May 24, 1990

Mr. Richard Lubenow
Paragon Electric Company, Inc.
P.O. Box 28
606 Parkway Blvd.
Two Rivers, Wisconsin 54241

RE: Contamination Assessment at the Paragon Electric Company, Two Rivers, Wisconsin
-- STS Project No. 17566XF

Dear Mr. Lubenow:

STS is pleased to submit four copies of this Contamination Assessment at the Paragon Electric Company in Two Rivers, Wisconsin. This work was completed in accordance with our proposal dated October 30, 1990 and your purchase order number 15443.

It is a pleasure working with you. If you any questions or comments on this report or wish to set up a meeting with us and/or the DNR, please feel free to call.

Sincerely,

STS CONSULTANTS, LTD.

Donna M. Bugs/JAS

Donna M. Bugs
Hydrogeologist

James A. Senger

James A. Senger, CPG
Principal Geologist

DMB/lb

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Report

Project

CONTAMINATION ASSESSMENT
PARAGON ELECTRIC COMPANY
TWO RIVERS, WISCONSIN

Client

PARAGON ELECTRIC COMPANY, INC.
606 PARKWAY BLVD.
TWO RIVERS, WISCONSIN 54241

Project # 17566XF

Date MAY 1990

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Consulting Engineers

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CONTAMINATION ASSESSMENT
PARAGON ELECTRIC COMPANY

I. INTRODUCTION

A. Purpose and Scope of Work

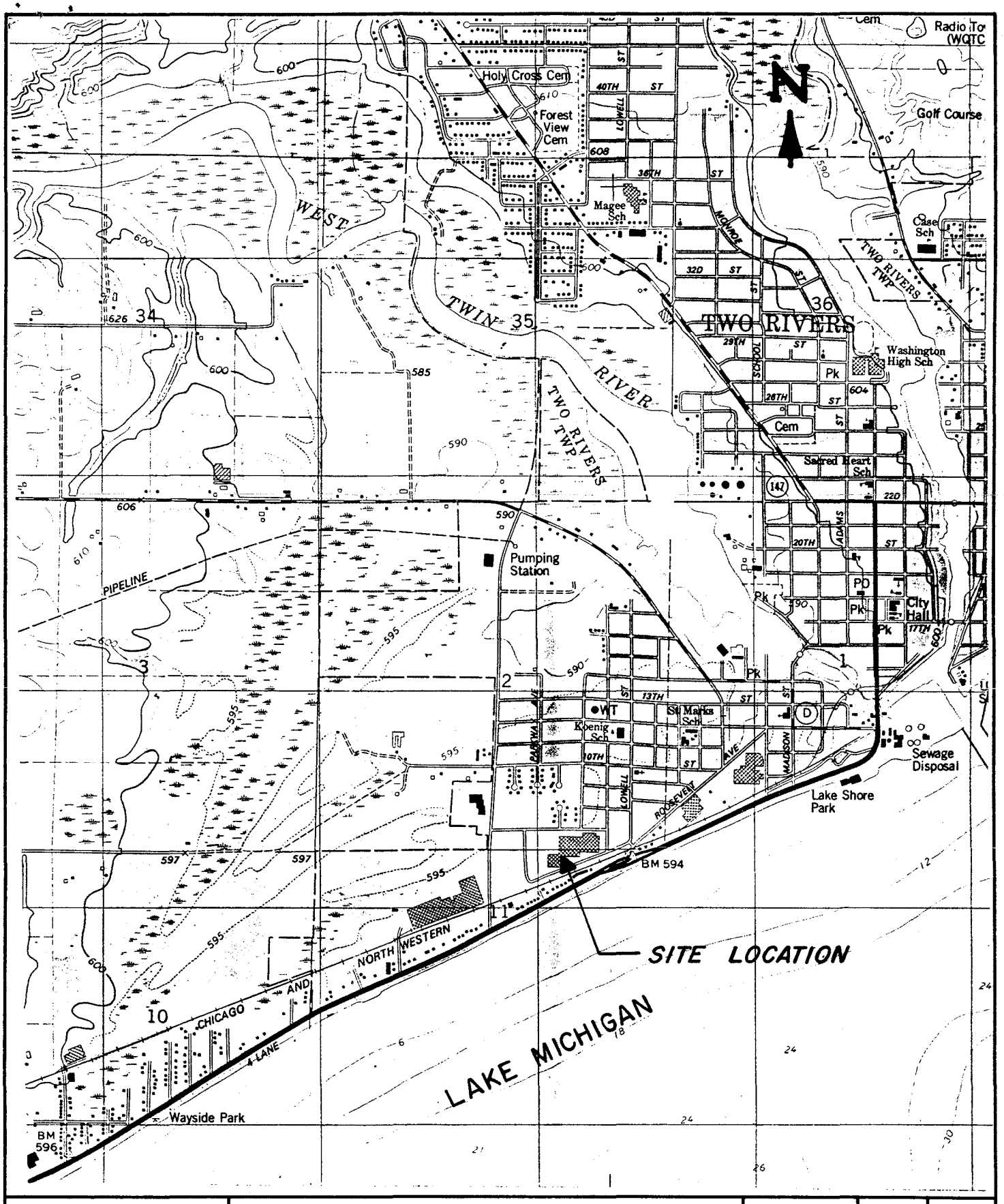
The purpose of conducting this contamination assessment at the Paragon Electric Company property is to estimate the direction of groundwater flow on site, the degree and extent of contamination, and the source of contamination if possible.

The scope of work for this contamination assessment was developed based on mutual understanding of the client, the Department of Natural Resources and STS relative to present and previous site uses and available analytical data. The scope of work includes conducting soil borings, installing monitoring wells, collecting soil samples, screening soil samples with an HNU photoionization detector (HNU), submitting groundwater samples for laboratory analysis, interpreting field and laboratory data and providing recommendations for additional site assessment and potential remediation options.

B. Site Background

The Paragon Electric Company site is located within the SE 1/4, Section 2 and NE 1/4 Section 11, T19N, R24E on the southwest side of Two Rivers, Wisconsin. A map showing the location of the site is provided as Figure 1.

The Paragon Electric Company manufactures electrical components primarily for temperature regulation. Paragon Electric uses trichloroethylene and has used toluene as a parts cleaner. It is our understanding that two surface spills have occurred on the property. During the winter of 1983 a spill occurred in an outside storage area during the transfer of containers to a new enclosed storage area. Drums containing TCE and



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PROJECT/CLIENT

SITE LOCATION MAP
PARAGON ELECTRIC COMPANY
TWO RIVERS, WISCONSIN

DRAWN BY	D.T.B.	
CHECKED BY		
APPROVED BY	D.M.B.	
SCALE NO SCALE	FIGURE NO. 1	
STS DRAWING NO. 17566XF		

BRUNING, 40-5000 515117

toluene were accidentally punctured allowing approximately 35 to 40 gallons of liquid to leak onto the paved storage area. It is likely that much of the liquid spilled (which is highly volatile) evaporated directly from the pavement. This may also be true for liquid that may have reached soil adjacent to the pavement. At the time of the spill the frozen soil would have behaved much like asphalt allowing evaporation of a liquid to occur. ← depends on temp.

A second spill occurred on August 4, 1984 from a tanker truck containing TCE. Approximately 25 to 30 gallons spilled onto a paved area near the paint vault at the southeast end of the Paragon plant. West of the pavement is a lawn area underlain by soil material that may have been contaminated during the spill.

In addition to these known spills, it is also possible that a degreaser pit may also be a potential source for TCE contamination.

Limited investigation work has been conducted by STS Consultants in late 1986 and by CBC Environmental Services and Yanko Environmental Services in 1989. This data has been reviewed by STS Consultants.

II. METHODS OF ASSESSMENT

A. Soil Borings

On February 2 and 5, 1990, three soil borings were completed at the Paragon Electric site. At two of these locations water table monitoring wells were installed and at the other location a piezometer was installed adjacent to an existing water table monitoring well. These soil boring and monitoring well locations are shown on Figure 2. The borings were drilled using a truck mounted drill rig. A combination of solid stem auger and hollow stem auger were employed to advance the boreholes. The specific drilling methods are indicated on the boring logs provided in Appendix A. No drilling muds were used.

All augers and downhole drilling equipment were streamed cleaned prior to drilling and between soil borings to minimize the potential for cross contamination. Furthermore, the split spoon sampler was washed with Alconox detergent and rinsed with clean water between collecting subsequent soil samples.

B. Soil Sampling and HNU Screening

Soil samples were collected at each of the soil boring locations at 2.5-foot intervals by means of split barrel sampling procedures in general accordance with ASTM Specification D-1586-67 "Standard Method for Penetration Testing and Split Barrel Sampling of Soils". A brief description of the sampling procedure is included in Appendix A.

An STS Environmental Technician was on site with the drill crew to preliminarily classify and screen all of the recovered soil samples with an HNU Model 101 photoionization detector (HNU) equipped with 10.2 eV lamp. This instrument is capable

600 E

700 E

800 E

LAWN

900 E

MW-3

1000 E

1300 N

N

1200 N

LEGEND

MONITORING WELL

BULK TCE
STORAGE AREA
ABOVEGROUND

1100 N

FORMER LOCATION OF
500 GAL. UST - SOLVENT

DEGREASER PIT - TCE
also source

FORMER LOCATION
OF 500 GAL. UST - OIL

LAWN

FORMER LOCATION OF
2000 GAL. UST - OIL

MACHINE
SHOP

REC.
DOCK

PRESS DEPT.

