ERR/ERP
FID#241495100

April 6, 1994

DRAKE
ENVIRONMENTAL, INC.
Common Sense. Uncommon Service.

Ms. Margaret Graefe
Department of Natural Resources, Southeast District
P.O. Box 12436
4041 North Richards Street
Milwaukee, WI 53212

RE: Remedial Investigation project at the South 6th Street property located in Oak Creek, Wisconsin — Drake Project No. J93035

Dear Ms. Graefe:

This letter is in response to our telephone conversation on March 14, 1994, regarding the Remedial Investigation (RI) conducted at the above-referenced site. During our conversation, we discussed the management of the soil cuttings stored in seven 55-gallon drums on-site. Specifically, we requested approval to spread the soils on site. You expressed concern regarding adverse impacts to the groundwater, which is located at a depth of 1 to 3 feet beneath the ground surface. Therefore, you requested technical reasons why the soils would not adversely impact the groundwater. The purpose of this letter is to present the reasons which support spreading the soils on-site.

Table 1 presents the VOC analysis of selected soil samples collected during the RI. The borings were drilled on April 13, May 10, and May 11, 1993.

TABLE 1
Soil Sample Analytical Results
(Only detected VOC compounds are listed.)

	B-2	B-3	B-4	B-5	B-6	B-7	B-8	PAL
Sample Depth (ft.)	2.5-4	2.5-4	2.5-4	5-6.5	2.5-4	5-6.5	2.5-4	—
Parameter (ppb)								
Ethylbenzene	3.3	3.0	11.0	3.6	5.3	2.9	3.1	272
Naphthalene	<6.0	<5.5	6.7	<5.9	<6.4	<6.0	<5.8	8
Toluene	11.0	22.0	22.0	20.0	25.0	15.0	16.0	68.6
1,2,4-Trimethylbenzene	8.6	11.0	14.0	12.0	18.0	10.0	13.0	No Limit
1,3,5-Trimethylbenzene	<6.0	<5.5	8.3	<5.9	<6.4	<6.0	<5.8	No Limit
Total Xylenes	<6.0	9.3	11.0	22.0	12.0	8.8	9.8	124

ppb = parts per billion
PAL = Preventive Action Limit

N80 W14824 Appleton Ave.
Menomonee Falls, WI 53051
Phone: (414) 253-1440
Fax: (414) 253-1448

The VOCs detected in the soil borings at the time of the RI are below the DNR's Preventive Action Limit (PAL) for groundwater quality, as stated in Wisconsin Administrative Code Chapter NR 140. Therefore, it is likely the soils will not adversely impact the groundwater quality.

Based on the low concentration of VOCs at the time the soil borings were constructed, the limited volume of soils involved (less than 2 cubic yards), the duration of time elapsed since the soils were drummed, and the additional volatilization that will occur by thinly spreading the soils on-site, it is our professional opinion that spreading the drummed soils in a thin layer (a maximum thickness of 3 inches) on-site will not adversely impact the groundwater. Therefore, we are requesting a reconsideration of your earlier decision to require off-site disposal of the soils.

Please do not hesitate to call if you would like to meet with us to discuss this issue or if you have any questions.

Respectfully,

DRAKE ENVIRONMENTAL, INC.

Randall Harpt-Roeder, P.E.
Project Manager

Michael D. Frede, P.E.
Principal—Investigation/Remediation Group

cc: Mr. Henry Jackson

18/J93035D

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Southeast District - Annex building
Post Office Box 12436
4041 N. Richards St.
Milwaukee, Wisconsin 53212
TELEPHONE: 414-961-2727
TELEFAX #: 414-961-2770

George E. Meyer
Secretary

June 21, 1993

File Ref: Milwaukee Co.
ERRP
ER
FID 241495100

Mr. Lawrence J. Haskin
City of Oak Creek
Office of the City Attorney
124 E. Drexel Ave.
Oak Creek, WI 53154

Dear Mr. Haskin:

RE: Property located at 7730 S. Sixth St., Oak Creek

The Department has received and reviewed the additional information, prepared by DRAKE Environmental, Inc. dated June 7, 1993, submitted relative to the above mentioned property. Based on all of the information available to date the Department is not requiring the property owners to take further action at this time.

The Department has requested that Prime Manufacturing Corporation conduct further investigations and remediation, if necessary, of all contamination that may have resulted from their storage activities. A workplan has been provided to the Department and it is understood that investigation activities are underway. The requested activities may require access to the above mentioned parcel. The Department requests that continuing access be provided for all investigation and remediation activities by another party or you or future owners will subsequently be required to perform any necessary work.

It does appear that 1,1,1 - Trichloroethane contamination has migrated to the City property by means of the groundwater. Subsequently, a down-gradient property owner does not become liable for environmental contamination merely because he or she happens to own down-gradient property.

It was also noted in the DRAKE Environmental, Inc. report that petroleum compounds do exist in the soil and groundwater at very low concentrations. As stated above the Department is not requiring further action relative to these detections at this time, however, if additional contamination is discovered (not specifically related to off-site activities) further investigation and/or remediation may be required.

If you have any questions or comments please contact me at the above address or at (414)961-2725.

Sincerely,

Margaret M. Graefe

Margaret M. Graefe
Hydrogeologist, Environmental Repair Program

REINHART, BOERNER, VAN DEUREN, NORRIS & RIESELBACH
S.C.
ATTORNEYS AT LAW
SUITE 2100
1000 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202-3186
TELEPHONE (414) 298-1000
FACSIMILE (414) 298-8097

ROGER L. BOERNER
RICHARD A. VAN DEUREN
RICHARD H. NORRIS III
ALLEN N. RIESELBACH
PAUL V. LUCKE
ROBERT E. MELDMAN
ARTHUR F. LUBKE, JR.
DONALD J. CHRISTL
THOMAS E. FUNK
DAVID A. ERNE
ROBERT E. BELLIN
WILLIAM R. STEINMETZ
GARY A. HOLLMAN
JOHN A. ERICH
JEFFREY R. FULLER
FREDERIC G. FRIEDMAN
DELOS N. LUTTON
ROBERT E. DALLMAN
MARY A. BRAUER
STEPHEN T. JACOBS
CHESTER P. SCHWARTZ
SCOTT W. HANSEN
MICHAEL H. SIMPSON
JOHN L. SCHLIESMANN
STEVEN D. HUFF
WILLIAM F. FLYNN
PETER C. BLAIN
BRUCE T. BLOCK

JEFFREY P. CLARK
DANIEL J. BRINK
MICHAEL T. PEPKE
MICHAEL D. RECHTIN
RICHARD P. CARR
ROBERT F. HENKLE, JR.
RICHARD W. GRABER
ANNE W. REED
ROBERT K. SHOLL
KRISTIN M. BERGSTROM
LAWRENCE J. BURNETT
JOHN A. HERBERS
FRANCIS W. DEISINGER
JEROME M. JANZER
ULICE PAYNE, JR.
PHILIP P. MANN
KEVIN J. HOWLEY
ANTHONY J. HANDZLIK
MARK L. METZ
STEVEN P. BOGART
JOSEPH J. BALISTRERI
TIMOTHY G. ATKINSON
TIMOTHY A. NETTESHEIM
DAVID A. WEINSTEIN*
JOSEPH SEMO*
JOHN M. VAN LIESHOUT

OF COUNSEL:
THOMAS M. STANTON

DENISE P. GOERGEN
JAMES M. BEDORE
JILL M. KOCH
MICHAEL R. SMITH
CATHERINE F. CONWAY
ALBERT S. ORR
R. TIMOTHY MUTH
STEVEN J. COTTINGHAM
WILLIAM T. SHROYER
THOMAS J. NOLTE
ANNE MORGAN HLAVACKA
KATHLEEN S. DONIUS
DAVID D. PAVEK*
MARTIN J. McLAUGHLIN
LARRI J. BROOMFIELD
TIMOTHY P. REARDON
CHRISTINE L. THIERFELDER
MICHAEL D. JANKOWSKI
MARY E. TRIGGIANO-HUNT
WILLIAM P. SCOTT
DIANE H. O'GAWA
CARLEEN T. CLARK*
DAVID R. KROSNER
WILLIAM R. CUMMINGS
STEVEN S. BARTELT
BENNETT E. CHOICE

ALICE D. SEEGER
DAVID M. SANDERS
EDWARD B. WITTE
RODNEY D. DeKRUIF
JOHN R. AUSTIN
CATHERINE L. DAVIES
DAVID J. SISSON
PATRICK J. HODAN
JOHN E. MOSSBERG
MARTIN G. FLYKE
KATHERINE M. NEALON
CAROLYN A. SULLIVAN
VINCENT J. BERES
PETER W. BECKER
JOHN M. BRENNAN III
RICHARD R. LORENZ
COLLEEN D. BALL
DEAN E. MABIE
JOHN E. SCHEMBARI
GERALD L. FELLOWS
GERI T. KRUPP GORDON
DANIEL J. LA FAVE
DAVID G. HANSON
MATTHEW J. FLANARY

* NOT LICENSED IN WISCONSIN

June 8, 1993

DELIVERED BY MESSENGER

Margaret Graefe, Hydrogeologist
Environmental Repair Program
Wisconsin Department of Natural Resources
Southeast District Annex Building
P.O. Boc 12436
Milwaukee, WI 53212

Dear Ms. Graefe:

Re: Foran Spice Company; Remedial Investigation Report

I enclose a copy of Drake Environmental, Inc.'s ("Drake") remedial investigation report of the vacant parcel adjacent to Foran Spice Company which is owned by the City of Oak Creek. As you recall, Foran and the City propose to complete their sale of this property within the next four weeks. I therefore ask that you review Drake's report as soon as possible in order to prepare a no action letter similar to the proposed letter I mailed to you on June 3, 1993. I will call you shortly to ensure you received this report. In the meantime, if you have any questions, please call me.

Yours very truly,

Edward B. Witte

EBW:KE

Enc.

cc Ms. Patricia H. Goto
Mr. Lawrence J. Haskin

REMEDIAL INVESTIGATION REPORT

OAK CREEK PROPERTY
OAK CREEK, WISCONSIN

CITY OF OAK CREEK

DRAKE Environmental, Inc.

Engineering Consultants

DRAKE Environmental, Inc.

Engineering Consultants

June 7, 1993

Mr. Phillip G. Epping, P.E.
City of Oak Creek
8640 South Howell Avenue
Oak Creek, WI 53154

RE: Remedial Investigation at the City of Oak Creek property in Oak Creek, Wisconsin — Project No. J93035

Dear Mr. Epping:

We have completed the fieldwork and engineering analysis for the above-referenced site. The attached report presents the results of the field and laboratory testing, a discussion of the results, and our conclusions and recommendations.

With your approval, a copy of this report will be submitted to the following agency:

Ms. Margaret Graefe
DNR—Southeast District
4041 North Richards Street
P.O. Box 12436
Milwaukee, WI 53212

We appreciated this opportunity to provide environmental engineering services. If you have any concerns regarding this report, please feel free to contact us.

Respectfully,

DRAKE Environmental, Inc.

Greg Walsh (GWL)
Gregory S. Walsh
Project Level Engineer

Michael Frede
Michael D. Frede, P.E.
Principal Level Engineer

Attachments
11/J93035A

N91 W17194 Appleton Avenue, Menomonee Falls, WI 53051 ♦ Telephone: (414) 253-1440

PO Box 610, Minocqua, WI 54548 ♦ Telephone: (715) 358-7018

REPORT

PROJECT
Remedial Investigation
Oak Creek Property
Oak Creek, Wisconsin

CLIENT
Mr. Phillip G. Epping, P.E.
City of Oak Creek
8640 South Howell Avenue
Oak Creek, WI 53154

PROJECT NUMBER
J93035

DATE
June 7, 1993

DRAKE Environmental, Inc.
N91 W17194 Appleton Avenue
Menomonee Falls, WI 53051

REPORT CONTENTS

Report Summary

Project Scope

- Project Description
- Site Description
- Scope of Work

Procedures

- Drilling and Soil Sampling Procedures
- Soil Screening Procedures
- Soil Classification Procedures
- Soil Sample Analytical Testing Procedures
- Groundwater Monitoring Well Construction Procedures
- Elevation Survey Procedures
- Groundwater Sampling and Analytical Testing Procedures

Results and Analysis

- Regional Geological Review
- Soil Conditions
- Regional Hydrogeological Review
- Groundwater Conditions
- PID Screening Results
- Soil Sample Analytical Results
- Groundwater Sample Analytical Results

Conclusions and Recommendations

- Conclusions
- Recommendations
- General Qualifications

Appendices

REPORT SUMMARY

Drake Environmental, Inc. completed a Remedial Investigation (RI) at a vacant, undeveloped property owned by the City of Oak Creek, located near South 6th Street and Rawson Avenue in Oak Creek, Wisconsin. During a Phase II Environmental Assessment conducted by Layne GeoSciences, Inc., soils contaminated with 1,1,1-trichloroethane (TCA) were encountered at the property. Consequently, the City of Oak Creek retained Drake to conduct an RI to determine the degree and extent of soil contamination, evaluate groundwater quality, and develop recommendations.

The RI included collecting soil samples from eight borings drilled on-site and submitting selected samples to a laboratory for chemical analysis. Drake also constructed three groundwater monitoring wells and submitted groundwater samples for chemical analysis to evaluate the groundwater conditions. The analytical testing of all samples focused on identifying and quantifying volatile organic compounds (VOC) contamination.

Laboratory results confirmed the presence of petroleum-related VOCs at low concentrations in soil samples. Laboratory analysis of groundwater samples indicated the presence of groundwater contamination of TCA (above allowable limits) at one well location and toluene (a petroleum-related VOC) at two wells.

It is Drake's opinion that additional soil investigation and soil remediation is not warranted at this time. Because TCA was detected above allowable limits in groundwater, it is recommended that the source of the contamination should be verified and source control (remediation) be completed. Please refer to the attached report for a detailed discussion of the project.

REMEDIAL INVESTIGATION
OAK CREEK PROPERTY
OAK CREEK, WISCONSIN

PROJECT SCOPE

Project Description

The City of Oak Creek owns a vacant, undeveloped parcel of land located immediately west of the Foran Spice Company and Prime Manufacturing Company properties. These facilities are located at 7616 South 6th Street and 7730 South 6th Street, respectively, in Oak Creek, Wisconsin. A Phase II Environmental Assessment conducted by Layne GeoSciences, Inc. (Project No. 61.2806, report dated April 8, 1992), indicated that soils at the Oak Creek property were contaminated with 1,1,1-trichloroethane (TCA) due to suspected leaks from a drum storage area on an adjacent property. Consequently, the City of Oak Creek retained Drake to conduct a Remedial Investigation (RI) to determine the degree and extent of soil contamination, evaluate groundwater quality, and develop recommendations for remediation, if warranted.

Site Description

The site is located east of South 6th Street (approximately 4,000 feet south of Rawson Avenue) in Oak Creek, Wisconsin. The site is located in the NW 1/4 of the SE 1/4 of Section 8, Township 8N, Range 21E (based on the Greendale Quadrangle map). Figure 1 in Appendix A illustrates the location of the site. The property is currently undeveloped and contains areas of grass, shrubs, and trees. The property is not serviced by municipal sewer or water utilities.

The surrounding properties consist of industrial and recreational developments. Foran Spice Company and Prime Manufacturing Company are located on the west adjacent property. The Oak Creek Little League Complex adjoins the property to the south and east. The property to the north is undeveloped and contains a tributary to Oak Creek. The adjacent properties are serviced by municipal sewer and water. Figure 2 in Appendix A illustrates the site and surrounding properties.

The ground surface at the property is generally flat, but slopes downward to the northeast with an elevation difference of approximately 5 feet across the site. In addition, a hill sloping upward approximately 7 feet exists at the west property boundary. In the general vicinity, the ground surface slopes downward to the southeast, descending approximately 50 feet over a distance of approximately 2 miles (based on the Greendale Quadrangle map).

Surface water features in the area include a tributary to Oak Creek located along the north property boundary and Oak Creek located approximately 0.5 mile to the east.

Scope of Work

The City of Oak Creek retained Drake to conduct an RI to determine the approximate degree and extent of contamination on-site and develop recommendations for remediation, if warranted. Drake provided the following documentation, sampling, and testing services during the RI:

- Documented the procedures Sauter and WTL followed to drill the borings and construct the monitoring wells
- Collected representative soil samples from the eight soil borings drilled on the site
- Screened the soil samples to determine the degree and extent of contamination
- Collected groundwater samples from the three monitoring wells to evaluate the groundwater quality
- Submitted soil and groundwater samples to a independent, certified laboratory for analysis of selected parameters

Drake initially subcontracted Sauter Drilling, Inc. to provide drilling services for this project. Sauter drilled one soil boring on the site; however, due to site conditions, Sauter was unable to continue drilling. Wisconsin Testing Laboratories (WTL) was subsequently retained by Drake to drill seven soil borings and construct three groundwater monitoring wells after the site conditions improved.

Drake retained Great Lakes Analytical to provide the laboratory services for this project. Drake evaluated the results of the field and laboratory testing and developed conclusions regarding the on-site environmental conditions. This report presents the procedures followed during the RI, the results of the field and laboratory testing, an

analysis of the collected data; and provides conclusions and recommendations based on the results.

PROCEDURES

Drilling and Soil Sampling Procedures

To allow for the collection of representative soil samples and the construction of groundwater monitoring wells, eight soil borings (designated B-1 through B-8) were drilled. The boring locations were selected based on where TCA was detected during the Phase II Environmental Assessment conducted by Layne. Sauter drilled B-1 on April 13, 1993. Borings B-2 through B-8 were drilled by WTL on May 10 and 11, 1993. Figure 3 in Appendix A illustrates the locations of the soil borings. The borings were drilled with a truck-mounted drilling rig using hollow-stem augers to a depth of 16.5 feet with the exception of boring B-1, which was extended to a depth of 9 feet. Further advancement at B-1 was not possible due to the sandy soils which flowed into the augers. Soils cuttings generated during drilling were placed into 55-gallon drums on-site.

All downhole drilling equipment was decontaminated prior to conducting the fieldwork to avoid the introduction of contaminants or cross-contamination between borings. The decontamination procedure consisted of cleaning the augers and rods with a hot water pressure washer.

Drake collected a total of fifty-two soil samples from the borings at 2.5-foot vertical intervals. The samples were collected following the split-barrel sampling procedure described in Appendix B. The technician hand washed the split-barrel samplers prior to each use to avoid cross-contamination. The samplers were scrubbed in an Alconox detergent and municipal water solution, rinsed in a separate container with municipal water, and allowed to air dry between each use.

The technician transferred each sample to three separate containers: two 4-ounce glass jars and an 8-ounce glass jar (companion sampling). All jars were new with plastic or metal screw-on lids. The 4-ounce jars were filled completely, and the 8-ounce jar was filled approximately halfway. The 4-ounce jars were placed in a cooler filled with ice packs in preparation for submittal of selected samples to an independent, certified laboratory for analytical testing. The 8-ounce companion samples were returned to Drake's field vehicle for screening. Approximately 25 grams of soil from each

selected 4-ounce sample jar was placed into a 60-milliliter (ml) laboratory supplied jar and refrigerated. Selected companion (4-ounce and 60-ml) samples were submitted to the laboratory for analytical testing based on field screening results of the 8-ounce samples and the locations from which they were collected.

The technician maintained records of the drilling and soil sampling activities to document the general soil types and groundwater conditions observed in the borings. These records were used to prepare the final boring logs.

Soil Screening Procedures

The 8-ounce companion samples were returned to Drake's field vehicle following sample collection and screened with a photoionization detector (PID) following the PID screening procedure described in Appendix B. PID screening provides a qualitative and semi-quantitative measure of volatile organic compounds (VOCs) in soils. Elevated PID readings (greater than 10) are generally considered a reliable indicator of contamination from products containing VOCs, such as TCA.

Soil Classification Procedures

A Drake geologist visually examined and classified the 8-ounce soil samples on the basis of texture and plasticity in general accordance with the Unified Soil Classification System (USCS). A chart describing the USCS method is included in Appendix C. The final boring logs in Appendix C indicate the USCS symbols used for this project. The geologist selected the soil stratifications presented on the logs based on the field logs and sample observations. The stratification lines are considered approximate boundaries; the transitions between soil types in-situ may be gradual in both the horizontal and vertical directions.

The geologist also completed olfactory and visual observations of the soil samples to detect the presence of obvious chemical products. These observations are included in the soil descriptions on the boring logs in Appendix C.

Soil Sample Analytical Testing Procedures

Drake submitted a total of seven companion (4-ounce and 60-ml) samples to an independent, certified laboratory for analytical testing. The samples were submitted to the laboratory within 2 days following sample collection. One soil sample (B-1:S-2) was analyzed for halogenated VOCs using a gas chromatograph following EPA Method 8010. To achieve lower laboratory detection limits, the remaining six samples were analyzed for VOCs using a gas chromatograph and mass spectrometer following EPA Method 8021. The laboratory reports in Appendix D present a complete list of the VOC parameters quantified. Chain of Custody procedures were adhered to throughout sample collection, handling, and laboratory submittal. Copies of the Chain of Custody forms are included in Appendix D.

Note: The soil samples not submitted for analytical testing will be retained at Drake's laboratory for a period of 60 days from the date of this report. If the samples should be retained for a longer period of time, written instructions should be submitted to Drake.

Groundwater Monitoring Well Construction Procedures

After the borings were drilled and the soil samples collected, groundwater monitoring wells were constructed at B-3, B-6, and B-8 (the wells at B-3 and B-6 were constructed in blind-drilled boreholes immediately adjacent to the borings). The locations of the wells (designated W-3, W-6, and W-8) are illustrated on Figure 3 in Appendix A. The wells were constructed in general accordance with Department of Natural Resources (DNR) requirements as set forth in Wisconsin Administrative Code NR 141. Each monitoring well consisted of a 10-foot length of 2-inch diameter, machine slotted PVC pipe. A 2-inch diameter threaded-joint solid PVC riser pipe extended from the screened portion of each well to the ground surface. The technician cut off each riser pipe near the ground surface and fitted the top of the PVC pipe with a locking cap for security. The annulus between each PVC pipe and outer wall of the borehole was backfilled with a commercially packaged sand (to serve as a filter pack) from the base of the borehole to an elevation of approximately 0.5 feet above the screened portion of the well. A bentonite annular space seal was placed above each filter pack, and, finally, a 1-foot layer of concrete at the ground surface to act as a surface seal. The technician then constructed a concrete ground surface seal in the top 1 foot of the opening. A 5-foot long, 4-inch diameter steel protective cover pipe extending approximately 2.5 feet above grade was embedded in the concrete seal around the PVC

pipe for security. Due to the shallow groundwater table, minor construction modifications to the wells were required, such as reducing the length of the filter pack above the screened interval and eliminating the fine sand layer. The monitoring well construction details are included in Appendix E.

The monitoring wells were developed on May 10 and 11, 1993, in accordance with Chapter NR 141 of the Wisconsin Administrative Code. Approximately 55 gallons of groundwater (ten well volumes) were removed from each well during development using a decontaminated Red Lion electric pump. A well development form for each well is included in Appendix E.

In accordance with DNR requirements as set forth in Chapter NR 141 of the Wisconsin Administrative Code, the technician backfilled the boreholes that were not utilized to construct monitoring wells with bentonite to prohibit surface water infiltration. Borehole abandonment forms are included in Appendix E.

Elevation Survey Procedures

Drake determined the elevations of the ground surface and the tops of the PVC pipes at the monitoring wells using conventional leveling techniques. The elevations were referenced to a manhole cover located on the Oak Creek Little League Complex property.

The depth to groundwater in each well was measured from the top of the PVC pipe to the static water level using an electronic water level probe. The water level probe was thoroughly washed with an Alconox detergent and municipal water solution and double rinsed with municipal water between well measurements.

The ground surface and PVC pipe elevations are considered accurate to ± 0.01 foot. The elevations of the groundwater table are considered accurate to ± 0.1 foot.

Groundwater Sampling and Analytical Testing Procedures

Drake sampled monitoring wells W-3, W-6, and W-8 on May 14, 1993, to evaluate the groundwater quality on-site. The sampling procedure consisted of sampling the groundwater from each well immediately following development and submitting the

samples to the laboratory. Prior to sampling, the Teflon bailer used to collect each sample was thoroughly washed in an Alconox detergent and municipal water solution and double-rinsed with municipal water. Each water sample recovered with the bailer was transferred to three 40-milliliter acid-preserved glass vials. In addition to the samples from the three monitoring wells, Drake submitted a duplicate sample from W-8, a field blank, and a trip blank to the laboratory for quality control analysis. The technician collected the samples in the following order: W-3, W-6, W-8, field blank, and the duplicate sample from W-8. The water samples were stored on ice in a cooler and submitted to the laboratory within 36 hours. Chain of Custody procedures were followed throughout sample collection and laboratory submittal. A copy of the Chain of Custody form is included in Appendix D.

The technician field tested the water samples recovered from the monitoring wells for pH, temperature, and conductivity. Drake reviewed and compared the data to typical measurements.

The laboratory analyzed the water samples (including the field and trip blanks) for VOCs using a gas chromatograph and mass spectrometer following EPA Method 8021.

RESULTS AND ANALYSIS

Regional Geological Review

Drake reviewed various geological publications which indicate that the Oak Creek site is apparently located within the ground moraine deposits of the Lake Michigan glacier. These deposits were generally formed in an east-west direction and consist mainly of silt and clay mixtures with some sand and gravel, commonly known as glacial till. These materials were variably stratified during deposition. The glacial soils are anticipated to have a thickness of approximately 100 feet in the vicinity of the property and overlie Niagara Dolomite bedrock. The thickly bedded Niagara Dolomite bedrock, approximately 450 feet thick, is part of the Silurian System. The bedrock is weathered and fractured (highly permeable) near its surface and becomes less weathered with increased depth.

Soil Conditions

The general soil profile encountered at the borings on-site consisted of silty or sandy clay soils with trace amounts of sand to approximate depths of 2 to 7 feet, and sandy soils with variable silt content to approximate depths of 13 to at least 16.5 feet (the maximum depth explored) overlying silty clay and clayey sand. Fill material was encountered at B-8 from the surface to a depth of approximately 1 foot and consisted of gravel, crushed asphalt, and silty clay.

The clayey soils are expected to exhibit relatively low permeabilities. The sandy soils are expected to exhibit moderate to high permeabilities.

None of the samples collected from the borings exhibited a chemical odor. The near surface clayey soils were generally black, dark gray, and dark brown in color. The sandy soils were brown, and the deep clayey/sandy soils were dark gray or gray brown in color. No chemical staining was observed. The specific conditions encountered at the boring locations are indicated on the soil boring logs, which are included in Appendix C.

Regional Hydrogeological Review

Drake reviewed various hydrogeological publications which indicate that an unconfined groundwater aquifer (water-bearing media) exists in the area of the site at a depth of approximately 5 to 10 feet below the ground surface. This aquifer is not utilized as a potable water source. Groundwater in the upper aquifer likely flows east and northeast, discharging to the local creeks (the Oak Creek drainage basin). The Niagara Aquifer, which is utilized as a potable water source, exists beneath the unconfined near-surface aquifer. Water flow within the Niagara Dolomite bedrock occurs preferentially within the fracture zones. Groundwater within the Niagara Aquifer apparently flows north to northwest.

Groundwater Conditions

The three groundwater monitoring wells were utilized to identify the general depth to the groundwater table and the direction of groundwater flow. Table 1 presents the groundwater elevations.

TABLE 1
Groundwater Elevations

Well Location	Ground Surface Elevation (ft.)	Top of Well Elevation (ft.)	Groundwater Elevation (ft.) 4-20-93
W-3	105.41	108.61	104.2
W-6	105.04	107.16	102.3
W-8	103.13	104.92	100.2

Benchmark References: Manhole cover located on the Oak Creek Little League Complex property.

Drake measured the water levels in the monitoring wells on May 14, 1993. The groundwater table was measured at depths of approximately 1 to 3 feet below the ground surface. Based on the data, the direction of groundwater flow appeared to be in a northeast direction. However, long-term monitoring would be necessary to accurately identify the direction and gradient of groundwater flow.

No product or chemical odor was detected in any of the groundwater samples.

PID Screening Results

Table 2 presents the results of the PID screening of the fifty-two samples collected from the borings.

TABLE 2
PID Screening Results — Soil Samples

Sample No.	Depth (ft.)	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8
S-1	1-1.5	25	<1	<1	1	<1	<1	<1	<1
S-2	2.5-4	**23**	**<1**	**<1**	**1**	NR	**2**	<1	**1**
S-3	5-6.5	32	<1	<1	<1	**<1**	1	**<1**	<1
S-4	7.5-9	28	<1	1	<1	<1	<1	<1	<1
S-5	10-11.5	NS	<1	1	1	<1	1	<1	<1
S-6	12.5-14	NS	<1	1	<1	<1	<1	<1	<1
S-7	15-16.5	NS	<1	2	<1	<1	<1	<1	<1

where is water table?

NR = No sample recovered.
NS = No sample recovered; boring not advanced to this depth.
Notes: The PID readings have no unit of measurement.
All readings in bold represent samples submitted for laboratory analysis.

To evaluate the significance of the PID screening, Drake compared the PID readings to 10, a limit frequently used by the DNR to identify possible VOC contamination. The PID screening results indicate that samples collected from all borings, except those from B-1, exhibited PID readings less than 10. The soil samples collected from B-1 exhibited PID readings which ranged from 23 to 32. However, because the samples collected from B-1 did not exhibit any indications of contamination (odors or staining) or humid conditions (humidity can cause "false positives") on the day B-1 was drilled, it is likely that the readings are not representative.

Soil Sample Analytical Results

Table 3 presents the results of the VOC analysis of selected soil samples. Appendix D includes a copy of the laboratory report.

TABLE 3
Analytical Results - Soil Samples
(Only the detected VOC compounds are listed.)

Parameter	B-1:S-2 (ppm)	B-2:S-2 (ppm)	B-3:S-2 (ppm)	B-4:S-2 (ppm)	B-5:S-3 (ppm)	B-6:S-2 (ppm)	B-7:S-3 (ppm)	B-8:S-2 (ppm)
PID Reading	23	<1 (nu)	<1 (nu)	1 (nu)	<1 (nu)	2 (nu)	<1 (nu)	1 (nu)
Ethylbenzene	NA	0.0033	0.003	0.011	0.0036	0.0053	0.0029	0.0031
Naphthalene	NA	<0.006	<0.0055	0.0067	<0.0059	<0.0067	<0.006	<0.0058
Toluene	NA	0.011	0.022	0.022	0.020	0.025	0.015	0.016
1,2,4-Trimethylbenzene	NA	0.0086	0.011	0.014	0.012	0.018	0.010	0.013
1,3,5-Trimethylbenzene	NA	<0.006	<0.0055	0.0083	<0.0059	<0.0064	<0.006	<0.0058
Total Xylenes	NA	<0.006	0.0093	0.011	0.022	0.012	0.0088	0.0098

ppm = parts per million
nu = no units
NA = Compound not detected in analytical method utilized

Currently, VOCs in soils are not specifically regulated by the DNR. The results can, however, be useful in confirming the presence of contamination, if present. No halogenated VOCs were detected by EPA Method 8010 in the sample collected from B-1 (2.5 to 4.0 feet). Three VOCs were detected in the sample collected from B-2 (2.5 to 4.0 feet). Four VOCs were detected in the samples analyzed from B-3 (2.5 to 4 feet), B-5 (5.0 to 6.5 feet), B-6 (5.0 to 6.5 feet), B-7 (5.0 to 6.5 feet), and B-8 (2.5 to 4.0 feet). Six VOCs were detected in the sample collected from B-4 (2.5 to 4.0 feet). The VOC compounds detected are common constituents in petroleum products. TCA was not detected in any of the samples.

Groundwater Sample Analytical Results

Table 4 presents the results of the laboratory analysis of the groundwater samples. A copy of the laboratory report is included in Appendix D.

TABLE 4
Analytical Results - Groundwater Samples
(Only the detected VOCs are listed.)

Parameters	W-3 (ppb)	W-6 (ppb)	W-8 (ppb)	*W-8 (ppb)	PAL (ppb)	ES (ppb)
Toluene	<5.0	1.6	0.97	0.95	68.6	343
1,1,1-Trichloroethane	**62.0**	<0.50	<0.50	<0.50	40	200

*duplicate sample
ppb = parts per billion
Note: The concentration in bold exceeds the respective PAL.

In Wisconsin, standards exist to evaluate groundwater quality at regulated facilities. Chapter NR 140 of the Wisconsin Administrative Code establishes public health related standards for specific compounds known to cause health problems. For all standards there are two limits: the Preventive Action Limit (PAL) and the Enforcement Standard (ES). If a concentration is above the PAL but below the ES, the DNR response may range from "no action" to "further investigation is required." If an ES is exceeded, the DNR may require further investigation and remediation.

The VOC results indicate that two compounds, toluene and TCA, were detected in the groundwater samples. Toluene was detected in W-6 and W-8 below the PAL. TCA was detected above its PAL in W-3.

Two VOCs, toluene and 1,4-dichlorobenzene, were detected in the field blank. Toluene was detected in the field blank at a concentration of 0.69 ppb (slightly above the laboratory's detection limit) and 1,4-dichlorobenzene was detected at a concentration of 1.1 ppb. No VOCs were detected in the trip blank.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The laboratory results indicate that TCA was not detected in the soil samples collected from the Oak Creek site. Relatively low concentrations of petroleum-related VOCs were detected in all soil samples that were analyzed. The petroleum-related VOCs are likely the result of limited petroleum spills on or adjacent to the property. However, the concentrations of VOCs detected do not appear to represent significant soil contamination. Although Layne detected TCA contamination in the soil, it is Drake's opinion that no significant contamination from TCA (the compound of concern) exists on the Oak Creek property.

TCA was detected at one of the three groundwater monitoring wells (W-3). The concentration of TCA detected is slightly above the PAL for this compound. One petroleum related VOC (toluene) was detected at two wells (W-6 and W-8) below its respective PALs. Because the TCA exceeded the PAL, it is Drake's opinion that groundwater contamination from TCA exists on the Oak Creek property. It is anticipated that the source of the TCA contamination is the aforementioned spills from the adjacent drum storage area.

Recommendations

It is recommended that no further soil investigation or soil remediation be conducted. However, because the concentration of TCA in one of the three groundwater wells on-site exceeded DNR regulatory limits, it is recommended that the source of the contamination should be identified and remediation be completed at that location (source control) to eliminate the continued migration onto the Oak Creek property.

Finally, this report should be submitted to the DNR for review.

General Qualifications

Drake conducts its services with that degree of care and skill ordinarily exercised by members of the engineering community practicing under similar conditions at the same time in the same or similar locality.

The field and engineering procedures Drake followed in completing this report are in general accordance with applicable regulations of the Wisconsin DNR and the Department of Industry, Labor, and Human Relations (DILHR) at the time the work was conducted. If the applicable regulations change, the DNR may require further investigation.

The results, conclusions, and recommendations presented in this report are based on the data obtained from the specific boring locations at the times and under the conditions stated in this report. Variations in soil and groundwater conditions typically exist at most sites between sampling locations and between specific periods of time, the extent of which may not become evident without further exploration or excavation. If variations are noted in the future, Drake should be informed. It may be necessary to conduct additional explorations and observations to determine the characteristics of these variations and provide a re-evaluation of the conclusions in this report.

This RI also was completed to identify potential economic liabilities. Drake assumes no responsibility for the discovery and elimination of hazards that could possibly cause accidents, injuries, or damage. Compliance with the recommendations and/or suggestions contained in this report in no way assures elimination of hazards or a fulfillment of a property owner's obligation under local, state, or federal laws. It is the responsibility of the property owner to notify authorities of any conditions that are in violation of the current legal standards.

Some of the factual information in this report was obtained from the client, client's agents, and third parties, and are assumed by Drake to be correct and complete. Because the facts stated in this report are subject to professional interpretation, they could result in differing conclusions. In addition, the findings and conclusions contained in this report are based on various factors as they existed at the time of the study. Changes or modifications to the site and/or facilities made after the site visit are not included.

Drake prepared this report at the request of its client. Drake assumes responsibility for the accuracy of the contents of this report subject to what is stated elsewhere in this section, but recommends the report be used only for the purpose intended by the client and Drake when the report was prepared. The report may be unsuitable for other uses and reliance of its contents by anyone other than the client is done at the sole risk of

the user. Drake accepts no responsibility for application or interpretation of the results by anyone other than the client.

APPENDICES

Appendix A

Figure 1 - Vicinity Diagram
Figure 2 - Site Diagram
Figure 3 - Boring and Monitoring Well Locations Diagram

Appendix B

Split-Barrel Sampling Procedure
PID Screening Procedure

Appendix C

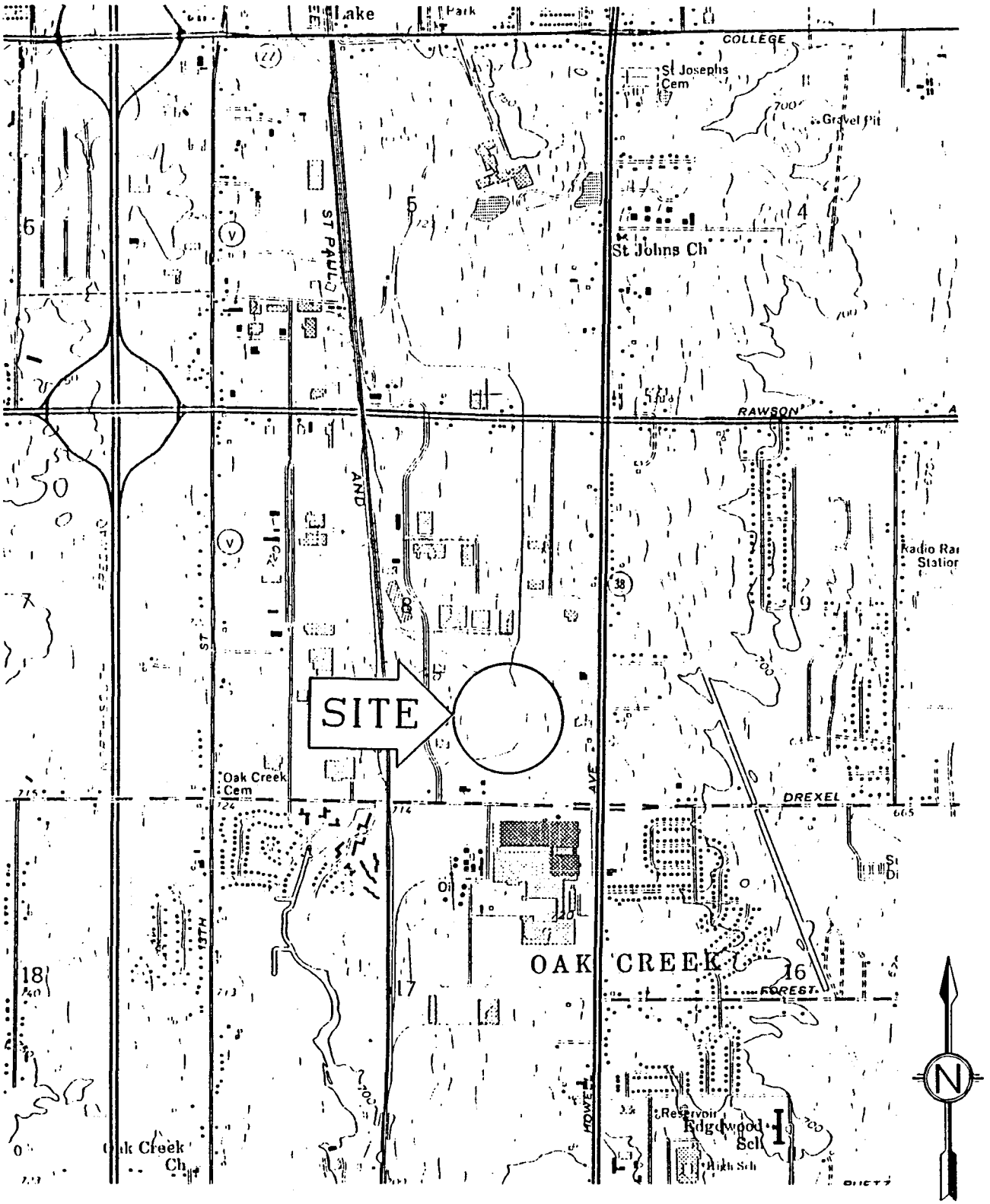
Unified Soil Classification System (USCS) Chart
Boring Logs

Appendix D

Laboratory Analytical Reports
Chain of Custody Forms

Appendix E

Monitoring Well Construction Details
Monitoring Well Development Forms
Borehole Abandonment Forms

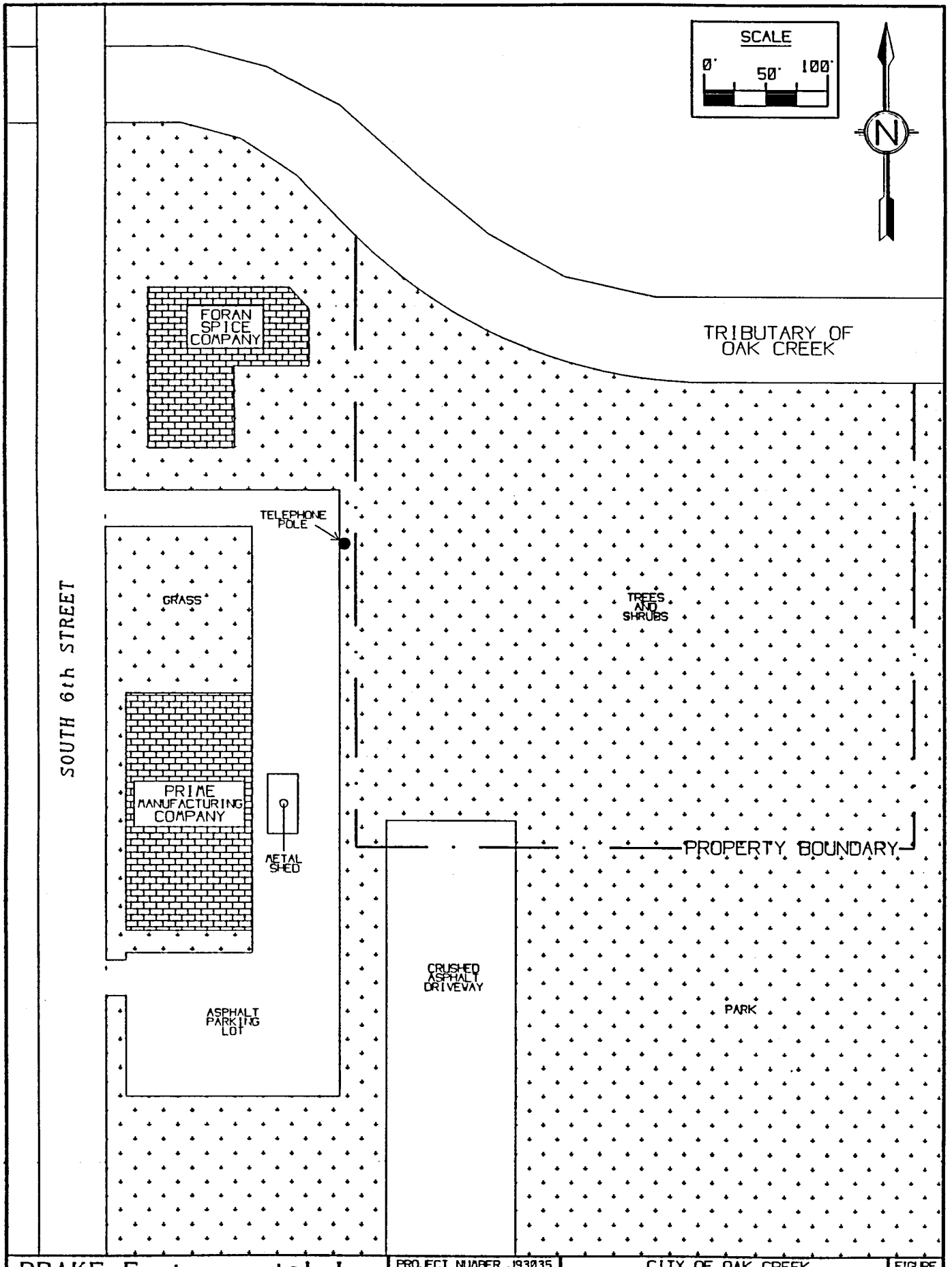


COPIED FROM U.S.G.S. QUADRANGLE - 7.5' SERIES

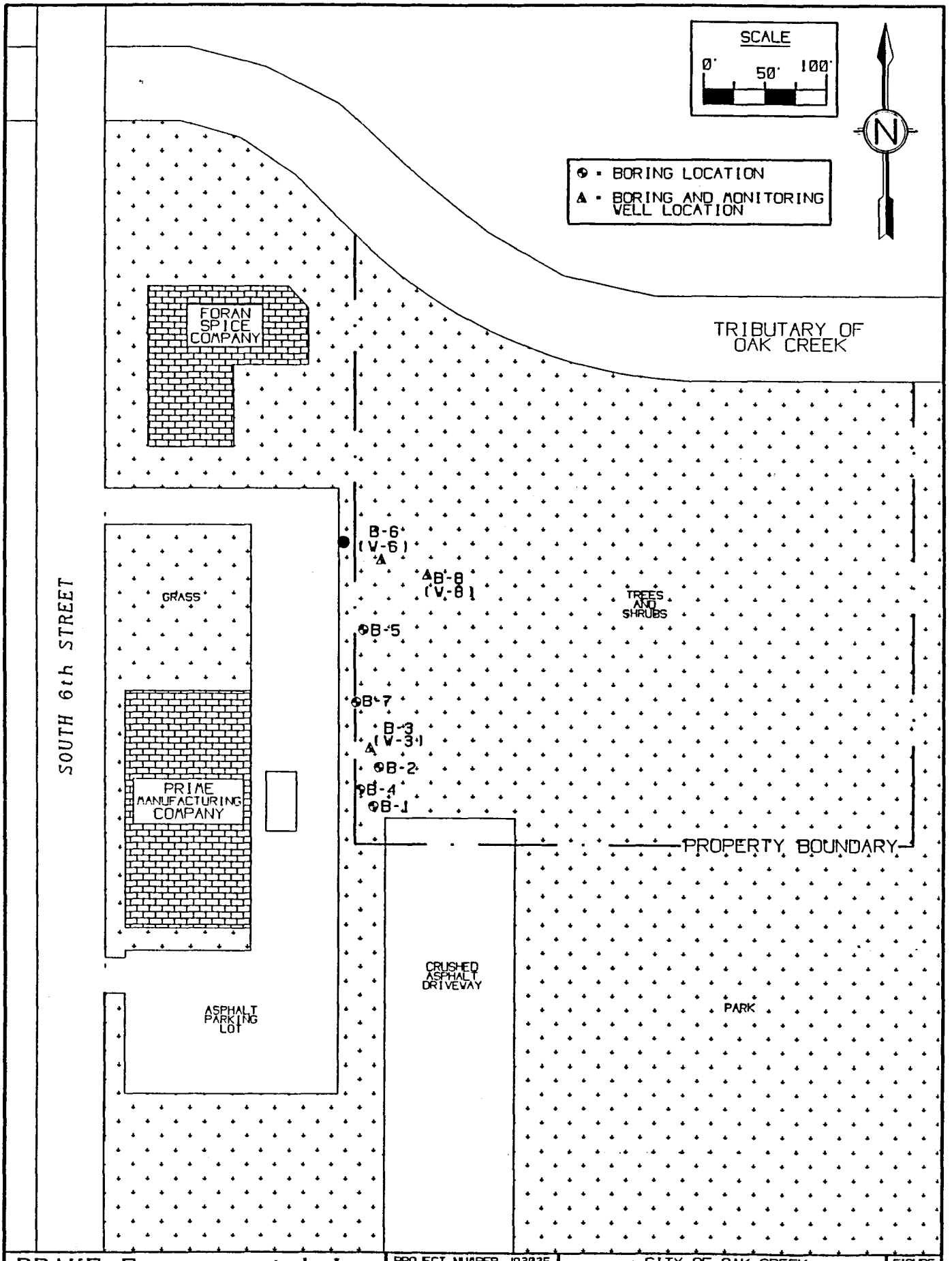
GREENDALE

SCALE
0' 1000' 2000'

DRAKE Environmental. Inc. *ENGINEERING CONSULTANTS*	PROJECT NUMBER J93035 DRAWN BY JGT DATE: 05/13/93	CITY OF OAK CREEK SOUTH 6th STREET PROPERTY PHASE II VICINITY DIAGRAM	FIGURE 1



DRAKE Environmental. Inc. *ENGINEERING CONSULTANTS*	PROJECT NUMBER J93035 DRAWN BY JGT DATE: 05/13/93	CITY OF OAK CREEK SOUTH 6th STREET PROPERTY PHASE II SITE DIAGRAM	FIGURE 2



DRAKE Environmental. Inc. *ENGINEERING CONSULTANTS*	PROJECT NUMBER J93035 DRAWN BY JGT DATE: 05/13/93	CITY OF OAK CREEK SOUTH 6th STREET PROPERTY PHASE II BORING LOCATIONS DIAGRAM	FIGURE 3

SPLIT-BARREL SAMPLING PROCEDURE

The split-barrel sampling procedure as defined in ASTM D-1586 (84) consists of driving a 2-inch O.D. thick-walled, hollow sampler into the soil a distance of 18 inches with a 140-pound hammer falling 30 inches. The value of Standard Penetration Resistance (N) is obtained by adding the number of blows of the hammer during the final 1 foot. The N value provides a qualitative indication of the relative density of granular soils (silts, sands, and gravels). The sample recovered in the hollow sampler is relatively undisturbed and can be placed into a container for future classification, screening, and analysis.

PID SCREENING PROCEDURE

To determine if soils have been contaminated by volatile organic compounds (VOCs), soil samples are screened with a OVM Model 580B photoionization detector (PID) equipped with a 10.6 electron volt (eV) lamp calibrated to isobutylene. The PID provides a qualitative and semi-quantitative measure of VOCs with ionization potentials less than 10.6 eV, which include those present in the more volatile petroleum fuels and solvents.

A representative portion of soil is placed in an 8-ounce glass jar and sealed with a metal lid. The jar is filled approximately half full. The sealed container is allowed to warm to 70° F for a minimum period of 15 minutes, dependent on the ambient air temperature. The actual time period the samples are allowed to warm is in general accordance with the DNR guideline set forth in "LUST Field Screening Procedures," PUBL-SW-176, September 1992. The lid of the container is slightly opened, the PID tip is inserted into the headspace (area in the jar above the soil), and the highest reading on the meter is recorded.

The Wisconsin Department of Natural Resources (DNR) considers PID readings greater than 10 an indication of contamination by volatile chemicals. However, lower readings do not necessarily indicate the absence of contamination, because nonvolatile contaminants may be present. PID screening is not as meaningful in such cases. In addition, the PID does not identify the types of chemicals present. All results should be evaluated by considering the contaminants present and the limitations of the PID meter.

CLIENT: CITY OF OAK CREEK		DRILL RIG: MOBILE DRILL	BORING NUMBER
LOCATION: 7800 SOUTH 6th STREET, OAK CREEK, WI		DRILLED ON: 05/11/93	8
PROJECT: OAK CREEK RI	PROJECT: J93035	FIELD PERSON: JGT	DRAWN BY JGT

DEPTH	ELEVATION	DESCRIPTION	USCS	SAMPLE	TYPE	N	OP	PID
0	103.13							
	102	FILL: GRAVEL AND CRUSHED ASPHALT, SOME SILTY CLAY - DARK GRAY (10YR 3/1) - DAMP - MEDIUM	FILL					
1		SILTY CLAY, TRACE FINE TO MEDIUM SAND AND ORGANICS - BLACK (10YR 2/1) - DAMP - STIFF TO VERY STIFF	CL	1	SS	18		(1
2								
3				2	SS	14	2.0	1
4								
5	98	SILTY FINE SAND, TRACE MEDIUM SAND - DARK YELLOW BROWN (10YR 4/4) TO 10 FEET, BROWN (10YR 4/3) TO 12.5 FEET, DARK GRAY BROWN (10YR 4/2) TO 15 FEET - WET - LOOSE TO 7.5 FEET, MEDIUM TO 10 FEET, DENSE TO 15 FEET	SM	3	SS	8		(1
6								
7				4	SS	23		(1
8								
9								
10				5	SS	41		(1
11								
12				6	SS	30		(1
13								
14								
15	88	SILTY CLAY, TRACE FINE SAND - GRAY BROWN (2.5Y 5/2) - MOIST - STIFF	CL	7	SS	23	1.25	(1
16								
17	86.5	BORING TERMINATED AT 16.5 FEET						
18								
19								
20								
21								
22								
23								
24								
25								
26						-		
27								
28								
29								
30								

NOTE: STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. THE ACTUAL TRANSITION MAY BE GRADUAL.

GROUNDWATER DATA	DRILLING REMARKS
WATER LEVEL ▫ 5' DURING DRILLING	BORING DRILLED WITH 4.25 IN. I.D. HOLLOW STEM AUGERS
WATER LEVEL ▫ 100.23' ON 05/14/93	MONITORING WELL CONSTRUCTED TO 13 FEET
WATER LEVEL ▫ ON	DRAKE ENVIRONMENTAL, INC.
WATER LEVEL ▫ ON	*ENGINEERING CONSULTANTS*

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled:	Apr 13, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil	Received:	Apr 14, 1993
Menomonee Falls , WI 53051	Analysis for:	Percent Solids		
Attention: Greg Walsh	First Sample #:	304-0617	Analyzed:	Apr 19-20, 1993
			Reported:	Apr 20, 1993

LABORATORY ANALYSIS FOR: Percent Solids

Sample Number	Sample Description	Detection Limit %	Sample Result %
304-0617	B1, S2	0.10	84

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled:	Apr 13, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil: B1, S2	Received:	Apr 14, 1993
Menomonee Falls , WI 53051	Analysis Method:	EPA 5030/8010	Analyzed:	Apr 17-20, 1993
Attention: Greg Walsh	Lab Number:	304-0617	Reported:	Apr 20, 1993

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg, Dry Weight	Sample Results µg/kg, Dry Weight
Bromodichloromethane	6.0	N.D.
Bromoform	6.0	N.D.
Bromomethane	6.0	N.D.
Carbon tetrachloride	6.0	N.D.
Chlorobenzene	6.0	N.D.
Chloroethane	30	N.D.
2-Chloroethylvinyl ether	6.0	N.D.
Chloroform	6.0	N.D.
Chloromethane	6.0	N.D.
Dibromochloromethane	6.0	N.D.
1,2-Dichlorobenzene	12	N.D.
1,3-Dichlorobenzene	12	N.D.
1,4-Dichlorobenzene	12	N.D.
1,1-Dichloroethane	6.0	N.D.
1,2-Dichloroethane	6.0	N.D.
1,1-Dichloroethene	6.0	N.D.
Total 1,2-Dichloroethene	6.0	N.D.
1,2-Dichloropropane	6.0	N.D.
cis-1,3-Dichloropropene	6.0	N.D.
trans-1,3-Dichloropropene	6.0	N.D.
Methylene chloride	12	N.D.
1,1,2,2-Tetrachloroethane	6.0	N.D.
Tetrachloroethene	6.0	N.D.
1,1,1-Trichloroethane	6.0	N.D.
1,1,2-Trichloroethane	6.0	N.D.
Trichloroethene	6.0	N.D.
Trichlorofluoromethane	6.0	N.D.
Vinyl chloride	12	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental
N91 W17194 Appleton Ave.
Menomonee Falls , WI 53051
Attention: Greg Walsh

Client Project ID: J93035

QC Sample Group: 304-0617

Reported: Apr 20, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	1,1,-Dichloro ethene	T 1,2-Dichloro ethene	Chloroform	1,1,1-Trichloro ethane	Trichloro ethene	Chloro benzene
Method:	8010	8010	8010	8010	8010	8010
Analyst:	D. Parikh	D. Parikh	D. Parikh	D. Parikh	D. Parikh	D. Parikh
Reporting Units:	ng	ng	ng	ng	ng	ng
Date Analyzed:	Apr 19, 1993	Apr 19, 1993	Apr 19, 1993	Apr 19, 1993	Apr 19, 1993	Apr 19, 1993
QC Sample #:	BLK3041993	BLK3041993	BLK3041993	BLK3041993	BLK3041993	BLK3041993
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	50	50	50	50	50	50
Conc. Matrix Spike:	56	55	58	55	62	56
Matrix Spike % Recovery:	112	110	116	110	124	112
Conc. Matrix Spike Dup.:	53	52	55	54	63	53
Matrix Spike Duplicate % Recovery:	106	104	110	108	126	106
Relative % Difference:	5.5	5.6	5.3	1.8	1.6	5.5

Laboratory blank contained the following analytes: None Detected

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100	
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100	3040617.DRA <4>

GREAT LAKES ANALYTICAL

CHAIN OF CUSTODY REPORT

BUFFALO GROVE, ILLINOIS 60089
(708) 808-7766 FAX (708) 808-7772

Client: DRAKE ENVIRONMENTAL, INC
Address: N91 W17144 Appleton Avenue
Menomonee Falls, WI 53051
Report to: GREG WALSH

Project: J93035
Sampler: JEFF TRACY
PO #:
Phone #(414) 253-1440 FAX #:

TAT: (5 DAY) 4 DAY 3 DAY 2 DAY 1 DAY < 24 HRS
DATE RESULTS NEEDED: 4/21/93
TEMPERATURE UPON RECEIPT: ON ICE (2.9°C)
AIR BILL NO. 6854924561

FIELD ID, LOCATION	DATE COLLECTED	TIME COLLECTED	SAMPLE: DEVICE	SAMPLE: MATRIX	PRESERVATIVES	NO. CONTAINERS	TYPE CONTAINERS	ANALYSIS TYPE	SAMPLE CONTROL: CRACKED/BROKEN	SAMPLE CONTROL: IMPROPERLY SEALED	SAMPLE CONTROL: GOOD CONDITION	LABORATORY ID NUMBER
B1:S2	4/13/93	0840		Soil	Ø	1	2-oz	~~1,1,1-Trichloroethane (TCA)~~ BTEX EPA Method 8020 - Aq Param.			✓	3040617
Temperature Blank				Water		1	60-ml					

RELINQUISHED	DATE/TIME	RECEIVED	DATE/TIME	RELINQUISHED	DATE/TIME	RECEIVED
Jeffrey G. Tracy	4/13/93 1500	Federal Express	4/13/93 1500			
		Kevin Knoll	4/14/93 1315			

COMMENTS:

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled:	May 11, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil: B-8, S-2	Received:	May 12, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed:	May 17-18, 1993
Attention: Greg Walsh	Lab Number:	305-0324	Reported:	May 19, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/kg, Dry Weight	Sample Results µg/kg, Dry Weight
Naphthalene	5.8	N.D.
n-Propylbenzene	5.8	N.D.
1,1,2,2-Tetrachloroethane	5.8	N.D.
Tetrachloroethene	5.8	N.D.
Toluene	**2.3**	**16**
1,2,3-Trichlorobenzene	5.8	N.D.
1,2,4-Trichlorobenzene	5.8	N.D.
1,1,1-Trichloroethane	5.8	N.D.
1,1,2-Trichloroethane	5.8	N.D.
Trichloroethene	5.8	N.D.
Trichlorofluoromethane	5.8	N.D.
1,2,4-Trimethylbenzene	**5.8**	**13**
1,3,5-Trimethylbenzene	5.8	N.D.
Vinyl chloride	5.8	N.D.
Total Xylenes	**5.8**	**9.8**

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

3050318.DRA <15>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental
N91 W17194 Appleton Ave.
Menomonee Falls , WI 53051
Attention: Greg Walsh

Client Project ID: J93035

QC Sample Group: 3050318-324

Reported: May 19, 1993

QUALITY CONTROL DATA REPORT

ANALYTE
Percent Solids

Method:	160.3
Analyst:	M. Nazeer
Reporting Units:	mg/kg
Date Analyzed:	May 14, 1993
QC Sample #:	BLK3051493

Sample Conc.:	N.D.
Spike Conc. Added:	950
Conc. Matrix Spike:	890
Matrix Spike % Recovery:	94
Conc. Matrix Spike Dup.:	830
Matrix Spike Duplicate % Recovery:	87
Relative % Difference:	7.0

Laboratory blank contained the following analytes: None Detected

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

$$\% \text{ Recovery:} \quad \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} \quad \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{(\text{Conc. of M.S. + Conc. of M.S.D.}) / 2} \times 100$$

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental
N91 W17194 Appleton Ave.
Menomonee Falls , WI 53051
Attention: Greg Walsh

Client Project ID: J93035

QC Sample Group: 3050318-324

Reported: May 19, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloro ethene	Trans 1,2-Dichloro ethene	Chloroform	1,1,1-Trichloro ethane	Trichloro ethene	Chloro benzene
Method:	8021	8021	8021	8021	8021	8021
Analyst:	D. Pairkh	D. Pairkh	D. Pairkh	D. Pairkh	D. Pairkh	D. Pairkh
Reporting Units:	ng	ng	ng	ng	ng	ng
Date Analyzed:	May 17, 1993	May 17, 1993	May 17, 1993	May 17, 1993	May 17, 1993	May 17, 1993
QC Sample #:	BLK3051793	BLK3051793	BLK3051793	BLK3051793	BLK3051793	BLK3051793
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	50	50	50	50	50	50
Conc. Matrix Spike:	53	48	53	53	60	53
Matrix Spike % Recovery:	106	96	106	106	120	106
Conc. Matrix Spike Dup.:	50	49	52	51	62	53
Matrix Spike Duplicate % Recovery:	100	98	104	102	124	106
Relative % Difference:	5.8	2.1	1.9	3.9	3.3	0

Laboratory blank contained the following analytes: None Detected

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

$$\%\ \text{Recovery:} = \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} = \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$$

3050318.DRA <17>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental
N91 W17194 Appleton Ave.
Menomonee Falls , WI 53051
Attention: Greg Walsh

Client Project ID: J93035

QC Sample Group: 3050318-324

Reported: May 19, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl benzene	O-Xylene
Method:	8021	8021	8021	8021
Analyst:	D. Parikh	D. Parikh	D. Parikh	D. Parikh
Reporting Units:	ng	ng	ng	ng
Date Analyzed:	May 17, 1993	May 17, 1993	May 17, 1993	May 17, 1993
QC Sample #:	BLK3051793	BLK3051793	BLK3051793	BLK3051793
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	50	50	50	50
Conc. Matrix Spike:	52	52	51	52
Matrix Spike % Recovery:	104	104	102	104
Conc. Matrix Spike Dup.:	53	52	52	53
Matrix Spike Duplicate % Recovery:	106	104	104	106
Relative % Difference:	1.9	0	1.9	1.9

Laboratory blank contained the following analytes: None Detected

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100	
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100	3050318.DRA <18>

GREAT LAKES ANALYTICAL

CHAIN OF CUSTODY REPORT

BUFFALO GROVE, ILLINOIS 60089-2505
(708) 808-7766 FAX (708) 808-7772

Client: DRAKE Environmental, Inc.
Address: N91 W17194 Appleton Avenue
Menomonee Falls, WI 53051
Report to: Greg Walsh

Project: J93035
Sampler: Jeff Tkach
PO #:
Phone #(414) 253-1440 FAX #: (414) 253-1448

TAT: (5 DAY) 4 DAY 3 DAY 2 DAY 1 DAY < 24 HRS
DATE RESULTS NEEDED: 5/19/93
TEMPERATURE UPON RECEIPT: Room Temp. D.B.
AIR BILL NO. 9903172193

FIELD ID, LOCATION	DATE COLLECTED	TIME COLLECTED	SAMPLE: PID REDUCE	SAMPLE: MATRIX	PRESERVATIVES	NO. CONTAINERS	TYPE CONTAINERS	ANALYSIS TYPE	SAMPLE CONTROL: CRACKED/BROKEN	SAMPLE CONTROL: IMPROPERLY SEALED	SAMPLE CONTROL: GOOD CONDITION	LABORATORY ID NUMBER
B-2, S-2	5/10/93	8:37am	<1	Soil		1	4oz	VOCs (EPA Method 8021)			✓	3050313
B-3, S-2	5/10/93	10:00am	<1	Soil		1	4oz	VOCs (EPA Method 8021)			✓	3050319
B-4, S-2	5/10/93	11:16am	1	Soil		1	4oz	VOCs (EPA Method 8021)			✓	3050320
B-5, S-3	5/10/93	1:17pm	<1	Soil		1	4oz	VOCs (EPA Method 8021)			✓	3050321
B-6, S-2	5/10/93	2:05pm	2	Soil		1	4oz	VOCs (EPA Method 8021) & DUPLICATE VOC (EPA Method 8021)			✓	3050322
B-7, S-3	5/11/93	8:10am	<1	Soil		1	4oz	VOCs (EPA Method 8021)			✓	3050323
B-8, S-2	5/11/93	9:40am	1	Soil		1	4oz	VOCs (EPA Method 8021)			✓	3050324
Temp Blank				H2O		1	60ml	/ / / /				

RELINQUISHED	DATE / TIME	RECEIVED	DATE / TIME	RELINQUISHED	DATE / TIME	RECEIVED	DATE / TIME
[signature]	5/11/93 4:00 pm	Federal Express	5/11/93 4:00pm			[signature]	5/12/93 10:15

COMMENTS: *SAMPLES SPLIT FOR 8021 UPON RECEIPT 5/12/93 LG

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled: May 10-1, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil	Received: May 12, 1993
Menomonee Falls , WI 53051	Analysis for:	Percent Solids	
Attention: Greg Walsh	First Sample #:	305-0318	Analyzed: May 13-14, 1993
			Reported: May 19, 1993

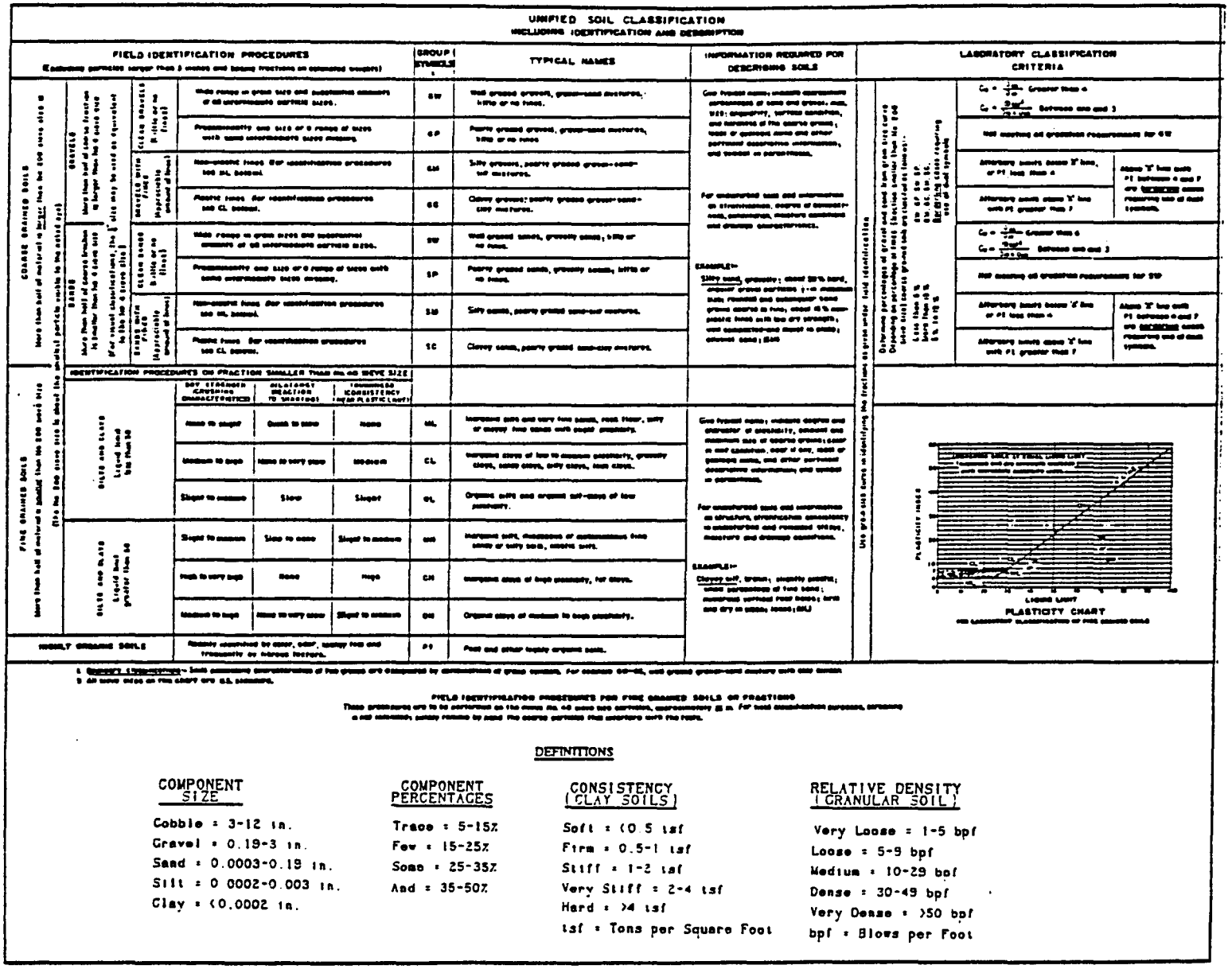
LABORATORY ANALYSIS FOR: Percent Solids

Sample Number	Sample Description	Detection Limit %	Sample Result %
305-0318	B-2, S-2	0.10	84
305-0319	B-3, S-2	0.10	91
305-0320	B-4, S-2	0.10	83
305-0321	B-5, S-3	0.10	85
305-0322	B-6, S-2	0.10	79
305-0323	B-7, S-3	0.10	84
305-0324	B-8, S-2	0.10	87

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

SOIL CLASSIFICATION SYSTEM CHART



DEFINITIONS

COMPONENT SIZE	COMPONENT PERCENTAGES	CONSISTENCY (CLAY SOILS)	RELATIVE DENSITY (GRANULAR SOIL)
Cobble = 3-12 in.	Trace = 5-15%	Soft = <0.5 tsf	Very Loose = 1-5 bpf
Gravel = 0.19-3 in.	Few = 15-25%	Firm = 0.5-1 tsf	Loose = 5-9 bpf
Sand = 0.0003-0.19 in.	Some = 25-35%	Stiff = 1-2 tsf	Medium = 10-29 bpf
Silt = 0.0002-0.003 in.	And = 35-50%	Very Stiff = 2-4 tsf	Dense = 30-49 bpf
Clay = <0.0002 in.		Hard = >4 tsf	Very Dense = >50 bpf
		tsf = Tons per Square Foot	bpf = Blows per Foot

DRAKE ENVIRONMENTAL, INC.

CLIENT: CITY OF OAK CREEK		DRILL RIG: INGERSOLL RAND A-300	BORING NUMBER
LOCATION: 7800 SOUTH 6th STREET, OAK CREEK, WI		DRILLED ON: 04/13/93	1
PROJECT: OAK CREEK RI	PROJECT: J93035	FIELD PERSON: JGT	DRAWN BY JGT

DEPTH	ELEVATION	DESCRIPTION	USCS	SAMPLE	TYPE	N	OP	PID
0	104.72							
1		SILTY CLAY, TRACE FINE TO MEDIUM SAND AND ORGANICS - DARK BROWN (10YR 2/2) - DAMP - VERY STIFF TO HARD	CL	1	SS	12	)4	25
2								
3				2	SS	13	2.25	23
4	100.5							
5		SILTY CLAY, TRACE FINE SAND - DARK GRAY (10YR 3/1) - MOIST - SOFT	CL					
6	98.5			3	SS	19	(0.5	22
7		FINE TO MEDIUM SAND, TRACE CLAY - DARK YELLOW BROWN (10YR 4/4) - WET - MEDIUM	SM					
8				4	SS	14		28
9	95.5	BORING TERMINATED AT 9 FEET						
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

NOTE: STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. THE ACTUAL TRANSITION MAY BE GRADUAL.

GROUNDWATER DATA			DRILLING REMARKS
WATER LEVEL ▽	6'	DURING DRILLING	BORING DRILLED WITH 2.25 IN. I.D. HOLLOW STEM AUGERS
WATER LEVEL ▽		ON	BORING BACKFILLED WITH BENTONITE CHIPS
WATER LEVEL ▽		ON	DRAKE ENVIRONMENTAL, INC.
WATER LEVEL ▽		ON	*ENGINEERING CONSULTANTS*

CLIENT: CITY OF OAK CREEK		DRILL RIG: MOBILE DRILL	BORING NUMBER
LOCATION: 7800 SOUTH 6th STREET, OAK CREEK, WI		DRILLED ON: 05/10/93	2
PROJECT: OAK CREEK RI	PROJECT: J93035	FIELD PERSON: JGT	DRAWN BY JGT

DEPTH	ELEVATION	DESCRIPTION	USCS	SAMPLE	TYPE	N	QP	PID
0	104.07							
1		SILTY CLAY, TRACE FINE TO MEDIUM SAND AND ORGANICS - BLACK (10YR 2/1) - MOIST - STIFF	CL	1	SS	7	1.25	(1
2	101.5							
3		FINE SAND, TRACE MEDIUM SAND - DARK YELLOW BROWN (10YR 4/4) TO 5 FEET, OLIVE BROWN (2.5YR 4/3) TO 7.5 FEET, BROWN (10YR 4/3) TO 13 FEET - WET - MEDIUM	SP	2	SS	17		(1
4								
5				3	SS	25		(1
6								
7				4	SS	24		(1
8								
9				5	SS	23		(1
10								
11				6	SS	40	0.5	(1
12								
13	91			7	SS	62	1.25	(1
14		SILTY CLAY, TRACE FINE TO COARSE SAND AND GRAVEL - DARK GRAY (10YR 4/1) - MOIST TO WET - FIRM	CL					
15								
16								
17	87.5	BORING TERMINATED AT 16.5 FEET						
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

NOTE: STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. THE ACTUAL TRANSITION MAY BE GRADUAL.

GROUNDWATER DATA			DRILLING REMARKS
WATER LEVEL ▫	4'	DURING DRILLING	BORING DRILLED WITH 2.25 IN. I.D. HOLLOW STEM AUGERS
WATER LEVEL ▫		ON	BORING BACKFILLED WITH BENTONITE CHIPS
WATER LEVEL ▫		ON	DRAKE ENVIRONMENTAL, INC.
WATER LEVEL ▫		ON	*ENGINEERING CONSULTANTS*

CLIENT: CITY OF OAK CREEK		DRILL RIG: MOBILE DRILL	BORING NUMBER
LOCATION: 7800 SOUTH 6th STREET, OAK CREEK, WI		DRILLED ON: 05/10/93	3
PROJECT: OAK CREEK RI	PROJECT: J93035	FIELD PERSON: JGT	DRAWN BY JGT

DEPTH	ELEVATION	DESCRIPTION	USCS	SAMPLE	TYPE	N	QP	PID
0	106.06							
1		SILTY CLAY, TRACE FINE TO MEDIUM SAND AND ORGANICS - BLACK (10YR 2/1) TO VERY DARK BROWN (10YR 2/2) - DAMP TO MOIST - STIFF	CL	1	SS	5	1.0	(1
2								
3				2	SS	12	1.25	(1
4								
5	101							
6		SANDY CLAY - DARK YELLOW BROWN (10YR 3/4) - WET - SOFT	CL	3	SS	9	(0.5	(1
7	99.5							
8		FINE SAND, TRACE MEDIUM SAND - DARK YELLOW BROWN (10YR 4/4 TO 10YR 3/4) TO 12.5 FEET, BROWN (10YR 4/3) TO 15.0 FEET - WET - MEDIUM TO DENSE	SP	4	SS	18		1
9								
10								
11				5	SS	29		1
12								
13				6	SS	40		1
14								
15	91							
16		SILTY CLAY, TRACE FINE TO COARSE SAND - DARK GRAY (10YR 4/1) - MOIST - STIFF	CL	7	SS	45	1.25	2
17	89.5	BORING TERMINATED AT 16.5 FEET						
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

NOTE: STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. THE ACTUAL TRANSITION MAY BE GRADUAL.

GROUNDWATER DATA			DRILLING REMARKS
WATER LEVEL ▽	5'	DURING DRILLING	BORING DRILLED WITH 2.25 IN. I.D. HOLLOW STEM AUGERS
WATER LEVEL ▽		ON	BORING BACKFILLED WITH BENTONITE CHIPS
WATER LEVEL ▽		ON	DRAKE ENVIRONMENTAL, INC.
WATER LEVEL ▽		ON	*ENGINEERING CONSULTANTS*

CLIENT: CITY OF OAK CREEK		DRILL RIG: MOBILE DRILL	BORING NUMBER
LOCATION: 7800 SOUTH 6th STREET, OAK CREEK, WI		DRILLED ON: 05/10/93	4
PROJECT: OAK CREEK RI	PROJECT: J93035	FIELD PERSON: JGT	DRAWN BY JGT

DEPTH	ELEVATION	DESCRIPTION	USCS	SAMPLE	TYPE	N	OP	PID
0	105.17							
1		SILTY CLAY, TRACE FINE TO MEDIUM SAND AND ORGANICS - BLACK (10YR 2/1) - MOIST - STIFF	CL	1	SS	3	1.25	1
2	102.5							
3		SANDY CLAY - DARK GRAY BROWN (10YR 4/2) - WET - SOFT	CL	2	SS	10	<0.5	1
4								
5	100							
6		FINE SAND, TRACE MEDIUM TO COARSE SAND - DARK YELLOW BROWN (10YR 4/4) TO 10 FEET, OLIVE BROWN (2.5YR 4/3) TO 12.5 FEET - WET - MEDIUM	SP	3	SS	16		(1
7								
8				4	SS	22		(1
9								
10								
11				5	SS	23		1
12								
13	92.5	SILTY FINE SAND - GRAY BROWN (2.5Y 5/2) - WET - DENSE	SM	6	SS	33		(1
14								
15	90							
16		CLAYEY FINE SAND, TRACE COARSE SAND AND GRAVEL - GRAY BROWN (2.5Y 5/2) - WET - MEDIUM	SC	7	SS	28		(1
17	88.5	BORING TERMINATED AT 16.5 FEET						
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

NOTE: STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. THE ACTUAL TRANSITION MAY BE GRADUAL.

GROUNDWATER DATA			DRILLING REMARKS
WATER LEVEL ▫	4'	DURING DRILLING	BORING DRILLED WITH 2.25 IN. I.D. HOLLOW STEM AUGERS
WATER LEVEL ▫		ON	BORING BACKFILLED WITH BENTONITE CHIPS
WATER LEVEL ▫		ON	DRAKE ENVIRONMENTAL, INC.
WATER LEVEL ▫		ON	*ENGINEERING CONSULTANTS*

CLIENT: CITY OF OAK CREEK		DRILL RIG: MOBILE DRILL	BORING NUMBER
LOCATION: 7800 SOUTH 6th STREET, OAK CREEK, WI		DRILLED ON: 05/10/93	5
PROJECT: OAK CREEK RI	PROJECT: J93035	FIELD PERSON: JGT	DRAWN BY JGT

DEPTH	ELEVATION	DESCRIPTION	USCS	SAMPLE	TYPE	N	QP	PID
0	106.77	SILTY CLAY, TRACE FINE SAND AND ORGANICS - BLACK (10YR 2/1) - DAMP - STIFF	CL	1	SS	9	2.75	(1
2	104.5	NO RECOVERY - BASED ON BORINGS IN THE VICINITY, SOIL IS LIKELY TO BE A SILTY CLAY WITH TRACE FINE SAND AND ORGANICS	CL	2	SS	NR	NR	NR
5	102	SANDY CLAY - DARK YELLOW BROWN (10YR 3/4) - MOIST - STIFF	CL	3	SS	15	1.25	(1
8	99.5	FINE SAND, TRACE MEDIUM SAND - BROWN (10YR 4/3) - WET - MEDIUM	SP	4	SS	22		(1
11				5	SS	29		(1
13	94.5	SILTY FINE SAND - DARK GRAY BROWN (10YR 4/2) - WET - MEDIUM	SM	6	SS	12		(1
15	92	CLAYEY FINE SAND, TRACE COARSE SAND AND GRAVEL - GRAY BROWN (2.5Y 5/2) - WET - DENSE	SC	7	SS	41		(1
16	91	BORING TERMINATED AT 16.5 FEET						
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

NOTE: STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. THE ACTUAL TRANSITION MAY BE GRADUAL.

GROUNDWATER DATA		DRILLING REMARKS
WATER LEVEL ▫ 7.5'	DURING DRILLING	BORING DRILLED WITH 2.25 IN. I.D. HOLLOW STEM AUGERS
WATER LEVEL ▫	ON	BORING BACKFILLED WITH BENTONITE CHIPS
WATER LEVEL ▫	ON	DRAKE ENVIRONMENTAL, INC.
WATER LEVEL ▫	ON	*ENGINEERING CONSULTANTS*

CLIENT: CITY OF OAK CREEK		DRILL RIG: MOBILE DRILL	BORING NUMBER
LOCATION: 7800 SOUTH 6th STREET, OAK CREEK, WI		DRILLED ON: 05/10/93	6
PROJECT: OAK CREEK RI	PROJECT: J93035	FIELD PERSON: JGT	DRAWN BY JGT

DEPTH	ELEVATION	DESCRIPTION	USCS	SAMPLE	TYPE	N	QP	PID
0	105.93							
1		SILTY CLAY, TRACE FINE TO COARSE SAND AND GRAVEL AND ORGANICS - BLACK (10YR 2/1) - DAMP - VERY STIFF	CL	1	SS	10	2.25	(1
2								
3				2	SS	13	2.0	2
4								
5	101	SANDY CLAY - DARK YELLOW BROWN (10YR 4/4) - MOIST - SOFT	CL	3	SS	12	(0.5	1
6								
7	98.5							
8		FINE SAND, TRACE MEDIUM SAND - DARK YELLOW BROWN (10YR 4/4) - WET - MEDIUM	SP	4	SS	24		(1
9								
10				5	SS	25		1
11								
12	93.5							
13		SILTY FINE SAND - GRAY BROWN (2.5Y 5/2) - WET - DENSE	SM	6	SS	38		(1
14								
15	91	CLAYEY FINE SAND - GRAY BROWN (2.5Y 5/2) - WET - VERY DENSE	SC	7	SS	54		(1
16								
17	89.5	BORING TERMINATED AT 16.5 FEET						
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

NOTE: STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. THE ACTUAL TRANSITION MAY BE GRADUAL.

GROUNDWATER DATA		DRILLING REMARKS
WATER LEVEL ▽ 7.5'	DURING DRILLING	BORING DRILLED WITH 2.25 IN. I.D. HOLLOW STEM AUGERS
WATER LEVEL ▽	ON	BORING BACKFILLED WITH BENTONITE CHIPS
WATER LEVEL ▽	ON	DRAKE ENVIRONMENTAL, INC.
WATER LEVEL ▽	ON	*ENGINEERING CONSULTANTS*

CLIENT: CITY OF OAK CREEK		DRILL RIG: MOBILE DRILL	BORING NUMBER
LOCATION: 7800 SOUTH 6th STREET, OAK CREEK, WI		DRILLED ON: 05/11/93	7
PROJECT: OAK CREEK RI	PROJECT: J93035	FIELD PERSON: JGT	DRAWN BY JGT

DEPTH	ELEVATION	DESCRIPTION	USCS	SAMPLE	TYPE	N	OP	PID
0	106.79							
1		SILTY CLAY, TRACE FINE TO MEDIUM SAND AND ORGANICS - BLACK (10YR 2/1) - DAMP - STIFF	CL	1	SS	4	1.75	(1
2								
3				2	SS	7	1.5	(1
4								
5	102	SILTY FINE SAND - DARK YELLOW BROWN (10YR 3/6) TO 7.5 FEET, BROWN (10YR 4/3) TO 12.5 FEET - MOIST TO 7.5 FEET, WET TO 12.5 FEET - MEDIUM TO DENSE	SM	3	SS	13		(1
6								
7								
8				4	SS	15		(1
9								
10								
11				5	SS	32		(1
12								
13	94.5	FINE SAND, FEW COARSE SAND - DARK YELLOW BROWN (10YR 3/4) - WET - DENSE	SP	6	SS	46		(1
14								
15	92							
16		SILTY CLAY, TRACE FINE SAND - GRAY BROWN (2.5Y 5/2) - MOIST - STIFF	CL	7	SS	43	1.5	(1
17	90.5	BORING TERMINATED AT 16.5 FEET						
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

NOTE: STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. THE ACTUAL TRANSITION MAY BE GRADUAL.

GROUNDWATER DATA	DRILLING REMARKS
WATER LEVEL ▽ 7.5' DURING DRILLING	BORING DRILLED WITH 2.25 IN. I.D. HOLLOW STEM AUGERS
WATER LEVEL ▽ ON	BORING BACKFILLED WITH BENTONITE CHIPS
WATER LEVEL ▽ ON	DRAKE ENVIRONMENTAL, INC.
WATER LEVEL ▽ ON	*ENGINEERING CONSULTANTS*

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled:	May 14, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Water: MW-8 Dup	Received:	May 15, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed:	May 19-20, 1993
Attention: Greg Walsh	Lab Number:	305-0521	Reported:	May 24, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/L	Sample Results µg/L
Benzene	0.50	N.D.
Bromobenzene	0.50	N.D.
Bromodichloromethane	0.50	N.D.
n-Butylbenzene	0.50	N.D.
sec-Butylbenzene	0.50	N.D.
tert-Butylbenzene	0.50	N.D.
Carbon tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	0.50	N.D.
Chloroform	0.50	N.D.
Chloromethane	0.50	N.D.
2-Chlorotoluene	0.50	N.D.
4-Chlorotoluene	0.50	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dibromo-3-chloropropane	0.50	N.D.
1,2-Dibromoethane	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	N.D.
Dichlorodifluoromethane	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	0.50	N.D.
trans-1,2-Dichloroethene	0.50	N.D.
1,2-Dichloropropane	0.50	N.D.
1,3-Dichloropropane	0.50	N.D.
2,2-Dichloropropane	0.50	N.D.
Di-Isopropyl-Ether	5.0	N.D.
Ethyl Benzene	0.50	N.D.
Hexachlorobutadiene	0.50	N.D.
Isopropylbenzene	0.50	N.D.
p-Isopropyltoluene	0.50	N.D.
Methylene chloride	3.00	N.D.
Methyl-tert-Butylether	5.0	N.D.

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled:	May 14, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Water: MW-8 Dup	Received:	May 15, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed:	May 19-20, 1993
Attention: Greg Walsh	Lab Number:	305-0521	Reported:	May 24, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/L	Sample Results µg/L
Naphthalene	0.50	N.D.
n-Propylbenzene	0.50	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
Toluene	0.50	0.95
1,2,3-Trichlorobenzene	0.50	N.D.
1,2,4-Trichlorobenzene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	0.50	N.D.
1,2,4-Trimethylbenzene	0.50	N.D.
1,3,5-Trimethylbenzene	0.50	N.D.
Vinyl chloride	0.20	N.D.
Total Xylenes	0.50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

3050518.DRA <8>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled: May 14, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Water: Field Blank	Received: May 15, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed: May 19-20, 1993
Attention: Greg Walsh	Lab Number:	305-0522	Reported: May 24, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/L	Sample Results µg/L
Benzene	0.50	N.D.
Bromobenzene	0.50	N.D.
Bromodichloromethane	0.50	N.D.
n-Butylbenzene	0.50	N.D.
sec-Butylbenzene	0.50	N.D.
tert-Butylbenzene	0.50	N.D.
Carbon tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	0.50	N.D.
Chloroform	0.50	N.D.
Chloromethane	0.50	N.D.
2-Chlorotoluene	0.50	N.D.
4-Chlorotoluene	0.50	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dibromo-3-chloropropane	0.50	N.D.
1,2-Dibromoethane	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	1.1
Dichlorodifluoromethane	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	0.50	N.D.
trans-1,2-Dichloroethene	0.50	N.D.
1,2-Dichloropropane	0.50	N.D.
1,3-Dichloropropane	0.50	N.D.
2,2-Dichloropropane	0.50	N.D.
Di-Isopropyl-Ether	5.0	N.D.
Ethyl Benzene	0.50	N.D.
Hexachlorobutadiene	0.50	N.D.
Isopropylbenzene	0.50	N.D.
p-Isopropyltoluene	0.50	N.D.
Methylene chloride	3.00	N.D.
Methyl-tert-Butylether	5.0	N.D.

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled:	May 14, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Water: Field Blank	Received:	May 15, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed:	May 19-20, 1993
Attention: Greg Walsh	Lab Number:	305-0522	Reported:	May 24, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/L	Sample Results µg/L
Naphthalene	0.50	N.D.
n-Propylbenzene	0.50	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
Toluene	**0.50**	**0.69**
1,2,3-Trichlorobenzene	0.50	N.D.
1,2,4-Trichlorobenzene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	0.50	N.D.
1,2,4-Trimethylbenzene	0.50	N.D.
1,3,5-Trimethylbenzene	0.50	N.D.
Vinyl chloride	0.20	N.D.
Total Xylenes	0.50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

3050518.DRA <10>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental
N91 W17194 Appleton Ave.
Menomonee Falls , WI 53051
Attention: Greg Walsh

Client Project ID: J93035

QC Sample Group: 3050518-522

Reported: May 24, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloro ethene	Trans 1,2-Dichloro ethene	Chloroform	1,1,1-Trichloro ethane	Trichloro ethene	Chloro benzene
Method:	8021	8021	8021	8021	8021	8021
Analyst:	D. Parikh	D. Parikh	D. Parikh	D. Parikh	D. Parikh	D. Parikh
Reporting Units:	ng	ng	ng	ng	ng	ng
Date Analyzed:	May 19, 1993	May 19, 1993	May 19, 1993	May 19, 1993	May 19, 1993	May 19, 1993
QC Sample #:	BLK3051993	BLK3051993	BLK3051993	BLK3051993	BLK3051993	BLK3051993
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	50	50	50	50	50	50
Conc. Matrix Spike:	49	48	52	51	58	52
Matrix Spike % Recovery:	98	96	104	102	116	104
Conc. Matrix Spike Dup.:	45	46	50	48	57	50
Matrix Spike Duplicate % Recovery:	90	92	100	96	114	102
Relative % Difference:	8.5	4.3	3.9	6.1	1.7	3.9

Laboratory blank contained the following analytes: None Detected

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

$$\%\ \text{Recovery:} = \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} = \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{(\text{Conc. of M.S. + Conc. of M.S.D.}) / 2} \times 100$$

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental
N91 W17194 Appleton Ave.
Menomonee Falls , WI 53051
Attention: Greg Walsh

Client Project ID: J93035

QC Sample Group: 3050518-522

Reported: May 24, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl benzene	O-Xylene
Method:	8021	8021	8021	8021
Analyst:	D. Parikh	D. Parikh	D. Parikh	D. Parikh
Reporting Units:	ng	ng	ng	ng
Date Analyzed:	May 19, 1993	May 19, 1993	May 19, 1993	May 19, 1993
QC Sample #:	BLK3051993	BLK3051993	BLK3051993	BLK3051993
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	50	50	50	50
Conc. Matrix Spike:	52	50	50	50
Matrix Spike % Recovery:	104	100	100	100
Conc. Matrix Spike Dup.:	49	50	51	51
Matrix Spike Duplicate % Recovery:	98	100	102	102
Relative % Difference:	5.9	0	2.0	2.0

Laboratory blank contained the following analytes: None Detected

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

$$\% \text{ Recovery:} \quad \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} \quad \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$$

3050518.DRA <12>

GREAT LAKES ANALYTICAL

CHAIN OF CUSTODY REPORT

[redacted] 1 [redacted] [redacted]
BUFFALO GROVE, ILLINOIS 60089-4505
(708) 808-7766 FAX (708) 808-7772

Client: Drake Environmental Inc.
Address: N91 W17194 Appleton Ave.
Menomonee Falls WI 53051
Report to: Greg Walsh

Project: 93035
Sampler: Al Olsen / Brad Rush
PO #:
Phone #: (414) 253-1440 FAX #: (414) 253-1448

TAT: (5 DAY) 4 DAY 3 DAY 2 DAY 1 DAY < 24 HRS
DATE RESULTS NEEDED: 5/24/93
TEMPERATURE UPON RECEIPT: RCVD ON ICE
AIR BILL NO. 9903173092

	FIELD ID, LOCATION	DATE COLLECTED	TIME COLLECTED	SAMPLE: DEVICE	SAMPLE: MATRIX	PRESERVATIVES	NO. CONTAINERS	TYPE CONTAINERS	ANALYSIS TYPE	SAMPLE CONTROL: CRACKED/BROKEN	SAMPLE CONTROL: IMPROPERLY SEALED	SAMPLE CONTROL: GOOD CONDITION	LABORATORY ID NUMBER
1	MW-3A	5-14-93	2:16PM	Bailer	Wtr	HCl	3	40mL Glass	VOC (EPA Method 8021)			✓	3050518
2	MW-6A	5-14-93	2:35PM	"	"	HCl	3	40mL	VOC (EPA METHOD 8021)			✓	3050519
3	MW-8	5-14-93	2:55PM	"	"	HCl	3	40mL	VOC (EPA METHOD 8021)			✓	3050520
4	MW-8 Dup	5-14-93	2:55PM	"	"	HCl	3	40mL	VOC (EPA METHOD 8021)			✓	3050521
5	Field Blank	5-14-93	2:48PM	"	"	HCl	3	40mL	VOC (EPA METHOD 8021)			✓	3050522
6	Blank (Temp.)	5-14-93	—		"	—	1	40mL Plastic	[redacted]				RCVD ON ICE
7													
8													
9													
0													

RELINQUISHED	DATE / TIME	RECEIVED	DATE / TIME	RELINQUISHED	DATE / TIME	RECEIVED	DATE / TIME
[signature]	5-14-93 4:42PM	[signature]	5/15/93 1015				

OMMENTS:

PAGE 1 OF 1

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ _____

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: City of Oak Creek	Local Grid Location of Well: _____ ft. ☐N ☐S, _____ ft. ☐E ☐W	Well Name: CW-3
Facility License, Permit or Monitoring Number: _____	Grid Origin Location: Lat. _____ Long. _____ or St. Plane _____ ft. N, _____ ft. E.	Wis. Unique Well Number / DNR Well Number: _____
Type of Well: Water Table Observation Well ☒ 11; Piezometer ☐ 12	Section Location of Waste/Source: SW 1/4 of SE 1/4 of Sec. 8, T. 5 N, R. 22 ☒E ☐W	Date Well Installed: 05/11/93 (m m / d d / y y)
Distance Well Is From Waste/Source Boundary: _____ ft.	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient; d ☐ Downgradient n ☐ Not Known	Well Installed By: (Person's Name and Firm): Dean Carlson / Wisconsin Testing Labs
Is Well A Point of Enforcement Std. Application? ☒ Yes ☐ No		

A. Protective pipe, top elevation _____ ft. MSL
B. Well casing, top elevation 1028.61 ft. MSL
C. Land surface elevation 1025.4 ft. MSL
D. Surface seal, bottom _____ 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 ☐ __
_____

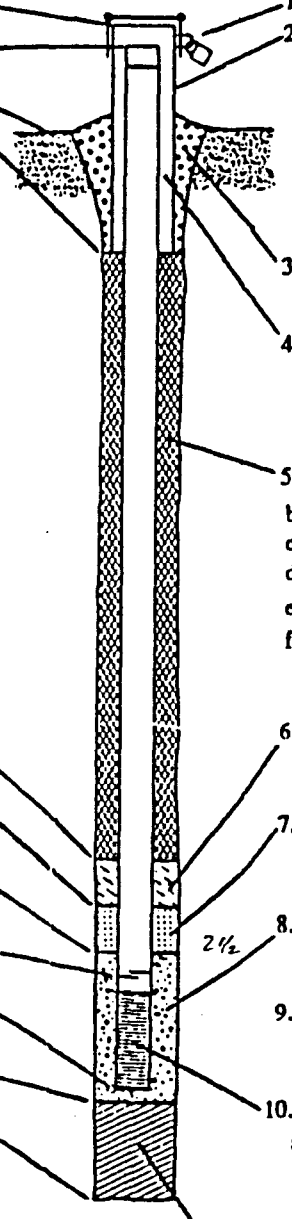
15. Drilling fluid used: Water ☐ 02; Air ☐ 01; Drilling Mud ☐ 03; None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe _____

17. Source of water (attach analysis):
_____

E. Bentonite seal, top _____ ft. MSL or 1.0 ft.
F. Fine sand, top _____ ft. MSL or _____ ft.
G. Filter pack, top _____ ft. MSL or 2.5 ft.
H. Screen joint, top _____ ft. MSL or 3.0 ft.
I. Well bottom _____ ft. MSL or 13.0 ft.
J. Filter pack, bottom _____ ft. MSL or 13.0 ft.
K. Borehole, bottom _____ ft. MSL or 13.0 ft.
L. Borehole, diameter 8.5 in.
M. O.D. well casing 2.20 in.
N. I.D. well casing 2.00 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 2.5 ft.
c. Material: Steel ☒ 04; Other ☐ __
_____
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____
3. Surface seal: Bentonite ☐ 30; Concrete ☒ 01; Other ☐ __
_____
4. Material between well casing and protective pipe: Bentonite ☒ 30; Annular space seal ☐ __; Other ☐ __
_____
5. Annular space seal: a. Granular Bentonite ☒ 33
b. _____ Lbs/gal mud weight ... Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight ..... Bentonite slurry ☐ 31
d. _____ % Bentonite ..... Bentonite-cement grout ☐ 50
e. _____ Ft³ volume added for any of the above
f. How installed: Tremie ☐ 01; Tremie pumped ☐ 02; Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☒ 33
b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. _____ Other ☐ __
7. Fine sand material: Manufacturer, product name & mesh size
a. None
b. Volume added None ft³
8. Filter pack material: Manufacturer, product name and mesh size
a. Red Flint Sand & Gravel - Coarse
b. Volume added _____ ft³
9. Well casing: Flush threaded PVC schedule 40 ☒ 23; Flush threaded PVC schedule 80 ☐ 24; Other ☐ __
_____
10. Screen material: ~~Sch~~ Schedule 40 PVC
a. Screen type: Factory cut ☒ 11; Continuous slot ☐ 01; Other ☐ __
_____
b. Manufacturer Timco
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ☒ 14; Other ☐ __
_____

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

Signature: _____ Firm: Drake Environmental, Inc.

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. 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 $5000 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 including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ _____

Facility/Project Name	County Name	Well Name
Oak Creek	Mil.	MW-3
Facility License, Permit or Monitoring Number	**County Code**	**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	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☒ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 35 min.

4. Depth of well (from top of well casisng) 15.2 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 60.0 gal.

8. Volume of water added (if any) n/a 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)	a. 4.32 ft.	____.__ ft.
Date	b. 05/14/93 (m m d d y y)	1/1/ (m m d d y y)
Time	c. 2:11 ☒ a.m. ☐ p.m.	2:00 ☐ a.m. ☐ p.m.
12. Sediment in well bottom	0.2 inches	0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe) cloudy	Clear ☐ 20 Turbid ☒ 25 (Describe) moderate
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	_____.__ mg/l	_____.__ mg/l
15. COD	_____.__ mg/l	_____.__ mg/l

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Al Olsen / Brad Rush

Firm: Drake Enviro.

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

Signature: Al Olsen

Print Initials: AJO

Firm: Drake Enviro.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMEN
Form 4400-113B Rev. 4-9

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ _____

Facility/Project Name	County Name	Well Name
OAK Creek	Mil. Co	MW-6

Facility License, Permit or Monitoring Number	County Code	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	☐ 41
surged with bailer and pumped	☒ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well ___18___ min.

4. Depth of well (from top of well casisng) __15.2__ 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 __54.0__ gal.

8. Volume of water added (if any) ___0.0__ gal.

9. Source of water added _____

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)	a. __4.87__ ft.	__5.13__ ft.
Date	b. 05/11/93 (m m d d y y)	→/__/__ (m m d d y y)
Time	c. 7:13 ☐ a.m. ☐ p.m.	2:09 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	___ inches	___0___ inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe) Cloudy	Clear ☐ 20 Turbid ☐ 25 (Describe)
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Al Olsen / Brad Rush

Firm: Drake Envir. Inc.

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

Signature: _____

Print Initials: AJO

Firm: Drake Env. Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ _____

MONITORING WELL CONSTRUCTIC
Form 4400-113A Rev. 4-

Facility/Project Name: City of Oak Creek Comp.	Local Grid Location of Well: _____ ft. ☐N ☐S _____ ft. ☐E ☐W	Well Name: Well 6
Facility License, Permit or Monitoring Number: _____	Grid Origin Location: Lat. _____ Long. _____ or	Wis. Unique Well Number: DNR Well Numb
Type of Well: Water Table Observation Well ☒ 11; Piezometer ☐ 12	St. Plane _____ ft. N, _____ ft. E	Date Well Installed: 05/11/93 (m m d d y y)
Distance Well Is From Waste/Source Boundary: _____ ft.	Section Location of Waste/Source: SW 1/4 of SE 1/4 of Sec. 8 T. 5 N. R. 22 ☒E ☐W	Well Installed By: (Person's Name and Firm): Dean Carlson; Wisconsin Testing Labs
Is Well A Point of Enforcement Std. Applicauon? ☒ Yes ☐ No	Locauon of Well Relauve to Waste/Source: u ☐ Upgradient s ☐ Sidegradient; d ☐ Downgradient n ☐ Not Known	

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation 107.16 ft. MSL

C. Land surface elevation 105.0 ft. MSL

D. Surface seal, bottom _____ 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 1.0 ft.

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

G. Filter pack, top _____ ft. MSL or 2.5 ft.

H. Screen joint, top _____ ft. MSL or 3.0 ft.

I. Well bottom _____ ft. MSL or 13.0 ft.

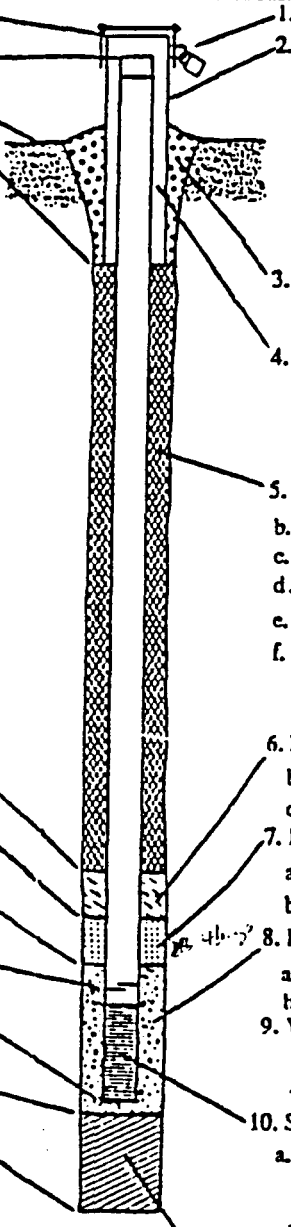
J. Filter pack, bottom _____ ft. MSL or 13.0 ft.

K. Borehole, bottom _____ ft. MSL or 13.5 ft.

L. Borehole, diameter 8.7 in.

M. O.D. well casing 2.20 in.

N. I.D. well casing 2.00 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in
b. Length: 2.3 ft
c. Material: Steel ☒ 0; Other ☐ _____
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____

3. Surface seal: Bentonite ☐ 3; Concrete ☒ 0; Other ☐ _____

4. Material between well casing and protective pipe: Bentonite ☒ 3; Annular space seal ☐ _____; Other ☐ _____

5. Annular space seal: a. Granular Bentonite ☒ 3
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 3
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 3
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 5
e. _____ Ft³ volume added for any of the above
f. How installed: Tremie ☐ 0; Tremie pumped ☐ 0; Gravity ☒ 0

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

7. Fine sand material: Manufacturer, product name & mesh size
a. None
b. Volume added None ft³

8. Filter pack material: Manufacturer, product name and mesh si
a. Red Flint Sand Co Coarse
b. Volume added 4 ft³

9. Well casing: Flush threaded PVC schedule 40 ☒ 2; Flush threaded PVC schedule 80 ☐ 2; Other ☐ _____

10. Screen material: Schedule 40 PVC
a. Screen type: Factory cut ☒ 1; Continuous slot ☐ 0; Other ☐ _____
b. Manufacturer Timco
c. Slot size: 0.010 in
d. Slotted length: 10.5 ft

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

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

Signature: Jeff Irving | Firm: DRAKE ENVIRONMENTAL, INC.

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. 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 $5000 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 including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ _____

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: City of Oak Creek	Local Grid Location of Well: _____ ft. ☐N ☐S _____ ft. ☐E ☐W	Well Name: Well 8
Facility License, Permit or Monitoring Number: _____	Grid Origin Location: Lat. _____ Long. _____ or	Wis. Unique Well Number / DNR Well Number: _____
Type of Well: Water Table Observation Well ☒ 11; Piezometer ☐ 12	St. Plane _____ ft. N, _____ ft. E.	Date Well Installed: 05/11/93 (m m / d d / y y)
Distance Well Is From Waste/Source Boundary: _____ ft.	Section Location of Waste/Source: SW 1/4 of SE 1/4 of Sec. 8, T. 5 N, R. 22 ☒E ☐W	Well Installed By: (Person's Name and Firm): Dave Carlson; Wisconsin Testing Laboratories
Is Well A Point of Enforcement Std. Application? ☒ Yes ☐ No	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient; d ☐ Downgradient n ☐ Not Known	

A. Protective pipe, top elevation _____ ft. MSL
B. Well casing, top elevation 104.92 ft. MSL
C. Land surface elevation 103.1 ft. MSL
D. Surface seal, bottom _____ 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 ☐ __

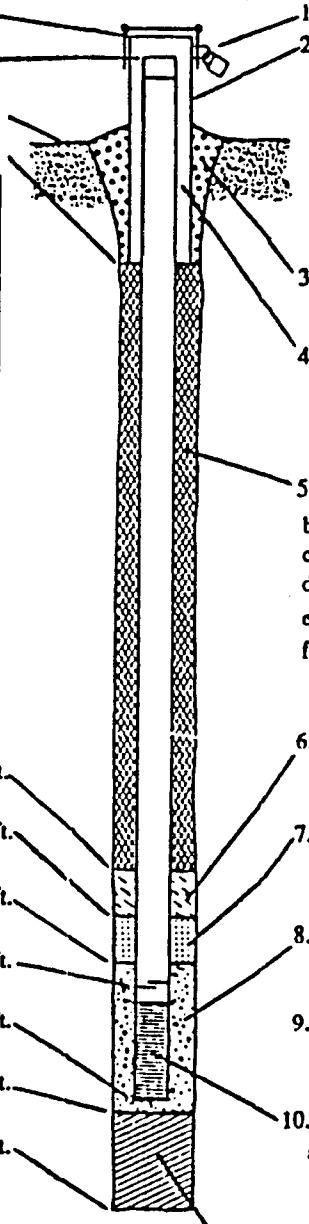
15. Drilling fluid used: Water ☐ 02; Air ☐ 01; Drilling Mud ☐ 03; None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe _____

17. Source of water (attach analysis):

E. Bentonite seal, top _____ ft. MSL or 1.0 ft.
F. Fine sand, top _____ ft. MSL or _____ ft.
G. Filter pack, top _____ ft. MSL or 2.5 ft.
H. Screen joint, top _____ ft. MSL or 3.0 ft.
I. Well bottom _____ ft. MSL or 13.0 ft.
J. Filter pack, bottom _____ ft. MSL or 16.5 ft.
K. Borehole, bottom _____ ft. MSL or 16.5 ft.
L. Borehole, diameter 8.1 in.
M. O.D. well casing 2.38 in.
N. I.D. well casing 2.00 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 1.3 ft.
c. Material: Steel ☒ 04; Other ☐ __
d. Additional protection? ☐ Yes ☐ No
If yes, describe: _____
3. Surface seal: Bentonite ☐ 30; Concrete ☒ 01; Other ☐ __
4. Material between well casing and protective pipe: Bentonite ☒ 30; Annular space seal ☐ __; Other ☐ __
5. Annular space seal: a. Granular Bentonite ☒ 33
b. _____ Lbs/gal mud weight ... Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight ..... Bentonite slurry ☐ 31
d. _____ % Bentonite ..... Bentonite-cement grout ☐ 50
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01; Tremie pumped ☐ 02; Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☒ 33
b. ☐1/4 in. ☐3/8 in. ☐1/2 in. Bentonite pellets ☐ 32
c. _____ Other ☐ __
7. Fine sand material: Manufacturer, product name & mesh size
a. None
b. Volume added None ft^3
8. Filter pack material: Manufacturer, product name and mesh size
a. Red Flint Sand #20-30
b. Volume added _____ ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 23; Flush threaded PVC schedule 80 ☐ 24; Other ☐ __
10. Screen material: Schedule 40 PVC
a. Screen type: Factory cut ☒ 11; Continuous slot ☐ 01; Other ☐ __
b. Manufacturer Timco
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ☒ 14; ~~Other ☐~~ __
Red Flint Sand

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

Signature: Jeffrey A. Tracy | Firm: Drake Environmental, Inc.

Please complete both sides of this form and return to the appropriate DNR office listed at the top 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 $5000 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 including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

Facility/Project Name	County Name	Well Name	
Oil Creek	Mil.	MW-8	
Facility License, Permit or Monitoring Number	County Code	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 ☐ 41
   - surged with bailer and pumped ☒ 61
   - surged with block and bailed ☐ 42
   - surged with block and pumped ☐ 62
   - surged with block, bailed and pumped ☐ 70
   - compressed air ☐ 20
   - bailed only ☐ 10
   - pumped only ☐ 51
   - pumped slowly ☐ 50
   - Other ______ ☐

3. Time spent developing well: 71 min.

4. Depth of well (from top of well casisng): 15.2 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: 56.0 gal.

8. Volume of water added (if any): 0 gal.

9. Source of water added: None

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) a.	4.62 ft.	6.00 ft.
Date b. (mm/dd/yy)	05/13/93	7/__/__
Time c.	2:15 ☐ a.m. ☐ p.m.	2:26 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	9 inches	4 inches
13. Water clarity	Clear ☐ 10 Turbid ☐ 15 (Describe) Cloudy	Clear ☒ 20 Turbid ☐ 25 (Describe)

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

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

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Al Olson / Brad Ruch

Firm: Drake Environmental

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

Signature: Al Olson

Print Initials: A J O

Firm: Drake Env. Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B Rev. 7-89

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: Milwaukee

SW 1/4 of SE 1/4 of Sec. 23 ; T. 5 N; R. 22 ☒ E ☐ W

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

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

Civil Town Name: OAK CREEK

Street Address of Well: 7600 South 6th Street

City, Village: Oak Creek WI 53154

(2) FACILITY NAME

Original Well Owner (If Known): City of Oak Creek

Present Well Owner: City of Oak Creek

Street or Route: 8640 South Howell Avenue

City, State, Zip Code: Oak Creek, WI 53154

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

WI Unique Well No. _____

Reason For Abandonment: Soil Samples collected

Date of Abandonment: 4/13/93

WELL/DRILLHOLE/BOREHOLE INFORMATION

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

(Date) 4/13/93

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available? ☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 17 Casing Diameter (ins.) ____
(From groundsurface)

Casing Depth (ft.) NA

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

(4) Depth to Water (Feet) 6

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	N/A

If No, Explain _____

Was Casing Cut Off Below Surface?	☐ Yes	☐ No N/A
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)

(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

(7) Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Bentonite chips	Surface	17.0	3.0	

B-2

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B Rev. 7-89

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: Milwaukee

SW 1/4 of SE 1/4 of Sec. 8 ; T. 5 N; R. 22 ☒ E ☐ W

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

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

Civil Town Name: OAK CREEK

Street Address of Well: 7800 South 6th Street

City, Village: OAK CREEK

(2) FACILITY NAME

Original Well Owner (If Known): City of Oak Creek

Present Well Owner: City of Oak Creek - Attn: Phillip Cotton

Street or Route: 8640 S. Howell Avenue

City, State, Zip Code: Oak Creek, WI 53154

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

WI Unique Well No. _____

Reason For Abandonment: Soil Sampling Complete

Date of Abandonment: 5/10/93

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On (Date) 5/10/93

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available? ☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 16.5 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) 4

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	NA

If No, Explain _____

Was Casing Cut Off Below Surface?	☐ Yes ☐ No	NA
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)

(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

(7) Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Bentonite Chips	Surface	16.5	2 Sacks	

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B
Rev. 7-89

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: Milwaukee

SW 1/4 of SE 1/4 of Sec. 8 ; T. 5 N; R. 22 ☒ E ☐ W

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

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

Civil Town Name: OAK CREEK

Street Address of Well: 7600 South 6th Street

City, Village: OAK CREEK

(2) FACILITY NAME

Original Well Owner (If Known): City of Oak Creek

Present Well Owner: City of Oak Creek Attn.: Public Works

Street or Route: 8640 S. Howell Avenue

City, State, Zip Code: Oak Creek, WI 53154

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

(3) Unique Well No. _____

Reason For Abandonment: Soil Sampling Complete

Date of Abandonment: 5/10/93

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On (Date): 5/10/93

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available? ☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 16.5 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) _____

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	NA

If No, Explain _____

Was Casing Cut Off Below Surface?	☐ Yes	☐ No NA
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)

(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

(7) Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Bentonite Chips	Surface	16.5	2 sacks	

B-4

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B Rev. 7-89

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: Milwaukee

SW 1/4 of SE 1/4 of Sec. 8 ; T. 5 N; R. 22 ☒ E ☐ W

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

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

Civil Town Name: OAK CREEK

Street Address of Well: 7600 South 6th Street

City, Village: OAK CREEK

(2) FACILITY NAME

Original Well Owner (If Known): City of Oak Creek

Present Well Owner: City of Oak Creek

Street or Route: 9640 South Howell Avenue

City, State, Zip Code: Oak Creek, WI 53154

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

WI Unique Well No. _____

Reason For Abandonment: Soil Sampling Complete

Date of Abandonment: 5/10/93

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On (Date): 5/10/93

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available? ☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 16.5 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) 4.0

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	N/A

If No, Explain _____

Was Casing Cut Off Below Surface?	☐ Yes	☐ No N/A
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)

(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

(7) Sealing Material Used	From (Ft.)	To (Ft.)	No. Units, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Bentonite Chips	Surface	16.5	2 Sacks	

B-5

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B Rev. 7-89

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: Milwaukee

SW 1/4 of SE 1/4 of Sec. 8 ; T. 5 N; R. 22 ☒ E ☐ W

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

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

Civil Town Name: OAK CREEK

Street Address of Well: 7600 South 6th Street

City, Village: OAK CREEK

(2) FACILITY NAME

Original Well Owner (If Known): City of Oak Creek

Present Well Owner: City of Oak Creek Attn: Public Works

Street or Route: 9640 South Howell Avenue

City, State, Zip Code: Oak Creek, WI 53154

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

WI Unique Well No. _____

Reason For Abandonment: Soil Sampling Complete

Date of Abandonment: 5/10/93

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On (Date): 5/10/93

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available? ☐ Yes ☒ No

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 16.5 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) 9

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	N/A

If No, Explain _____

Was Casing Cut Off Below Surface?	☐ Yes	☐ No N/A
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)

(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

(7) Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Bentonite Chips	Surface	16.5	2 sacks	

B-6

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B
Rev. 7-89

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: Milwaukee

SW 1/4 of SE 1/4 of Sec. 8 ; T. 5 N; R. 22 ☒ E ☐ W

(If applicable)

_____ Gov't Lot _____ Grid Number

Grid Location

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

Civil Town Name: OAK CREEK

Street Address of Well: 7600 South 6th Street

City, Village: OAK CREEK

(2) FACILITY NAME

Original Well Owner (If Known): City of Oak Creek

Present Well Owner: City of Oak Creek Attn: Public Works

Street or Route: 8640 South Howell

City, State, Zip Code: Oak Creek WI 53154

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

WI Unique Well No.: _____

Reason For Abandonment: Soil Sampling Complete

Date of Abandonment: 5/10/93

WELL/DRILLHOLE/BOREHOLE INFORMATION

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

(Date) 5/10/93

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available?
☐ Yes ☒ No

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 165 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) _____

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	NA

If No, Explain _____

Was Casing Cut Off Below Surface?	☐ Yes	☐ No NA
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)

(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

(7) Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Bentonite Chips	Surface	16.5	2 sacks	

B-7

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B Rev. 7-89

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: Milwaukee

SW 1/4 of SE 1/4 of Sec. 8 ; T. 5 N; R. 22 ☒ E ☐ W

(If applicable)

_____ Gov't Lot _____ Grid Number

Grid Location

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

Civil Town Name: OAK CREEK

Street Address of Well: 7600 South 6th Street

City, Village: OAK CREEK

(2) FACILITY NAME

Original Well Owner (If Known): City of Oak Creek

Present Well Owner: City of Oak Creek Attn.: Phillip Ferro

Street or Route: 8040 South Howell

City, State, Zip Code: Oak Creek, WI 53154

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

WI Unique Well No.: _____

Reason For Abandonment: Soil Sampling Complete

Date of Abandonment: 5/11/93

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On (Date): 5/10/93

☐ Monitoring Well
☐ Water Well
☒ Drillhole
☐ Borehole

Construction Report Available? ☐ Yes ☐ No

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 16.5 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) 11'

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	N/A

If No, Explain _____

Was Casing Cut Off Below Surface?	☐ Yes	☐ No N/A
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)

(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

(7) Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Bentonite Chips	Surface	16.5	2 sacks	

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled:	May 14, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Water: MW-3A	Received:	May 15, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed:	May 19-20, 1993
Attention: Greg Walsh	Lab Number:	305-0518	Reported:	May 24, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/L	Sample Results µg/L
Benzene	5.0	N.D.
Bromobenzene	5.0	N.D.
Bromodichloromethane	5.0	N.D.
n-Butylbenzene	5.0	N.D.
sec-Butylbenzene	5.0	N.D.
tert-Butylbenzene	5.0	N.D.
Carbon tetrachloride	5.0	N.D.
Chlorobenzene	5.0	N.D.
Chloroethane	5.0	N.D.
Chloroform	5.0	N.D.
Chloromethane	5.0	N.D.
2-Chlorotoluene	5.0	N.D.
4-Chlorotoluene	5.0	N.D.
Dibromochloromethane	5.0	N.D.
1,2-Dibromo-3-chloropropane	5.0	N.D.
1,2-Dibromoethane	5.0	N.D.
1,2-Dichlorobenzene	5.0	N.D.
1,3-Dichlorobenzene	5.0	N.D.
1,4-Dichlorobenzene	5.0	N.D.
Dichlorodifluoromethane	5.0	N.D.
1,1-Dichloroethane	5.0	N.D.
1,2-Dichloroethane	5.0	N.D.
1,1-Dichloroethene	5.0	N.D.
cis-1,2-Dichloroethene	5.0	N.D.
trans-1,2-Dichloroethene	5.0	N.D.
1,2-Dichloropropane	5.0	N.D.
1,3-Dichloropropane	5.0	N.D.
2,2-Dichloropropane	5.0	N.D.
Di-Isopropyl-Ether	50	N.D.
Ethyl Benzene	5.0	N.D.
Hexachlorobutadiene	5.0	N.D.
Isopropylbenzene	5.0	N.D.
p-Isopropyltoluene	5.0	N.D.
Methylene chloride	30	N.D.
Methyl-tert-Butylether	50	N.D.

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled: May 10, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil: B-2, S-2	Received: May 12, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed: May 17-18, 1993
Attention: Greg Walsh	Lab Number:	305-0318	Reported: May 19, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/kg, Dry Weight	Sample Results µg/kg, Dry Weight
Benzene	2.4	N.D.
Bromobenzene	6.0	N.D.
Bromodichloromethane	6.0	N.D.
n-Butylbenzene	6.0	N.D.
sec-Butylbenzene	6.0	N.D.
tert-Butylbenzene	6.0	N.D.
Carbon tetrachloride	6.0	N.D.
Chlorobenzene	6.0	N.D.
Chloroethane	6.0	N.D.
Chloroform	6.0	N.D.
Chloromethane	6.0	N.D.
2-Chlorotoluene	6.0	N.D.
4-Chlorotoluene	6.0	N.D.
Dibromochloromethane	6.0	N.D.
1,2-Dibromo-3-chloropropane	6.0	N.D.
1,2-Dibromoethane	6.0	N.D.
1,2-Dichlorobenzene	6.0	N.D.
1,3-Dichlorobenzene	6.0	N.D.
1,4-Dichlorobenzene	6.0	N.D.
Dichlorodifluoromethane	6.0	N.D.
1,1-Dichloroethane	6.0	N.D.
1,2-Dichloroethane	6.0	N.D.
1,1-Dichloroethene	6.0	N.D.
cis-1,2-Dichloroethene	6.0	N.D.
trans-1,2-Dichloroethene	6.0	N.D.
1,2-Dichloropropane	6.0	N.D.
1,3-Dichloropropane	6.0	N.D.
2,2-Dichloropropane	6.0	N.D.
Di-Isopropyl-Ether	60	N.D.
Ethyl Benzene	2.4	3.3
Hexachlorobutadiene	6.0	N.D.
Isopropylbenzene	6.0	N.D.
p-Isopropyltoluene	6.0	N.D.
Methylene chloride	6.0	N.D.
Methyl-tert-Butylether	60	N.D.

3050318.DRA <2>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled: May 14, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Water: MW-3A	Received: May 15, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed: May 19-20, 1993
Attention: Greg Walsh	Lab Number:	305-0518	Reported: May 24, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/L	Sample Results µg/L
Naphthalene	5.0	N.D.
n-Propylbenzene	5.0	N.D.
1,1,2,2-Tetrachloroethane	5.0	N.D.
Tetrachloroethene	5.0	N.D.
Toluene	5.0	N.D.
1,2,3-Trichlorobenzene	5.0	N.D.
1,2,4-Trichlorobenzene	5.0	N.D.
1,1,1-Trichloroethane	5.0	62
1,1,2-Trichloroethane	5.0	N.D.
Trichloroethene	5.0	N.D.
Trichlorofluoromethane	5.0	N.D.
1,2,4-Trimethylbenzene	5.0	N.D.
1,3,5-Trimethylbenzene	5.0	N.D.
Vinyl chloride	2.0	N.D.
Total Xylenes	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

3050518.DRA <2>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled: May 10, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil: B-2, S-2	Received: May 12, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed: May 17-18, 1993
Attention: Greg Walsh	Lab Number:	305-0318	Reported: May 19, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/kg, Dry Weight	Sample Results µg/kg, Dry Weight
Naphthalene	6.0	N.D.
n-Propylbenzene	6.0	N.D.
1,1,2,2-Tetrachloroethane	6.0	N.D.
Tetrachloroethene	6.0	N.D.
Toluene	**2.4**	**11**
1,2,3-Trichlorobenzene	6.0	N.D.
1,2,4-Trichlorobenzene	6.0	N.D.
1,1,1-Trichloroethane	6.0	N.D.
1,1,2-Trichloroethane	6.0	N.D.
Trichloroethene	6.0	N.D.
Trichlorofluoromethane	6.0	N.D.
1,2,4-Trimethylbenzene	**6.0**	**8.6**
1,3,5-Trimethylbenzene	6.0	N.D.
Vinyl chloride	6.0	N.D.
Total Xylenes	6.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

3050318.DRA <3>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled: May 14, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Water: MW-6A	Received: May 15, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed: May 19-20, 1993
Attention: Greg Walsh	Lab Number:	305-0519	Reported: May 24, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/L	Sample Results µg/L
Benzene	0.50	N.D.
Bromobenzene	0.50	N.D.
Bromodichloromethane	0.50	N.D.
n-Butylbenzene	0.50	N.D.
sec-Butylbenzene	0.50	N.D.
tert-Butylbenzene	0.50	N.D.
Carbon tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	0.50	N.D.
Chloroform	0.50	N.D.
Chloromethane	0.50	N.D.
2-Chlorotoluene	0.50	N.D.
4-Chlorotoluene	0.50	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dibromo-3-chloropropane	0.50	N.D.
1,2-Dibromoethane	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	N.D.
Dichlorodifluoromethane	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	0.50	N.D.
trans-1,2-Dichloroethene	0.50	N.D.
1,2-Dichloropropane	0.50	N.D.
1,3-Dichloropropane	0.50	N.D.
2,2-Dichloropropane	0.50	N.D.
Di-Isopropyl-Ether	5.0	N.D.
Ethyl Benzene	0.50	N.D.
Hexachlorobutadiene	0.50	N.D.
Isopropylbenzene	0.50	N.D.
p-Isopropyltoluene	0.50	N.D.
Methylene chloride	3.00	N.D.
Methyl-tert-Butylether	5.0	N.D.

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled: May 14, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Water: MW-6A	Received: May 15, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed: May 19-20, 1993
Attention: Greg Walsh	Lab Number:	305-0519	Reported: May 24, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/L	Sample Results µg/L
Naphthalene	0.50	N.D.
n-Propylbenzene	0.50	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
Toluene	**0.50**	**1.6**
1,2,3-Trichlorobenzene	0.50	N.D.
1,2,4-Trichlorobenzene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	0.50	N.D.
1,2,4-Trimethylbenzene	0.50	N.D.
1,3,5-Trimethylbenzene	0.50	N.D.
Vinyl chloride	0.20	N.D.
Total Xylenes	0.50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

3050518.DRA <4>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled:	May 10, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil: B-3, S-2	Received:	May 12, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed:	May 17-18, 1993
Attention: Greg Walsh	Lab Number:	305-0319	Reported:	May 19, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/kg, Dry Weight	Sample Results µg/kg, Dry Weight
Benzene	2.2	N.D.
Bromobenzene	5.5	N.D.
Bromodichloromethane	5.5	N.D.
n-Butylbenzene	5.5	N.D.
sec-Butylbenzene	5.5	N.D.
tert-Butylbenzene	5.5	N.D.
Carbon tetrachloride	5.5	N.D.
Chlorobenzene	5.5	N.D.
Chloroethane	5.5	N.D.
Chloroform	5.5	N.D.
Chloromethane	5.5	N.D.
2-Chlorotoluene	5.5	N.D.
4-Chlorotoluene	5.5	N.D.
Dibromochloromethane	5.5	N.D.
1,2-Dibromo-3-chloropropane	5.5	N.D.
1,2-Dibromoethane	5.5	N.D.
1,2-Dichlorobenzene	5.5	N.D.
1,3-Dichlorobenzene	5.5	N.D.
1,4-Dichlorobenzene	5.5	N.D.
Dichlorodifluoromethane	5.5	N.D.
1,1-Dichloroethane	5.5	N.D.
1,2-Dichloroethane	5.5	N.D.
1,1-Dichloroethene	5.5	N.D.
cis-1,2-Dichloroethene	5.5	N.D.
trans-1,2-Dichloroethene	5.5	N.D.
1,2-Dichloropropane	5.5	N.D.
1,3-Dichloropropane	5.5	N.D.
2,2-Dichloropropane	5.5	N.D.
Di-Isopropyl-Ether	55	N.D.
Ethyl Benzene	2.2	3.0
Hexachlorobutadiene	5.5	N.D.
Isopropylbenzene	5.5	N.D.
p-Isopropyltoluene	5.5	N.D.
Methylene chloride	5.5	N.D.
Methyl-tert-Butylether	55	N.D.

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled: May 14, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Water: MW-8	Received: May 15, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed: May 19-20, 1993
Attention: Greg Walsh	Lab Number:	305-0520	Reported: May 24, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/L	Sample Results µg/L
Benzene	0.50	N.D.
Bromobenzene	0.50	N.D.
Bromodichloromethane	0.50	N.D.
n-Butylbenzene	0.50	N.D.
sec-Butylbenzene	0.50	N.D.
tert-Butylbenzene	0.50	N.D.
Carbon tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	0.50	N.D.
Chloroform	0.50	N.D.
Chloromethane	0.50	N.D.
2-Chlorotoluene	0.50	N.D.
4-Chlorotoluene	0.50	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dibromo-3-chloropropane	0.50	N.D.
1,2-Dibromoethane	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	N.D.
Dichlorodifluoromethane	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	0.50	N.D.
trans-1,2-Dichloroethene	0.50	N.D.
1,2-Dichloropropane	0.50	N.D.
1,3-Dichloropropane	0.50	N.D.
2,2-Dichloropropane	0.50	N.D.
Di-Isopropyl-Ether	5.0	N.D.
Ethyl Benzene	0.50	N.D.
Hexachlorobutadiene	0.50	N.D.
Isopropylbenzene	0.50	N.D.
p-Isopropyltoluene	0.50	N.D.
Methylene chloride	3.00	N.D.
Methyl-tert-Butylether	5.0	N.D.

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled:	May 10, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil: B-3, S-2	Received:	May 12, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed:	May 17-18, 1993
Attention: Greg Walsh	Lab Number:	305-0319	Reported:	May 19, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/kg, Dry Weight	Sample Results µg/kg, Dry Weight
Naphthalene	5.5	N.D.
n-Propylbenzene	5.5	N.D.
1,1,2,2-Tetrachloroethane	5.5	N.D.
Tetrachloroethene	5.5	N.D.
Toluene	**2.2**	**22**
1,2,3-Trichlorobenzene	5.5	N.D.
1,2,4-Trichlorobenzene	5.5	N.D.
1,1,1-Trichloroethane	5.5	N.D.
1,1,2-Trichloroethane	5.5	N.D.
Trichloroethene	5.5	N.D.
Trichlorofluoromethane	5.5	N.D.
1,2,4-Trimethylbenzene	**5.5**	**11**
1,3,5-Trimethylbenzene	5.5	N.D.
Vinyl chloride	5.5	N.D.
Total Xylenes	**5.5**	**9.3**

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

3050318.DRA <5>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled: May 10, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil: B-4, S-2	Received: May 12, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed: May 17-18, 1993
Attention: Greg Walsh	Lab Number:	305-0320	Reported: May 19, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/kg, Dry Weight	Sample Results µg/kg, Dry Weight
Benzene	2.4	N.D.
Bromobenzene	6.0	N.D.
Bromodichloromethane	6.0	N.D.
n-Butylbenzene	6.0	N.D.
sec-Butylbenzene	6.0	N.D.
tert-Butylbenzene	6.0	N.D.
Carbon tetrachloride	6.0	N.D.
Chlorobenzene	6.0	N.D.
Chloroethane	6.0	N.D.
Chloroform	6.0	N.D.
Chloromethane	6.0	N.D.
2-Chlorotoluene	6.0	N.D.
4-Chlorotoluene	6.0	N.D.
Dibromochloromethane	6.0	N.D.
1,2-Dibromo-3-chloropropane	6.0	N.D.
1,2-Dibromoethane	6.0	N.D.
1,2-Dichlorobenzene	6.0	N.D.
1,3-Dichlorobenzene	6.0	N.D.
1,4-Dichlorobenzene	6.0	N.D.
Dichlorodifluoromethane	6.0	N.D.
1,1-Dichloroethane	6.0	N.D.
1,2-Dichloroethane	6.0	N.D.
1,1-Dichloroethene	6.0	N.D.
cis-1,2-Dichloroethene	6.0	N.D.
trans-1,2-Dichloroethene	6.0	N.D.
1,2-Dichloropropane	6.0	N.D.
1,3-Dichloropropane	6.0	N.D.
2,2-Dichloropropane	6.0	N.D.
Di-Isopropyl-Ether	60	N.D.
Ethyl Benzene	2.4	11
Hexachlorobutadiene	6.0	N.D.
Isopropylbenzene	6.0	N.D.
p-Isopropyltoluene	6.0	N.D.
Methylene chloride	6.0	N.D.
Methyl-tert-Butylether	60	N.D.

3050318.DRA <6>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled: May 14, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Water: MW-8	Received: May 15, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed: May 19-20, 1993
Attention: Greg Walsh	Lab Number:	305-0520	Reported: May 24, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/L	Sample Results µg/L
Naphthalene	0.50	N.D.
n-Propylbenzene	0.50	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
Toluene	**0.50**	**0.97**
1,2,3-Trichlorobenzene	0.50	N.D.
1,2,4-Trichlorobenzene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	0.50	N.D.
1,2,4-Trimethylbenzene	0.50	N.D.
1,3,5-Trimethylbenzene	0.50	N.D.
Vinyl chloride	0.20	N.D.
Total Xylenes	0.50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

3050518.DRA <6>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled: May 10, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil: B-4, S-2	Received: May 12, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed: May 17-18, 1993
Attention: Greg Walsh	Lab Number:	305-0320	Reported: May 19, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/kg, Dry Weight	Sample Results µg/kg, Dry Weight
Naphthalene	6.0	6.7
n-Propylbenzene	6.0	N.D.
1,1,2,2-Tetrachloroethane	6.0	N.D.
Tetrachloroethene	6.0	N.D.
Toluene	2.4	22
1,2,3-Trichlorobenzene	6.0	N.D.
1,2,4-Trichlorobenzene	6.0	N.D.
1,1,1-Trichloroethane	6.0	N.D.
1,1,2-Trichloroethane	6.0	N.D.
Trichloroethene	6.0	N.D.
Trichlorofluoromethane	6.0	N.D.
1,2,4-Trimethylbenzene	6.0	14
1,3,5-Trimethylbenzene	6.0	8.3
Vinyl chloride	6.0	N.D.
Total Xylenes	6.0	11

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

3050318.DRA <7>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled:	May 10, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil: B-5, S-3	Received:	May 12, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed:	May 17-18, 1993
Attention: Greg Walsh	Lab Number:	305-0321	Reported:	May 19, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/kg, Dry Weight	Sample Results µg/kg, Dry Weight
Benzene	2.4	N.D.
Bromobenzene	5.9	N.D.
Bromodichloromethane	5.9	N.D.
n-Butylbenzene	5.9	N.D.
sec-Butylbenzene	5.9	N.D.
tert-Butylbenzene	5.9	N.D.
Carbon tetrachloride	5.9	N.D.
Chlorobenzene	5.9	N.D.
Chloroethane	5.9	N.D.
Chloroform	5.9	N.D.
Chloromethane	5.9	N.D.
2-Chlorotoluene	5.9	N.D.
4-Chlorotoluene	5.9	N.D.
Dibromochloromethane	5.9	N.D.
1,2-Dibromo-3-chloropropane	5.9	N.D.
1,2-Dibromoethane	5.9	N.D.
1,2-Dichlorobenzene	5.9	N.D.
1,3-Dichlorobenzene	5.9	N.D.
1,4-Dichlorobenzene	5.9	N.D.
Dichlorodifluoromethane	5.9	N.D.
1,1-Dichloroethane	5.9	N.D.
1,2-Dichloroethane	5.9	N.D.
1,1-Dichloroethene	5.9	N.D.
cis-1,2-Dichloroethene	5.9	N.D.
trans-1,2-Dichloroethene	5.9	N.D.
1,2-Dichloropropane	5.9	N.D.
1,3-Dichloropropane	5.9	N.D.
2,2-Dichloropropane	5.9	N.D.
Di-Isopropyl-Ether	59	N.D.
Ethyl Benzene	**2.4**	**3.6**
Hexachlorobutadiene	5.9	N.D.
Isopropylbenzene	5.9	N.D.
p-Isopropyltoluene	5.9	N.D.
Methylene chloride	5.9	N.D.
Methyl-tert-Butylether	59	N.D.

3050318.DRA <8>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled:	May 10, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil: B-5, S-3	Received:	May 12, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed:	May 17-18, 1993
Attention: Greg Walsh	Lab Number:	305-0321	Reported:	May 19, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/kg, Dry Weight	Sample Results µg/kg, Dry Weight
Naphthalene	5.9	N.D.
n-Propylbenzene	5.9	N.D.
1,1,2,2-Tetrachloroethane	5.9	N.D.
Tetrachloroethene	5.9	N.D.
Toluene	**2.4**	**20**
1,2,3-Trichlorobenzene	5.9	N.D.
1,2,4-Trichlorobenzene	5.9	N.D.
1,1,1-Trichloroethane	5.9	N.D.
1,1,2-Trichloroethane	5.9	N.D.
Trichloroethene	5.9	N.D.
Trichlorofluoromethane	5.9	N.D.
1,2,4-Trimethylbenzene	**5.9**	**12**
1,3,5-Trimethylbenzene	5.9	N.D.
Vinyl chloride	5.9	N.D.
Total Xylenes	**5.9**	**22**

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

3050318.DRA <9>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled: May 10, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil: B-6, S-2	Received: May 12, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed: May 17-18, 1993
Attention: Greg Walsh	Lab Number:	305-0322	Reported: May 19, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/kg, Dry Weight	Sample Results µg/kg, Dry Weight
Benzene	2.5	N.D.
Bromobenzene	6.4	N.D.
Bromodichloromethane	6.4	N.D.
n-Butylbenzene	6.4	N.D.
sec-Butylbenzene	6.4	N.D.
tert-Butylbenzene	6.4	N.D.
Carbon tetrachloride	6.4	N.D.
Chlorobenzene	6.4	N.D.
Chloroethane	6.4	N.D.
Chloroform	6.4	N.D.
Chloromethane	6.4	N.D.
2-Chlorotoluene	6.4	N.D.
4-Chlorotoluene	6.4	N.D.
Dibromochloromethane	6.4	N.D.
1,2-Dibromo-3-chloropropane	6.4	N.D.
1,2-Dibromoethane	6.4	N.D.
1,2-Dichlorobenzene	6.4	N.D.
1,3-Dichlorobenzene	6.4	N.D.
1,4-Dichlorobenzene	6.4	N.D.
Dichlorodifluoromethane	6.4	N.D.
1,1-Dichloroethane	6.4	N.D.
1,2-Dichloroethane	6.4	N.D.
1,1-Dichloroethene	6.4	N.D.
cis-1,2-Dichloroethene	6.4	N.D.
trans-1,2-Dichloroethene	6.4	N.D.
1,2-Dichloropropane	6.4	N.D.
1,3-Dichloropropane	6.4	N.D.
2,2-Dichloropropane	6.4	N:D.
Di-Isopropyl-Ether	64	N.D.
Ethyl Benzene	2.5	5.3
Hexachlorobutadiene	6.4	N.D.
Isopropylbenzene	6.4	N.D.
p-Isopropyltoluene	6.4	N.D.
Methylene chloride	6.4	N.D.
Methyl-tert-Butylether	64	N.D.

3050318.DRA <10>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled:	May 10, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil: B-6, S-2	Received:	May 12, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed:	May 17-18, 1993
Attention: Greg Walsh	Lab Number:	305-0322	Reported:	May 19, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/kg, Dry Weight	Sample Results µg/kg, Dry Weight
Naphthalene	6.4	N.D.
n-Propylbenzene	6.4	N.D.
1,1,2,2-Tetrachloroethane	6.4	N.D.
Tetrachloroethene	6.4	N.D.
Toluene	2.5	25
1,2,3-Trichlorobenzene	6.4	N.D.
1,2,4-Trichlorobenzene	6.4	N.D.
1,1,1-Trichloroethane	6.4	N.D.
1,1,2-Trichloroethane	6.4	N.D.
Trichloroethene	6.4	N.D.
Trichlorofluoromethane	6.4	N.D.
1,2,4-Trimethylbenzene	6.4	18
1,3,5-Trimethylbenzene	6.4	N.D.
Vinyl chloride	6.4	N.D.
Total Xylenes	6.4	12

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

3050318.DRA <11>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled: May 11, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil: B-7, S-3	Received: May 12, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed: May 17-18, 1993
Attention: Greg Walsh	Lab Number:	305-0323	Reported: May 19, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/kg, Dry Weight	Sample Results µg/kg, Dry Weight
Benzene	2.4	N.D.
Bromobenzene	6.0	N.D.
Bromodichloromethane	6.0	N.D.
n-Butylbenzene	6.0	N.D.
sec-Butylbenzene	6.0	N.D.
tert-Butylbenzene	6.0	N.D.
Carbon tetrachloride	6.0	N.D.
Chlorobenzene	6.0	N.D.
Chloroethane	6.0	N.D.
Chloroform	6.0	N.D.
Chloromethane	6.0	N.D.
2-Chlorotoluene	6.0	N.D.
4-Chlorotoluene	6.0	N.D.
Dibromochloromethane	6.0	N.D.
1,2-Dibromo-3-chloropropane	6.0	N.D.
1,2-Dibromoethane	6.0	N.D.
1,2-Dichlorobenzene	6.0	N.D.
1,3-Dichlorobenzene	6.0	N.D.
1,4-Dichlorobenzene	6.0	N.D.
Dichlorodifluoromethane	6.0	N.D.
1,1-Dichloroethane	6.0	N.D.
1,2-Dichloroethane	6.0	N.D.
1,1-Dichloroethene	6.0	N.D.
cis-1,2-Dichloroethene	6.0	N.D.
trans-1,2-Dichloroethene	6.0	N.D.
1,2-Dichloropropane	6.0	N.D.
1,3-Dichloropropane	6.0	N.D.
2,2-Dichloropropane	6.0	N.D.
Di-Isopropyl-Ether	60	N.D.
Ethyl Benzene	**2.4**	**2.9**
Hexachlorobutadiene	6.0	N.D.
Isopropylbenzene	6.0	N.D.
p-Isopropyltoluene	6.0	N.D.
Methylene chloride	6.0	N.D.
Methyl-tert-Butylether	60	N.D.

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled:	May 11, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil: B-7, S-3	Received:	May 12, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed:	May 17-18, 1993
Attention: Greg Walsh	Lab Number:	305-0323	Reported:	May 19, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/kg, Dry Weight	Sample Results µg/kg, Dry Weight
Naphthalene	6.0	N.D.
n-Propylbenzene	6.0	N.D.
1,1,2,2-Tetrachloroethane	6.0	N.D.
Tetrachloroethene	6.0	N.D.
Toluene	2.4	15
1,2,3-Trichlorobenzene	6.0	N.D.
1,2,4-Trichlorobenzene	6.0	N.D.
1,1,1-Trichloroethane	6.0	N.D.
1,1,2-Trichloroethane	6.0	N.D.
Trichloroethene	6.0	N.D.
Trichlorofluoromethane	6.0	N.D.
1,2,4-Trimethylbenzene	6.0	10
1,3,5-Trimethylbenzene	6.0	N.D.
Vinyl chloride	6.0	N.D.
Total Xylenes	6.0	8.8

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

3050318.DRA <13>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Drake Environmental	Client Project ID:	J93035	Sampled:	May 11, 1993
N91 W17194 Appleton Ave.	Sample Descript:	Soil: B-8, S-2	Received:	May 12, 1993
Menomonee Falls , WI 53051	Analysis Method:	5030/8021	Analyzed:	May 17-18, 1993
Attention: Greg Walsh	Lab Number:	305-0324	Reported:	May 19, 1993

VOLATILE ORGANIC COMPOUNDS (5030/8021)

Analyte	Detection Limit µg/kg, Dry Weight	Sample Results µg/kg, Dry Weight
Benzene	2.3	N.D.
Bromobenzene	5.8	N.D.
Bromodichloromethane	5.8	N.D.
n-Butylbenzene	5.8	N.D.
sec-Butylbenzene	5.8	N.D.
tert-Butylbenzene	5.8	N.D.
Carbon tetrachloride	5.8	N.D.
Chlorobenzene	5.8	N.D.
Chloroethane	5.8	N.D.
Chloroform	5.8	N.D.
Chloromethane	5.8	N.D.
2-Chlorotoluene	5.8	N.D.
4-Chlorotoluene	5.8	N.D.
Dibromochloromethane	5.8	N.D.
1,2-Dibromo-3-chloropropane	5.8	N.D.
1,2-Dibromoethane	5.8	N.D.
1,2-Dichlorobenzene	5.8	N.D.
1,3-Dichlorobenzene	5.8	N.D.
1,4-Dichlorobenzene	5.8	N.D.
Dichlorodifluoromethane	5.8	N.D.
1,1-Dichloroethane	5.8	N.D.
1,2-Dichloroethane	5.8	N.D.
1,1-Dichloroethene	5.8	N.D.
cis-1,2-Dichloroethene	5.8	N.D.
trans-1,2-Dichloroethene	5.8	N.D.
1,2-Dichloropropane	5.8	N.D.
1,3-Dichloropropane	5.8	N.D.
2,2-Dichloropropane	5.8	N.D.
Di-Isopropyl-Ether	58	N.D.
Ethyl Benzene	2.3	3.1
Hexachlorobutadiene	5.8	N.D.
Isopropylbenzene	5.8	N.D.
p-Isopropyltoluene	5.8	N.D.
Methylene chloride	5.8	N.D.
Methyl-tert-Butylether	58	N.D.

REINHART, BOERNER, VAN DEUREN, NORRIS & RIESELBACH
S.C.
ATTORNEYS AT LAW
SUITE 2100
1000 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202-3186
TELEPHONE (414) 298-1000
FACSIMILE (414) 298-8097

June 3, 1993

Margaret M. Graefe, Hydrogeologist
Environmental Repair Program
Wisconsin Department of Natural Resources
Southeast District Annex Building
P.O. Box 12436
Milwaukee, WI 53212

Dear Ms. Graefe:

Re: Environmental Investigation; 7730 South Sixth Street, Oak Creek, Wisconsin

I am writing to follow-up on the voice mail message I left at your office yesterday concerning preliminary analytical results from the investigation at the property at 7730 South Sixth Street, Oak Creek, Wisconsin (the "Property"). I am providing this information to you with the consent of the City of Oak Creek (the "City") in order to facilitate your preparation of a no action letter for this property.

The City's environmental consultant, Drake Environmental, has installed eight soil borings, three of which it converted to monitoring wells, on the Property. Drake Environmental did not identify trichloroethane ("TCA") in laboratory analyses of any soil samples from the Property. Drake Environmental installed the three monitoring wells in the approximate locations identified on the enclosed site map. Drake Environmental did not identify TCA in either of the northern wells. Drake Environmental did identify TCA at 62 parts per billion in a water sample from the southern well. Drake Environmental concludes that the groundwater is moving in a northeasterly direction.

This preliminary information confirms our earlier suspicion that the TCA identified by Layne GeoSciences on the Property in early 1992 migrated onto the Property by way of groundwater flow from an off-site source. Because Drake Environmental did not identify any TCA contamination in the soil, I am confident the Property itself is not a continuing "source" of contamination.

Drake Environmental proposes to complete and distribute its report to the City by the end of this week. As soon as I receive the report, I will forward a copy to you. I will then seek your earliest response in preparing a no action letter for the owner of the Property which incorporates this new information from Drake Environmental's investigation.

As I have noted previously, time is of the essence in your response to this request. Because the current contingency in the offer to purchase between Foran Spice Company and the City expires in early July, I need your response by June 18, 1993, two weeks from tomorrow. I enclose a proposed no action letter, based upon your original no action letter, which would meet my client's requirements for a no action letter. I do not presume to write the letter for you, but only to make your job easier, if at all possible.

Thank you in advance for helping us with this project. I will make sure you have Drake Environmental's report as soon as possible. If you believe you will not be able to produce a letter by June 18, 1993, please let me know as soon as possible.

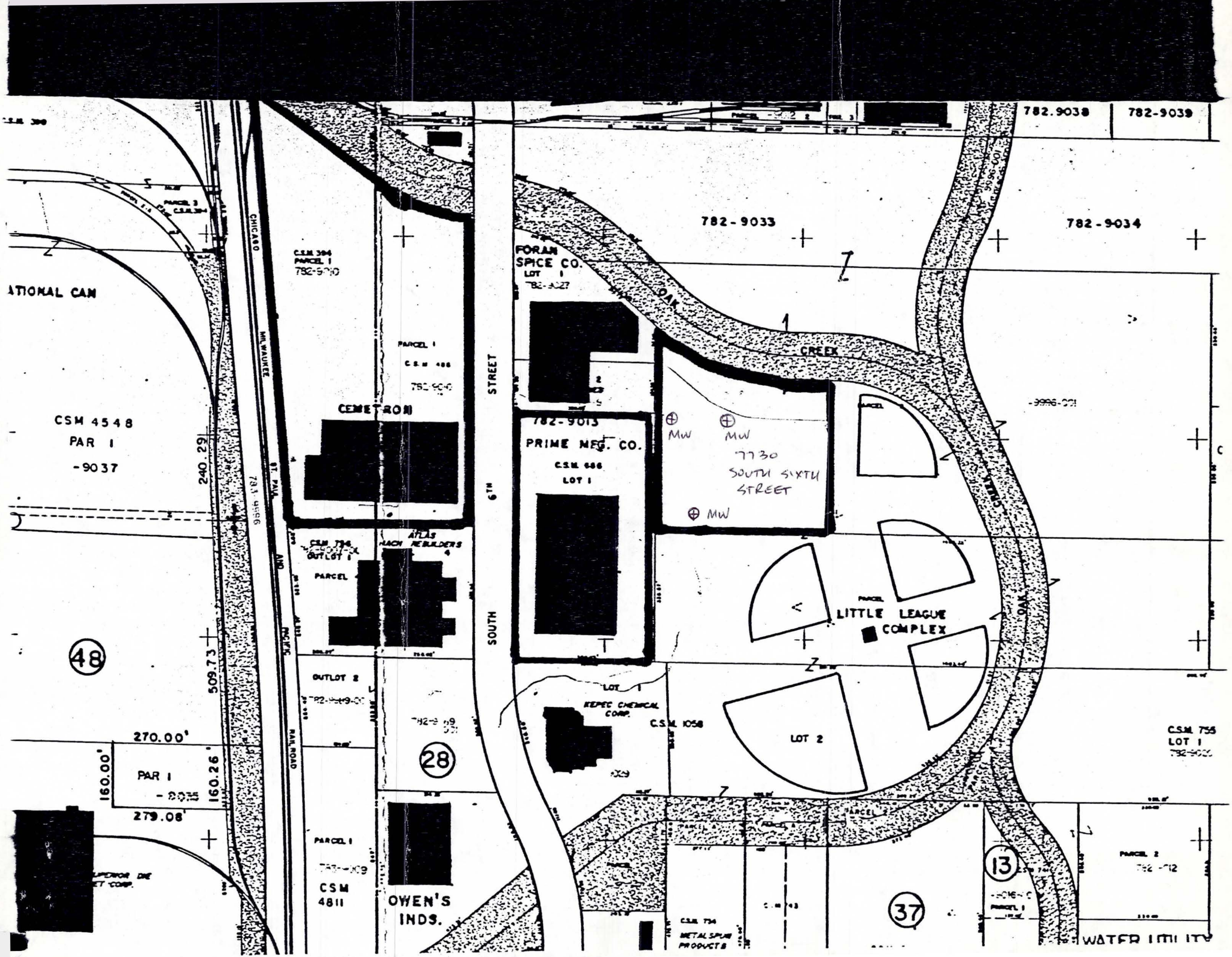
Yours very truly,

Edward B. Witte

EBW:KE

Enc.

cc Ms. Patricia H. Goto
Mr. Lawrence J. Haskin


782.9038
782-9039
782-9033
782-9034
ATIONAL CAN
C.S.M. 384
PARCEL 1
FORAN
SPICE CO.
LOT 1
OAK
CREEK
PARCEL 1
CEMETRON
CSM 4548
PAR 1
-9037
240.29
782-9013
PRIME MFG. CO.
LOT 1
MW
MW
7730
SOUTH SIXTH
STREET
MW
SOUTH 6TH STREET
CHICAGO MILWAUKEE ST. PAUL AND PACIFIC RAILROAD
ATLAS
MACH REBUILDERS
OUTLOT 1
PARCEL
LITTLE LEAGUE
COMPLEX
48
509.73
OUTLOT 2
LOT 1
KEPEC CHEMICAL
CORP.
C.S.M. 1058
LOT 2
C.S.M. 755
LOT 1
270.00'
160.00'
PAR 1
160.26'
279.08'
28
PARCEL 1
CSM
4811
OWEN'S
INDS.
13
PARCEL 2
37
C.S.M. 734
METAL SPUR
PRODUCTS
WATER UTILITY

[WDNR LETTERHEAD]

June 2, 1993

Lawrence J. Haskin, Esq.
City of Oak Creek
Office of the City Attorney
124 East Drexel Avenue
Oak Creek, WI 53154

Dear Mr. Haskin:

Re: Property located at 7730 South Sixth Street, Oak Creek

The Department has received and reviewed the additional information submitted relative to the above-mentioned property dated June ___, 1993 and prepared by Drake Environmental, Inc., Menomonee Falls, Wisconsin. Based on all of the information available to date, the Department will not at this time require the City of Oak Creek or any future owner of this property to take further action on this property.

Based upon soil and groundwater analytical data and analysis of the groundwater elevation, it appears contaminants have migrated onto the City property by groundwater migration. The groundwater in this area appears to flow to the northeast. Soils near the water table are not contaminated with trichloroethane ("TCA").

Under s. 144.76, Wis. Stats., property owners may be liable for environmental contamination if property they own (under their possession or control) is causing or contributing to the contamination. Property most commonly causes or contributes to contamination through the migration of contaminants from contaminated soils. However, a downgradient property owner does not become liable for environmental contamination merely because he or she happens to own downgradient property.

The Department has requested that Prime Manufacturing Corporation further investigate and remediate all TCA contamination that may have resulted from its prior use of TCA. These requested activities may require access to the above-

mentioned property. The Department will request that you allow access for all investigation and remediation activities by another party. If you refuse access for investigation and remediation, you or future owners will subsequently be required to perform the activities.

Sincerely,

22592

REINHART, BOERNER, VAN DEUREN, NORRIS & RIESELBACH
S.C.
ATTORNEYS AT LAW
SUITE 2100
1000 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202-3186
TELEPHONE (414) 298-1000
FACSIMILE (414) 298-8097

May 20, 1993

Margaret M. Graefe, Hydrogeologist
Environmental Repair Program
Wisconsin Department of Natural
Resources
Southeast District Annex Building
P.O. Box 12436
Milwaukee, WI 53212

Dear Ms. Graefe:

Re: Foran Spice Company ("Foran"), 7617 South Sixth Street, Oak Creek, Wisconsin

I am writing to follow-up on the voice mail message I left for you today concerning the environmental investigation of the property owned by the City of Oak Creek (the "City") which my client, Foran, proposes to purchase. The City's environmental consultant has completed its field activities at the site and expects to receive results from the laboratory next week. If the results are favorable, the City and Foran propose to complete this transaction on or before July 9, 1993.

I am also writing to alert you to the likelihood that the City and Foran will request a more explicit "no action letter" for this property based upon the additional information to be generated by the City's investigation. As you recall, on January 5, 1993, you prepared a no action letter for the City regarding this property. While the City's original intent of requesting the no action letter was to provide Foran with the necessary comfort to acquire the City property, we determined that the conditions of the no action letter presented an unacceptable risk to Foran. Therefore, Foran has not yet purchased the City property, but intends to do so on or before July 9, 1993. The City has undertaken its present investigation to identify any environmental impacts on the property.

As soon as I receive the laboratory results and other information from the City's consultant, and with the City's authorization, I will forward this data to you. I hope the information from the City's investigation will substantially improve the Department's understanding of the nature and extent of the TCA contamination, groundwater flow and potential sources of the contamination. I also hope that this information will enable the Department to issue a more conclusive determination that no further action will be expected of the owner of the City property to allow the City and Foran to close this transaction on or before July 9, 1993.

If you have any questions, please call me. I hope to be in touch with you shortly.

Yours very truly,

Edward B. Witte

EBW:KE

cc Patricia Goto, Foran Spice Company
Lawrence Haskin, City Attorney
Dale Richards, Mayor

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Southeast District-Annex Building
4041 N. Richards St.
Post Office Box 12436
Milwaukee, Wisconsin 53212
Telephone: 414-961-2727
Telefax: 414-961-2770

Carroll D. Besadny
Secretary

January 6, 1993

File Ref: Milwaukee Co.
ERRP/ERP

Ms. Liz Wildes
Director of Purchasing
Prime Manufacturing Corporation
P.O. Box 68
Oak Creek, WI 53154

Dear Ms. Wildes:

RE: Property located at 7730 S. Sixth St.

The Wisconsin Department of Natural Resources (WDNR) has been notified that soils contaminated with TCA and TCE was discovered during a property transfer Environmental Assessment at the parcel owned by the City of Oak Creek located adjacent to and directly behind your facility. Based on the fact that this property has never used or stored these compounds and the history of use and storage at your facility. The purpose of this letter is to inform you of your legal responsibilities to address this situation.

The WDNR proceeds in contamination cases under the authority of s. 144.76, Wisconsin Statutes, commonly referred to as Wisconsin's Hazardous Substance Spill Law. The definition of "hazardous substance" as found in s. 144.01(4m), Wisconsin Statutes, includes any discharged solid, semisolid, liquid or gaseous substance that can cause harm to the environment or human health.

> **Wisconsin Statute 144.76(2a) states:** "A person who possesses or controls a hazardous substance or who causes the discharge of a hazardous substance shall notify the Department immediately of any discharge not exempt under sub. (9)."
>
> **Wisconsin Statute 144.76(3) states:** A person who possesses or controls a hazardous substance which is discharged or who causes the discharge of a hazardous substance shall take the actions necessary to restore the environment to the extent practicable and minimize the harmful effects from the discharge to the air, lands, or waters of this state."

Because it appears that you possessed or controlled a hazardous substance which was discharged or caused the discharge of a hazardous substance the WDNR identifies you as the party responsible for taking the actions necessary to restore the environment. You are required to:

1. Immediately identify any risks of explosive vapors, free product and/or well contamination, notify the WDNR of those risks and undertake measures to remedy any emergency conditions.

2. Conduct an investigation to determine the extent of contamination, the potential for groundwater impacts and the remedial action(s) necessary to cleanup contaminated soil and groundwater.

3. Develop and carry out a remedial action plan for the site in accordance with state laws, regulations and guidance.

4. Treat or dispose of all products, soils, wastewater or sludges in compliance with all applicable federal, state and local laws and regulations.

The Department does have a file for the City of Oak Creek that contains all of the current information. These files are available for public review. The conditions present at this site may pose a serious threat to human health and/or the environment. The site specific information known to the WDNR at this time, however, is not adequate to evaluate the relative potential threat from this site.

Due to the WDNR workload, it is necessary to rank all contamination cases for review priority. The highest priority sites have assigned WDNR project managers who are actively reviewing and approving investigation and remediation plans. Lower priority cases do not always have assigned project managers, however, responsible parties are required to proceed with investigation and clean-up efforts. Due to the lack of information about this site, it's relative priority cannot be determined. Therefore, the priority ranking of this site is considered unknown. Until a priority has been assigned to this site, you should proceed with the required response work, submitting all plans and reports, along with quarterly status reports, to this office. The WDNR will notify you if active oversight for your site will be given.

Within 30 days of receiving this letter, you should provide the WDNR with the following information:

1. Any site information you have that would clarify the nature of the potential environmental and/or human health threat from this site.

2. The name of the individual/firm who will direct a remedial investigation for you.

3. The date the remedial investigation will begin, or the date the next work phase will begin, if applicable.

Please be advised that, if you fail to respond within the time period stated above, or if you fail to take appropriate action, the WDNR has the authority to proceed with any of the following actions:

1. The WDNR may pursue further enforcement actions to require the appropriate remedial response to comply with s. 144.76, Wis. Stats. Violation of s. 144.76, Wis. Stats. may ultimately result in forfeitures of up to $5,000 per day of violation.

2. The WDNR has the authority, under s.144.76(7), Wis. Stats., to take actions necessary to remediate the site and to seek reimbursement for all actual and necessary expenditures from responsible parties.

Submit the requested information and future submittals to:

Ms. Margaret Graefe
c/o ERRP/ERP
Wisconsin Department of Natural Resources
P.O. Box 12436
Milwaukee, Wisconsin 53212

The WDNR suggests that you have a qualified environmental engineer or hydrogeologist direct the remedial investigation, assess the environmental impact and coordinate the implementation of a cleanup program. A document titled "Selecting an Environmental Consultant" and a consultant listing are enclosed for your convenience. Your investigation should follow the requirements contained in the WDNR's latest "Remedial Investigation Checklist" (enclosed). You or your consultant may also request additional remedial response guidance documents from this office.

Your cooperation in this matter will be appreciated. If you have any questions about this letter, please contact me at (414)961-2725.

Sincerely,

Margaret M. Graefe

Margaret M. Graefe
Hydrogeologist, Environmetnal Repair Program

Enclosures: Selecting an Environmental Consultant
Consultants Listing
Remedial Investigation Checklist

WISCONSIN
DEPT. OF NATURAL RESOURCES

Carroll D. Besadny
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Southeast District - Annex building
Post Office Box 12436
4041 N. Richards St.
Milwaukee, Wisconsin 53212
TELEPHONE: 414-961-2727
TELEFAX #: 414-961-2770

January 5, 1993

File Ref: Milwaukee Co.
ERRP
ER

Mr. Lawrence J. Haskin
City of Oak Creek
Office of the City Attorney
124 E. Drexel Ave.
Oak Creek, WI 53154

Dear Mr. Haskin:

RE: Property located at 7730 S. Sixth St., Oak Creek

The Department has received and reviewed the additional information submitted relative to the above mention property dated November 4, 1992. Based on all of the information available to date the Department is not requiring the City of Oak Creek to take further action on this property at this time.

The Department will be requesting that Prime Manufacturing Corporation further investigate and remediate, if necessary, all contamination that may have resulted from their storage activities. These requested activities may require access to the above mentioned parcel. The Department will request that you allow access for all investigation and remediation activities by another party or you or future owners will subsequently be required to perform the activities.

It is still unclear whether contaminants have migrated onto the City property by surface run-off or groundwater migration. It does appear that soils near the water table are contaminated. If Prime Manufacturing Corporation is unwilling or unable to pursue investigation and remediation and it is found that the contaminated soils on the current City property are contributing to groundwater contamination, the City or current owner would be responsible for necessary remediation activities per s. 144.76, Wis. Stats.

Under s. 144.76, Wis. Stats., property owners may be liable for environmental contamination if property they own (under their possession or control) is causing or contributing to the contamination. Property most commonly causes or contributes to contamination through the migration of contaminants from contaminated soils.

A down-gradient property owner does not become liable for environmental contamination merely because he or she happens to own down-gradient property. If, however, the down-gradient property owner's property is contributing to the contamination, he or she becomes jointly and severally liable for the entire contamination plume.

If you have any questions please contact me at the above address or at (414)961-2725 or our program attorney Patricia Hanz at (608)266-9972 or at (414)961-2705.

Sincerely,

Margaret M. Graefe

Margaret M. Graefe
Hydrogeologist, Environmental Repair Program

c: P. Hanz - LC/5
R. Kazmierczak/G. McCutcheon - SED

LAWRENCE J. HASKIN
City Attorney

BARRY J. BOOK
Ass't. City Attorney

City of Oak Creek
OFFICE OF THE CITY ATTORNEY
124 E DREXEL AVE ■ OAK CREEK, WI 53154

(414) 762-5105
FAX (414) 762-6340

November 9, 1992

State of Wisconsin
Department of Natural Resources
2300 N. Martin Luther King Jr. Drive
Milwaukee, WI 53212

Attention: Ms. Gloria McCutcheon

RE: Property located at 7730 S. 6th Street
Oak Creek, WI 53154

Dear Ms. McCutcheon:

Enclosed is a copy of our letter of November 4, 1992 addressed to Margaret Graefe. I am sending this to you at the request of our Mayor, Dale Richards.

Very truly yours,

Lawrence J. Haskin

LJH/les
Enclosure

LAWRENCE J. HASKIN
City Attorney

BARRY J. BOOK
Ass't. City Attorney

City of Oak Creek

OFFICE OF THE CITY ATTORNEY
124 E DREXEL AVE ■ OAK CREEK, WI 53154

(414) 762-5105
FAX (414) 762-6340

November 4, 1992

State of Wisconsin
Department of Natural Resources
2300 N. Martin Luther King Jr. Drive
Milwaukee, WI 53212

Attention: Ms. Margaret Graefe, Hydrogeologist
Environmental Repair Program

RE: Property located at 7730 S. 6th Street
Oak Creek, WI 53154

Dear Ms. Graefe:

I write as a follow-up to our past correspondence and conversations, and specifically our meeting of August 21, 1992 regarding the above matter. Prior to that meeting the City of Oak Creek had requested a "no action letter" regarding this site. At that meeting you expressed two concerns that needed to be addressed before you would consider issuance of the no action letter. They are specific evidence that trichlorethane (TCA) was present on the Prime Manufacturing site and groundwater flow data which would confirm the direction of groundwater flow. In that regard, we submit the following data:

Exhibit A: City of Oak Creek topographical map of the area.

Exhibit B: Letter from Prime Manufacturing ("Prime") to the EPA confirming the fact that Prime was a generator of TCA.

Exhibit C: Letter from Prime to the Department of Natural Resources ("DNR") dated February 17, 1986 confirming that Prime is a generator of TCA.

Exhibit D: Wisconsin Hazardous Waste Generator report for Prime.

Exhibit E: Manifest file for Prime.

Exhibit F: Report from STS, Inc. regarding groundwater depths and groundwater flows regarding the Western Manufacturing site.

Exhibit G: A comprehensive plan for the Oak Creek Watershed prepared by the Southeastern Wisconsin Regional Planning Commission. ("SEWRPC")

Exhibit H: A location map depicting the Foran manufacturing site, the Prime site, the Western Machine site and the vacant lot which is being sold to Foran Spice by the City of Oak Creek.

Exhibits B through E confirm the presence of TCA on the Prime site. Please note that in Exhibit D the waste code for TCA is F001 and F002. In 1989 Prime generated 500 lbs. of TCA, in 1990 7,650 lbs. and in 1991 7,070 lbs. Exhibit E refers to a halogenated solvent present on the site. In all likelihood, and given the waste codes referred to in the manifest, it is likely that the halogenated solvent referred to is TCA. This provides further confirmation of TCA on the site. It is clear that Prime handled, generated and stored TCA. The City of Oak Creek site in question is vacant. It has never been used for the storage of any hazardous waste materials.

Exhibits F through H are evidence of the fact that the groundwater flow is primarily in a east/northeast direction. STS, in 1989, constructed three monitoring wells on the Western manufacturing site which is located directly west of the Foran site. The map which is part of Exhibit F shows the location of the monitoring wells based upon information supplied by Thomas Wolf, STS Regional Vice President. The groundwater elevations support the fact that the groundwater flow is basically an east/northeast direction. B3 is the highest elevation at 88.6. B1 is the lowest elevation at 86.1. Map 26, which is part of Exhibit G, the report from SEWRPC, provides further clear evidence of the general direction of groundwater flow. Map 26 shows the water table elevations ranging from 680 from a point near the site in question to 580 near Lake Michigan. This confirms that the overall general groundwater flow in the Oak Creek area is clearly a west to east flow. At page 115 of Exhibit G it is stated that water in the subsurface moves downward through the soils to the water table and then laterally toward streams and pumping areas. You will note that the Oak Creek meanders north and east of the site of the contamination. The findings of the SEWRPC report confirm the fact that the groundwater flow was obviously in the direction of the Oak Creek channel, all of which supports the fact that the groundwater flow was essentially from the direction of the Prime site to the City owned site just east of the Foran Spice building.

While a major concern of the DNR is obviously contamination of the groundwater, that issue and the question of groundwater flow more directly impacts on possible remediation. Our hope and expectation is that the DNR will realize that Oak Creek did not create the contamination, that Prime did and a letter indicating that DNR will not take enforcement action against Oak Creek will be issued.

Our investigation leads to the conclusion that the contamination did not travel from Prime by groundwater flow but by surface flow. Exhibit I is a topographic map of the area. It shows the elevation at the corner of the Prime property at 141.4. The elevation on the parcel owned by the City range from 138.5 to 131.5. The Prime property is clearly at a higher elevation than the City property.

We believe that the evidence that has been presented, together with the reports previously submitted to the DNR provide the factual basis for the conclusion by the DNR that the source of the contamination was the Prime spill. Clearly, Prime was a handler, generator and storer of TCA. Clearly the groundwater flow was from west to east. There is no evidence that the City ever stored any substances on the site or generated any substances on the site which would include TCA. There is no evidence that Foran Spice uses TCA in any of its manufacturing processes. Therefore, there is only one conclusion that can be reached, that the contaminants that are in the ground on the City site came from the Prime property. We urge the Department to issue a no action letter.

Please call me upon receipt of this letter to indicate when you will be in a position to make a determination regarding this matter. Thank you.

Very truly yours,

Lawrence J. Haskin

LJH/les

cc. Mayor Dale J. Richards
Robert L. Kufrin, City Administrator
Paul E. Milewski, Director of Community Development
Ernest G. Winters, Director of Public Works
Phillip Epping, City Engineer
Edward B. Witte, Esq.

OAK CREEK
Department Of Community Development
8640 SOUTH HOWELL AVENUE — OAK CREEK, WISCONSIN 53154-0027

PLANNING
(414) 768-6527

FAX (414) 768-9587

August 14, 1992

State of Wisconsin Department
of Natural Resources
2300 N. Martin Luther King Jr. Drive
Milwaukee, WI 53212

Attention: Mrs. Margaret M. Graefe, Hydrogeologist
Environmental Repair Program

Dear Ms. Graefe:

I am responding on behalf of Larry Haskin, our City Attorney, from whom you requested some additional information related to the City-owned property behind 7630 South 6th Street in the City of Oak Creek; about which there has been numerous conversations and correspondence.

To respond to two of your requests, I am enclosing copies of the STS geotechnical boring logs referenced in the report prepared by Layne Geosciences, Inc. In addition, I am providing a map of the Northbranch Industrial Park; which shows the location of the subject property, the Prime Manufacturing property and the former Western Machine property now owned by Cemetron, Inc.

The location of sample Foran 9.5-10.5 is the same as FSC-S-4 as shown on Figure 1 of the Layne report per John Roraff of Layne Geosciences, Inc. A history of the ownership and use of the subject property, based upon available records, is as follows:

1909 - Owned by Wilhelm Dellmann and was farmed.

1954 - Purchased by Walter Dellmann and was farmed.

1954 - Purchased by Alfred Wrasse and was farmed.

1965 - Purchased by the Oak Creek Industrial Development Corp.; which was then partially leased for farming and partially allowed to lie fallow.

1965 - Purchased by the City of Oak Creek; which was then partially leased for farming and partially allowed to lie fallow.

(continued)

1984-1990 Still owned by City of Oak Creek, but leased to the Oak Creek Firefighters Union for the operation of a BMX race track. No permanent facilities were constructed or installed on the property during their tenure.

1990-1992 Still owned by City of Oak Creek, currently vacant and under contract to be sold to Foran Spice Inc.

I hope this satisfies your request for additional information on this property; but if you need more, please do not hesitate to contact me.

Very truly yours,

Paul E. Milewski

Paul E. Milewski, AICP
Director of Community Development

PEM:njh

Enclosures

cc: Mayor Richards
Larry Haskin, City Attorney
Ernie Winters, Director of Public Works
Dan Bueide, Attorney for Foran Spice Inc.

LAWRENCE J. HASKIN
City Attorney

BARRY J. BOOK
Ass't. City Attorney

City of Oak Creek
OFFICE OF THE CITY ATTORNEY
124 E DREXEL AVE ■ OAK CREEK, WI 53154

(414) 762-5105
FAX (414) 762-6340

November 4, 1992

State of Wisconsin
Department of Natural Resources
2300 N. Martin Luther King Jr. Drive
Milwaukee, WI 53212

Attention: Ms. Margaret Graefe, Hydrogeologist
Environmental Repair Program

RE: Property located at 7730 S. 6th Street
Oak Creek, WI 53154

Dear Ms. Graefe:

I write as a follow-up to our past correspondence and conversations, and specifically our meeting of August 21, 1992 regarding the above matter. Prior to that meeting the City of Oak Creek had requested a "no action letter" regarding this site. At that meeting you expressed two concerns that needed to be addressed before you would consider issuance of the no action letter. They are specific evidence that trichlorethane (TCA) was present on the Prime Manufacturing site and groundwater flow data which would confirm the direction of groundwater flow. In that regard, we submit the following data:

Exhibit A: City of Oak Creek topographical map of the area.

Exhibit B: Letter from Prime Manufacturing ("Prime") to the EPA confirming the fact that Prime was a generator of TCA.

Exhibit C: Letter from Prime to the Department of Natural Resources ("DNR") dated February 17, 1986 confirming that Prime is a generator of TCA.

Exhibit D: Wisconsin Hazardous Waste Generator report for Prime.

Exhibit E: Manifest file for Prime.

Exhibit F: Report from STS, Inc. regarding groundwater depths and groundwater flows regarding the Western Manufacturing site.

Exhibit G: A comprehensive plan for the Oak Creek Watershed prepared by the Southeastern Wisconsin Regional Planning Commission. ("SEWRPC")

Exhibit H: A location map depicting the Foran manufacturing site, the Prime site, the Western Machine site and the vacant lot which is being sold to Foran Spice by the City of Oak Creek.

Exhibits B through E confirm the presence of TCA on the Prime site. Please note that in Exhibit D the waste code for TCA is F001 and F002. In 1989 Prime generated 500 lbs. of TCA, in 1990 7,650 lbs. and in 1991 7,070 lbs. Exhibit E refers to a halogenated solvent present on the site. In all likelihood, and given the waste codes referred to in the manifest, it is likely that the halogenated solvent referred to is TCA. This provides further confirmation of TCA on the site. It is clear that Prime handled, generated and stored TCA. The City of Oak Creek site in question is vacant. It has never been used for the storage of any hazardous waste materials.

Exhibits F through H are evidence of the fact that the groundwater flow is primarily in a east/northeast direction. STS, in 1989, constructed three monitoring wells on the Western manufacturing site which is located directly west of the Foran site. The map which is part of Exhibit F shows the location of the monitoring wells based upon information supplied by Thomas Wolf, STS Regional Vice President. The groundwater elevations support the fact that the groundwater flow is basically an east/northeast direction. B3 is the highest elevation at 88.6. B1 is the lowest elevation at 86.1. Map 26, which is part of Exhibit G, the report from SEWRPC, provides further clear evidence of the general direction of groundwater flow. Map 26 shows the water table elevations ranging from 680 from a point near the site in question to 580 near Lake Michigan. This confirms that the overall general groundwater flow in the Oak Creek area is clearly a west to east flow. At page 115 of Exhibit G it is stated that water in the subsurface moves downward through the soils to the water table and then laterally toward streams and pumping areas. You will note that the Oak Creek meanders north and east of the site of the contamination. The findings of the SEWRPC report confirm the fact that the groundwater flow was obviously in the direction of the Oak Creek channel, all of which supports the fact that the groundwater flow was essentially from the direction of the Prime site to the City owned site just east of the Foran Spice building.

While a major concern of the DNR is obviously contamination of the groundwater, that issue and the question of groundwater flow more directly impacts on possible remediation. Our hope and expectation is that the DNR will realize that Oak Creek did not create the contamination, that Prime did and a letter indicating that DNR will not take enforcement action against Oak Creek will be issued.

Our investigation leads to the conclusion that the contamination did not travel from Prime by groundwater flow but by surface flow. Exhibit I is a topographic map of the area. It shows the elevation at the corner of the Prime property at 141.4. The elevation on the parcel owned by the City range from 138.5 to 131.5. The Prime property is clearly at a higher elevation than the City property.

We believe that the evidence that has been presented, together with the reports previously submitted to the DNR provide the factual basis for the conclusion by the DNR that the source of the contamination was the Prime spill. Clearly, Prime was a handler, generator and storer of TCA. Clearly the groundwater flow was from west to east. There is no evidence that the City ever stored any substances on the site or generated any substances on the site which would include TCA. There is no evidence that Foran Spice uses TCA in any of its manufacturing processes. Therefore, there is only one conclusion that can be reached, that the contaminants that are in the ground on the City site came from the Prime property. We urge the Department to issue a no action letter.

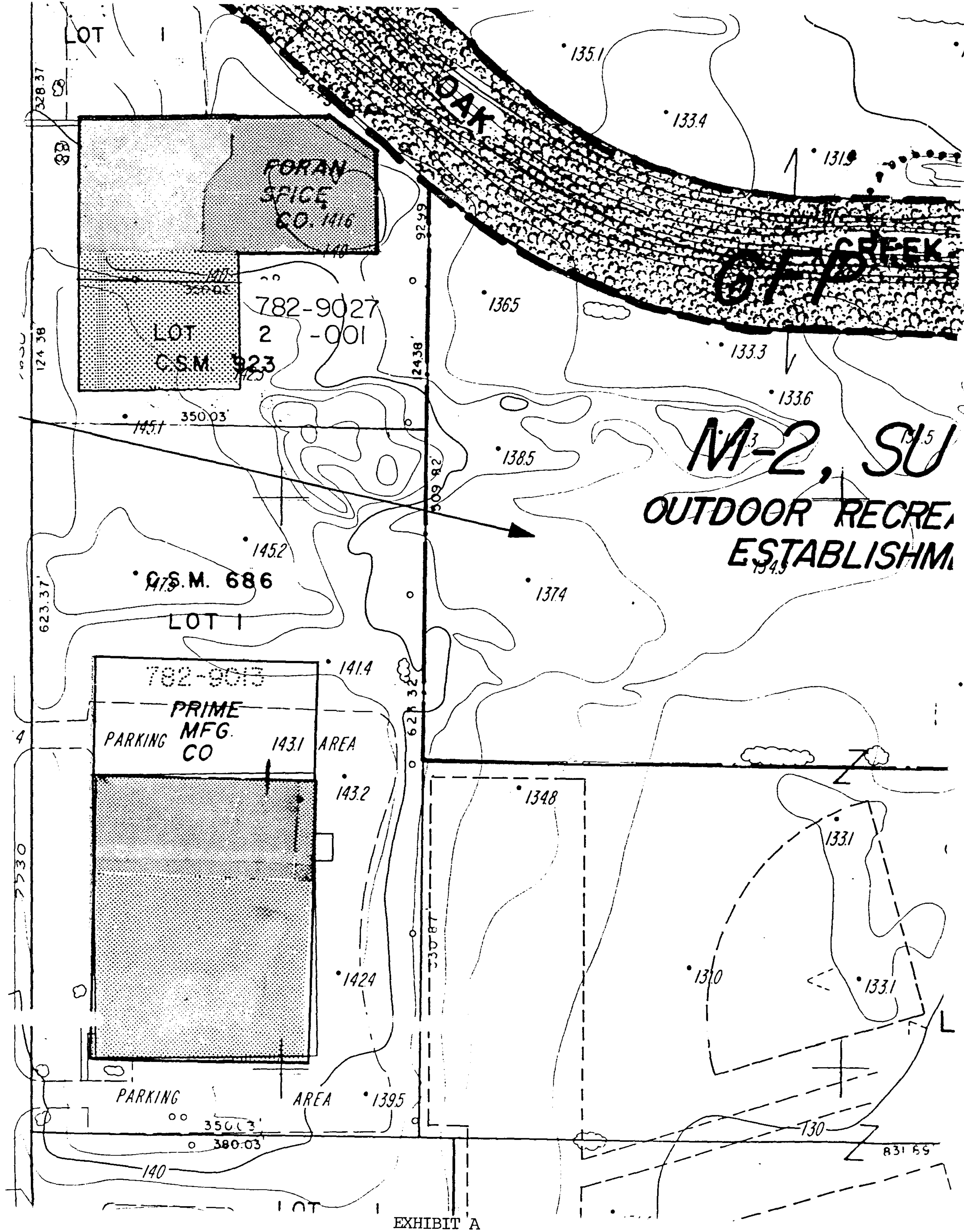
Please call me upon receipt of this letter to indicate when you will be in a position to make a determination regarding this matter. Thank you.

Very truly yours,

Lawrence J. Haskin

LJH/les

cc. Mayor Dale J. Richards
Robert L. Kufrin, City Administrator
Paul E. Milewski, Director of Community Development
Ernest G. Winters, Director of Public Works
Phillip Epping, City Engineer
Edward B. Witte, Esq.



LOT 1
328.37
FORAN
SPICE
CO. 141.6
782-9027
LOT 2 -001
C.S.M. 923
124.38
92.99
24.38
350.03
145.1
145.2
C.S.M. 686
LOT 1
623.37
782-9013
PRIME
MFG.
CO
PARKING
AREA
141.4
143.1
143.2
142.4
PARKING
AREA
139.5
350.03
380.03
140
OAK
CREEK
135.1
133.4
131.9
136.5
133.3
133.6
M-2, SU
OUTDOOR RECREA
ESTABLISHM
138.5
137.4
134.8
133.1
131.0
133.1
130
831.69

EXHIBIT A

EXHIBIT B

PRIME

PRIME MANUFACTURING CORPORATION
7730 South 6th Street • Oak Creek, Wisconsin 53154
Telephone: (414) 764-1400 Telex: 2-6857

February 20, 1986

RCRA Activities
U.S. EPA Region V
Waste Management Div.
P.O. Box A3587
Chicago, IL 60690

Dear Sir:

Attched please find our application for an EPA ID number. We have at this time a temporary number WID006 097042 INVALID and have been informed that we need a permanent one. We are a small quantity generator of spent 1-1-1 Trichloroethane and paint/solvent waste, usually not more than 3 or 4 drums of each per year.

I would appreciate receiving a permanent EPA ID number as soon as possible.

Thank you,

PRIME MANUFACTURING CORPORATION

Liz Wildes

Liz Wildes
Director of Purchasing

Enclosure

LW/gd

Practice Products Since 1911

EXHIBIT C

PRIME

PRIME MANUFACTURING CORPORATION
7730 South 6th Street • Oak Creek, Wisconsin 53154
Telephone: (414) 764-1400 Telex: 2-6857

February 17, 1986

Dept. of Natural Resources
2300 N. Dr. Martin Luther King Dr.
Box 12436
Milwaukee, WI 53212

Attn: Mike Zillmer

Dear Sir:

Attached please find our application for an EPA ID Number. We were under the impression that we did have a number and only recently has it been pointed out to us that this was not the case. We are a small quantity generator of spent 1-1-1 Trichloroethane and paint/solvent wastes, usually not more than 3 or 4 drums of each per year.

I would appreciate receiving a bonafide EPA ID number as soon as possible. Thank you.

Sincerely,

PRIME MANUFACTURING CORPORATION

Liz Wildes

Liz Wildes
Director of Purchasing

Enclosure

LW/gd

TYPES & AMOUNTS OF HAZ WASTE REPORTED AS GENERATED/SHIPPED ON HW ANNUAL REPORTS

EPA ID# / DNR FAC ID#	FACILITY NAME & LOCATION ADDRESS	HW CONTACT PERSON, MAILING ADDRESS, & TELEPHONE	SIC CODE(S) / HAZ WASTE ACTIVITY (A=ACTIVE I=INACTIVE) / COUNTY & DISTRICT ABBRV
WID006097042	PRIME MFG CORP	SUSAN P DEMBOWSKI PERS MGR 414/764-1400	3743
241094370	7730 S SIXTH ST OAK CREEK WI 53154	PO BOX 68 OAK CREEK WI 53154	HW Generator - Large (A) MILWAUKEE SE

WASTE INFO INCLUDING: WASTE CODE, DESCRIPTION, AMT GENERATED, UNIT, AMT GEN IN LBS, & TOTAL LBS SHIPPED TO ID#S LISTED

1989
D001 IGNITABLE SPENT SOLVENT FROM PAINT BOOTH-PAINT SLUDGE & THINNER
AMT_GEN: 20,235 LBS LBS_GEN: 20,235 LBS_SHIPPED: 20,235 SHIPPED TO: KYD053348108 ILD980613913

1989
D001 COMBUSTIBLE HALOGENATED ORGANIS COMPOUND MIXTURE, PETROLEUM NAPHTHA, OIL WASTE FROM ASSEMBLY AREA.
AMT_GEN: 225 LBS LBS_GEN: 225 LBS_SHIPPED: 225 SHIPPED TO: WID981097769

1989
F002 WASTE-TRICHLOROTHANE, IGNITABLE USED IN CLEANING MACHINING AREA
AMT_GEN: 500 LBS LBS_GEN: 500 LBS_SHIPPED: 500 SHIPPED TO: KYD053348108

1990
D001 WASTE COMBUSTIBLE NATED ORGANIC COMPOUND MIXTURE WATER, PETROLEUM MACHINING COOLANT.
AMT_GEN: 9,240 LBS LBS_GEN: 9,240 LBS_SHIPPED: 9,240 SHIPPED TO: ILD980613913

1990
D001 COMBUSTIBLE HALOGENATED ORGANIC COMPOUND MIXTURE, PETROLEUM NAPTHA, OIL WASTE-PART CLEANING.
AMT_GEN: 90 LBS LBS_GEN: 90 LBS_SHIPPED: 90 SHIPPED TO: WID981097769

1990
F001 WASTE-TRICHLOROETHANE, IGNITABLE USED IN CLEANING OPERATIONS.
AMT_GEN: 7,650 LBS LBS_GEN: 7,650 LBS_SHIPPED: 7,650 SHIPPED TO: KYD053348108

1991
D001 WASTE PETROLEUM-COMBUSTIBLE LIQUID UN1255 (ERG#27) CLEANING & MACH COOLANT
AMT_GEN: 6,419 LBS LBS_GEN: 6,419 LBS_SHIPPED: 6,419 SHIPPED TO: WID981097769

1991
D001 RQ WASTE PAINT-COMBUSTIBLE LIQUID (ERG#26), NA1267
AMT_GEN: 1,925 LBS LBS_GEN: 1,925 LBS_SHIPPED: 1,925 SHIPPED TO: ILD051060408

1991
F001 RQ WASTE ORM-A, NOS, 1-1-1 TRICHLOROETHANE
AMT_GEN: 7,070 LBS LBS_GEN: 7,070 LBS_SHIPPED: 7,070 SHIPPED TO: KYD053348108

EXHIBIT D

WID006097042 PRIME MFG CORP 7730 S SIXTH ST OAK CREEK WI
FID#-241094370 PARTICIPANT

WASTE CODE	WASTE DESCRIPT'N	NON-POUNDS	UNIT	WASTE LBS.
DOC #-WIA037012	SHIPPED:04/20/81 RECD DNR-COPY 1- 04/23/81 COPY 3: 04/30/81 TSD-WID000808824 TRANS-WID006435887			
	BATCH#-1 9999 0289 BATCH#-3 9999 0289			
F002	HALO SOLV AND SOLV REC STILL BOTTOMS		P	2,400
MANIFEST TOTAL				2,400
DOC #-WIA037013	SHIPPED:09/15/81 RECD DNR-COPY 1- 09/22/81 COPY 3: 09/28/81 TSD-WID000808824 TRANS-WID006435887			
	BATCH#-1 9999 0290 BATCH#-3 9999 0290			
F002	HALO SOLV AND SOLV REC STILL BOTTOMS		P	1,200
MANIFEST TOTAL				1,200
DOC #-WIA037014	SHIPPED:09/28/82 RECD DNR-COPY 1- / / COPY 3: 10/18/82 TSD-WID000808824 TRANS-WID006435887			
	BATCH#-1 BATCH#-3 8349 2693			
F002	HALO SOLV AND SOLV REC STILL BOTTOMS		P	1,800
MANIFEST TOTAL				1,800
DOC #-WIA037015	SHIPPED:11/07/83 RECD DNR-COPY 1- 11/09/83 COPY 3: 11/23/83 TSD-WID000808824 TRANS-WID006435887			
	BATCH#-1 9999 1800 BATCH#-3 9999 1800			
F002	HALO SOLV AND SOLV REC STILL BOTTOMS		P	1,800
MANIFEST TOTAL				1,800
DOC #-WIA203921	SHIPPED:04/30/84 RECD DNR-COPY 1- / / COPY 3: 05/09/84 TSD-WID000808824 TRANS-WID006435887			
	BATCH#-1 BATCH#-3 8347 2692			
F002	HALO SOLV AND SOLV REC STILL BOTTOMS		P	1,200
MANIFEST TOTAL				1,200
DOC #-WI17219	SHIPPED:02/28/85 RECD DNR-COPY 1- 02/26/85 COPY 3: 03/14/85 TSD-WID000808824 TRANS-WID006435887			
	BATCH#-1 9999 1572 BATCH#-3 9999 1572			
F002	HALO SOLV AND SOLV REC STILL BOTTOMS		P	1,800
MANIFEST TOTAL				1,800

EXHIBIT E

WID006097042 PRIME MFG CORP 7730 S SIXTH ST OAK CREEK WI
FID#-241094370 PARTICIPANT

WASTE CODE	WASTE DESCRIPT'N	NON-POUNDS	UNIT	WASTE LBS.
DOC #-WI32498	SHIPPED:12/09/85 RECD DNR-COPY 1- 12/12/85 COPY 3: 12/18/85 TSD-WID023350192 TRANS-WID023350192			
	BATCH#-1 9999 0515 BATCH#-3 9999 0515			
9999		? 825	G	6,889
MANIFEST TOTAL				6,889
DOC #-WI32499	SHIPPED:02/05/86 RECD DNR-COPY 1- 02/07/86 COPY 3: 02/20/86 TSD-WID000808824 TRANS-WID006435887			
	BATCH#-1 9999 0579 BATCH#-3 9999 0579			
F001	SPENT HALO SOLV(DEGREASING)&SOL REC STILL BOTTOMS		P	1,200
MANIFEST TOTAL				1,200
DOC #-WI32500	SHIPPED:08/28/86 RECD DNR-COPY 1- / / COPY 3: 09/19/86 TSD-WID000808824 TRANS-WID006435887			
	BATCH#-1 BATCH#-3 8347 6488			
F001	SPENT HALO SOLV(DEGREASING)&SOL REC STILL BOTTOMS		P	1,800
MANIFEST TOTAL				1,800
DOC #-WI132550	SHIPPED:06/26/87 RECD DNR-COPY 1- / / COPY 3: 07/27/87 TSD-OHD093945293 TRANS-WID047259288			
	BATCH#-1 BATCH#-3 8347 2646			
D001	NON-LISTED IGNITABLE WASTES	440	G	3,674
MANIFEST TOTAL				3,674
DOC #-WI32726	SHIPPED:09/23/87 RECD DNR-COPY 1- 09/28/87 COPY 3: 10/06/87 TSD-WID000808824 TRANS-WID006435887			
	BATCH#-1 9999 0148 BATCH#-3 9999 0148			
F001	SPENT HALO SOLV(DEGREASING)&SOL REC STILL BOTTOMS		P	3,000
MANIFEST TOTAL				3,000
DOC #-WIG37712	SHIPPED:11/08/88 RECD DNR-COPY 1- 11/10/88 COPY 3: 12/02/88 TSD-KYD053348108 TRANS-WID981097769			
	BATCH#-1 9010 0490 BATCH#-3 9051 1092			
D001	NON-LISTED IGNITABLE WASTES		P	10,800
MANIFEST TOTAL				10,800

WID006097042 PRIME MFG CORP 7730 S SIXTH ST OAK CREEK WI
FID#-241094370 PARTICIPANT

WASTE CODE	WASTE DESCRIPT'N	NON-POUNDS	UNIT	WASTE LBS.
DOC #-WIG53223	SHIPPED:01/06/89 RECD DNR-COPY 1- 01/10/89 COPY 3: 01/23/89 TSD-KYD053348108 TRANS-WID981097769			
	BATCH#-1 9081 0295 BATCH#-3 9107 1145 P			
D001	NON-LISTED IGNITABLE WASTES		P	2,000
F002	HALO SOLV AND SOLV REC STILL BOTTOMS		P	500
MANIFEST TOTAL				2,500
DOC #-WIG58743	SHIPPED:01/13/89 RECD DNR-COPY 1- 01/19/89 COPY 3: 01/17/89 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 9089 0439 BATCH#-3 9089 1146			
D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL				45
DOC #-WIG16816	SHIPPED:01/24/89 RECD DNR-COPY 1- 01/26/89 COPY 3: 01/30/89 TSD-WID023350192 TRANS-WID023350192			
	BATCH#-1 9107 0141 BATCH#-3 9123 0818			
D001	NON-LISTED IGNITABLE WASTES	715	G	5,970
F005	NON-HALOGENATED SOLV & SOLV REC STILL BOTTOMS	55	G	459
MANIFEST TOTAL				6,429
DOC #-WIG16817	SHIPPED:03/15/89 RECD DNR-COPY 1- 03/20/89 COPY 3: 03/23/89 TSD-WID023350192 TRANS-WID023350192			
	BATCH#-1 9150 0205 BATCH#-3 9150 1389			
D001	NON-LISTED IGNITABLE WASTES	110	G	919
MANIFEST TOTAL				919
DOC #-WIG49022	SHIPPED:03/17/89 RECD DNR-COPY 1- 03/20/89 COPY 3: 04/03/89 TSD-KYD053348108 TRANS-WID981097769			
	BATCH#-1 9150 0045 BATCH#-3 9145 1027			
D001	NON-LISTED IGNITABLE WASTES		P	4,400
MANIFEST TOTAL				4,400
DOC #-WIG63553	SHIPPED:03/17/89 RECD DNR-COPY 1- 03/20/89 COPY 3: 03/28/89 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 9150 0046 BATCH#-3 9142 0693			
D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL				45

WID006097042 PRIME MFG CORP 7730 S SIXTH ST OAK CREEK WI
FID#-241094370 PARTICIPANT

WASTE CODE	WASTE DESCRIPT'N	NON-POUNDS	UNIT	WASTE LBS.
DOC #-WIG72918	SHIPPED:05/19/89 RECD DNR-COPY 1- 05/26/89 COPY 3: 05/24/89 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 9177 0540 BATCH#-3 9177 1264			
D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL				45
DOC #-WIH36544	SHIPPED:06/26/89 RECD DNR-COPY 1- 06/30/89 COPY 3: 07/11/89 TSD-KYD053348108 TRANS-WID981097769			
	BATCH#-1 9199 0605 BATCH#-3 9205 1083 P			
D001	NON-LISTED IGNITABLE WASTES		P	3,600
MANIFEST TOTAL				3,600
DOC #-WIG65326	SHIPPED:07/11/89 RECD DNR-COPY 1- 07/17/89 COPY 3: 07/21/89 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 9213 0122 BATCH#-3 9213 1354			
D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL				45
DOC #-WIH36945	SHIPPED:08/25/89 RECD DNR-COPY 1- 09/01/89 COPY 3: 09/15/89 TSD-KYD053348108 TRANS-WID981097769			
	BATCH#-1 9325 0517 BATCH#-3 9334 1402			
D001	NON-LISTED IGNITABLE WASTES		P	2,400
MANIFEST TOTAL				2,400
DOC #-WIH49738	SHIPPED:09/14/89 RECD DNR-COPY 1- 09/18/89 COPY 3: 09/21/89 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 9349 0061 P BATCH#-3 9349 1179			
D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL				45
DOC #-WIH36959	SHIPPED:10/13/89 RECD DNR-COPY 1- 10/19/89 COPY 3: 11/14/89 TSD-KYD053348108 TRANS-WID981097769			
	BATCH#-1 0032 0392 BATCH#-3 0061 1054			
D001	NON-LISTED IGNITABLE WASTES		P	2,000
MANIFEST TOTAL				2,000

WID006097042 PRIME MFG CORP 7730 S SIXTH ST OAK CREEK WI
FID#-241094370 PARTICIPANT

WASTE CODE	WASTE DESCRIPT'N	NON-POUNDS	UNIT	WASTE LBS.
DOC #-WIH21508	SHIPPED:11/16/89 RECD DNR-COPY 1- 11/21/89 COPY 3: 11/24/89 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 0067 0259 BATCH#-3 0067 1444			
D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL				45
DOC #-WIH36793	SHIPPED:11/17/89 RECD DNR-COPY 1- 11/22/89 COPY 3: 12/20/89 TSD-KYD053348108 TRANS-WID981097769			
	BATCH#-1 0067 0353 BATCH#-3 0086 1144			
D001	NON-LISTED IGNITABLE WASTES		P	1,600
MANIFEST TOTAL				1,600
DOC #-IL5020508	SHIPPED:01/04/90 RECD DNR-COPY 1- / / COPY 3: 01/29/90 TSD-ILD980613913 TRANS-ILD051060408			
	BATCH#-1 BATCH#-3 0113 1511			
F002	HALO SOLV AND SOLV REC STILL BOTTOMS	165	G	1,378
MANIFEST TOTAL				1,378
DOC #-WIH36632	SHIPPED:01/04/90 RECD DNR-COPY 1- 01/09/90 COPY 3: 01/24/90 TSD-KYD053348108 TRANS-WID981097769			
	BATCH#-1 0100 0290 BATCH#-3 0110 1342			
D001	NON-LISTED IGNITABLE WASTES		P	3,600
MANIFEST TOTAL				3,600
DOC #-WIJ07520	SHIPPED:01/19/90 RECD DNR-COPY 1- 01/23/90 COPY 3: 01/22/90 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 0110 0193 BATCH#-3 0110 0964			
D001	NON-LISTED IGNITABLE WASTES		P	46
MANIFEST TOTAL				46
DOC #-WIH36609	SHIPPED:01/26/90 RECD DNR-COPY 1- 02/02/90 COPY 3: 02/20/90 TSD-KYD053348108 TRANS-WID981097769			
	BATCH#-1 0113 0566 BATCH#-3 0128 0878			
D001	NON-LISTED IGNITABLE WASTES		P	1,600
MANIFEST TOTAL				1,600

WID006097042 PRIME MFG CORP 7730 S SIXTH ST OAK CREEK WI
FID#-241094370 PARTICIPANT

WASTE CODE	WASTE DESCRIPT'N	NON-POUNDS	UNIT	WASTE LBS.
DOC #-IL5051011	SHIPPED:03/19/90 RECD DNR-COPY 1- / / COPY 3: 05/07/90 TSD-ILD980613913 TRANS-ILD051060408			
	BATCH#-1 BATCH#-3 0170 1818			
D001	NON-LISTED IGNITABLE WASTES	330	G	2,756
MANIFEST TOTAL				2,756
DOC #-WIJ06880	SHIPPED:03/19/90 RECD DNR-COPY 1- 03/21/90 COPY 3: 03/26/90 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 0145 0541 BATCH#-3 0151 1277			
D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL				45
DOC #-WIJ113386	SHIPPED:05/28/90 RECD DNR-COPY 1- 06/04/90 COPY 3: 06/05/90 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 0180 0369 BATCH#-3 0180 1848			
D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL				45
DOC #-IL3089440	SHIPPED:06/27/90 RECD DNR-COPY 1- / / COPY 3: 07/18/90 TSD-ILD980613913 TRANS-ILD051060408			
	BATCH#-1 BATCH#-3 0212 1822			
D001	NON-LISTED IGNITABLE WASTES	275	G	2,296
MANIFEST TOTAL				2,296
DOC #-WIJ121757	SHIPPED:07/26/90 RECD DNR-COPY 1- 07/30/90 COPY 3: 08/06/90 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 0233 0197 BATCH#-3 0241 1153			
D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL				45
DOC #-WIJ115049	SHIPPED:09/24/90 RECD DNR-COPY 1- 09/26/90 COPY 3: 09/28/90 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 0311 0525 BATCH#-3 0311 1616			
D039	TETRACHLOROETHYLENE		P	45
MANIFEST TOTAL				45

WID006097042 PRIME MFG CORP 7730 S SIXTH ST OAK CREEK WI
FID#-241094370 PARTICIPANT

WASTE CODE	WASTE DESCRIPT'N	NON-POUNDS	UNIT	WASTE LBS.
DOC #-WIJ108693	SHIPPED:10/16/90 RECD DNR-COPY 1- / / COPY 3: 10/19/90 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 BATCH#-3 0331 1750 P			
D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL				45
DOC #-WIJ110697	SHIPPED:11/12/90 RECD DNR-COPY 1- 11/14/90 COPY 3: 12/17/90 TSD-KYD053348108 TRANS-WID981097769			
	BATCH#-1 1045 0420 BATCH#-3 1080 1281			
F001	SPENT HALO SOLV(DEGREASING)&SOL REC STILL BOTTOMS		P	2,450
MANIFEST TOTAL				2,450
DOC #-WIJ135728	SHIPPED:11/29/90 RECD DNR-COPY 1- 12/03/90 COPY 3: 12/03/90 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 1058 0020 BATCH#-3 1058 1103			
D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL				45
DOC #-WIJ104667	SHIPPED:01/09/91 RECD DNR-COPY 1- 01/14/91 COPY 3: 01/17/91 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 1142 0094 BATCH#-3 1142 1686			
D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL				45
DOC #-WIJ102610	SHIPPED:01/31/91 RECD DNR-COPY 1- 02/06/91 COPY 3: 02/05/91 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 1155 0289 BATCH#-3 1155 1104			
D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL				45
DOC #-WIJ101153	SHIPPED:03/07/91 RECD DNR-COPY 1- 03/12/91 COPY 3: 03/11/91 TSD-WID981097769 TRANS-WID981097769			
	BATCH#-1 1170 0354 BATCH#-3 1170 1089			
D001	NON-LISTED IGNITABLE WASTES		P	217
MANIFEST TOTAL				217

WID006097042 PRIME MFG CORP 7730 S SIXTH ST OAK CREEK WI
FID#-241094370 PARTICIPANT

WASTE CODE	WASTE DESCRIPT'N		NON-POUNDS	UNIT	WASTE LBS.
DOC #-WIJ130369	SHIPPED:08/19/91 RECD DNR-COPY 1- 08/20/91 COPY 3: 08/23/91 TSD-WID981097769 TRANS-WID981097769				
	BATCH#-1 1311 0373 BATCH#-3 1311 1753				
	D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL					45
DOC #-WIJ138704	SHIPPED:10/10/91 RECD DNR-COPY 1- 10/14/91 COPY 3: 10/18/91 TSD-WID981097769 TRANS-WID981097769				
	BATCH#-1 2100 0179 BATCH#-3 2106 1790				
	D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL					45
DOC #-WIJ129869	SHIPPED:10/14/91 RECD DNR-COPY 1- 10/15/91 COPY 3: 10/18/91 TSD-WID981097769 TRANS-WID981097769				
	BATCH#-1 2106 0172 BATCH#-3 2106 1842				
	D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL					45
DOC #-WIJ229353	SHIPPED:12/10/91 RECD DNR-COPY 1- 12/11/91 COPY 3: 12/12/91 TSD-WID981097769 TRANS-WID981097769				
	BATCH#-1 2122 0279 BATCH#-3 2122 2304				
	D001	NON-LISTED IGNITABLE WASTES		P	262
MANIFEST TOTAL					262
DOC #-WIJ305507	SHIPPED:02/04/92 RECD DNR-COPY 1- 02/05/92 COPY 3: 02/10/92 TSD-WID981097769 TRANS-WID981097769				
	BATCH#-1 2135 0439 BATCH#-3 2224 1881				
	D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL					45
DOC #-WIJ304177	SHIPPED:02/12/92 RECD DNR-COPY 1- 02/14/92 COPY 3: 02/14/92 TSD-WID981097769 TRANS-WID981097769				
	BATCH#-1 2224 0851 BATCH#-3 2224 2818				
	D001	NON-LISTED IGNITABLE WASTES		P	45
MANIFEST TOTAL					45
FACID TOTAL					84,157

WASTE CODE	WASTE DESCRIPT'N	NON-POUNDS UNIT WASTE LBS.
GRAND TOTAL		84,157

APPENDIX D

STS, INC. WATER LEVEL MEASUREMENTS AND WATER QUALITY ANALYTICAL RESULTS

Hydrogeologic Conditions

Three (3) monitoring wells were constructed to identify the general depth to groundwater, the direction of groundwater flow and to obtain representative groundwater samples. The following table presents the groundwater elevation information.

Water Levels

Well Location	Elev. of Top of Well Pipe (ft)	Elev. of Ground Surface (ft)	Elev. of Groundwater Table (ft) 2-2-89
B-1	101.0	98.5	86.1
B-2	99.4	99.5	87.0
B-3	100.8	98.0	88.6

Note: Benchmark: Finished floor of building at door east of tanks.
Assumed elevation = 100.0 feet.

The depth to groundwater is about 10.5 to 12.5 feet. Groundwater flows towards the east to northeast.

EXHIBIT G

Planning Report No. 36

A COMPREHENSIVE PLAN FOR THE OAK CREEK WATERSHED

Prepared by the

Southeastern Wisconsin Regional Planning Commission
P. O. Box 769
Old Courthouse
916 N. East Avenue
Waukesha, Wisconsin 53187-1607

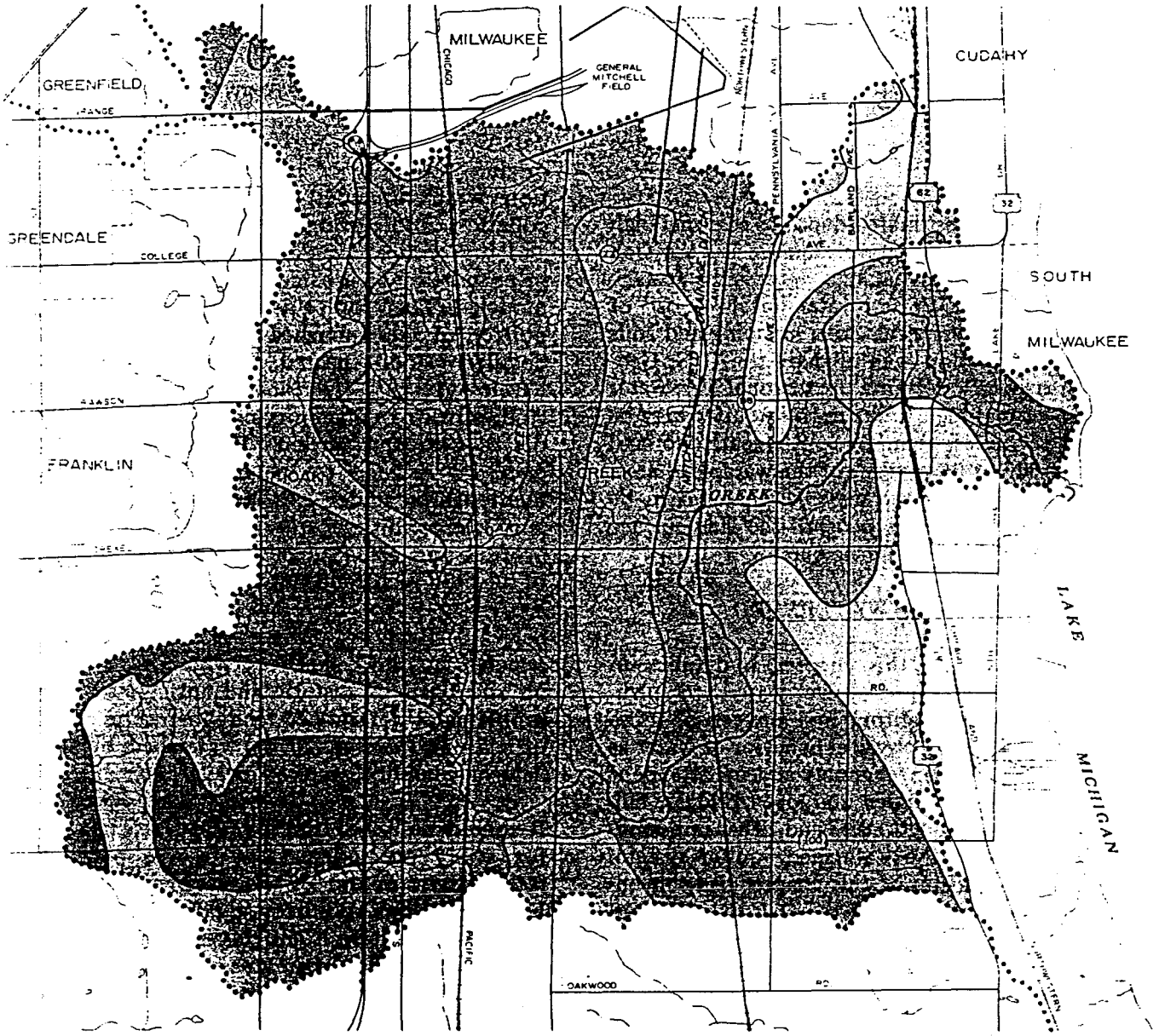
The preparation of this report was financed through funding provided by the Milwaukee Metropolitan Sewerage District and the City of of South Milwaukee.

August 1986

Inside Region	$10.00
Outside Region	$20.00

Map 27

SEASONAL HIGH GROUNDWATER IN THE OAK CREEK WATERSHED



LEGEND

DEPTH OF WATER TABLE, IN FEET BELOW LAND SURFACE

- LESS THAN 10
- 10 TO 30

The seasonal high groundwater in the watershed may be expected to be less than 10 feet beneath the land surface for about 36 percent of the watershed area. The seasonal high groundwater may be expected to be between 10 and 30 feet beneath the land surface for the remaining 64 percent of the watershed area. As would be expected, seasonal high groundwater is closest to the land surface in topographically low areas, such as those along Oak Creek and its major tributaries.

Source: U. S. Geological Survey and SEWRPC.

Milwaukee area generally flowed at the surface as a result of the artesian pressure. Subsequent development of the aquifer in the Milwaukee area has resulted in a decline of the potentiometric surface within the Oak Creek watershed in excess of 300 feet and consequently wells no longer flow.

As noted earlier, a small amount of sandstone aquifer recharge occurs as downward flow through the Maquoketa shale from the overlying dolomite aquifer. This flow occurs because there is a hydraulic head difference between the dolomite and sandstone aquifers. The difference in elevation between the potentiometric surfaces of these two aquifers defines the approximate head difference acting across the Maquoketa shale at any locality. If the vertical permeability of the Maquoketa shale is assumed to be uniform, leakage will be greatest where the head differences are largest.

Map 26 indicates the potentiometric surface for the combined dolomite aquifer and glacial deposits. The elevation of the potentiometric surface of the combined dolomite aquifer and glacial deposits is greater than the elevation of the potentiometric surface of the sandstone aquifer throughout the watershed. The difference in hydraulic head for the two aquifers ranges from 130 to 200 feet. Because of the head difference between these aquifers, deep wells encased in both the dolomite and sandstone aquifers allow easy movement of water from the dolomite aquifer into the sandstone aquifer.

The Dolomite Aquifer: The dolomite aquifer underlies the entire Oak Creek watershed and consists of Silurian dolomite. Maps 15 and 16 in Chapter III graphically represent, respectively, the surface topography of the dolomite aquifer and the thickness of the sand and gravel aquifer. The relatively impermeable Maquoketa shale is positioned immediately below the aquifer, whereas unconsolidated glacial till, drift, and alluvial deposits, varying in thickness from 100 to 250 feet, lie immediately above.

The topography of the surface of the dolomite aquifer, as shown on Map 15 in Chapter III, indicates that it generally slopes downward from west to east. Further, there is a low-lying area underlying the southwestern portion of the watershed probably due to erosion prior to deposition of the overlying glacial till. The aquifer has a thickness of approximately 300 to 350 feet and dips gently downward in an easterly direction at about 20 feet per mile (about 0.4 foot per 100 feet).

Recharge to the dolomite aquifer is primarily from infiltration of precipitation through overlying glacial deposits. The entire 300- to 350-foot thickness of the dolomite aquifer lies beneath the water table and is, therefore, saturated with groundwater. Assuming an average porosity of 5 percent, about 285,000 acre-feet of water exist beneath the Oak Creek watershed in the dolomite aquifer. This quantity of water would be sufficient to cover the entire watershed to a depth of 16 feet.

The potentiometric surface for the combined dolomite aquifer and glacial deposits, as shown on Map 26, approximately defines the direction of the groundwater movement in these units in the watershed. The elevation of the potentiometric surface ranges from a high of about 680 feet above National Geodetic Vertical Datum along the westerly edge of the watershed to a low of about 580 feet near the watershed outlet at the confluence with Lake Michigan. Movement is down the hydraulic gradient toward Lake Michigan.

The Sand and Gravel Aquifer: The sand and gravel aquifer consists of stratified, unconsolidated glacial and alluvial sand and gravel deposits. As shown on Map 16 in Chapter III, the thickness of the unconsolidated deposits forming the sand and gravel aquifer varies from 20 to 300 feet in the Oak Creek watershed. The thickness of the zone of saturation, however, varies from about 130 to 10 feet, with an average value of about 80 feet. Assuming an average porosity of 30 per cent, about 420,000 acre-feet of water exist within the saturated strata of the sand and gravel. This quantity of water would be sufficient to cover the watershed to a depth of about 25 feet.

Direct infiltration of precipitation is a major source of recharge to the sand and gravel aquifer. Recharge is greatest where the sand and gravel deposits and associated permeable soils occur at the surface, and it is smallest where fine-grain soils, clay, silt, or till form the surficial deposits. Water in the subsurface moves downward through the soils to the water table and then laterally toward streams and pumping areas. The potentiometric surface for the combined dolomite aquifer and glacial deposits, as shown on Map 26, defines approximately the direction of movement of the groundwater in these units and also the approximate elevation of static water levels in wells tapping these units.

Natural discharge of groundwater from the glacial deposits occurs as seepage into the surface water system, by direct evaporation to the atmosphere

where the water table is shallow, by plant transpiration during growing seasons, and by filtration to the dolomite aquifer. Groundwater seepage into the surface water system, primarily from glacial deposits, is estimated to be 5.8 inches annually under existing land use-floodland development conditions.[6] This is approximately 87 percent of the total dry-weather flow of streams in the watershed; the remaining 0.9 inch, or 13 percent, comes from municipal and industrial point source discharges.

Map 27 shows the estimated depth to seasonal high water in the sand and gravel aquifer for the Oak Creek watershed. Seasonal high water is the average of annual highest groundwater levels, most of which occur in the spring. Soils mapping and soils moisture information was used by the U. S. Geological Survey to determine the seasonal high water levels.[7] Seasonal high water in this aquifer may be expected to be less than 10 feet beneath the land surface for about 36 percent of the watershed area. The seasonal high water may be expected to be between 10 and 30 feet beneath the land surface for 69 percent of the watershed area.

HYDRAULICS OF THE WATERSHED

As defined earlier in this chapter, hydraulics—in the context of comprehensive watershed planning—involves the inventory and analysis of those factors that affect the physical behavior of water as it flows within stream channels and on attendant natural floodplains; under and over bridges, culverts and dams; through lakes and other impoundments; and within the watershed aquifer system. The preceding portion of this chapter has concentrated on the hydrology of the Oak Creek watershed under the broad categories of surface water and groundwater hydrology. This section of the chapter describes the results of the inventory and initial analysis of surface water hydraulics in the Oak Creek watershed. Inasmuch as there are no major lakes in the Oak Creek watershed, the surface water system of the watershed consists essentially of the streams and associated floodplains. An overview of the watershed surface water resources is presented in Chapter III, "Description of the Watershed Man-Made Features and Natural Resource Base."

Portion of the Stream System Selected for Development of Detailed Flood Hazard Data

The lineal extent of the perennial and intermittent streams in the watershed is extensive if each tributary to Oak Creek is traced upstream to its origin. The cost of hydrologic-hydraulic simulation—which includes the cost of data collection, collation, and coding; the cost of computer runs; and the cost of analyzing model results—increases in proportion to the lineal miles of streams that are modeled. Therefore, a decision was required on the portion of the watershed stream system for which detailed flood hazard information would be developed by hydrologic-hydraulic simulation studies prior to inventorying the hydraulic features of the stream system. Detailed flood hazard data are defined to include discharge-frequency relationships under existing and probable future land use conditions and corresponding flood stage profiles and areas subject to inundation by floods of selected recurrence intervals.

Selected Reaches: Stream reaches studied were selected by the Oak Creek Watershed Committee on the basis of historic and anticipated flooding problems as determined by deliberations with local officials and citizens of the watershed, by previous data availability, and by availability of funding.

It should be noted that the stream reaches selected for study are independent of the perennial or intermittent nature of the streams as defined on U. S. Geological Survey quadrangle maps. The perennial or intermittent classification of a stream, particularly in an urban area, was considered to be of no consequence since it is not an index to the severity of either existing or potential flood problems in an urban area or an indication of the availability of data for analyzing those problems.

Parts of six streams within the Oak Creek watershed were selected for hydrologic-hydraulic simulation leading to the development of detailed flood hazard information. Factors included discharge-frequency relationships under existing and probable future development of floodland and nonfloodland areas as well as corresponding flood stage profiles and areas of inundation. These streams are shown on Map 28 and consist of: 1) the main stem of Oak Creek in the Cities of Franklin, Oak Creek, and South Milwaukee; 2) the North Branch of Oak Creek in the Cities of Milwaukee and Oak Creek;

---

[6] *Determined using the hydrologic-hydraulic model described in Chapter VIII.*

[7] *Map 27 was developed from an unpublished map of the Planning Region entitled "Depth to Seasonal High Water" prepared by the U. S. Geological Survey in January 1977 for the SEWRPC areawide water quality management planning program.*

aquifer consisting of tightly packed, well-sorted spherical particles of sand may contain up to 40 percent water by volume—about three gallons per cubic foot of aquifer. Given sufficient time, about one-half of this volume of water may be drained by gravity from a water table aquifer, with the other half adhering to the aquifer against the force of gravity. The quantity of groundwater released from a cubic foot of similar materials under artesian conditions is extremely small by comparison because, under artesian conditions, the aquifer is not drained but the released water is instead attributable solely to the expansion of the water and the compression of the solid material comprising the aquifer. This expansion of the water and contraction of the aquifer material is in response to the reduced water pressure caused by pumping the aquifer. The practical consequence of this difference in the origin of water taken from an unconfined aquifer and from a confined or artesian aquifer is that pumping from an artesian aquifer affects an immense area compared to the area affected by pumping at an equivalent rate from a water table aquifer of similar vertical and horizontal extent and materials.

Hydrologic Characteristics by Aquifer: There are three principal aquifers underlying the Oak Creek watershed: the sandstone aquifer, the deepest of the three; the dolomite aquifer; and the sand and gravel aquifer, the shallowest of the three. The latter two are hydraulically interconnected and, therefore, are sometimes considered to comprise a single aquifer. The dolomite aquifer also is commonly, although incorrectly, called the "limestone" aquifer. The deep sandstone aquifer is separated from the shallower dolomite aquifer by a layer of relatively impermeable shale. The more important of the three aquifers are the sandstone and the dolomite aquifers, which underlie the entire watershed and are generally available for use in any locality. The sand and gravel aquifer is of lesser importance because, although it reaches a thickness of 250 feet in some watershed areas, it does not yield large quantities of water, and it is particularly susceptible to pollution from overlying land uses. The stratigraphic units comprising each of the three aquifers are summarized in Table 15 of Chapter III. Hydrologic characteristics of each of the three principal aquifers are discussed below.

The Sandstone Aquifer: In the Oak Creek watershed, the sandstone aquifer includes all of the geologic units bounded above by the Maquoketa shale and bounded below by the Precambrian rocks. Although it is commonly referred to as the sandstone aquifer, some of the units contained within it—for example, the Galena dolomite—are not sandstones. The Maquoketa shale confines water in the sandstone aquifer under artesian pressure and the shale is normally cased off in wells to prevent destruction of the well by caving of the formation.

The surface of the sandstone aquifer is located approximately 600 to 700 feet beneath the ground surface of the Oak Creek watershed. The sandstone aquifer dips gently downward in an easterly direction at a slope of about 20 feet per mile (about 0.4 foot per 100 feet). The thickness of the sandstone aquifer beneath the watershed is known to exceed 1,100 feet. Assuming an average porosity of 15 percent, it is estimated that at least 3.1 million acre-feet of water are contained within that portion of the aquifer lying immediately beneath the Oak Creek watershed. This volume of water would be sufficient to cover the entire watershed to the depth of 180 feet.

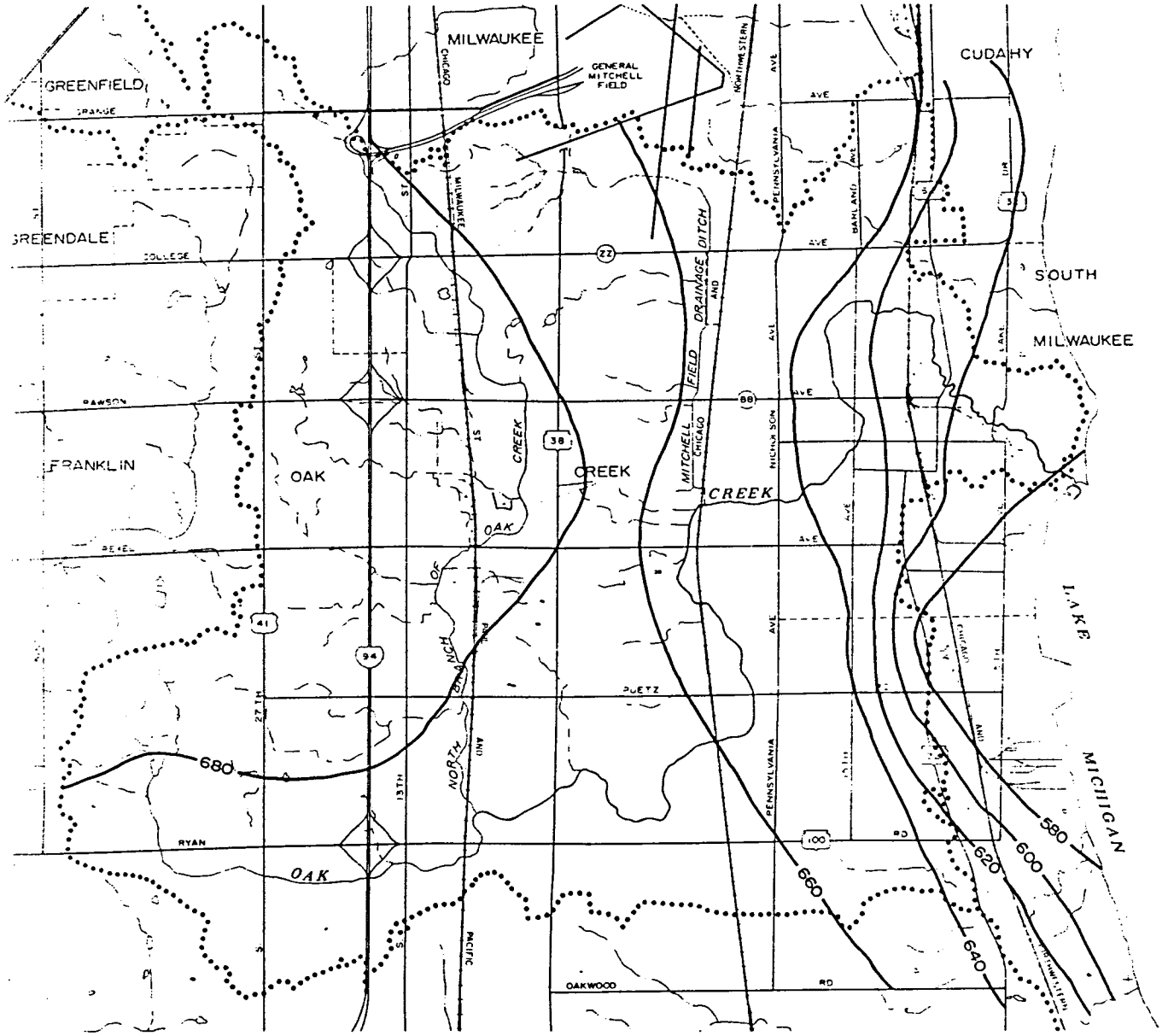
Recharge to the sandstone aquifer enters the aquifer system in three ways. It occurs as infiltration of precipitation through glacial deposits in a recharge area located west of the watershed along the western edge of the seven-county Planning Region where the Maquoketa shale and younger formations are absent. Second, a small amount of recharge occurs as vertical leakage through the Maquoketa shale because of the hydraulic head difference existing between the top and the bottom of the shale. Third, and also because of that hydraulic head difference, deep wells uncased in both the dolomite and sandstone aquifers allow movement of water from a dolomite aquifer immediately above the Maquoketa shale to the sandstone aquifer beneath. The elevation of the potentiometric surface ranges from a high of between 450 and 480 feet above National Geodetic Vertical Datum (Mean Sea Level Datum).

The direction of groundwater movement in the sandstone aquifer is defined by the potentiometric surface of the aquifer. Groundwater in the sandstone aquifer beneath the Oak Creek watershed flows in a generally northerly direction toward the City of Milwaukee.

The potentiometric surface of the sandstone aquifer sloped gently eastward throughout the watershed in 1880, when the sandstone aquifer was first tapped by wells. Wells in the aquifer in the

Map 26

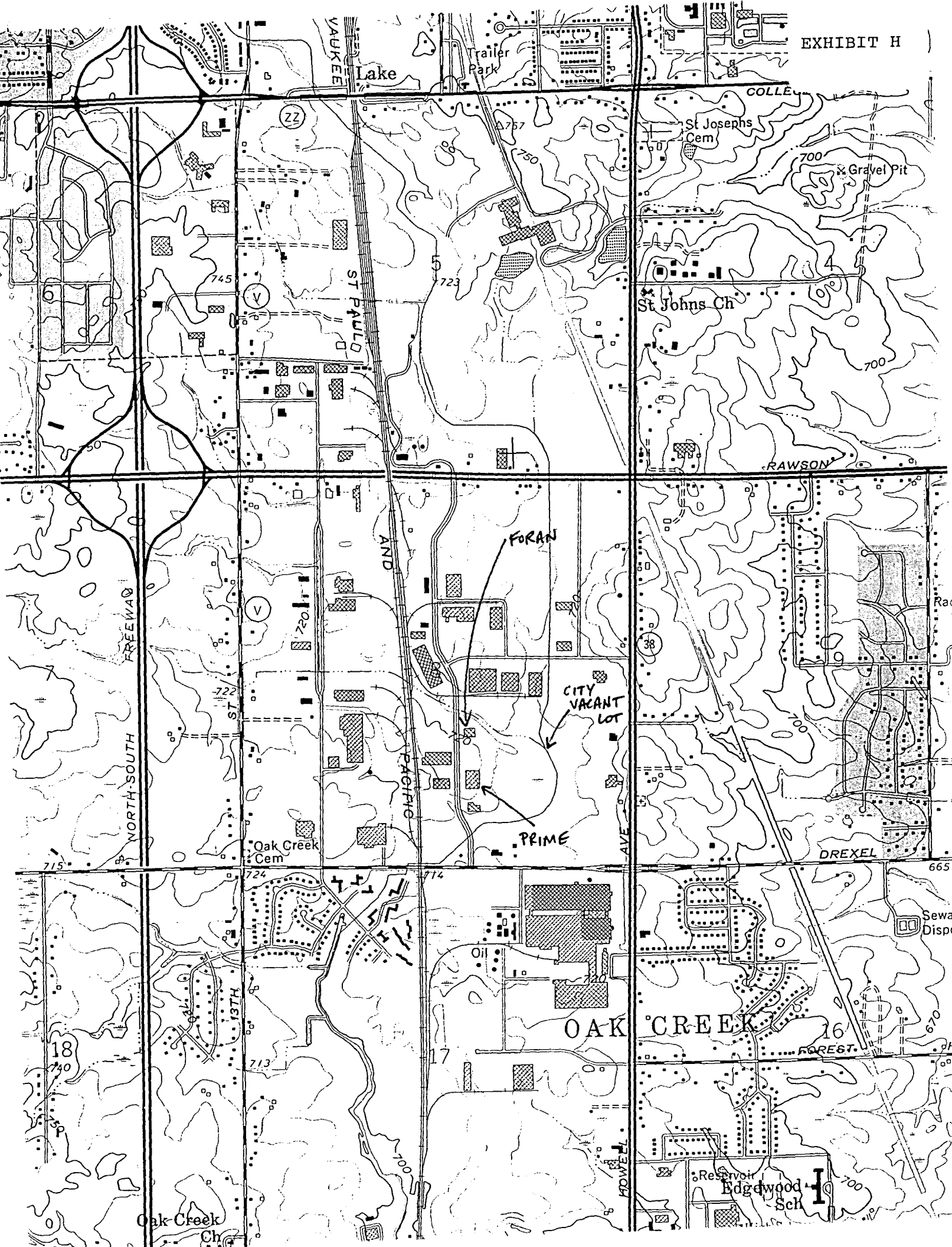
GENERALIZED POTENTIOMETRIC SURFACE OF THE DOLOMITE AQUIFER AND GLACIAL DEPOSITS IN THE OAK CREEK WATERSHED

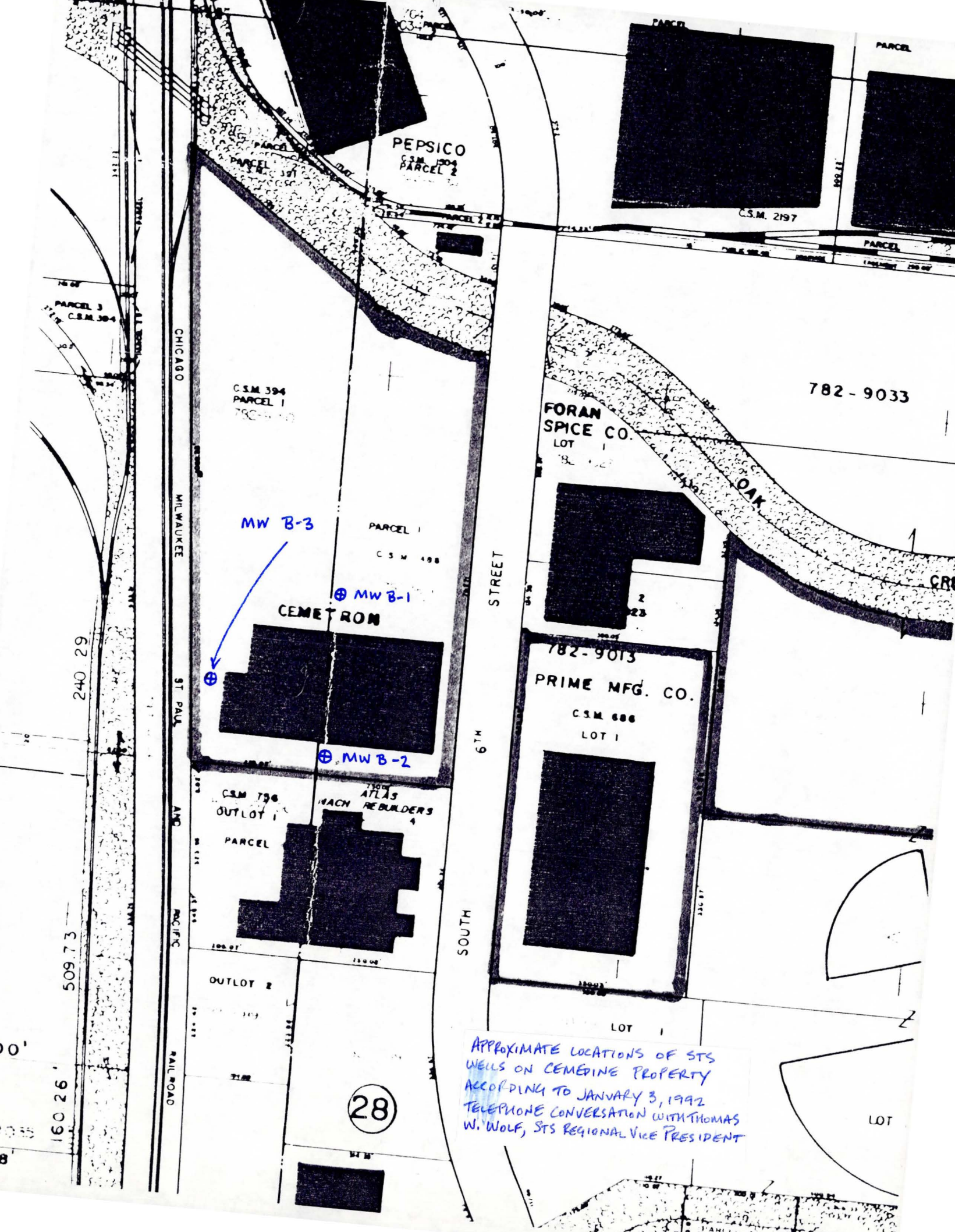


The approximate direction of groundwater movement in the dolomite aquifer and glacial deposits in the watershed is shown by the above map of the potentiometric surface—the elevation to which water would rise in an open well tapping the aquifer. Movement is down the hydraulic gradient toward discharge points generally located at the mouth of the watershed near the Lake Michigan shoreline. Groundwater discharge sustains the dry-weather flow of the streams in the watershed.

U. S. Geological Survey and SEWRPC.

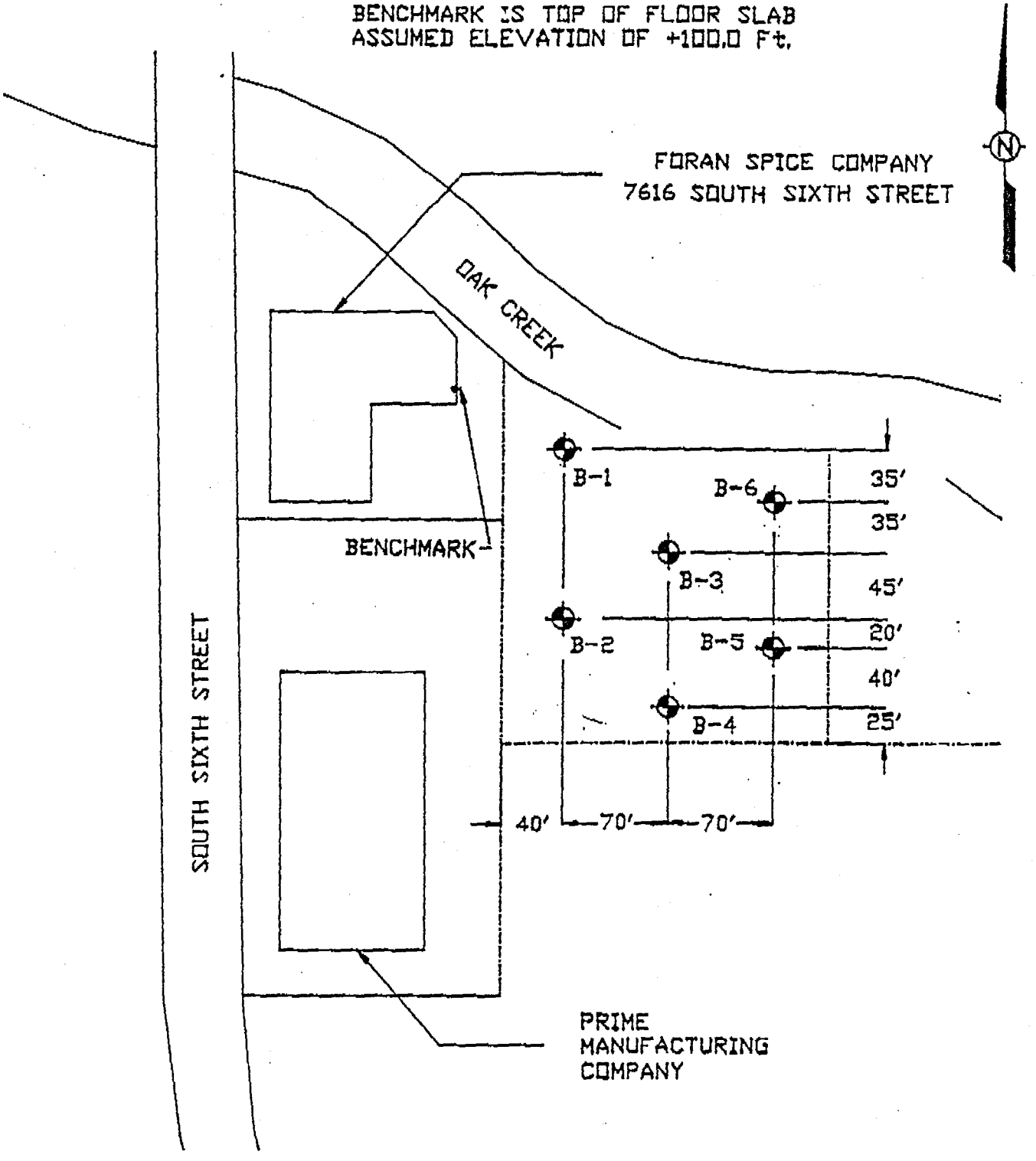
EXHIBIT H


Lake
Trailer Park
COLLE
St Josephs Cem
Gravel Pit
St Johns Ch
ST PAULO
RAWSON
FORAN
CITY VACANT LOT
PRIME
AND
PACIFIC
AVE
FREEWAY
NORTH-SOUTH
ST
Oak Creek Cem
DREXEL
Oil
OAK CREEK
FOREST
13TH
HOWELL
Reservoir
Edgewood Sch
Oak Creek Ch
Sewage Dispos


PEPSICO
C.S.M. 1304
PARCEL 2
C.S.M. 2197
PARCEL
PARCEL 3
C.S.M. 394
CHICAGO
MILWAUKEE
ST PAUL
ANC
PACIFIC
RAILROAD
C.S.M. 394
PARCEL 1
782-9033
FORAN
SPICE CO.
LOT 1
OAK
STREET
MW B-3
PARCEL 1
C S M 498
MW B-1
CEMETRON
MW B-2
782-9013
PRIME MFG. CO.
C.S.M. 686
LOT 1
6TH
SOUTH
C.S.M. 796
OUTLOT 1
PARCEL
ATLAS
BEACH REBUILDERS
4
OUTLOT 2
LOT 1
LOT
240 29
509 73
160 26
28
APPROXIMATE LOCATIONS OF STS WELLS ON CEMEDINE PROPERTY ACCORDING TO JANUARY 3, 1992 TELEPHONE CONVERSATION WITH THOMAS W. WOLF, STS REGIONAL VICE PRESIDENT

So. / Gas Stn.

NOTE:
BENCHMARK IS TOP OF FLOOR SLAB
ASSUMED ELEVATION OF +100.0 Ft.



STS Consultants, Ltd.

PROJECT/CLIENT

SOIL BORING LOCATION DIAGRAM
SITE FEASABILITY STUDY
FORAN SPICE COMPANY
OAK CREEK, WISCONSIN

DRAWN BY	T.J.J.	12/19/91
CHECKED BY	R.K.S.	12/19/91
APPROVED BY	A.B.W.	12/19/91
SCALE 1"=100'	FIGURE NO.	
CADFILE 83893.DWG	STS PROJECT NO. 83893	

STS Consultants Ltd.

CLIENT: Foran Spice Company

LOG OF BORING NUMBER: B-1

PROJECT NAME: Foran Spice Site Feasibility Study

ARCHITECT-ENGINEER:

SITE LOCATION: Oak Creek, Wisconsin

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1 2 3 4 5)

PLASTIC LIMIT % × — WATER CONTENT % ● — LIQUID LIMIT % △ (10 20 30 40 50)

STANDARD PENETRATION BLOWS/FT. ⊗ (10 20 30 40 50)

DEPTH (FT) / ELEVATION (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL
					SURFACE ELEVATION 95.8 ft
	1	SS			TOPSOIL: Slightly organic silty clay, trace sand-dark brown to black (CL-OL)
		PA			
2.5	2	SS			Silt-light gray and yellowish brown-moist-medium dense (ML)
		PA			
5.0	3	SS			Intermixed pockets of silt and silty clay-brown-very stiff (ML & CL)
		PA			
7.5	4	SS			Silt, little fine sand-gray-moist-dense (ML)
		PA			
10.0	5	SS			Fine sandy silt-gray-moist to wet-very dense (ML)
12.5		PA			
15.0	6	SS			
15.5					END OF BORING
					Boring advanced to 15.0' using solid-stem auger.

14 15 39 46 51 51

* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in-situ, the transition may be gradual.

WL 10.0 ft	WS OR WD WS	BORING STARTED 12/17/91	STS OFFICE Milwaukee-05
WL	BCR ACR	BORING COMPLETED 12/17/91	ENTERED BY ED / SHEET NO. 1 OF 1
WL 13.5 ft AB		RIG/FOREMAN 30/TC	APP'D BY RKS / STS JOB NO. 83893

STS Consultants Ltd.

CLIENT: Foran Spice Company

LOG OF BORING NUMBER: B-2

PROJECT NAME: Foran Spice Site Feasibility Study

ARCHITECT-ENGINEER:

SITE LOCATION: Oak Creek, Wisconsin

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.^{2} (1 2 3 4 5)

PLASTIC LIMIT x — WATER CONTENT x — LIQUID LIMIT x (10 20 30 40 50)

STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)

DEPTH(FT) / ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL
					SURFACE ELEVATION 98.6 ft
	1	SS			TOPSOIL: Slightly organic clayey silt, trace sand-black (ML-OL)
		PA			Silty clay, trace fine sand-brown-stiff (CL)
2.5	2	SS			
		PA			
5.0	3	SS			Pockets of silt and silty clay-brown and slightly gray mottled-very stiff (ML & CL)
		PA			
7.5	4	SS			Silt, trace fine sand-brown-wet-dense (ML)
		PA			
10.0	5	SS			Fine sand-gray-wet-dense (SP)
12.5		PA			
					Fine sand, trace to little silt-gray-wet-dense (SP-SM)
15.0	6	SS			
16.5					END OF BORING
					Boring advanced to 15.0' with solid-stem auger.

STANDARD PENETRATION BLOWS/FT.: 18, 15, 32, 35, 42

* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in-situ, the transition may be gradual.

WL 6.5 ft	WS OR WD WD	BORING STARTED 12/16/91	STS OFFICE Milwaukee-05
WL BCR	ACR	BORING COMPLETED 12/16/91	ENTERED BY ED / SHEET NO. 1 OF 1
WL 5.5 ft AB		RIG/FOREMAN 30/TC	APP'D BY RKS / STS JOB NO. 83893

STS Consultants Ltd.

CLIENT: Foran Spice Company

LOG OF BORING NUMBER: B-3

PROJECT NAME: Foran Spice Site Feasibility Study

ARCHITECT-ENGINEER:

SITE LOCATION: Oak Creek, Wisconsin

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1 2 3 4 5)

PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT % (10 20 30 40 50)

STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)

DEPTH (FT)	ELEVATION (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL
						SURFACE ELEVATION 96.1 ft
		1	SS			FILL: silt, little fine sand, trace clay-dark brown-loose (ML)
			PA			
2.5		2	SS			TOPSOIL: Slightly organic clayey silt, little fine sand (organic content 3.8 percent) (ML-OL)
		2A	SS			Silt, little fine sand-light brownish gray-moist-medium dense (ML)
			PA			
5.0		3	SS			Pockets of fine sandy clay and silty clay, trace to little fine sand-brown and brownish gray mottled-medium stiff (CL)
			PA			
7.5		4	SS			Fine sand-brown and gray-wet-medium dense (SP)
			PA			
10.0		5	SS			Fine sand-gray-wet-medium dense (SP)
		5A	SS			Silt-gray-wet-dense to very dense (ML)
12.5			PA			
15.0		6	SS			
16.5						END OF BORING
						Boring advanced to 15.0' using solid-stem auger.

* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in-situ, the transition may be gradual.

WL 7.0 ft WS OR WD WD	BORING STARTED 12/17/91	STS OFFICE Milwaukee-05	
WL BCR ACR	BORING COMPLETED 12/17/91	ENTERED BY ED	SHEET NO. 1 OF 1
WL 5.5 ft AB	RIG/FOREMAN 30/TC	APP'D BY RKS	STS JOB NO. 83893

STS Consultants Ltd.

CLIENT: Foran Spice Company

LOG OF BORING NUMBER: B-4

PROJECT NAME: Foran Spice Site Feasibility Study

ARCHITECT-ENGINEER:

SITE LOCATION: Oak Creek, Wisconsin

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1, 2, 3, 4, 5)

PLASTIC LIMIT % × — WATER CONTENT % ● — LIQUID LIMIT % △ (10, 20, 30, 40, 50)

STANDARD PENETRATION BLOWS/FT. ⊗ (10, 20, 30, 40, 50)

DEPTH (FT) / ELEVATION (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE / RECOVERY	DESCRIPTION OF MATERIAL
				SURFACE ELEVATION 95.4 ft
	1	SS		TOPSOIL: Slightly organic silty clay, trace sand-black (CL-OL)
		PA		Silty clay, trace sand, occasional very thin silt and fine sand pockets-brown-very stiff (CL)
2.5	2	SS		
		PA		
5.0	3	SS		Fine sandy silt-brown and gray-moist to wet-medium dense (ML)
		PA		
7.5	4	SS		Fine to medium sand with an interbedded 3-inch-thick fine sandy silt seam-brown-wet-dense (SP)
		PA		
10.0	5	SS		Fine sand-gray-wet-dense (SP)
12.5		PA		
				Silty fine sand-gray-wet-extremely dense (SM)
15.0	6	SS		
16.5				END OF BORING
				Boring advanced to 15.0' using solid-stem auger.

⊗ 7, 10, 28, 30, 38, 86

* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in-situ, the transition may be gradual.

WL 6.5 ft. WS OR WD WD	BORING STARTED 12/16/91	STS OFFICE Milwaukee-05	
WL BCR ACR	BORING COMPLETED 12/16/91	ENTERED BY ED	SHEET NO. 1 OF 1
WL 4.0 ft AB	RIG/FOREMAN 30/TC	APP'D BY RKS	STS JOB NO. 83893

STS Consultants Ltd.

CLIENT: Foran Spice Company

LOG OF BORING NUMBER: B-5

PROJECT NAME: Foran Spice Site Feasibility Study

ARCHITECT-ENGINEER:

SITE LOCATION: Oak Creek, Wisconsin

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1, 2, 3, 4, 5)

PLASTIC LIMIT % × — WATER CONTENT % ● — LIQUID LIMIT % △ (10, 20, 30, 40, 50)

STANDARD PENETRATION BLOWS/FT. ⊗ (10, 20, 30, 40, 50)

DEPTH (FT) / ELEVATION (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL
					SURFACE ELEVATION 94.1 ft
	1	SS			TOPSOIL: Slightly organic silty clay, trace sand-black (CL-OL)
2.5		PA			Clayey silt, trace sand-dark brown-loose (ML)
	2	SS			
5.0		PA			Silty clayey fine sand with an interbedded fine sandy clay seam-gray-wet-medium dense (SM-SC)
	3	SS			
7.5		PA			Fine to coarse sand, trace silt and fine gravel-gray-wet-medium dense (SP)
	4	SS			
10.0		PA			Silt, trace fine sand-gray-wet-medium dense (ML)
	5	SS			
12.5		PA			Fine sand, little silt-gray-wet-dense (SM)
15.0	6	SS			
16.5					END OF BORING
					Boring advanced to 15.0' using solid-stem auger.

* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in-situ, the transition may be gradual.

WL 2.5 ft WS OR WD WD	BORING STARTED 12/16/91	STS OFFICE Milwaukee-05	
WL BCR ACR	BORING COMPLETED 12/16/91	ENTERED BY ED	SHEET NO. 1 OF 1
WL 1.0 ft AB	RIG/FOREMAN 30/TC	APP'D BY RKS	STS JOB NO. 83893

STS Consultants Ltd.

CLIENT: Foran Spice Company

LOG OF BORING NUMBER: B-6

PROJECT NAME: Foran Spice Site Feasibility Study

ARCHITECT-ENGINEER:

SITE LOCATION: Oak Creek, Wisconsin

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.^{2} (1, 2, 3, 4, 5)

PLASTIC LIMIT x — WATER CONTENT x — LIQUID LIMIT x (10, 20, 30, 40, 50)

STANDARD PENETRATION BLOWS/FT. (10, 20, 30, 40, 50)

DEPTH (FT)	ELEVATION (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	STANDARD PENETRATION BLOWS/FT.
						SURFACE ELEVATION 92.3 ft	
		1	SS			TOPSOIL: Slightly organic silty clay, trace sand-dark brown (CL-OL)	5
2.5			PA			Fine sand, little to some clay, silt and medium to coarse sand-gray-wet-loose (SC-SM)	
		2	SS				4
			PA				
5.0		3	SS			Silty fine sand with an interbedded silty clay seam-gray-wet-medium dense (SM)	15
			PA				
7.5		4	SS			Silt, trace fine sand-gray-moist to wet-medium dense (ML)	26
			PA				
10.0		5	SS			Fine sand-gray-wet-dense (SP)	31
12.5			PA				
						Fine sandy silt-gray-wet-very dense (ML)	
15.0		6	SS				57
15.5						END OF BORING Boring advanced to 15.0' using solid-stem auger.	

The stratification lines represent the approximate boundary lines between soil types: in-situ, the transition may be gradual.

WL 5.0 ft. WS OR WD WS	BORING STARTED 12/15/91	STS OFFICE Milwaukee-05	
WL BCR ACR	BORING COMPLETED 12/15/91	ENTERED BY ED	SHEET NO. 1 OF 1
WL 2.5 ft AB	RIG/FOREMAN 30/TC	APP'D BY RKS	STS JOB NO. 03893

City of Oak Creek
OFFICE OF THE MAYOR
8640 S HOWELL AVE ■ OAK CREEK, WI 53154

DALE J. RICHARDS
HOME (414) 762-0025

(414) 768-6548
FAX (414) 768-9587

August 7, 1992

Ms. Gloria McKutcheon
Southeast District, Wisconsin Department of Natural Resources
2300 North Dr. Martin Luther King, Jr. Drive
Milwaukee, Wisconsin 53212

Dear Gloria,

As a follow-up to our luncheon meeting on July 17th, I had no alternative but to take a two-week vacation. Thank you.

Seriously, I also promised you some background data on a matter of contaminated soil at 7616 South 6th Street. My notes and memory reveal the following:

4/10/92	We were informed by Foran Spice Company that they were interested in purchasing a piece of property owned by the City, and never previously developed. This parcel was directly adjacent to the rear property lines of both Foran Spice Company and Prime Manufacturing Company of 7730 South 6th Street. A Phase I and II Environmental Study indicated up to .5 ppm's of TCA's. Researching of DNR records revealed that adjacent property owned by Prime Manufacturing had had some sort of barrel spill in an outside storage area in 1985. This barrel spill was directly adjacent to the City property, where soil borings revealed these TCA traces. TCA is the contaminant documented in 1985 by the DNR when they reviewed the spill and accepted the cleanup.
4/13/92	I called your office at 8:30 AM and was informed that you would be in meetings most of the day. I ended up speaking with Ms. Sandy Miller and informed her of the problem. In return, Ms. Margaret Graeffe returned my call and I told her I would like to set up a meeting about this. She in turn asked me to send her copies of the EIS, and said she would get back to me.
4/22/92	Our City Attorney sent a memo, along with the studies, to Ms. Graeffe.
4/30/92	I called to verify that the studies were received and to see what progress had been made. The response was, "We are working on it, and I'll get back to you."
5/8/92	I called Ms. Graeffe and left a message.

5/12/92	Ms. Graeffe called me to say that she is going to give this to someone to "screen and score" (?), and that she would get back to me in the next couple of days.
5/27/92	Our City Attorney sent another memo asking for a meeting.
6/10/92	I called Ms. Graeffe and left a message on her answering machine about the need for an update.
7/1/92	I again called Ms. Graeffe and again left a message on her answering machine about the need for an update.
7/31/92	Ms. Graeffe left a message on my answering machine that she was sending me a letter that day.
8/3/92	Received a memo from Ms. Graeffe asking for more information.
8/6/92	Called Ms. Graeffe and left a message about setting up a meeting. Her recorded message said that she would be out of the office until 8/10/92.

I will call Ms. Graeffe again on August 11th. To assist us, perhaps you could touch base with her when she returns on Monday, August 10th, so that our call on Tuesday, August 11th, will result in forward progress. Thank you for your interest and cooperation.

Very truly,

Dale J. Richards
Mayor
CITY OF OAK CREEK

DJR:pbb
cc: Mr. Dan Bueide, Attorney for Foran Spice Company
Mr. Lawrence Haskin, Oak Creek City Attorney

WISCONSIN
DEPT. OF NATURAL RESOURCES

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Carroll D. Besadny
Secretary

Southeast District
2300 N. Dr. Martin Luther King Jr. Dr.
Post Office Box 12436
Milwaukee, Wisconsin 53212
Telephone: 414-263-8500
Telefax: 414-263-8483

July 31, 1992

File Ref: Milwaukee Co.
ERRP
ER

Mr. Lawrence J. Haskin
City Attorney
City of Oak Creek
124 E. Drexel Avenue
Oak Creek, WI 53154

Dear Mr. Haskin:

RE: Property located at 7730 S. Sixth St., Oak Creek

The Department has received and reviewed the reports submitted by the City titled 'Environmental Assessment for Foran Spice Company' prepared by Reinhart, Boerner, Van Deuren, Norris & Rieselbach, s.c. and 'Site Investigation of City of Oak Creek Property Adjacent to the Foran Spice Company' prepared by Layne Geosciences, Inc. Information in the Layne Geosciences, Inc. report appears to document soil contamination on the southwest corner of the above mentioned property.

> **Wisconsin Statute 144.76(3) states:** "A person who possesses or controls a hazardous substance which is discharged or who causes the discharge of a hazardous substance shall take the actions necessary to restore the environment to the extent practicable and minimize the harmful effects from the discharge to the air, lands, or waters of the state."

The Department identifies you as the party responsible for taking the actions necessary to restore the environment. You are required to conduct an investigation to determine the extent of contamination, the potential for groundwater impacts and the remedial action(s) necessary to clean up contaminated soil and groundwater. In addition the department request the following specific information:

- Copies of the STS geotechnical boring logs.

- The exact location of sample Foran 9.5 - 10.5.

- The location of Western Manufacturing Co. relative to the property.

- A complete history of site use.

There does not appear to be enough information at this time to conclude with any certainty that an off-site source, including Prime Manufacturing Company or Western Manufacturing Co., is responsible for the soil contamination found on the City of Oak Creek property. Specifically, groundwater flow direction has not been determined. If further information is generated that identifies an off-site source of contamination, the Department will consider requiring action by the potential sources for investigation and clean-up.

If you have any questions or comments regarding this letter please contact me at (414)263-8646.

Sincerely,

Margaret M. Graefe

Margaret M. Graefe
Hydrogeologist, Environmental Repair Program

c: Mayor Dale J. Richards

LAWRENCE J. HASKIN
City Attorney

BARRY J. BOOK
Ass't. City Attorney

City of Oak Creek
OFFICE OF THE CITY ATTORNEY
124 E DREXEL AVE ■ OAK CREEK, WI 53154

(414) 762-5105
FAX (414) 762-6340

May 27, 1992

Ms. Karen Graefe
Wisconsin Department of Natural Resources
Environmental Repair Project Manager
2300 North Martin Luther King Drive
Milwaukee, WI 53212

Dear Ms. Graefe:

I write as a follow up to my letter of April 22, 1992, a copy of which is enclosed. Please contact my office to schedule a meeting with city representatives to discuss the environmental audits of the property located at 7730 South Sixth Street in Oak Creek. I await your prompt response. Thank you.

Very truly yours,

Lawrence J. Haskin

LJH/clr
Enclosure

cc: Mayor Dale J. Richards
Alderman Elizabeth J. Kopplin
Robert L. Kufrin, City Administrator
Paul E. Milewski, Director of Community Development
Daniel A. Bueide, Esq.

LAWRENCE J. HASKIN
City Attorney

BARRY J. BOOK
Ass't. City Attorney

City of Oak Creek
OFFICE OF THE CITY ATTORNEY
124 E DREXEL AVE ■ OAK CREEK, WI 53154

(414) 762-5105
FAX (414) 762-6340

April 22, 1992

Ms. Karen Graefe
Environmental Repair Project Manager
2300 North Martin Luther King Drive
Milwaukee, Wisconsin 53212

Dear Ms. Graefe:

The City of Oak Creek is in the process of selling a vacant parcel of real estate located behind 7730 South Sixth Street, Oak Creek, Wisconsin. A copy of the legal description is attached hereto. One of the conditions of the Offer to Purchase was the buyers obtaining a written environmental evaluation from an environmental consultant that:

(i) The property complies with all environmental laws.
(ii) There are no material contingent liabilities affecting the property arising under any environmental laws.
(iii) The property is free from any and all hazardous substances and underground storage tanks.

The buyers conducted Phase I and Phase II environmental audits. The Phase I environmental assessment was conducted by Reinhart, Boerner, Van Deuren, Norris & Rieselbach. The Phase II analysis was done by Layne GeoSciences, Inc. ("LGI"). I understand that Paul Milewski, Oak Creek's Director of Community Development, has forwarded these studies to you. The assessment reveals that in April, 1985 the Wisconsin Department of Natural Resources (WDNR) determined that Prime Manufacturing had improperly stored 12 to 18 drums of hazardous waste on the Prime Manufacturing property near the western boundary of the property owned by the City of Oak Creek. WDNR did not require and Prime Manufacturing did not initiate, soil samplings or groundwater monitoring in response to the 1985 leak event. The direction of groundwater flow from the Prime Manufacturing property is east/northeast down gradient toward this property. The LGI Field Analytical Survey identified TCA in a saturated portion of the subsurface adjacent to the offsite drum storage area. The results were confirmed by the second laboratory analysis. TCA is consistent with the hazardous waste that was improperly being stored on the Prime Manufacturing property in 1985.

Mayor Dale J. Richards recently provided verbal notice of this spill to the WDNR. The City of Oak Creek became aware of this information at a meeting on April 10, 1992. This notice is intended as further compliance with S. 144.76, Wis. Stats.

Specifically, we request a letter from the WDNR that no action will be taken against the City of Oak Creek or any subsequent owners of the property inasmuch as the contamination at the site is due to spill from offsite contaminants and is not due to any activities or conduct on the part of the City of Oak Creek. We request a meeting to discuss this issue after your staff has had an opportunity to review this matter further.

We request your investigation and prompt response. Thank you.

Very truly yours,

Lawrence J. Haskin
City Attorney

LJH/jaz

cc: Mayor Dale J. Richards
Alderman Elizabeth J. Kopplin
Robert L. Kufrin, City Administrator
Paul E. Milewski, Director of Community Development
Daniel A. Bueide, Esq.

LAWRENCE J. HASKIN
City Attorney

BARRY J. BOOK
Ass't. City Attorney

City of Oak Creek
OFFICE OF THE CITY ATTORNEY
124 E DREXEL AVE ■ OAK CREEK, WI 53154

(414) 762-5105
FAX (414) 762-6340

April 22, 1992

Ms. Karen Graefe
Environmental Repair Project Manager
2300 North Martin Luther King Drive
Milwaukee, Wisconsin 53212

Dear Ms. Graefe:

The City of Oak Creek is in the process of selling a vacant parcel of real estate located behind 7730 South Sixth Street, Oak Creek, Wisconsin. A copy of the legal description is attached hereto. One of the conditions of the Offer to Purchase was the buyers obtaining a written environmental evaluation from an environmental consultant that:

(i) The property complies with all environmental laws.
(ii) There are no material contingent liabilities affecting the property arising under any environmental laws.
(iii) The property is free from any and all hazardous substances and underground storage tanks.

The buyers conducted Phase I and Phase II environmental audits. The Phase I environmental assessment was conducted by Reinhart, Boerner, Van Deuren, Norris & Rieselbach. The Phase II analysis was done by Layne GeoSciences, Inc. ("LGI"). I understand that Paul Milewski, Oak Creek's Director of Community Development, has forwarded these studies to you. The assessment reveals that in April, 1985 the Wisconsin Department of Natural Resources (WDNR) determined that Prime Manufacturing had improperly stored 12 to 18 drums of hazardous waste on the Prime Manufacturing property near the western boundary of the property owned by the City of Oak Creek. WDNR did not require and Prime Manufacturing did not initiate, soil samplings or groundwater monitoring in response to the 1985 leak event. The direction of groundwater flow from the Prime Manufacturing property is east/northeast down gradient toward this property. The LGI Field Analytical Survey identified TCA in a saturated portion of the subsurface adjacent to the offsite drum storage area. The results were confirmed by the second laboratory analysis. TCA is consistent with the hazardous waste that was improperly being stored on the Prime Manufacturing property in 1985.

Mayor Dale J. Richards recently provided verbal notice of this spill to the WDNR. The City of Oak Creek became aware of this information at a meeting on April 10, 1992. This notice is intended as further compliance with S. 144.76, Wis. Stats.

Specifically, we request a letter from the WDNR that no action will be taken against the City of Oak Creek or any subsequent owners of the property inasmuch as the contamination at the site is due to spill from offsite contaminants and is not due to any activities or conduct on the part of the City of Oak Creek. We request a meeting to discuss this issue after your staff has had an opportunity to review this matter further.

We request your investigation and prompt response. Thank you.

Very truly yours,

Lawrence J. Haskin
City Attorney

LJH/jaz

cc: Mayor Dale J. Richards
Alderman Elizabeth J. Kopplin
Robert L. Kufrin, City Administrator
Paul E. Milewski, Director of Community Development
Daniel A. Bueide, Esq.

All that land in the SE 1/4 of Section 8, Town 5 North, