h. Store sample on ice pending delivery to lab.

i. Submit sample to lab for benzene analysis using EPA method 8020.

AIR EMISSIONS CALCULATIONS

To calculate #/hour total VOCs.

$$q = CQK$$

where

q	=	#/hour of total VOCs
C	=	Total VOC Concentration in ppm on a volume/volume basis (ppm-v/v).
Q	=	Flow Rate (scfm) 1 ATM, 60°F
K	=	Constant = .00001503 for total VOCs for benzene

K is determined as follows:

$$1\ ppm\text{-}v/v = \frac{1\ \ell}{10^6\ \ell}$$

therefore,

$$\frac{1\ \ell}{10^6\ \ell} \times \frac{1\ mol}{23.69\ \ell} \times \frac{95.0\ g}{mol} \times \frac{1\ lb}{453.6\ g} \times \frac{1\ell}{0.0353\ ft^3} \times \frac{60\ min}{hr}$$

thus,

K = .00001503 lb-min/ft^3-hr/ppm

(Units cancel when multiplying by CFM)

103:soilvap.air

FIELD HYDRAULIC CONDUCTIVITY TESTS

BAILDOWN TESTS

Issue Date	Revision	Description	By	Approved
4-16-92		Original Issue	P.D.A.	A-Z

5-4-92

STANDARD PROCEDURES FOR PERFORMING FIELD HYDRAULIC CONDUCTIVITY TESTS (BAILDOWN TESTS) CWE SOP BDTEST-1

Hydraulic conductivity can be determined in the field by various methods. All of these methods include removing or recharging a volume of water from a well instantaneously or at a specified rate. The tests conducted at a specified rate are typically called pumping tests. The tests recharging or removing a specified volume are called slug tests or bail-down tests. The common principle is to put a stress on the groundwater system and to watch the groundwater level changes through time. Unlike pumping tests, the "slug test" has a limited drawdown and a short duration and therefore gives values only for the materials close to the well. Because of this, measurements on several wells are needed to characterize the soils under a site.

FIELD PROCEDURE

Equipment:
- Bailer or pump
- Water level indicator or tape
- Watch with a second hand
- Field sheets

1. Record the inside diameter of the riser pipe.

2. Measure the depth to static water before bailing.

3. Bail the well as low and as quickly as possible (especially in highly permeable soils) and measure the water level. Record this as D_t at time 0. Bailing the well as low as possible increases the recovery time and makes the test less sensitive to errors in water level measurements.

4. Record depth to water at 30-second intervals for the first few minutes. Then increase the intervals until the water level has stabilized. Record the time to the nearest second (12:05:32). The purpose here is to record and be confident that the plot is a straight line. Generally, 5 measurements equally spaced through time is a minimum; 9 or more are desirable.

ADDITIONAL INFORMATION NEEDED

In order to calculate the permeability, the following well construction information is needed:

1. Radius of the bore hole at the intake point or pipe diameter and gravel pack thickness.

2. Length of the interval contributing flow into the well (screened interval or open hole).

3. Gravel pack length or position of seal in piezometer.

ANALYSIS

There are several methods available to calculate hydraulic conductivity. The method explained below (Naval Facilities Design Manual, 1971) produces satisfactory results. Three other methods, Cooper (1967), Bouwer (1976) and Hvorslev (in Freeze and Cherry, 1979, p. 340) are attached for reference.

The equation used is:

$$K = \frac{r^2}{2L(t_2 - t_1)} \ln(L/R) \ln (H_1/H_2)$$

where
- r = radius of the standpipe (cm)
- R = radius of bore hole at the intake point (cm)
- L = length along which water can enter the well (cm)

$H_1/H_2 = H_{t1}/Ho \; / \; H_{t2}/Ho$ = ratio of head values (taken from log plot)

- t = time after bailing stops (sec) (taken from log plot)
- K = hydraulic conductivity (permeability) (cm/sec)

Although the equation was developed for piezometers, it can be used for water table observation wells as long as values for r, R and L are chosen with consideration for the geometry of the well and the position of the static water level.

LENGTH (L)

Where the static water level is above the top of the gravel pack, the entire length of saturated gravel pack should be used even when it is greater than the screen height (assuming the gravel pack is more permeable than the formation). Where the well is screened through units of widely differing permeabilities, a reasonable estimate of K can be obtained by using the length that is screened through the unit of greatest permeability.

RADIUS OF CASING (r)

The function of this term in the equation is to input the quantity of water moving into or out of the well. (The π term drops out of the equation.) Therefore, if the water level is rising in the solid casing (diagram B), r is equal to the inside radius. If the water level is rising in the screened interval (diagram A), r is equal to the radius of the screen plus the thickness of the gravel pack times the porosity of the gravel pack.

RADIUS OF BORE HOLE (R)

In cases where the aquifer is less permeable than the gravel pack, R will be the standpipe radius plus the gravel pack thickness. In highly permeable aquifers, where the permeability of the pack is not much different from that of the aquifer, the standpipe radius, r, can be used for R.

ASSUMPTIONS

The above method assumes an instantaneous discharge for water from the well. In highly permeable materials the well may recharge so quickly that the error in the initial reading D_{to} is significant. In these cases, the D_{to} can be calculated by measuring the volume of water withdrawn and knowing the geometry of the well.

In addition, the method is designed for situations where the static water level is at or above the top of the gravel pack or piezometer seal. Since water table observation wells are often designed so that the water table intersects the screened interval, this assumption is violated. The differences in permeability calculations, however, should not be significant for these purposes.

CALCULATIONS TO DETERMINE H_1, H_2, T_1, T_2

1. Change time to duration (sec).

2. Calculate H_t, H_t = depth to water at a certain time - static water level. (i.e., H_o = depth to water at time 0 - static water level.

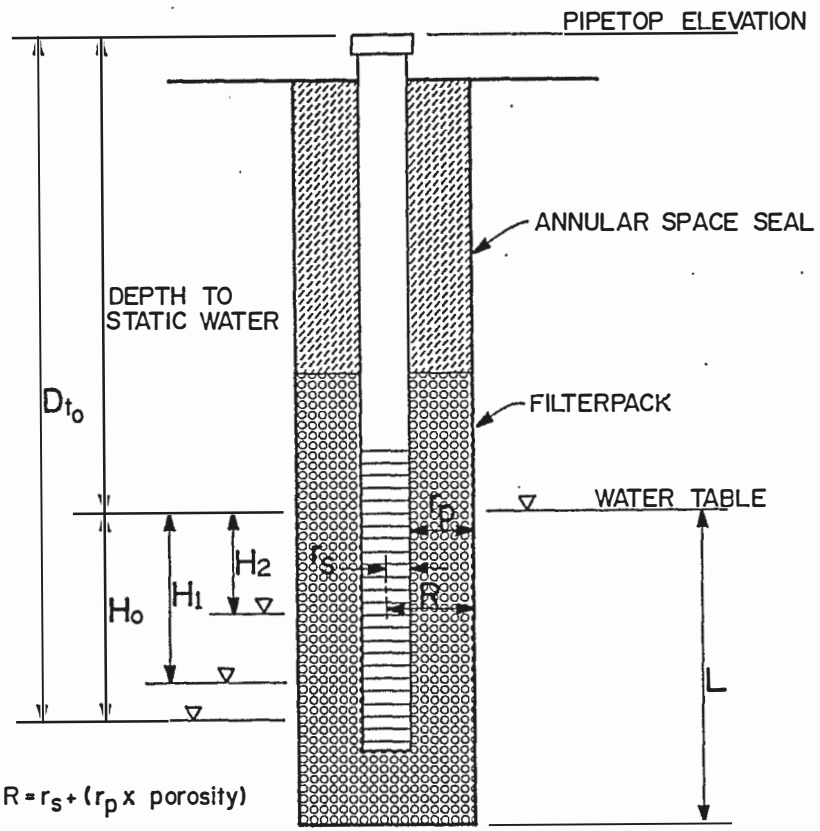
3. Find the ratio H_t/H_o.

4. Plot time vs. H_t/H_o using semi-log paper with the ratio on the log scale.

5. Fit a line to the points and choose 2 points on the line, recording the ratio and time for each ($\frac{H_1}{Ho}$ $\frac{H_2}{Ho}$ t_1 t_2).

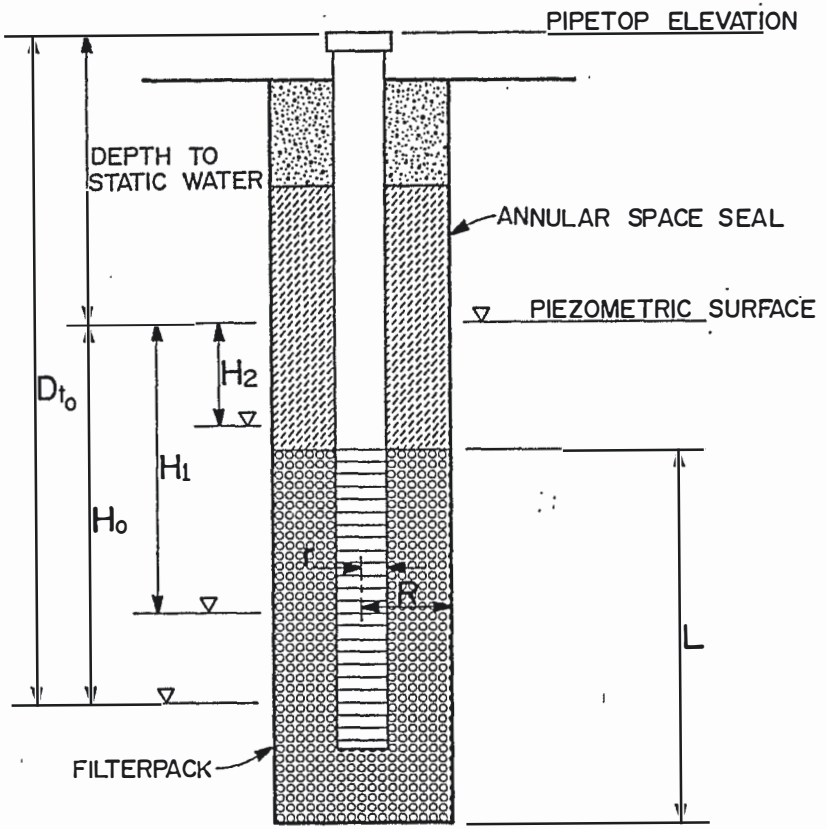
Since the purpose of the graphical plot is to smooth out scatter in the data, the line should be drawn so that it is representative of the test throughout most of its duration. Points can be taken from any place on the line.

6. Calculate the hydraulic conductivity using the formula. Units of L, r, R, and t must be in cm and sec to produce K in cm/sec.



WATER TABLE OBSERVATION WELL

DIAGRAM "A"



PIEZOMETER

DIAGRAM "B"

STANDARD FIELD METER OPERATING PROCEDURES

-	Photoionization Detectors	CWE SOP METEROP-1
-	Flame Ionization Detector	CWE SOP METEROP-2
-	Trimonitor	CWE SOP METEROP-3
-	Combustible Gas Indicator	CWE SOP METEROP-4

Issue Date	Revision	Description	By	Approved
4-16-92		Original Issue		

5-4-92

STANDARD FIELD METER OPERATING PROCEDURES

Photoionization Detectors

CWE SOP METEROP-1

Purpose: To establish and document specific operating procedures for the portable photoionization meters.

Objectives: To outline techniques for calibration and use of the:

- Thermo Environmental Instruments Organic Vapor Meter Model 580A (PID) (OVM).
- Hnu Systems Model Pl-101 (PID)(HNu)

The OVM and HNu meters are equipped with 10.0 ev and 10.2 ev photoionization detectors (PID) respectively.

PID Calibration

NOTE: For procedures to start up and operate the TEI Model 580A or HNu Model Pl-101 refer to the appropriate instrument operation manual.

Thermo Environmental Instruments OVM Model 580A

OVM Materials

1. One 1-2 liter Teflon or Tedlar gas sampling bag equipped with a sampling nozzle and gas-tight septum.
2. Pressure valve.
3. Tygon tubing for attachment from bag to instrument.
4. Specialty Gas Mixture - Isobutylene 100 ppm.
5. OVM Model 580A.

Procedure

1. Attach pressure valve to Isobutylene cylinder. Be sure valve is shut.
2. Attach Tygon tubing from bag to valve.
3. Open sampling nozzle on bag and valve on cylinder.
4. Fill bag approximately 1/3 full.

5. Shut valve off on bag and on cylinder.
6. Remove pressure valve from cylinder.
7. Follow instruction manual to reach "Reset to Calibrate" on meter.
8. Attach tubing from bag to instrument probe.
9. Follow calibration procedures outlined in Section 2.4.7 of manual.

HNu Systems Model PI-101 Photoionization Detector

Materials

1. Pressure valve.
2. Tygon tubing for attachment from calibration gas to instrument.
3. Hnu systems span gas - 100 ppm isobutylene/air.
4. HNu systems Model PI-101.

Procedure

1. Turn instrument on - check battery.
2. While in standby mode, adjust potentiometer to zero.
3. Attach pressure valve to HNu systems span gas cylinder, be sure valve is closed.
4. Connect Tygon tubing to pressure valve and to probe on meter.
5. Set range on HNu to 0-200.
6. Open span gas valve.
7. Adjust Span Potentiometer to obtain reading of 57 ppm.
8. Record span potentiometer setting in field notes.
9. Set switch to standby position.
10. Meter is ready for use.

Sampling Procedures for PID

Materials

1. Stainless steel trowel washed in Alconox, rinsed with distilled water.
2. 8 oz. sample jar (with lid, optional).
3. Aluminum foil
4. Field PID meter
5. Latex gloves
6. 60d nail washed in Alconox, rinsed with distilled water.

Procedures

1. Fill jar approximately half full with sample using a clean trowel or latex glove.
2. If sample is compacted, break up with clean 60d nail.
3. Cover jar tightly with aluminum foil, label lid, and place on jar. Be careful not to tear foil.
4. Place jar in protected area and allow to reach approximate room temperature, about 70°F.
5. When sample temperature has stabilized, remove lid and gently pierce foil with PID probe.
6. Response is within 3 seconds, read dial or LED readout, remove probe.
7. Allow meter to clear before next reading.
8. Record any background detections.

Note: Check the calibration of the PID every few hours of operation and after the last sample has been analyzed. Simply analyze standard gas, record reading in field book.

Minimum Calibration Frequency:

1. At the beginning of each day.
2. After lunch or the middle of a day's use.
3. After any significant changes in humidity or temperature (more than 15°F).
4. After any repairs to the instrument are performed.

Reporting Requirements

1. For all calibrations report time of day and temperature at that time.
2. Which PID model is being used.

STANDARD FIELD METER OPERATING PROCEDURES

Flame Ionization Detector

CWE SOP METEROP-2

PURPOSE: To establish and document specific operating procedures for the portable flame ionization detectors.

OBJECTIVES: To outline techniques for calibration and use of the:

- Foxboro Century Model 108 Organic Vapor Analyzer (OVA)

CALIBRATION

NOTE: For procedures to start up and operate the OVA 108 refer to the appropriate instrument operation manual. Calibrate the instrument weekly at a minimum.

MATERIALS

1. Two dedicated gas sampling bags with sampling nozzle.
2. Pressure valve
3. Vinyl tubing for attachment from bag to instrument.
4. Specialty gas mixtures - 9500 ppm and 95 ppm methane.
5. OVA Model 108

PROCEDURE

1. Attach pressure valves to methane cylinders.
2. Attach vinyl tubing and fill appropriate bag 1/3 full.
3. Follow calibration procedures outlined in the instruction manual.

SAMPLING PROCEDURES

A. Soil Samples

1. Follow procedures outlined under Portable Photoionization Meter Operation.

B. Air Samples

1. Connect vinyl tubing to sampling port.
2. Connect tubing to sample bag.
3. Insert sampling probe into sample bag.
4. Read concentration directly from readout assembly.
5. If flame-out is experienced, connect serial dilution device according to manufacturers guidelines.
6. Determine response factor using 9500 ppm calibration gas.
7. Repeat steps 1-4.
8. Multiply readout by response factor to obtain actual concentration.

STANDARD FIELD METER OPERATING PROCEDURES

Trimonitor

CWE SOP METEROP-3

Purpose: To establish and document specific operating procedures for the portable Trimonitor.

Objective: To outline techniques for calibration of the:

- MSA Model 361 Hydrogen Sulfide, Combustible Gas and Oxygen Alarm Meter

Calibration:

NOTE: For procedures to start up and operate the MSA Model 361 Trimonitor refer to the MSA Instrument Operation Manual

Materials Required

1. Flow Control, part no. 467896
2. Adapter-Hose, part no. 449401
3. Calibration Gas, part no. 478192
   50% LEL pentane (.75% pentane and 15% oxygen in nitrogen)
4. Calibration Gas, part no. 467898
   hydrogen sulfide 10 ppm in nitrogen

Instructions

Test the operation of the pump and sample flow indicator by momentarily placing a finger over the sample inlet of the instrument. The flow indicator should be at the top of the window before falling from view while the inlet is blocked. If not, see the instrument instruction manual for required maintenance.

1. Attach the flow control to the .75% pentane and 15% oxygen calibration gas tank.
2. Connect the adapter-hose to the flow control.
3. Open the flow control valve.
4. Connect the adapter-hose fitting to the inlet of the instrument; after approximately 15 seconds, the LEL meter should stabilize and indicate between

47 and 55%. If the indication is not in the correct range, remove the right end of the trimonitor and adjust the LEL SPAN control to obtain 50%.

5. Verify the oxygen reading; it should be between 13 and 17%. (This is a response check only. The oxygen sensor should be calibrated to 20.8% oxygen in fresh air before each use.)
6. Disconnect the adapter-hose fitting from the instrument.
7. Close the flow control valve.
8. Remove the flow control from the calibration gas tank.
9. Attach the flow control to the hydrogen sulfide calibration gas tank.
10. Open the flow control valve.
11. Connect the adapter-hose fitting to the inlet of the instrument; after approximately 1 minute, the TOX readout should stabilize and indicate 7 to 13 ppm. If the indication is not in the correct range, remove the right end of the trimonitor and adjust the TOX SPAN control to obtain 10 ppm.
12. Disconnect the adapter-hose fitting from the instrument.
13. Close the flow control valve.
14. Remove the adapter-hose from the flow control.
15. Remove the flow control from the calibration gas tank.

STANDARD FIELD METER OPERATING PROCEDURES

Combustible Gas Indicator

CWE SOP METEROP-4

Purpose: To establish and document specific operating procedures for the Gascope.

Objective: To outline the techniques for calibration and use of:

- Gascope Combustible Gas Indicator, Industrial Model 62S

NOTE: For procedures to start up and operate the Gascope refer to the appropriate instrument operation manual.

Gascope Calibration Procedure

The Gascope should be calibrated periodically by performing the following procedure in an environment free of combustible gases. This procedure should also be used if either the catalytic or thermal conductivity filament has been replaced. If the instrument cannot be calibrated with this procedure, refer to TROUBLE SHOOTING in Section 4 of the operation manual.

1. Open cover and loosen clasps securing top and bottom sections of case.
2. Remove bottom section of case and position instrument on rubber bumpers (see Figure 5-1 of operation manual) so that meter can be read.
3. Set RANGE switch to LEL and ON/OFF switch to ON. Needle should come to rest near 0 and READY indicator should turn on. If indicator does not turn on, refer to Table 4-1 in Section 4 of operation manual.
4. Squeeze aspirator bulb 8 to 10 times to purge instrument with fresh air. Permit bulb to inflate completely after each squeeze.
5. Adjust LEL ZERO control to obtain zero indication on meter.
6. Connect flow control of Calibration Check Kit, Model R, to Calibration Check Gas Cylinder (2% or 2.5% methane). Connect adapter hose between flow control and inlet fitting of instrument (see Figure 5-2 of operation manual).
7. Turn flow control valve counterclockwise. When needle stabilizes, meter should indicate 50%. If it does not, turn LEL span adjustment (Figure 5-1 of operation manual) to obtain a reading of 50 on the meter. If 50 cannot be obtained by turning LEL span adjustment, refer to Replacing Catalytic Filament in Section 4 of operation manual.
8. Turn flow control valve clockwise and disconnect adapter hose from inlet fitting.

9. Squeeze aspirator bulb 8 to 10 times to purge instrument with fresh air. Meter should indicate 0. If it does not, adjust LEL ZERO control to obtain a reading of zero on the meter, then connect adapter hose to inlet fitting and repeat steps 7 and 8. Remove flow control from gas cylinder.
10. Set RANGE switch to GAS. When READY indicator turns on, adjust GAS ZERO control to obtain zero indication on meter.
11. Connect source of 2.0 or 2.5% methane to inlet fitting. Pass gas through instrument and then shut off flow. Meter should indicate 2.0 or 2.5. If it does not, turn GAS span adjustment to obtain a meter reading of 2.0 or 2.5. If 2.0 or 2.5 cannot be obtained by turning gas span adjustment, refer to Replacing TC Filament in Section 4 of operation manual.

* Do not introduce 2.0 or 2.5% methane gas to an instrument located near a source of ignition; otherwise, an explosion may occur.

12. Disconnect source of methane and squeeze aspirator bulb 8 to 10 times to purge instrument with fresh air. Meter should indicate zero. If it does not, adjust GAS ZERO control to obtain zero indication on meter; then repeat steps 11 and 12.
13. Place instrument in bottom section of case and clasp top and bottom section together. Close cover.

APPENDIX H

BOREHOLE ABANDONMENT FORMS

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

County: MARATHON

NW 1/4 of NE 1/4 of Sec. 1 ; T. 28 N; R. 5 ☒ E ☐ W

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

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

Civil Town Name: CASSEL

Street Address of Well

City, Village

(2) FACILITY NAME

Original Well Owner (If Known): WEISENBERGER TIE & LUMBER COMPANY

Present Well Owner: WEISENBERGER TIE & LUMBER COMPANY

Street or Route: WEISENBERGER ROAD

City, State, Zip Code: MARATHON, WI 54448

Facility Well No. and/or Name (If Applicable): TEST BORING TB-1

WI Unique Well No. _____

Reason For Abandonment: DISCONTINUED USE

Date of Abandonment: 4-8-92

WELL/DRILLHOLE/BOREHOLE INFORMATION

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

(Date) 4-8-92

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☒ Borehole

Construction Report Available? NA ☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☒ Bedrock

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

Casing Depth (ft.) _____

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

(4) Depth to Water (Feet) UNKNOWN

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
CHIPPED BENTONITE	Surface	2	0.7 ft³	

(8) Comments: _____

(9) Name of Person or Firm Doing Sealing Work
CENTRAL WISCONSIN ENGINEERS

Signature of Person Doing Work: Dale R. Faulkner
Date Signed: 5-14-92

Street or Route: 913 GRAND AVE
Telephone Number: (715) 359-9408

City, State, Zip Code: ROTHSCHILD WI 54474

(10) FOR DNR OR COUNTY USE ONLY

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

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

County: MARATHON

NW 1/4 of NE 1/4 of Sec. 1 ; T. 28 N; R. 5 ☒ E ☐ W

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

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

Civil Town Name: CASSEL

Street Address of Well

City, Village

(2) FACILITY NAME

Original Well Owner (If Known): WEISENBERGER TIE & LUMBER COMPANY

Present Well Owner: WEISENBERGER TIE & LUMBER COMPANY

Street or Route: WEISENBERGER ROAD

City, State, Zip Code: MARATHON, WI 54448

Facility Well No. and/or Name (If Applicable): TEST BORING TB-2

WI Unique Well No. _ _ _ _ _ _

Reason For Abandonment: DISCONTINUED USE

Date of Abandonment: 4-8-92

WELL/DRILLHOLE/BOREHOLE INFORMATION

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

(Date) 4-8-92

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☒ Borehole

Construction Report Available? NA ☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☒ Bedrock

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

Casing Depth (ft.) _____

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

(4) Depth to Water (Feet) UNKNOWN

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
CHIPPED BENTONITE	Surface	2	0.7 #3	

(8) Comments: _____

(9) Name of Person or Firm Doing Sealing Work
CENTRAL WISCONSIN ENGINEERS

Signature of Person Doing Work: Dale R Kaufhorn
Date Signed: 5-14-92

Street or Route: 913 GRAND AVE
Telephone Number: (715) 359-9400

City, State, Zip Code: ROTHSCHILD WI 54474

(10) FOR DNR OR COUNTY USE ONLY

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

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

County: MARATHON

NW 1/4 of NE 1/4 of Sec. 1 ; T. 28 N; R. 5 ☒ E ☐ W

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

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

Civil Town Name: CASSEL

Street Address of Well

City, Village

(2) FACILITY NAME

Original Well Owner (If Known): WEISENBERGER TIE & LUMBER COMPANY

Present Well Owner: WEISENBERGER TIE & LUMBER COMPANY

Street or Route: WEISENBERGER ROAD

City, State, Zip Code: MARATHON, WI 54448

Facility Well No. and/or Name (If Applicable): TEST BORING TB-3

WI Unique Well No. _ _ _ _ _ _

Reason For Abandonment: DISCONTINUED USE

Date of Abandonment: 4-8-92

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On (Date): 4-8-92

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☒ Borehole

Construction Report Available? NA ☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☒ Bedrock

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

Casing Depth (ft.) _____

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

(4) Depth to Water (Feet) UNKNOWN

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
CHIPPED BENTONITE	Surface	6	2.1 ft³	

(8) Comments: _____

(9) Name of Person or Firm Doing Sealing Work: CENTRAL WISCONSIN ENGINEERS

Signature of Person Doing Work: Dale W. Fransen
Date Signed: 5-14-92

Street or Route: 913 GRAND AVE
Telephone Number: (715) 359-9408

City, State, Zip Code: ROTHSCHILD WI 54474

(10) FOR DNR OR COUNTY USE ONLY

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

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

County: MARATHON

NW 1/4 of NE 1/4 of Sec. 1 ; T. 28 N; R. 5 ☒ E ☐ W

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

Grid Location

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

Civil Town Name: CASSEL

Street Address of Well

City, Village

(2) FACILITY NAME

Original Well Owner (If Known): WEISENBERGER TIE & LUMBER COMPANY

Present Well Owner: WEISENBERGER TIE & LUMBER COMPANY

Street or Route: WEISENBERGER ROAD

City, State, Zip Code: MARATHON, WI 54448

Facility Well No. and/or Name (If Applicable): TEST BORING TB-4

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

Reason For Abandonment: DISCONTINUED USE

Date of Abandonment: 4-8-92

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On (Date): 4-8-92

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☒ Borehole

Construction Report Available? NA ☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☒ Bedrock

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

Casing Depth (ft.) _____

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

(4) Depth to Water (Feet) UNKNOWN

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
CHIPPED BENTONITE	Surface	3	0.6 ft³	

(8) Comments: _____

(9) Name of Person or Firm Doing Sealing Work: CENTRAL WISCONSIN ENGINEERS

Signature of Person Doing Work: Dale K Rawlowicz	Date Signed: 5-14-92
Street or Route: 913 GRAND AVE	Telephone Number: (715) 359-9408
City, State, Zip Code: ROTHSCHILD WI 54474	

(10) FOR DNR OR COUNTY USE ONLY

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

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

County: MARATHON

NW 1/4 of NE 1/4 of Sec. 1 ; T. 28 N; R. 5 ☒ E ☐ W

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

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

Civil Town Name: CASSEL

Street Address of Well

City, Village

(2) FACILITY NAME

Original Well Owner (If Known): WEISENBERGER TIE & LUMBER COMPANY

Present Well Owner: WEISENBERGER TIE & LUMBER COMPANY

Street or Route: WEISENBERGER ROAD

City, State, Zip Code: MARATHON, WI 54448

Facility Well No. and/or Name (If Applicable): TEST BORING TB-5

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

Reason For Abandonment: DISCONTINUED USE

Date of Abandonment: 4-8-92

WELL/DRILLHOLE/BOREHOLE INFORMATION

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

(Date) 4-8-92

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☒ Borehole

Construction Report Available? NA ☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☒ Bedrock

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

Casing Depth (ft.) _____

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

(4) Depth to Water (Feet) UNKNOWN

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
CHIPPED BENTONITE	Surface	6	1.2 ft³	

(8) Comments:

(9) Name of Person or Firm Doing Sealing Work: CENTRAL WISCONSIN ENGINEERS

Signature of Person Doing Work: Dale R. Ramsomer	Date Signed: 5-14-92
Street or Route: 913 GRAND AVE	Telephone Number: (715) 359-9408
City, State, Zip Code: ROTHSCHILD WI 54474	

(10) FOR DNR OR COUNTY USE ONLY

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

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

County: MARATHON

NW 1/4 of NE 1/4 of Sec. 1 ; T. 28 N; R. 5 ☒ E ☐ W

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

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

Civil Town Name: CASSEL

Street Address of Well

City, Village

(2) FACILITY NAME

Original Well Owner (If Known): WEISENBERGER TIE & LUMBER COMPANY

Present Well Owner: WEISENBERGER TIE & LUMBER COMPANY

Street or Route: WEISENBERGER ROAD

City, State, Zip Code: MARATHON, WI 54448

Facility Well No. and/or Name (If Applicable): TEST BORING TB-6

WI Unique Well No.: _____

Reason For Abandonment: DISCONTINUED USE

Date of Abandonment: 4-8-92

WELL/DRILLHOLE/BOREHOLE INFORMATION

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

(Date) 4-8-92

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☒ Borehole

Construction Report Available? NA ☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☒ Bedrock

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

Casing Depth (ft.) _____

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

(4) Depth to Water (Feet) UNKNOWN

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
CHIPPED BENTONITE	Surface	2	0.4 ft³	

(8) Comments: _____

(9) Name of Person or Firm Doing Sealing Work: CENTRAL WISCONSIN ENGINEERS

Signature of Person Doing Work: Donald Kaufman — Date Signed: 5-14-92

Street or Route: 913 GRAND AVE — Telephone Number: (715) 359-9408

City, State, Zip Code: ROTHSCHILD WI 54474

(10) FOR DNR OR COUNTY USE ONLY

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

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

County: MARATHON

NW 1/4 of NE 1/4 of Sec. 1 ; T. 28 N; R. 5 ☒ E ☐ W

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

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

Civil Town Name: CASSEL

Street Address of Well

City, Village

(2) FACILITY NAME

Original Well Owner (If Known): WEISENBERGER TIE & LUMBER COMPANY

Present Well Owner: WEISENBERGER TIE & LUMBER COMPANY

Street or Route: WEISENBERGER ROAD

City, State, Zip Code: MARATHON, WI 54448

Facility Well No. and/or Name (If Applicable): TEST BORING TB-7

WI Unique Well No. _ _ _ _ _ _

Reason For Abandonment: DISCONTINUED USE

Date of Abandonment: 4-9-92

WELL/DRILLHOLE/BOREHOLE INFORMATION

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

(Date) 4-9-92

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☒ Borehole

Construction Report Available? NA ☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☒ Bedrock

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

Casing Depth (ft.) _____

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

(4) Depth to Water (Feet) UNKNOWN

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
CHIPPED BENTONITE	Surface	4	1.4 ft³	

(8) Comments: _____

(9) Name of Person or Firm Doing Sealing Work: CENTRAL WISCONSIN ENGINEERS

Signature of Person Doing Work: Deb Kaufman — Date Signed: 5-14-92

Street or Route: 903 GRAND AVE — Telephone Number: (715) 359-9400

City, State, Zip Code: ROTHSCHILD WI 54474

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected | District/County

Reviewer/Inspector

Follow-up Necessary

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

County: MARATHON

NW 1/4 of NE 1/4 of Sec. 1 ; T. 28 N; R. 5 ☒ E ☐ W

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

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

Civil Town Name: CASSEL

Street Address of Well

City, Village

(2) FACILITY NAME

Original Well Owner (If Known): WEISENBERGER TIE & LUMBER COMPANY

Present Well Owner: WEISENBERGER TIE & LUMBER COMPANY

Street or Route: WEISENBERGER ROAD

City, State, Zip Code: MARATHON, WI 54448

Facility Well No. and/or Name (If Applicable): TEST BORING TB-8

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

Reason For Abandonment: DISCONTINUED USE

Date of Abandonment: 4-9-92

WELL/DRILLHOLE/BOREHOLE INFORMATION

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

(Date) 4-9-92

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☒ Borehole

Construction Report Available? NA ☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☒ Bedrock

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

Casing Depth (ft.) _____

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

(4) Depth to Water (Feet) UNKNOWN

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
CHIPPED BENTONITE	Surface	2.5	0.9 ft³	

(8) Comments: _____

(9) Name of Person or Firm Doing Sealing Work: CENTRAL WISCONSIN ENGINEERS

Signature of Person Doing Work: Daniel Lawlor — Date Signed: 5-14-92

Street or Route: 913 GRAND AVE — Telephone Number: (715) 359-9400

City, State, Zip Code: ROTHSCHILD WI 54474

(10) FOR DNR OR COUNTY USE ONLY

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

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

County: MARATHON

NW 1/4 of NE 1/4 of Sec. 1 ; T. 28 N; R. 5 ☒ E ☐ W

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

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

Civil Town Name: CASSEL

Street Address of Well

City, Village

(2) FACILITY NAME

Original Well Owner (If Known): WEISENBERGER TIE & LUMBER COMPANY

Present Well Owner: WEISENBERGER TIE & LUMBER COMPANY

Street or Route: WEISENBERGER ROAD

City, State, Zip Code: MARATHON, WI 54448

Facility Well No. and/or Name (If Applicable): TEST BORING TB-9

WI Unique Well No.: _ _ _ _ _

Reason For Abandonment: DISCONTINUED USE

Date of Abandonment: 4-9-92

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construct on Completed On (Date): 4-9-92

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☒ Borehole

Construction Report Available? NA ☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☒ Bedrock

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

Casing Depth (ft.) _____

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

(4) Depth to Water (Feet) UNKNOWN

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
CHIPPED BENTONITE	Surface	6	1.2 ft³	

(8) Comments: _____

(9) Name of Person or Firm Doing Sealing Work: CENTRAL WISCONSIN ENGINEERS

Signature of Person Doing Work: Dale R. Kaufmann
Date Signed: 5-14-92

Street or Route: 913 GRAND AVE
Telephone Number: (715) 359-9400

City, State, Zip Code: ROTHSCHILD WI 54474

(10) FOR DNR OR COUNTY USE ONLY

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

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

County: MARATHON

NW 1/4 of NE 1/4 of Sec. 1 ; T. 28 N; R. 5 ☒ E ☐ W

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

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

Civil Town Name: CASSEL

Street Address of Well

City, Village

(2) FACILITY NAME

Original Well Owner (If Known): WEISENBERGER TIE & LUMBER COMPANY

Present Well Owner: WEISENBERGER TIE & LUMBER COMPANY

Street or Route: WEISENBERGER ROAD

City, State, Zip Code: MARATHON, WI 54448

Facility Well No. and/or Name (If Applicable): TEST BORING TB-10

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

Reason For Abandonment: DISCONTINUED USE

Date of Abandonment: 4-9-92

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) riginal Well/Drillhole/Borehole Construction Completed n

(Date) 4-9-92

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☒ Borehole

Construction Report Available? NA
☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☒ Bedrock

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

Casing Depth (ft.) _____

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

(4) Depth to Water (Feet) UNKNOWN

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
CHIPPED BENTONITE	Surface	5.5	1.9 ft³	

(8) Comments: _____

(9) Name of Person or Firm Doing Sealing Work: CENTRAL WISCONSIN ENGINEERS

Signature of Person Doing Work: Debbie Tomfohrde
Date Signed: 5-14-92

Street or Route: 913 GRAND AVE
Telephone Number: (715) 359-9408

City, State, Zip Code: ROTHSCHILD WI 54474

(10) FOR DNR OR COUNTY USE ONLY

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

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

County: MARATHON

NW 1/4 of NE 1/4 of Sec. 1 ; T. 28 N; R. 5 ☒ E ☐ W

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

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

Civil Town Name: CASSEL

Street Address of Well

City, Village

(2) FACILITY NAME

Original Well Owner (If Known): WEISENBERGER TIE & LUMBER COMPANY

Present Well Owner: WEISENBERGER TIE & LUMBER COMPANY

Street or Route: WEISENBERGER ROAD

City, State, Zip Code: MARATHON, WI 54448

Facility Well No. and/or Name (If Applicable): TEST BORING TB-11

WI Unique Well No. _ _ _ _ _ _

Reason For Abandonment: DISCONTINUED USE

Date of Abandonment: 4-9-92

WELL/DRILLHOLE/BOREHOLE INFORMATION

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

(Date) 4-9-92

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☒ Borehole

Construction Report Available? NA ☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☒ Bedrock

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

Casing Depth (ft.) _____

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

(4) Depth to Water (Feet) UNKNOWN

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
CHIPPED BENTONITE	Surface	5.0	1.7 ft³	

(8) Comments: _____

(9) Name of Person or Firm Doing Sealing Work: CENTRAL WISCONSIN ENGINEERS

Signature of Person Doing Work: Dale Lauks
Date Signed: 5-14-92

Street or Route: 913 GRAND AVE
Telephone Number: (715) 359-9408

City, State, Zip Code: ROTHSCHILD WI 54474

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected | District/County

Reviewer/Inspector

Follow-up Necessary

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

County: MARATHON

NW 1/4 of NE 1/4 of Sec. 1 ; T. 28 N; R. 5 ☒ E ☐ W

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

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

Civil Town Name: CASSEL

Street Address of Well

City, Village

(2) FACILITY NAME

Original Well Owner (If Known): WEISENBERGER TIE & LUMBER COMPANY

Present Well Owner: WEISENBERGER TIE & LUMBER COMPANY

Street or Route: WEISENBERGER ROAD

City, State, Zip Code: MARATHON, WI 54448

Facility Well No. and/or Name (If Applicable): TEST BORING TB-12

WI Unique Well No. _ _ _ _ _ _

Reason For Abandonment: DISCONTINUED USE

Date of Abandonment: 4-9-92

WELL/DRILLHOLE/BOREHOLE INFORMATION

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

(Date) 4-9-92

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☒ Borehole

Construction Report Available? NA
☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☒ Bedrock

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

Casing Depth (ft.) _____

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

(4) Depth to Water (Feet) UNKNOWN

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
CHIPPED BENTONITE	Surface	5.0	1.7 ft^3	

(8) Comments: _____

(9) Name of Person or Firm Doing Sealing Work: CENTRAL WISCONSIN ENGINEERS

Signature of Person Doing Work: Dale Rauwerda — Date Signed: 5-14-92

Street or Route: 913 GRAND AVE — Telephone Number: (715) 359-9408

City, State, Zip Code: ROTHSCHILD WI 54474

(10) FOR DNR OR COUNTY USE ONLY

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

APPENDIX I

WELL CONSTRUCTION REPORT

Well Construction Report For WISCONSIN UNIQUE WELL NUMBER AB419

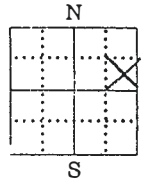
State of Wisconsin
Department of Natural Resources
Private Water Supply — WS/2
Box 7921
Madison, WI 53707

MAR 10 1988

Property Owner: Rudy Weisenberger 1715 | Telephone Number: 433-2049
Mailing Address: Box 67 Weisenberger Rd
City: Marathon | State: WI | Zip Code: 54448
County: 37 Marathon | County Well Location Permit No.: W | Well Completion Date: 3-1-88 (M M D D Y Y)

Well Constructor (Business Name): HEEG Well Drilling | License #: 355
Address: 5269 County F
City: Auburndale | State: WI | Zip Code: 54412

2. Mark well location in correct 40-acre parcel of section.



1. Location (Please type or print using a black pen.)
☐ Town ☐ City ☑ Village of MARATHON | Fire # (if available)
Grid or Street Address or Road Name and Number (if available)
Subdivision Name | Lot # | Block #
Gov't Lot # ____ or SE ¼ of NE ¼ of Section 1; T 28 N; R 5 ☒ E ☐ W

3. Well Type ☐ New ☑ Replacement ☐ Reconstruction/Rehabilitation
of well constructed in 19 ____.
Reason for new, reconstructed, replaced, or rehabilitated well?
Needs More WATER
☑ Drilled ☐ Driven Point ☐ Jetted ☐ Other ____

4. Well serves ____ # of homes and/or Saw Mill (ex: barn, restaurant, church, school, industry, etc.)
High Capacity Well? ☐ Yes ☒ No
High Capacity Property? ☐ Yes ☒ No

5. Well Located on Highest Point of Property, Consistent with the General Layout and Surroundings? ☑ Yes ☐ No
Well Located in Floodplain? ☐ Yes ☑ No
Distance In Feet From Well To Nearest:

____ 1. Landfill	____ 9. Downspout/Yard Hydrant	____ 17. Wastewater Sump
25 2. Building Overhang	____ 10. Privy	____ 18. Paved Animal Barn Pen
400 3. Septic or Holding Tank	____ 11. Foundation Drain to Clearwater	____ 19. Animal Yard or Shelter
____ 4. Sewage Absorption Unit	____ 12. Foundation Drain to Sewer	____ 20. Silo — Type ____
____ 5. Nonconforming Pit	____ 13. Building Dr in ☐ Cast Iron or Plastic ☐ Other	____ 21. Barn Gutter
____ 6. Buried Home Heating Oil Tank	____ 14. Building Sewer ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other	____ 22. Manure Pipe ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
____ 7. Buried Petroleum Tank	____ 15. Collector Sewer	____ 23. Other Manure Storage ____ Other NR 112 Waste Source
____ 8. Shoreline/Swimming Pool	____ 16. Clearwater Sump	____ 24. ____

6. Drillhole Dimensions

Dia. (in.)	From (ft.)	To (ft.)
8	surface	40
6	40	145

Method of constructing upper enlarged drillhole. (If applicable ✓ more than one.)
☐ 1. Rotary — Mud Circulation
☑ 2. Rotary — Air
☐ 3. Rotary — Foam
☐ 4. Reverse Rotary
☐ 5. Cable-tool Bit ____ in. dia.
☐ 6. Temp. Outer Casing ____ in. dia. Removed? ☐ Yes ☐ No
If no, explain ____
☐ 7. Other ____

7. Casing, Liner, Screen

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
6	St. Steel	surface	40
	280 WALL, ASTM - A120/53		
	Kent Steel		
	Welded Joint		
Dia. (in.)	screen type and material	From	To

8. Grout or Other Sealing Material

Method: Pump — Kind of Sealing Material	From (ft.)	To (ft.)	# Sacks Cement
Drill cuttings	surface	7	
Cement	7	40	5

9. Geology

	Type, Caving/Noncaving, Color, Hardness, Etc.	From (ft.)	To (ft.)
C	clay	surface	2
DC	Decomposed	2	30
Q	Granite	30	145

10. Static Water Level: 30 ft. below ground surface

11. Pump Test: Pumping Level 145 ft. below surface; Pumping at 6 GPM for 2 hours

12. Well Is: 18 in. ☑ Above ☐ Below Grade
Developed? ☑ Yes ☐ No
Disinfected? ☑ Yes ☐ No
Capped? ☑ Yes ☐ No

13. Were all unused, noncomplying, or unsafe wells properly filled with sealant? ☐ Yes ☑ No If no, explain Still in use

14. Signature of Well Constructor: Brian Heeg BH | Date Signed: 3/8/88
Signature of Drill Rig Operator: Brian Heeg BH | Date Signed: 3/8/88

Make additional comments on reverse side about geology, etc.

DNR/GNHS ORIGINAL