1000 N

PAINT
VAULT

LAWN

P-1

MW-1

TCE tanker
Sep. 11

LAWN

MW-2

LAWN

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MONITORING WELL LOCATION DIAGRAM

PARAGON ELECTRIC COMPANY
TWO RIVERS, WISCONSIN

DRAWN BY	DATE	SCALE	STS PROJECT NO.
K.J.C.	2-19-90	1" = 40'	17566XF
CHECKED BY	DATE	FIGURE NO. 2	

of detecting VOCs (volatile organic compounds) including many of the volatile components characteristic of common solvents and petroleum products with ionization potentials less than or equal to 10.2 eV in air relative to a benzene standard. The HNU meter operates on the principle of photoionization in which incoming gas molecules are subjected to ultra violet radiation and transformed into charged ion pairs. The charged ions create a current between two electrodes and this current is transformed into a meter reading. Because organic compounds have varying ionization potential, response of the HNU meter is related to the compounds being ionized. Accordingly, when a variety of compounds are present in the air the meter does not necessarily indicate the concentration of any specific VOC. Prior to screening the soil samples, the HNU was calibrated to a benzene standard (isobutylene) per the manufacturer's specifications.

As each soil sample was collected, it was placed in a clean glass jar, sealed with aluminum foil and closed with a screw-on lid. HNU screening of the recovered soil sample was accomplished first by shaking the soil sample jar for several seconds which increases the surface area of the soil particles exposed to inside of the jar followed by inserting the tip of the HNU probe about an inch into the jar through the aluminum foil cover. The highest value read off the HNU meter during the first few seconds after inserting the probe tip is recorded as the HNU reading for the soil sample. All HNU readings are recorded on the soil boring logs provided in Appendix A.

All soil samples collected during the boring program were visually classified according to the Unified Soil Classification System. A copy of this soil classification system and STS General Notes are provided in Appendix A. An STS Hydrogeologist classified these soils in the laboratory. Then boring logs with soil descriptions, methods of sampling, sample depths, HNU readings, boring dates, etc. were constructed. These logs are provided in Appendix A.

C. Well Installation

The groundwater monitoring wells consist of 2-inch ID Schedule 40 PVC riser and 0.01-inch slotted PVC well screen. The shallow water table observation wells have a 10-foot well screen which is placed so that the well screen intersects the water table. The piezometer has a 5-foot well screen sealed at depth. The annulus around each well screen was backfilled with a clean silica sand. A fine sand material was placed above the filter pack. Granular bentonite was used as the bentonite seal, the annular space seal and the surface seal at the monitoring wells. Bentonite pellets were used as the bentonite seal, bentonite slurry as the annular space seal, and 1-foot of topsoil as the surface seal at the piezometer. A steel protector pipe with lock was secured over each well. Monitoring Well Construction Forms are provided in Appendix A.

Prior to leaving the site the drill crew developed each well by bailing. Details of the monitoring well development are provided on the back side of the Monitoring Well Construction Form provided in Appendix A.

D. Surveying

A field survey was conducted by STS personnel on February 14, 1989 in order to determine the top of PVC and ground surface elevation at each boring/well location and to set benchmarks adjacent to Lake Michigan and the West Twin River for surface water elevation measurements. All boring/wells were located relative to mean sea level and a site grid as shown on the Monitoring Well Location Diagram, Figure 2. The site grid was established relative to the southeast corner of the plant which is designated as 1,000 north and 1,000 east.

E. Groundwater Sampling and Analysis

The groundwater monitoring wells and piezometer were sampled on February 14, 1990 and March 22, 1990 by an STS Environmental Technician. Surface water elevations were collected at the same time from Lake Michigan and the West Twin River. Generally the Technician first measured the water level in each well, purged up to five gallons of water from each well, allowed the well to recharge and then collected the sample utilizing a Teflon bailer. The VOC sample vials were filled to overflowing to achieve a positive meniscus without entrapped air bubbles, in order to minimize volatilization prior to sample analysis. Observation on color, turbidity and odor are made and recorded in the field notes. One additional round of groundwater elevations and surface water elevations at the West Twin River and Lake Michigan were also measured on April 20, 1990. The field data collected during groundwater sampling and water level measurements are presented in Appendix B.

The Environmental Technician packaged the samples and sent them to the laboratory by the following day after sampling along with a completed Chain of Custody form. Enviroscan Laboratory in Rothschild, Wisconsin provided the sample containers and performed the laboratory analysis. All samples were analyzed for volatile organic constituents (VOCs) using the EPA Method 502.2.

III. RESULTS

A. Geology

According to Skinner and Borman (1973), the site is located in an area of surficial lake deposits which may consist of organic material and stratified clay silt and sand. Beach sand, which has little or no developed soil horizon and an approximate infiltration rate of 5 to 10 inches per hour is located within the area of lake deposits and in the area which includes the site. The bedrock which underlies the unconsolidated soils is a Silurian dolomite.

Based on the three soil borings conducted to a maximum approximate depth of 36.5 feet, it appears that there are three soil types present on site. A thin layer of topsoil was observed at the ground surface to approximately 2.5 feet at each of the soil boring locations. The topsoil is described as a brown silty fine sand (SM) with a trace of organics and a trace of coarse sand at MW-3. Below the topsoil, a light brown very fine to fine sand (SP) was observed. This sand appears to be an eolian deposit which means it was deposited via wind transport and is described in some literature as beach deposits (as referenced above). A trace of organics from 7.5 to 11.5 feet at Boring MW-3 and at 23.5 to 25 feet at Boring P-1 were observed. A trace of fine gravel was observed at 10 to 14 feet at MW-3 and at 5 to 9 at Boring P-1. A trace of coarse sand and fine gravel was also observed at Boring MW-2. This eolian deposit was observed at Borings MW-2 and MW-3 to the end of the boring which is approximately 15.5 feet and at Boring P-1 to a depth of 28 feet. At Boring P-1 a brown silty very fine sand (SM) laminated with brown clayey silt (ML) was observed from 28 feet to the end of the boring (36.5 feet). Detailed descriptions are provided on the soil boring logs located in Appendix A.

B. Soil Quality

As described in a previous section, each of the soil samples were screened in the field with an HNU meter. Elevated HNU readings were observed at boring locations P-1 and MW-2. Readings ranged from zero to 52 ppm. The background reading at the site was approximately zero. The HNU readings for specific samples are provided on the soil boring logs in Appendix A.

C. Hydrogeology

The groundwater table was observed at approximate depths of seven to nine feet below ground surface. Groundwater flow on the site appears to be south to southeast toward Lake Michigan based on three rounds of groundwater and surface water elevations. Approximate groundwater table contours and direction of flow are shown on Figure 3. Based on the location of the West Twin River and Lake Michigan in relation to the site and on the observed groundwater elevation, there does not appear to be a groundwater divide below the site. A groundwater divide probably does exist to the north-northwest closer toward the West Twin River.

Vertical groundwater gradients observed at MW-1/P-1 were low. Gradients were downward on February 14, 1990 and April 20, 1990 and were upward on March 22, 1990. A summary of the vertical groundwater gradients at MW-1/P-1 is provided as Table 1.

D. Groundwater Quality

Groundwater samples were collected on February 14 and March 21, 1990. These samples were analyzed for VOCs by Enviroscan Laboratories of Rothschild, Wisconsin. A summary of the VOCs detected in the groundwater samples and their respective concentrations is provided in Table 2.

600 E

700 E

800 E

LAWN

900 E

MW-3
(584.30)

1000 E

1300 N

N

1200 N

584.2

BULK TCE
STORAGE AREA
ABOVEGROUND

FORMER LOCATION OF
500 GAL. UST - SOLVENT

DEGREASER PIT - TCE

FORMER LOCATION
OF 500 GAL. UST - OIL

LAWN

584.0

FORMER LOCATION OF
2000 GAL. UST - OIL

MACHINE
SHOP

REC.
DOCK

PRESS DEPT.

1000 N

LAWN

PAINT
VAULT

P-1
(583.81)

MW-1
(583.88)

LAWN

MW-2
(583.93)

LAWN

LEGEND

MONITORING WELL

(583.88) WATER TABLE ELEVATION AT WELL ON 4-20-90

584.0 ESTIMATED GROUNDWATER TABLE FLOW CONTOUR SHOWING FLOW DIRECTION

NOTE

LAKE MICHIGAN ELEVATION ON
4-20-90 @ 578.91

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GROUNDWATER TABLE CONTOUR MAP

PARAGON ELECTRIC COMPANY
TWO RIVERS, WISCONSIN

DRAWN BY	DATE	SCALE	STS PROJECT NO.
D. T. B.	5-18-90	1" = 40'	17566XF
CHECKED BY	DATE	FIGURE NO. 3	

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TABLE 1

Vertical Groundwater Gradients at MW-1/P-1

Date	Head Difference	Average Length Between Gravel Packs (ft)	Minimum Length Between Gravel Packs (ft)	Average Gradient	Maximum Gradient
2-14-90	.17	22.5	17.3	7.6×10^{-3}	9.8×10^{-3}
3-22-90	-.03	23.0	17.3	-1.3×10^{-3}	-1.7×10^{-3}
4-20-90	.07	23.0	17.3	3.0×10^{-3}	4.0×10^{-3}

*Note: Positive Gradient - Downward
Negative Gradient - Upward

TABLE 2

Summary of Concentrations of VOCs (in ug/l) in Groundwater
Samples Collected 2-14-90 and 3-21-90

Compound	Well Location MW-1	P-1	MW-2	MW-3
Date: 2-14-90				
Carbon Tetrachloride	1.05	X	X	X
Chloroethane	2.56	X	X	X
Chloroform	X	3.33	3.06	X
1,1-Dichloroethane	1.81	X	X	X
1,1-Dichloroethylene	1.48*	X	X	X
1,2-Dichloroethylene	29.9	X	37.7	X
Tetrachloroethylene	X	X	1.84*	X
Toluene	X	1.86	4.13	3.25
1,1,1-Trichloroethane	10.4	X	0.58	X
1,1,2-Trichloroethane	X	X	1.67*	X
Trichloroethylene	219*	12.0*	2,560*	X
Vinyl Chloride	3.12*	X	X	X
Date: 3-21-90				
Chloroform	X	0.62	X	X
1,2-Dichloroethylene	44.4	2.15	X	X
Trichloroethylene	137*	6.47*	560*	X
Vinyl Chloride	9.48*	X	X	X

* Exceedance of the NR 140 Enforcement Standard
X Analyzed but not detected

The analytical results from February 14, 1990 indicate elevated levels of trichloroethylene (TCE) and some of its breakdown products and common impurities at well locations MW-1, MW-2 and P-1. Low levels of toluene were also observed at MW-2, MW-3 and P-1. Exceedances of the NR 140 enforcement standards (ES) occurred for 1,1-dichloroethylene at MW-1; tetrachloroethylene at MW-2; 1,1,2-trichloroethane at MW-2; trichloroethylene at MW-1; MW-2 and P-1; and vinyl chloride at MW-1. The highest concentration of trichloroethylene was observed at MW-2.

Analytical results from the second round of sampling conducted March 21, 1990 also indicated elevated levels of trichloroethylene and some of the breakdown products. Exceedances of the NR 140 enforcement standards occurred for trichloroethylene at MW-1, MW-2 and P-1, and for vinyl chloride at MW-1. No detectable levels of VOCs were observed at MW-3. Again the highest concentration of trichloroethylene was observed at MW-2. In general, the analytical results from the second round of sampling indicate lower concentrations of VOCs than the first round of sampling. Otherwise, the results are not significantly different. It is possible that the groundwater samples collected on March 21, 1990 were influenced by dilution from frost thawing or a recent rainfall event.

IV. CONCLUSIONS

Based on the data presented herein, TCE and some of its breakdown materials and common impurities are present in the soils and groundwater on the Paragon Electric site. Exceedances of the NR 140 groundwater quality standards have been observed for 1,1-dichloroethylene, tetrachloroethylene, 1,1,2-trichloroethane, trichloroethylene, and vinyl chloride. Based on the concentrations of these substances at the well locations, it is clear that MW-3 is upgradient of the contaminant source(s) and that MW-1 and MW-2 are downgradient of the sources. Water samples from MW-2 appear to have the highest concentrations of contaminants.

V. GENERAL QUALIFICATIONS

The results and conclusions submitted in this report are based on data obtained from three soil borings and groundwater samples collected from four monitoring well installations. Variations can occur between these borings, the nature and extent of which may not become evident until some later date. Water levels have measured in the monitoring wells and at surface water points at the time and under the conditions stated in the report. However, it must be noted that annual fluctuations in the groundwater level will likely occur. This data has been revealed and an interpretation in the text of this report.

The scope of work for this contamination assessment was developed based on the mutual understanding of the client, the Department of Natural Resources and the consultant relative to the present and previous uses of the site. It is normally the case that the contaminants, if present, are hidden the subsurface materials, typically having been placed there due to the unpredictable actions of man. The most a consultant can do is formulate a logical exploration program that reduces the clients risk of the unknown. The more extensive the exploration the greater certainty of defining the extent and degree of contamination that is present. Even for very extensive and expensive explorations, it is not possible to define a precise degree and extent of contamination at a particular site.

This report has been prepared in accordance with generally accepted engineering practices to aid in the evaluation of this property. No other warranty, expressed or implied, is made. The scope of this report is limited to the specific projects and location described herein and our description of the project represents our understanding of the significant aspects relative to soil and groundwater characteristics.

APPENDIX A

STS General Notes
STS Field and Laboratory Procedures
Unified Soil Classification System
Soil Boring Logs
Monitoring Well Construction Forms

STS General Notes

STS CONSULTANTS, LTD.

DRILLING & SAMPLING SYMBOLS:

SS : Split Spoon-1 3/8" I.D., 2" O.D. Unless otherwise noted
ST : Shelby Tube-2" O.D., Unless otherwise noted
PA : Power Auger
DB : Diamond Bit-NX, BX, AX
AS : Auger Sample
JS : Jar Sample
VS : Vane Shear
OS : Osterberg Sampler-3" Shelby Tube
HS : Hollow Stem Auger
WS : Wash Sample
FT : Fish Tail
RB : Rock Bit
BS : Bulk Sample
PM : Pressuremeter Test, In-Situ
GS : Giddings Sampler

Standard "N" Penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2 inch O.D. split spoon sampler, except where otherwise noted.

WATER LEVEL MEASUREMENT SYMBOLS:

WL : Water Level
WS : While Sampling
WD : While Drilling
AB : After Boring
WCI : Wet Cave In
DCI : Dry Cave In
BCR : Before Casing Removal
ACR : After Casing Removal

Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. In pervious soils, the indicated elevations are considered reliable groundwater levels. In impervious soils, the accurate determination of groundwater elevations may not be possible, even after several days of observations; additional evidence of groundwater elevations must be sought.

GRADATION DESCRIPTION & TERMINOLOGY:

Coarse Grained or Granular Soils have more than 50% of their dry weight retained on a #200 sieve; they are described as: boulders, cobbles, gravel or sand. Fine Grained soils have less than 50% of their dry weight retained on a #200 sieve; they are described as: clays or clayey silts if they are cohesive and silts if they are non-cohesive. In addition to gradation, granular soils are defined on the basis of their relative in-place density and fine grained soils on the basis of their strength or consistency and their plasticity.

Major Component Of Sample	Size Range	Description Of Components Also Present in Sample	Percent Of Dry Weight
Boulders	Over 8 in. (200 mm)	Trace	1-9
Cobbles	8 inches to 3 inches (200 mm to 75 mm)	Little	10-19
Gravel	3 inches to #4 sieve (75 mm to 4.76 mm)	Some	20-34
Sand	#4 to #200 sieve (4.76 mm to 0.074 mm)	And	35-50
Silt	Passing #200 sieve (0.074 mm to 0.005 mm)		
Clay	Smaller than 0.005 mm		

CONSISTENCY OF COHESIVE SOILS:

Unconfined Compressive Strength, Qu, tsf	Consistency
0.25	Very Soft
0.25-0.49	Soft
0.50-0.99	Medium (Firm)
1.00-1.99	Stiff
2.00-3.99	Very Stiff
4.00-8.00	Hard
>8.00	Very Hard

RELATIVE DENSITY OF GRANULAR SOILS:

N-Blows per ft.	Relative Density
0-3	Very Loose
4-9	Loose
10-29	Medium Dense
30-49	Dense
50-80	Very Dense
>80	Extremely Dense

SUBSURFACE EXPLORATION PROCEDURES

Hand-Auger Drilling (HA)

In this procedure, a sampling device is driven into the soil by repeated blows of a sledge hammer. When the sampler is driven to the desired sample depth, the soil sample is retrieved. The hole is then advanced by manually turning the hand auger until the next sampling depth increment is reached. The hand auger drilling between sampling intervals also helps to clean and enlarge the bore hole in preparation for obtaining the next sample.

Power Auger Drilling (PA)

In this type of drilling procedure, continuous flight augers are used to advance the bore holes. They are turned and hydraulically advanced by a truck or track-mounted unit as site accessibility dictates. In auger drilling, casing and drilling mud are not required to maintain open bore holes.

Hollow Stem Auger Drilling (HS)

In this drilling procedure, continuous flight augers having open stems are used to advance the bore holes. The open stem allows the sampling tool to be used without removing the augers from the bore hole. Hollow stem augers thus provide support to the sides of the bore hole during the sampling operations.

Rotary Drilling (RB)

In employing rotary drilling methods, various cutting bits are used to advance the bore holes. In this process, surface casing and/or drilling fluids are used to maintain open bore holes.

Diamond Core Drilling (DB)

Diamond core drilling is used to sample cemented formations. In this procedure, a double tube (triple tube) core barrel with a diamond bit cuts an annular space around a cylindrical prism of the material sampled. The sample is retrieved by a catcher just above the bit. Samples recovered by this procedure are placed in sturdy containers in sequential order.

SAMPLING PROCEDURES

Auger Sampling (AS)

In this procedure, soil samples are collected from cuttings off of the auger flights as they are removed from the ground. Such samples provide a general indication of subsurface conditions; however, they do not provide undisturbed samples, nor do they provide samples from discrete depths.

Split-Barrel Sampling (SS) — (ASTM Standard D-1586-84)

In the split-barrel sampling procedure, a 2 inch O.D., split barrel sampler is driven into the soil a distance of 18 inches by means of a 140 pound hammer falling 30 inches. The value of the Standard Penetration Resistance is obtained by counting the number of blows of the hammer over the final 12 inches of driving. This value provides a qualitative indication of the in-place relative density of cohesionless soils. The indication is qualitative only, however, since many factors can significantly affect the Standard Penetration Resistance Value, and direct correlation of results obtained by drill crews using different rigs, drilling procedures, and hammer-rod-spoon assemblies should not be made. A portion of the recovered sample is placed in a sample jar and returned to the laboratory for further analysis and testing.

Shelby Tube Sampling Procedure (ST) — (ASTM Standard D-1587-83)

In the shelby tube sampling procedure, a thin-walled steel seamless tube with a sharp cutting edge is pushed hydraulically into the soil and a relatively undisturbed sample is obtained. This procedure is generally employed in cohesive soils. The tubes are carefully handled in the field to avoid excessive disturbance and are returned to the laboratory for extrusion and further analysis and testing.

Giddings Sampler (GS)

This type of sampling device consists of 5-ft. sections of thin-wall tubing which are capable of retrieving continuous columns of soil in 5-ft. maximum increments. Because of a continuous slot in the sampling tubes, the sampler allows field determination of stratification boundaries and containerization of soil samples from any sampling depth within the 5-ft. interval.

STS Field and Laboratory Procedures

LABORATORY PROCEDURES

Water Content (Wc)

The water content of a soil is the ratio of the weight of water in a given soil mass to the weight of the dry soil. Water content is generally expressed as a percentage.

Hand Penetrometer (Qp)

In the hand penetrometer test, the unconfined compressive strength of a soil is determined, to a maximum value of 4.5 tons per square foot (tsf), by measuring the resistance of the soil sample to penetration by a small, spring-calibrated cylinder. The hand penetrometer test has been carefully correlated with unconfined compressive strength tests, and thereby provides a useful and a relatively simple testing procedure in which soil strength can be quickly and easily estimated.

Unconfined Compression Tests (Qu)

In the unconfined compression strength test, an undisturbed prism of soil is loaded axially until failure or until 20% strain has been reached, whichever occurs first.

Dry Density (γ_D)

The dry density is the quantity used as a measure of the amount of solids in a unit volume of soil aggregate. Use of this value is often made when measuring the degree of compaction of a soil.

Classification of Samples

In conjunction with the sample testing program, all soil samples are examined in our laboratory and classified on the basis of their texture and plasticity in accordance with United Soil Classification System (USCS). The soil descriptions on the boring logs are in conformance with this system and the estimated group symbols according to this system are included in parentheses following the soil descriptions on the boring logs. Included on a separate sheet entitled "General Notes" is a brief explanation of this system of soil classification.

STS Standard Boring Log Procedures

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In the process of obtaining and testing samples and preparing this report, standard procedures are followed regarding field logs, laboratory data sheets and samples.

Field logs are prepared during performance of the drilling and sampling operations and are intended to essentially portray field occurrences, sampling locations and procedures.

Samples obtained in the field are frequently subjected to additional testing and reclassification in the laboratory by more experienced soil engineers, and differences between the field logs and the final logs may exist.

The engineer preparing the report reviews the field and laboratory logs, classifications and test data, and using judgement and experience in interpreting this data, may make further changes.

Samples taken in the field, some of which are later subjected to laboratory tests, are retained in our laboratory for sixty days and are then destroyed unless special disposition is requested by our client. Samples retained over a long period of time, even in sealed jars, are subject to moisture loss which changes the apparent strength of cohesive soil, generally increasing the strength from what was originally encountered in the field. Since they are then no longer representative of the moisture conditions initially encountered, an observation of these samples should recognize this factor.

It is common practice in the geotechnical engineering profession that field logs and laboratory data sheets not be included in engineering reports, because they do not represent the engineer's final opinions as to appropriate descriptions for conditions encountered in the exploration and testing work. On the other hand, we are aware that perhaps certain contractors and subcontractors submitting bids or proposals on work might have an interest in studying these documents before submitting a bid or proposal. For this reason, the field logs are retained in our office for review by all contractors submitting a bid or proposal. We would welcome the opportunity to explain any changes that have been and typically are made in the preparation of our final reports, to the contractor or subcontractors, before the firm submits its bid or proposal, and to describe how the information was obtained to the extent the contractor or subcontractor wishes. Results of laboratory tests are generally shown on the boring logs or are described in the text of the report, as appropriate.

The descriptive terms and symbols used on the logs are described on the attached sheet, entitled: "General Notes".

STS Soil Classification System

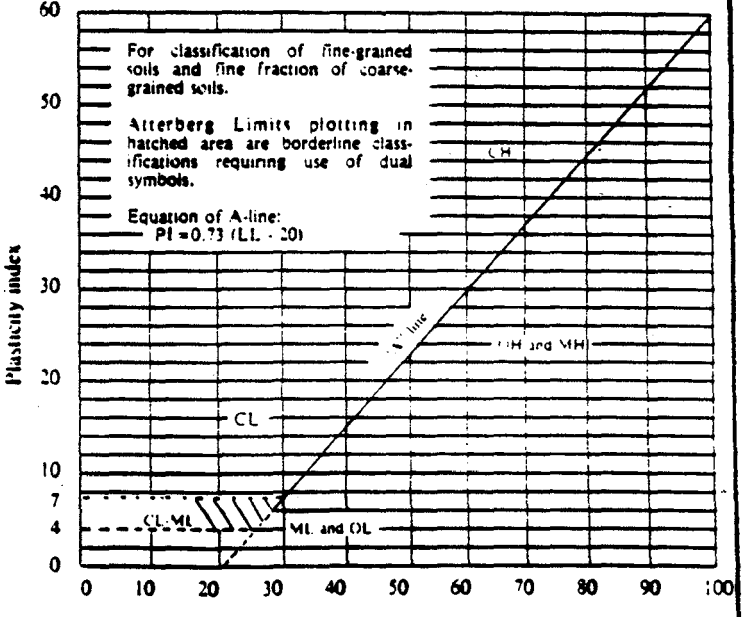
UNIFIED SOIL CLASSIFICATION

Major Divisions			Group symbols	Typical names	Laboratory classification criteria
Coarse-grained soils (More than half of material is *larger* than No. 200 sieve size)	Gravels (More than half of coarse fraction larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW	Well-grades gravels, gravel-sand mixtures, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines	Not meeting all gradation requirements for GW
		Gravels with fines (Appreciable amount of fines)	GM d / u	Silty gravels, gravel-sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4
			GC	Clayey gravels, gravel-sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			SP	Poorly graded sands, gravelly sands, little or no fines	Not meeting all gradation requirements for SW
		Sands with fines (Appreciable amount of fines)	SM d / u	Silty sands, sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4
			SC	Clayey sands, sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7
Fine-grained soils (More than half of material is *smaller* than No. 200 sieve)	Silts and clays (Liquid limit less than 50)		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	
			OL	Organic silts and organic silty clays of low plasticity	
	Silts and clays (Liquid limit greater than 50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	
			CH	Inorganic clays of high plasticity, fat clays	
			OH	Organic clays of medium to high plasticity, organic silts	
Highly organic soils			Pt	Peat and other highly organic soils	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:
- Less than 5 per cent ..... GW, GP, SW, SP
- More than 12 per cent ..... GM, GC, SM, SC
- 5 to 12 per cent ..... *Borderline* cases requiring dual symbols

Above "A" line with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols

Limits plotting in hatched zone with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols



Plasticity Chart

STS Consultants Ltd.

OWNER Paragon Electric	**LOG OF BORING NUMBER** P-1
PROJECT NAME Contamination Assessment	**ENGINEER** STS Consultants, Ltd.
SITE LOCATION Two Rivers, Wisconsin	

WELL INSTALLATION
TOP STANDPIPE EL. + 594.09

DEPTH / ELEVATION	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, N (B/FT)	UNCONFINED COMPRESSIVE STRENGTH, Qp (TONS/FT²)	WATER CONTENT, %	HNU READING	LIQUID/PLASTIC LIMIT LL/PL	PERCENT PASSING #200 SIEVE	PERMEABILITY, K (CM/SEC)
					SURFACE ELEVATION 591.8							
	1	AS			Brown silty fine sand (SM) - trace of organics - moist - topsoil				2			
	2	SS				7			2			
5	3	SS				17			3			
	4	SS				19			1.5			
10	5	SS			Light brown very fine to fine sand (SP) - trace of fine gravel 5.0 to 9.0 feet - trace of organics 23.5 to 25.0 feet - loose to very dense - moist to saturated by 7.5 feet - eolian deposit	49			1.1			
	6	SS				57			9			
15	7	SS				52			9.2			
	8	SS				25			3			
20												
25	9	SS				19			1			
30	10	SS			Brown silty very fine sand (SM) laminated with brown clayey silt (ML) - loose to dense - saturated - lacustrine deposit	46			1			
35	11	SS				7			0			
36.5					End of Boring Boring advanced from 0.0 to 33.5 feet using solid stem auger Boring advanced from 0.0 to 36.5 feet using 4¼ inch ID hollow stem auger 2 inch PVC monitoring well installed at 36.2 feet Background HNU reading 0.0 ppm							

The stratification lines represent the approximate boundary between soil types. In situ, the transition may be gradual. Water levels were measured at the times indicated. Water levels may vary seasonally.

WL	10.0'	WD				
WL-T. PIPE	DATE	TIME	WL-T. PIPE	DATE	TIME	

BORING STARTED	2-2-90
BORING COMPLETED	2-2-90
RIG	Mobile B61
FOREMAN	TT

STS OFFICE	540 Lambeau Street Green Bay, WI 54303
DRAWN BY	RLS
SHEET	1 OF 1
APP'D. BY	DMB
STS JOB NO.	17566XF

BCG 8421

STS Consultants Ltd.

OWNER	LOG OF BORING NUMBER
Paragon Electric	MW-2
PROJECT NAME	**ENGINEER**
Contamination Assessment	STS Consultants, Ltd.

SITE LOCATION Two Rivers, Wisconsin

WELL INSTALLATION
TOP STANDPIPE EL. + 593.44

SURFACE ELEVATION 591.3

DEPTH / ELEVATION	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, N (B/FT)	UNCONFINED COMPRESSIVE STRENGTH, Qp (TONS/FT²)	WATER CONTENT, %	HNU READING	LIQUID/PLASTIC LIMIT LL/PL	PERCENT PASSING #200 SIEVE	PERMEABILITY, K (CM/SEC)
	1	AS			Brown silty fine sand (SM) - trace of organics - topsoil				0			
	2	SS				18			8			
5												
	3	SS			Light brown very fine to fine sand (SP) - trace of coarse sand and fine gravel - medium dense to dense - moist to saturated by 7.5 feet - eolian deposit	12			0			
	4	SS				44			3			
10												
	5	SS				49			15			
	6	SS				50			52			
15												
16.5	7	SS				49			30			
					End of Boring Boring advanced from 0.0 to 15.5 feet using 4¼ inch ID hollow stem auger 2 inch PVC monitoring well installed at 15.0 feet Background HNU reading 0.0 ppm							

The stratification lines represent the approximate boundary between soil types. In situ, the transition may be gradual. Water levels were measured at the times indicated. Water levels may vary seasonally.

WL 7.5' WD

WL-T. PIPE	DATE	TIME	WL-T. PIPE	DATE	TIME

BORING STARTED	2-5-90
BORING COMPLETED	2-5-90
RIG	Mobile B61
FOREMAN	TT

STS OFFICE	540 Lambeau Street Green Bay, WI 54303
DRAWN BY RLS	SHEET 1 OF 1
APP'D. BY DMB	STS JOB NO. 17566XF

BCG 8421

STS Consultants Ltd.

OWNER Paragon Electric	**LOG OF BORING NUMBER** MW-3
PROJECT NAME Contamination Assessment	**ENGINEER** STS Consultants, Ltd.

SITE LOCATION Two Rivers, Wisconsin

WELL INSTALLATION
TOP STANDPIPE EL. + 593.18

DEPTH / ELEVATION	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, N (B/FT)	UNCONFINED COMPRESSIVE STRENGTH, Qp (TONS/FT²)	WATER CONTENT, %	HNU READING	LIQUID/PLASTIC LIMIT LL/PL	PERCENT PASSING #200 SIEVE	PERMEABILITY, K (CM/SEC)
					SURFACE ELEVATION 591.0							
	1	AS			Brown silty fine sand (SM) - trace of coarse sand and organics - moist - topsoil				0			
	2	SS				4			0			
5	3	SS				15			0			
	4	SS			Light brown very fine to fine sand (SP) - trace of organics 7.5 to 11.5 feet - trace of fine gravel 10.0 to 14.0 feet - medium dense to dense - moist to saturated by 5.0 feet - eolian deposit	11			0			
10	5	SS				27			0.1			
	6	SS				32			0.1			
15	7	SS				14			0			
16.5					End of Boring Boring from 0.0 to 16.0 feet using 4¼ inch ID hollow stem auger 2 inch PVC monitoring well installed at 15.0 feet Background HNU reading 0.0 ppm							

The stratification lines represent the approximate boundary between soil types. In situ, the transition may be gradual. Water levels were measured at the times indicated. Water levels may vary seasonally.

WL 5.0' WD					
WL-T. PIPE	DATE	TIME	WL-T. PIPE	DATE	TIME

BORING STARTED 2-5-90	STS OFFICE 540 Lambeau Street Green Bay, WI 54303
BORING COMPLETED 2-5-90	DRAWN BY RLS / SHEET 1 OF 1
RIG Mobile B61	
FOREMAN TT	APP'D. BY DMB / STS JOB NO. 17566XF

BCG 8421

State of Wisconsin
Department of Natural Resources

MONITORING WELL CONSTRUCTION
Form 4400-113A 8-89

Facility/Project Name: Paragon Electric	Grid Location: 982 ft. ☒ N. ☐ S. / 866 ft. ☒ E. ☐ W. based on site grid	Well Name: P-1
Facility License, Permit or Monitoring Number: _____		Wis. Unique Well Number: _____ DNR Well Number: _____
Type of Well: Water Table Observation Well ☐ 11; Piezometer ☒ 12	Section Location: NE 1/4 of NE 1/4 of Section 11, T 19 N, R 24 ☒ E ☐ W	Date Well Installed: 02/02/90 (m m d d y y)
Distance Well Is From Waste/Source Boundary: NA ft.	Location of Well Relative to Waste/Source: ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☒ Not Known	Well Installed By: (Person's Name and Firm): Tom Tasch / STS Consultants
Is Well A Point of Enforcement Std. Application? ☐ Yes ☒ No		

A. Protective pipe, top elevation _____ ft. MSL
B. Well casing, top elevation 594.09 ft. MSL
C. Land surface elevation 591.8 ft. MSL
D. Surface seal, bottom 586.8 ft. MSL or 5.0 ft.

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

13. Sieve analysis attached? ☐ Yes ☒ No

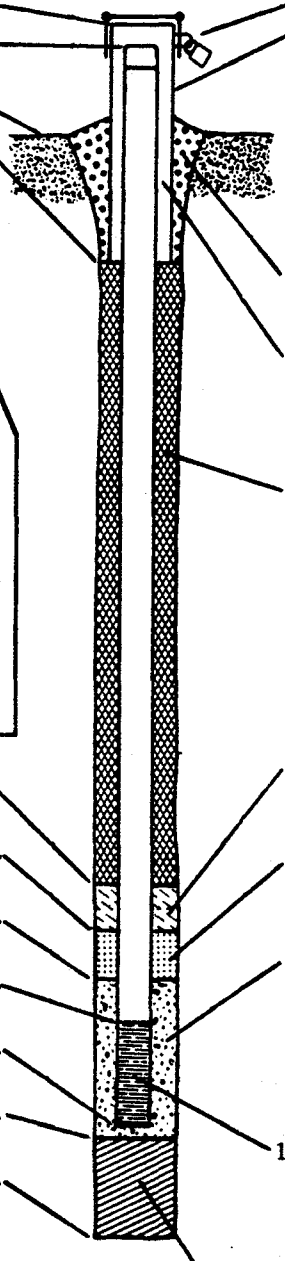
14. Drilling method used: Rotary ☐ 50; Hollow Stem Auger ☒ 41; Other ☐ ___
_____

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

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

17. Source of water (attach analysis):
_____

E. Bentonite seal, top 565.6 ft. MSL or 26.2 ft.
F. Fine sand, top 563.6 ft. MSL or 28.2 ft.
G. Filter pack, top 561.6 ft. MSL or 30.2 ft.
H. Well screen, top 560.6 ft. MSL or 31.2 ft.
Well screen, bottom 555.6 ft. MSL or 36.2 ft.
I. Filter pack, bottom 555.1 ft. MSL or 36.7 ft.
H. Borehole, bottom 555.1 ft. MSL or 36.7 ft.
-. Borehole, diameter 8.0 in.
M. O.D. well casing 2.38 in.
E. I.D. well casing 2.07 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒ 04; Other ☐ ___
_____
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____
3. Surface seal: Bentonite ☒ 30; Concrete ☐ 01; Other ☒ ___
1' topsoil
4. Material between well casing and protective pipe: Bentonite ☐ 30; Annular space seal ☐; Other ☒ ___
none
5. Annular space seal: Granular Bentonite ☐ 33
_____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
8.8 Lbs/gal mud weight . . . . . Bentonite slurry ☒ 31
_____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
8.7 Ft³ volume added for any of the above
How installed: Tremie ☒ 01; Tremie pumped ☐ 02; Gravity ☐ 08
6. Bentonite seal: Bentonite granules ☐ 33
☒ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☒ 32
_____ Other ☐ ___
7. Fine sand material: Manufacturer, product name and mesh size
Badger Sand 40-60 sieve size
Volume added 0.75 ft³
8. Filter pack material: Manufacturer, product name and mesh size
Badger Sand 20-40 sieve size
Volume added 2.6 ft³
9. Well casing: Flush threaded PVC schedule 40 ☒ 23; Flush threaded PVC schedule 80 ☐ 24
_____ Other ☐ ___
10. Screen material: PVC
Screen type: Factory cut ☒ 11; Continuous slot ☐ 01
_____ Other ☐ ___
Manufacturer Cresline/Northern Air & Supply
Slot size: 0.010 in.
Slotted length: 5.0 ft.
11. Backfill material (below filter pack): None ☒
_____ Other ☐

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

Signature	Firm
Donna M. Bugo	STS Consultants

Please complete and return both sides of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with s. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5,000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation.
NOTE: Shaded areas are for DNR use only. See instructions for more information.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B 8-89

Facility/Project Name: Paragon Electric
Well Name: P-1
License, Permit or Monitoring Number: _____
Wis. Unique Well Number: _____ DNR Well Number: _____

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

2. Well development method

surged with bailer and bailed	☐	4 1
surged with bailer and pumped	☐	6 1
surged with block and bailed	☐	4 2
surged with block and pumped	☐	6 2
surged with block, bailed and pumped	☐	7 0
compressed air	☐	2 0
bailed only	☐	1 0
pumped only	☒	5 1
pumped slowly	☐	5 0
Other _____	☐	

3. Time spent developing well: 30 min.
4. Depth of well (from top of well casisng): 38.2 ft.
5. Inside diameter of well: 2.00 in.
6. Volume of water in filter pack and well casing: ____.__ gal.
7. Volume of water removed from well: 15.0 gal.
8. Volume of water added (if any): ____.__ gal.
9. Source of water added: NA
10. Analysis performed on water added? ☐ Yes ☐ No (If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	____.__ ft.	____.__ ft.
Date	02/02/90 (m m d d y y)	02/02/90 (m m d d y y)
Time	☐ a.m. ☐ p.m.	☐ a.m. ☐ p.m.
12. Sediment in well bottom	___.__ inches	___.__ inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe)
Fill in if drilling fluids were used and well is at solid waste facility: NA		
14. Total suspended solids	_____.__ mg/l	_____.__ mg/l
15. COD	_____.__ mg/l	_____.__ mg/l

Additional comments on development:

Well developed by: Person's Name and Firm

Name: Tom Tesch
Firm: STS Consultants

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

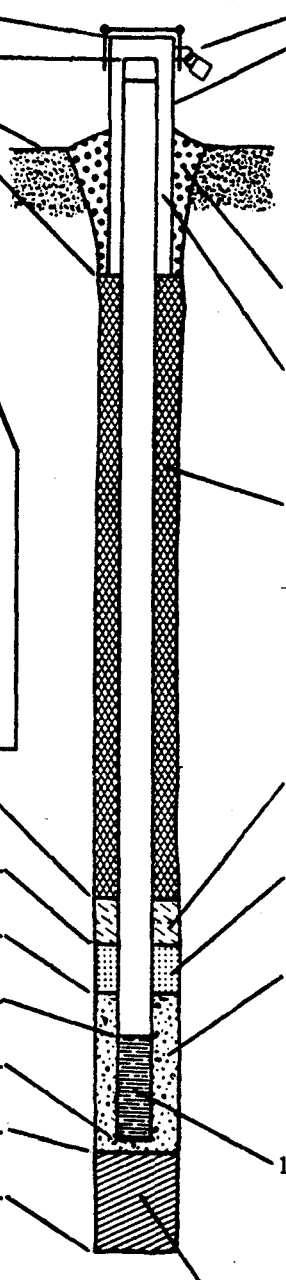
Signature: Donna M Lugo
Firm: STS Consultants

NOTE: Shaded areas are for DNR use only. See instructions for more information.

State of Wisconsin
Department of Natural Resources

MONITORING WELL CONSTRUCTION
Form 4400-113A 8-89

Facility/Project Name: Paragon Electric	Grid Location: 924 ft. ☒ N. ☐ S.; 817 ft. ☒ E. ☐ W. based on site grid	Well Name: MW-2
Facility License, Permit or Monitoring Number: _____		Wis. Unique Well Number: _____ DNR Well Number: _____
Type of Well: Water Table Observation Well ☒ 11; Piezometer ☐ 12	Section Location: NE 1/4 of NE 1/4 of Section 11, T 19 N, R 24 ☒ E ☐ W	Date Well Installed: 02/05/90 (m m / d d / y y)
Distance Well Is From Waste/Source Boundary: NA ft.	Location of Well Relative to Waste/Source: ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☒ Not Known	Well Installed By: (Person's Name and Firm): Tom Tesch; STS Consultants
Is Well A Point of Enforcement Std. Application? ☐ Yes ☒ No		



A. Protective pipe, top elevation _____ ft. MSL
B. Well casing, top elevation 593.44 ft. MSL
C. Land surface elevation 591.3 ft. MSL
D. Surface seal, bottom 590.3 ft. MSL or 1.0 ft.

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

13. Sieve analysis attached? ☐ Yes ☒ No

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

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

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

17. Source of water (attach analysis):
_____

E. Bentonite seal, top _____ ft. MSL or _____ ft.
F. Fine sand, top 588.3 ft. MSL or 3.0 ft.
G. Filter pack, top 587.3 ft. MSL or 4.0 ft.
H. Well screen, top 586.3 ft. MSL or 5.0 ft.
Well screen, bottom 576.3 ft. MSL or 15.0 ft.
Filter pack, bottom 575.8 ft. MSL or 15.5 ft.
I. Borehole, bottom 575.8 ft. MSL or 15.5 ft.
J. Borehole, diameter 8.0 in.
M. O.D. well casing 2.38 in.
I.D. well casing 2.07 in.

1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 5.0 ft.
c. Material: Steel ☒ 04; Other ☐ ____
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____
3. Surface seal: Bentonite ☒ 30; Concrete ☐ 01; Other ☐ ____
(0.7 ft³)
4. Material between well casing and protective pipe: Bentonite ☐ 30; Annular space seal ☐; Other ☒ ____
none
5. Annular space seal: Granular Bentonite ☒ 33
____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
____ % Bentonite . . . . Bentonite-cement grout ☐ 50
1.3 Ft³ volume added for any of the above
How installed: Tremie ☐ 01; Tremie pumped ☐ 02; Gravity ☒ 08
6. Bentonite seal: Bentonite granules ☐ 33
☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
same as annular space seal Other ☒ ____
7. Fine sand material: Manufacturer, product name and mesh size
Badger Sand 40-60 sieve size
Volume added 0.5 ft³
8. Filter pack material: Manufacturer, product name and mesh size
Badger Sand 20-40 sieve size
Volume added 2 3 ft³
9. Well casing: Flush threaded PVC schedule 40 ☒ 23; Flush threaded PVC schedule 80 ☐ 24; Other ☐ ____
10. Screen material: PVC
Screen type: Factory cut ☒ 11; Continuous slot ☐ 01; Other ☐ ____
Manufacturer Cresline/Northern Air & Supply
Slot size: 0.010 in.
Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ☒; Other ☐ ____

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

Signature	Firm
Donna M. Bugo	STS Consultants

Please complete and return both sides of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5,000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation.
NOTE: Shaded areas are for DNR use only. See instructions for more information.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B 8-89

Facility/Project Name: Paragon Electric
Well Name: MW-2
License, Permit or Monitoring Number: _____
Wis. Unique Well Number: _____ DNR Well Number: _____

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

2. Well development method

surged with bailer and bailed	☐	4 1
surged with bailer and pumped	☐	6 1
surged with block and bailed	☐	4 2
surged with block and pumped	☐	6 2
surged with block, bailed and pumped	☐	7 0
compressed air	☐	2 0
bailed only	☐	1 0
pumped only	☒	5 1
pumped slowly	☐	5 0
Other _____	☐	

3. Time spent developing well: 30 min.

4. Depth of well (from top of well casisng): 17.0 ft.

5. Inside diameter of well: 2.00 in.

6. Volume of water in filter pack and well casing: ____.__ gal.

7. Volume of water removed from well: 30.0 gal.

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

9. Source of water added: N/A

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

	Before Development	After Development
11. Depth to Water (from top of well casing)	____.__ ft.	____.__ ft.
Date	02/05/90 (m m d d y y)	02/05/90 (m m d d y y)
Time	__:__ ☐ a.m. ☐ p.m.	__:__ ☐ a.m. ☐ p.m.
12. Sediment in well bottom	__.__ inches	__.__ inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe)
Fill in if drilling fluids were used and well is at solid waste facility: N/A		
14. Total suspended solids	_____.__ mg/l	_____.__ mg/l
15. COD	_____.__ mg/l	_____.__ mg/l

Additional comments on development:

Well developed by: Person's Name and Firm

Name: Tom Tesch

Firm: STS Consultants

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

Signature: Donna M Bugo

Firm: STS Consultants

NOTE: Shaded areas are for DNR use only. See instructions for more information.

State of Wisconsin
Department of Natural Resources

MONITORING WELL CONSTRUCTION
Form 4400-113A 8-89

Facility/Project Name: Paragon Electric	Grid Location: 1298 ft. ☒ N. ☐ S. / 941 ft. ☒ E. ☐ W. based on site grid	Well Name: MW-3
Facility License, Permit or Monitoring Number: _____		Wis. Unique Well Number: _____ DNR Well Number: _____
Type of Well: Water Table Observation Well ☒ 11; Piezometer ☐ 12	Section Location: SE 1/4 of SE 1/4 of Section 2, T 19 N, R 24 ☒ E ☐ W	Date Well Installed: 02/05/90 (m m / d d / y y)
Distance Well Is From Waste/Source Boundary: NA ft.	Location of Well Relative to Waste/Source: ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☒ Not Known	Well Installed By: (Person's Name and Firm): Tom Tasch / STS Consultants
Is Well A Point of Enforcement Std. Application? ☐ Yes ☒ No		

A. Protective pipe, top elevation _____ ft. MSL
B. Well casing, top elevation 593.18 ft. MSL
C. Land surface elevation 591.0 ft. MSL
D. Surface seal, bottom 590.0 ft. MSL or 1.0 ft.

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

13. Sieve analysis attached? ☐ Yes ☒ No

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

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

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

17. Source of water (attach analysis):
NA

E. Bentonite seal, top _____ ft. MSL or _____ ft.
F. Fine sand, top 588.0 ft. MSL or 3.0 ft.
G. Filter pack, top 587.0 ft. MSL or 4.0 ft.
H. Well screen, top 586.0 ft. MSL or 5.0 ft.
I. Well screen, bottom 576.0 ft. MSL or 15.0 ft.
J. Filter pack, bottom 575.5 ft. MSL or 15.5 ft.
K. Borehole, bottom 575.5 ft. MSL or 15.5 ft.
L. Borehole, diameter 8.0 in.
M. O.D. well casing 2.38 in.
N. I.D. well casing 2.07 in.

1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 5.0 ft.
c. Material: Steel ☒ 04; Other ☐ ___ _____
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____
3. Surface seal: Bentonite ☒ 30; Concrete ☐ 01; Other ☐ ___ (.7 ft³)
4. Material between well casing and protective pipe: Bentonite ☐ 30; Annular space seal ☐; Other ☒ ___ none
5. Annular space seal: Granular Bentonite ☒ 33
_____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
_____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
_____ % Bentonite . . . . Bentonite-cement grout ☐ 50
1.3 Ft³ volume added for any of the above
How installed: Tremie ☐ 01; Tremie pumped ☐ 02; Gravity ☐ 08
6. Bentonite seal: Bentonite granules ☐ 33
☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
same as annular space seal Other ☒ ___
7. Fine sand material: Manufacturer, product name and mesh size
Badger Sand 40-60 sieve size
Volume added 0.5 ft³
8. Filter pack material: Manufacturer, product name and mesh size
Badger Sand 20-40 sieve size
Volume added 2.6 ft³
9. Well casing: Flush threaded PVC schedule 40 ☒ 23; Flush threaded PVC schedule 80 ☐ 24; Other ☐ ___ _____
10. Screen material: PVC
Screen type: Factory cut ☒ 11; Continuous slot ☐ 01; Other ☐ ___ _____
Manufacturer Cresline/Northern Air & Supply
Slot size: 0.010 in.
Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ☒; Other ☐ _____

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

Signature: Donna M. Bugo
Firm: STS Consultants

Please complete and return both sides of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5,000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation.
NOTE: Shaded areas are for DNR use only. See instructions for more information.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B 8-89

Facility/Project Name: Paracon Electric

Well Name: MW-3

License, Permit or Monitoring Number: _____

Wis. Unique Well Number: _____

DNR Well Number: _____

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

2. Well development method

surged with bailer and bailed	☐	4 1
surged with bailer and pumped	☐	6 1
surged with block and bailed	☐	4 2
surged with block and pumped	☐	6 2
surged with block, bailed and pumped	☐	7 0
compressed air	☐	2 0
bailed only	☐	1 0
pumped only	☒	5 1
pumped slowly	☐	5 0
Other _____	☐	

3. Time spent developing well: 30 min.

4. Depth of well (from top of well casisng): 17.0 ft.

5. Inside diameter of well: 2.00 in.

6. Volume of water in filter pack and well casing: ____.__ gal.

7. Volume of water removed from well: 40.0 gal.

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

9. Source of water added: NA

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

	Before Development	After Development
11. Depth to Water (from top of well casing)	____.__ ft.	____.__ ft.
Date	02/05/90 (m m d d y y)	02/05/90 (m m d d y y)
Time	☐ a.m. ☐ p.m.	☐ a.m. ☐ p.m.
12. Sediment in well bottom	___.__ inches	___.__ inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe)
Fill in if drilling fluids were used and well is at solid waste facility: NA		
14. Total suspended solids	_____.__ mg/l	_____.__ mg/l
15. COD	_____.__ mg/l	_____.__ mg/l

Additional comments on development:

Well developed by: Person's Name and Firm

Name: Tom Tasch

Firm: STS Consultants

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

Signature: Donna M Rau

Firm: STS Consultants

NOTE: Shaded areas are for DNR use only. See instructions for more information.

APPENDIX B

Summary of Groundwater Elevations
Groundwater Sampling Field Data

PARAGON ELECTRIC COMPANY
STS JOB # 17566XF

SUMMARY OF GROUNDWATER LEVEL ELEVATIONS

WELL #	GROUND SURFACE ELEVATION	TOP OF RISER ELEVATION	DATE: 2-14-90		DATE: 3-21-90		DATE: 4-20-90	
			DEPTH	ELEVATION	DEPTH	ELEVATION	DEPTH	ELEVATION
MW-1	591.7	594.23	11.37	582.86	10.38	583.85	10.35	583.88
P-1	591.8	594.09	11.40	582.69	10.21	583.88	10.28	583.81
MW-2	591.3	593.44	10.57	582.87	9.44	584.00	9.51	583.93
MW-3	591.0	593.18	9.98	583.20	8.98	584.20	8.88	584.30
RIVER	GAGE HT:	580.66	2.31	578.35	1.96	578.70	1.86	578.80
L.MICH.	GAGE HT:	584.84	6.18	578.66	6.08	578.76	5.93	578.91

STS Job No.: 17566XF Date: 2-14-90

Project Name: Contamination Assessment Sampled By: KJC, DTB

Client: Paragon Electric Weather: (CL) PC OC

Sampling Order: MW-3, P-1, MW-1, MW-2

Well Id.	Water L. (TPVC)	Depth of Well	Vol. Purg. (Gal)	Temp.	pH	Field Cond.	Corr. Cond.	Color	Turbid	Odor	Remarks water elevation
MW-1	11.37		5					Cl	N	N	582.86
P-1	11.40		5					Cl	N	N	582.69
MW-2	10.57		5					Cl	N	N	582.87
MW-3	9.98		5					Cl	N	N	583.20
River											578.35
L. Mich.											578.66 - Note, 1-3' waves and strong easterly winds.

See Reverse for Legend

WATER SAMPLING FIELD DATA LOG DEFINITIONS

Water Level Measurements: Measured in feet below the top of PVC (well casing).

Depth of Well: Measured in feet below the top of PVC (well casing).

Volume Purged: Measured in gallons.

Temperature: Measured in degrees centigrade.

pH: Measured in standard units.

Conductivity: Measured in micromhos per centimeter. Conductivity values have been corrected to 25°C.

Odor:

No = No odor detected
Sl = Slight odor detected
St = Strong odor detected

The following suffixes can be added to Sl or St to further define the odor detected:

S = Septic
P = Petroleum product
C = Solvent or cleaning product

Color:

Cl = Clear
Cld = Cloudy
Br = Brown
RBR = Reddish brown
Bl = Black
G = Gray
Y = Yellow

Turbidity:

N = None to slight
Y = Significant

STS Job No.: 17566XF Date: 3-22-90

Project Name: Contamination Assessment Sampled By: RLS

Client: Paragon Electric Weather: CL PC OC

Sampling Order: MW-3, P-1, MW-1, MW-2

Well Id.	Water L. (TPVC)	Depth of Well	Vol. Purg.	Temp.	pH	Field Cond.	Corr. Cond.	Color	Turbid	Odor	Remarks
MW-1	10.38		3					Cl	N	N	
P-1	10.21		3					Cl	N	N	
MW-2	9.44		4					Cl	N	N	
MW-3	8.98		5					Cl	N	N	
River	1.96'										
L. Mich.	6.08'										

See Reverse for Legend

WATER SAMPLING FIELD DATA LOG DEFINITIONS

Water Level Measurements: Measured in feet below the top of PVC (well casing).

Depth of Well: Measured in feet below the top of PVC (well casing).

Volume Purged: Measured in gallons.

Temperature: Measured in degrees centigrade.

pH: Measured in standard units.

Conductivity: Measured in micromhos per centimeter. Conductivity values have been corrected to 25°C.

Odor:

No = No odor detected
Sl = Slight odor detected
St = Strong odor detected

The following suffixes can be added to Sl or St to further define the odor detected:

S = Septic
P = Petroleum product
C = Solvent or cleaning product

Color:

Cl = Clear
Cld = Cloudy
Br = Brown
RBR = Reddish brown
Bl = Black
G = Gray
Y = Yellow

Turbidity:

N = None to slight
Y = Significant

STS Job No.: 17566XF Date: 4-20-90

Project Name: Contamination Assessment Sampled By: KJC

Client: Paragon Electric Weather: CL PC OC

Sampling Order: MW-3, P-1, MW-1, MW-2 – water levels only

Well Id.	Water L. (TPVC)	Depth of Well	Vol. Purg.	Temp.	pH	Field Cond.	Corr. Cond.	Color	Turbid	Odor	Remarks
MW-1	10.35										
P-1	10.28										
MW-2	9.51										
MW-3	8.88										
River	1.86										
L. Mich.	5.93										

See Reverse for Legend

WATER SAMPLING FIELD DATA LOG DEFINITIONS

Water Level Measurements: Measured in feet below the top of PVC (well casing).

Depth of Well: Measured in feet below the top of PVC (well casing).

Volume Purged: Measured in gallons.

Temperature: Measured in degrees centigrade.

pH: Measured in standard units.

Conductivity: Measured in micromhos per centimeter. Conductivity values have been corrected to 25°C.

Odor:

No = No odor detected
Sl = Slight odor detected
St = Strong odor detected

The following suffixes can be added to Sl or St to further define the odor detected:

S = Septic
P = Petroleum product
C = Solvent or cleaning product

Color:

Cl = Clear
Cld = Cloudy
Br = Brown
RBR = Reddish brown
Bl = Black
G = Gray
Y = Yellow

Turbidity:

N = None to slight
Y = Significant

APPENDIX C

Groundwater Quality Results

ENVIROSCAN

February 28, 1990

STS Consultants Ltd.
540 Lambeau
Green Bay, WI 54303

Attn: Donna Bugs

Re: 17566XF - Paragon Electric

Please find enclosed the analytical results for the samples received February 15, 1990.

The VOC analyses were completed using EPA Method 502.2.

The chain of custody document is enclosed.

If you have any questions about the results, please call. Thank you for using Enviroscan, Inc. for your analytical needs.

Sincerely,

Enviroscan, Inc.

Judy A. Lewandowski
Senior Instrumentation Technician

ENVIROSCAN

ANALYTICAL REPORT

STS Consultants Ltd.
540 Lambeau
Green Bay, WI 54303

CUST NUMBER: 17566XF
SAMPLED BY: Client
DATE REC'D: 02/15/90
REPORT DATE: 02/28/90
APPROVED BY: JAL

Attn: Donna Bugs

	Units	Detection Limit	MW-1	MW-2
Benzene	µg/l	0.2	X	X
Bromoform	µg/l	2.0	X	X
Bromomethane	µg/l	4.0	X	X
Carbon Tetrachloride	µg/l	0.5	1.05	X
Chlorobenzene	µg/l	2.0	X	X
Chloroethane	µg/l	2.0	2.56	X
2-Chloroethylvinyl Ether	µg/l	5.0	X	X
Chloroform	µg/l	0.5	X	3.06
Chloromethane	µg/l	2.0	X	X
Chlorodibromomethane	µg/l	0.5	X	X
1,2-Dichlorobenzene	µg/l	1.0	X	X
1,3-Dichlorobenzene	µg/l	1.0	X	X
1,4-Dichlorobenzene	µg/l	0.5	X	X
Bromodichloromethane	µg/l	0.5	X	X
1,1-Dichloroethane	µg/l	0.5	1.81	X
1,2-Dichloroethane	µg/l	0.5	X	X
1,1-Dichloroethylene	µg/l	1.0	1.48	X
1,2-Dichloroethylene	µg/l	1.0	29.9	37.7
Methylene Chloride	µg/l	1.0	X	X
1,2-Dichloropropane	µg/l	0.5	X	X
cis-1,3-Dichloropropene	µg/l	2.0	X	X
trans-1,3-Dichloropropene	µg/l	0.5	X	X
Ethylbenzene	µg/l	1.0	X	X
1,1,2,2-Tetrachloroethane	µg/l	1.0	X	X
Tetrachloroethylene	µg/l	0.5	X	1.84
Toluene	µg/l	0.5	X	4.13
1,1,1-Trichloroethane	µg/l	0.5	10.4	0.58
1,1,2-Trichloroethane	µg/l	0.5	X	1.67
Trichloroethylene	µg/l	0.2	219.	2,560.
Vinyl Chloride	µg/l	0.2	3.12	X
Trichlorofluoromethane	µg/l	1.0	X	X
Dichlorodifluoromethane	µg/l	2.0	X	X
Analytical No.:			27839	27840

X = Analyzed but not detected.

All analyses conducted in accordance with Enviroscan Quality Assurance Program.

ENVIROSCAN

ANALYTICAL REPORT

STS Consultants Ltd.
540 Lambeau
Green Bay, WI 54303

Attn: Donna Bugs

CUST NUMBER: 17566XF
SAMPLED BY: Client
DATE REC'D: 02/15/90
REPORT DATE: 02/28/90
APPROVED BY: JAL

	Units	Detection Limit	MW-3	P-1
Benzene	µg/l	0.2	X	X
Bromoform	µg/l	2.0	X	X
Bromomethane	µg/l	4.0	X	X
Carbon Tetrachloride	µg/l	0.5	X	X
Chlorobenzene	µg/l	2.0	X	X
Chloroethane	µg/l	2.0	X	X
2-Chloroethylvinyl Ether	µg/l	5.0	X	X
Chloroform	µg/l	0.5	X	3.33
Chloromethane	µg/l	2.0	X	X
Chlorodibromomethane	µg/l	0.5	X	X
1,2-Dichlorobenzene	µg/l	1.0	X	X
1,3-Dichlorobenzene	µg/l	1.0	X	X
1,4-Dichlorobenzene	µg/l	0.5	X	X
Bromodichloromethane	µg/l	0.5	X	X
1,1-Dichloroethane	µg/l	0.5	X	X
1,2-Dichloroethane	µg/l	0.5	X	X
1,1-Dichloroethylene	µg/l	1.0	X	X
1,2-Dichloroethylene	µg/l	1.0	X	X
Methylene Chloride	µg/l	1.0	X	X
1,2-Dichloropropane	µg/l	0.5	X	X
cis-1,3-Dichloropropene	µg/l	2.0	X	X
trans-1,3-Dichloropropene	µg/l	0.5	X	X
Ethylbenzene	µg/l	1.0	X	X
1,1,2,2-Tetrachloroethane	µg/l	1.0	X	X
Tetrachloroethylene	µg/l	0.5	X	X
Toluene	µg/l	0.5	3.25	1.86
1,1,1-Trichloroethane	µg/l	0.5	X	X
1,1,2-Trichloroethane	µg/l	0.5	X	X
Trichloroethylene	µg/l	0.2	X	12.0
Vinyl Chloride	µg/l	0.2	X	X
Trichlorofluoromethane	µg/l	1.0	X	X
Dichlorodifluoromethane	µg/l	2.0	X	X
Analytical No.:			27841	27842

X = Analyzed but not detected.

All analyses conducted in accordance with Enviroscan Quality Assurance Program.

STS CHAIN OF CUSTODY RECORD

NO. 1781 RECORD NO. _____ THROUGH _____

Contact person Donna Buys
Phone No. 414-494-9656
Project No. 7566XE PO No. Paragon Elec.
STS Office _____

SPECIAL HANDLING REQUEST
☐ RUSH ☐ VERBAL ☐ OTHER

Laboratory _____
Contact Person _____
Phone No. _____
Results Due _____

Sample I D	Date	Time	Grab	Composite	No. of Containers	Sample Type (Water, soil air, sludge, etc.)	Preservation Y	Preservation N	Field Data PID/FID Ambient	Field Data PID/FID Sample	Field Data pH	Field Data Spec. Cond.	Analysis Request	Comments on Samples (Include Major Contaminants)
mw-1	2/14/90		X		2	water							VOC 601/602	
mw-2	↓		X		2	↓							↓	
mw-3			X		2									
P-1			X		2									

Collected by : K. J. Cats	Date 2/14/90	Time	Delivery by :	Date	Time
Received by :	Date	Time	Relinquished by :	Date	Time
Received by :	Date	Time	Relinquished by :	Date	Time
Received by :	Date	Time	Relinquished by :	Date	Time
Received for lab by Linda Bechhube	Date 2/15/90	Time 10:07AM	Relinquished by :	Date	Time

Laboratory Comments Only : Seals Intact Upon Receipt ☒YES ☐NO ☐N/A

Final disposition :

Comments (Weather Conditions, Precautions, Hazards) :

27839 - 27842

Distribution: Original and Green - Laboratory Yellow - As needed Pink - Transporter Goldenrod - STS Project File

Instruction to Laboratory: Forward completed original to STS with analytical results. Retain green copy.

3/88

ENVIROSCAN

March 27, 1990

STS Consultants Ltd.
540 Lambeau
Green Bay, WI 54303

Attn: Donna Bugs

Re: 17566XF

Please find enclosed the analytical results for the samples received March 23, 1990. Results were given to you within a 3 to 5 day turnaround.

The VOC analyses were completed using EPA Method 502.2.

The chain of custody document is enclosed.

If you have any questions about the results, please call. Thank you for using Enviroscan, Inc. for your analytical needs.

Sincerely,

Enviroscan, Inc.

Judy Lewandowski

Judy A. Lewandowski
Senior Instrumentation Technician

303 West Military Road Rothschild, WI 54474 (715) 359-7226

ENVIROSCAN

ANALYTICAL REPORT

STS Consultants Ltd.
540 Lambeau
Green Bay, WI 54303

Attn: Donna Bugs

CUST NUMBER: 17566XF
SAMPLED BY: CLIENT
DATE REC'D: 03/23/90
REPORT DATE: 03/27/90
APPROVED BY: JAL

	Units	Detection Limit	MW-1	MW-2
Benzene	µg/l	2.0	X	X
Bromoform	µg/l	20.0	X	X
Bromomethane	µg/l	40.0	X	X
Carbon Tetrachloride	µg/l	5.0	X	X
Chlorobenzene	µg/l	20.0	X	X
Chloroethane	µg/l	20.0	X	X
2-Chloroethylvinyl Ether	µg/l	50.0	X	X
Chloroform	µg/l	5.0	X	X
Chloromethane	µg/l	20.0	X	X
Chlorodibromomethane	µg/l	5.0	X	X
1,2-Dichlorobenzene	µg/l	10.0	X	X
1,3-Dichlorobenzene	µg/l	10.0	X	X
1,4-Dichlorobenzene	µg/l	5.0	X	X
Bromodichloromethane	µg/l	5.0	X	X
1,1-Dichloroethane	µg/l	5.0	X	X
1,2-Dichloroethane	µg/l	5.0	X	X
1,1-Dichloroethylene	µg/l	10.0	X	X
1,2-Dichloroethylene	µg/l	10.0	44.4	X
Methylene Chloride	µg/l	10.0	X	X
1,2-Dichloropropane	µg/l	5.0	X	X
cis-1,3-Dichloropropene	µg/l	20.0	X	X
trans-1,3-Dichloropropene	µg/l	5.0	X	X
Ethylbenzene	µg/l	10.0	X	X
1,1,2,2-Tetrachloroethane	µg/l	10.0	X	X
Tetrachloroethylene	µg/l	5.0	X	X
Toluene	µg/l	5.0	X	X
1,1,1-Trichloroethane	µg/l	5.0	X	X
1,1,2-Trichloroethane	µg/l	5.0	X	X
Trichloroethylene	µg/l	2.0	137.	560.
Vinyl Chloride	µg/l	2.0	9.48	X
Trichlorofluoromethane	µg/l	10.0	X	X
Dichlorodifluoromethane	µg/l	20.0	X	X
Analytical No.:			29671	29673

X = Analyzed but not detected.

All analyses conducted in accordance with Enviroscan Quality Assurance Program.

ENVIROSCAN

ANALYTICAL REPORT

STS Consultants Ltd.
540 Lambeau
Green Bay, WI 54303

CUST NUMBER: 17566XF
SAMPLED BY: Client
DATE REC'D: 03/23/90
REPORT DATE: 03/27/90
APPROVED BY: JAL

Attn: Donna Bugs

	Units	Detection Limit	P-1	MW-3
Benzene	µg/l	0.2	X	X
Bromoform	µg/l	2.0	X	X
Bromomethane	µg/l	4.0	X	X
Carbon Tetrachloride	µg/l	0.5	X	X
Chlorobenzene	µg/l	2.0	X	X
Chloroethane	µg/l	2.0	X	X
2-Chloroethylvinyl Ether	µg/l	5.0	X	X
Chloroform	µg/l	0.5	0.62	X
Chloromethane	µg/l	2.0	X	X
Chlorodibromomethane	µg/l	0.5	X	X
1,2-Dichlorobenzene	µg/l	1.0	X	X
1,3-Dichlorobenzene	µg/l	1.0	X	X
1,4-Dichlorobenzene	µg/l	0.5	X	X
Bromodichloromethane	µg/l	0.5	X	X
1,1-Dichloroethane	µg/l	0.5	X	X
1,2-Dichloroethane	µg/l	0.5	X	X
1,1-Dichloroethylene	µg/l	1.0	X	X
1,2-Dichloroethylene	µg/l	1.0	2.15	X
Methylene Chloride	µg/l	1.0	X	X
1,2-Dichloropropane	µg/l	0.5	X	X
cis-1,3-Dichloropropene	µg/l	2.0	X	X
trans-1,3-Dichloropropene	µg/l	0.5	X	X
Ethylbenzene	µg/l	1.0	X	X
1,1,2,2-Tetrachloroethane	µg/l	1.0	X	X
Tetrachloroethylene	µg/l	0.5	X	X
Toluene	µg/l	0.5	X	X
1,1,1-Trichloroethane	µg/l	0.5	X	X
1,1,2-Trichloroethane	µg/l	0.5	X	X
Trichloroethylene	µg/l	0.2	6.47	X
Vinyl Chloride	µg/l	0.2	X	X
Trichlorofluoromethane	µg/l	1.0	X	X
Dichlorodifluoromethane	µg/l	2.0	X	X
Analytical No.:			29672	29674

X = Analyzed but not detected.

All analyses conducted in accordance with Enviroscan Quality Assurance Program.

STS CHAIN OF CUSTODY RECORD

NO. 1783 RECORD NO. _____ THROUGH _____

Contact person Donna Buys
Phone No. 414-494-9650
Project No. 05666XF PO No. _____
STS Office GB

SPECIAL HANDLING REQUEST
☐ RUSH ☐ VERBAL ☐ OTHER

Laboratory Enviroscan
Contact Person Judy Lewandowski
Phone No. 800-338-7226
Results Due ASAP

Sample I D	Date	Time	Grab	Composite	No. of Containers	Sample Type (Water, soil air, sludge, etc.)	Preservation Y	Preservation N	Field Data PID/FID Ambient	Field Data PID/FID Sample	Field Data pH	Field Data Spec. Cond.	Analysis Request	Comments on Samples (Include Major Contaminants)
MW-1	3/21/90	10100 AM	X		2	water							601/602 VOCs	
P-1	↓	10110	X		2	"							↓	
MW-2		10115	X		2	"								
MW-3	↓	10125	X		2	"								

Collected by : R. SEDERSTROM	Date 3-21-90	Time 1010O	Delivery by :	Date	Time
Received by :	Date	Time	Relinquished by :	Date	Time
Received by :	Date	Time	Relinquished by :	Date	Time
Received by :	Date	Time	Relinquished by :	Date	Time
Received for lab by: L. Bachhuber	Date 3/23/90	Time 11AM	Relinquished by :	Date	Time

Laboratory Comments Only : Seals Intact Upon Receipt ☐YES ☐NO ☒N/A

Final disposition :

Comments (Weather Conditions, Precautions, Hazards) :

#10-29671-29674

Distribution: Original and Green - Laboratory Yellow - As needed Pink - Transporter Goldenrod - STS Project File

Instruction to Laboratory: Forward completed original to STS with analytical results. Retain green copy.

3/88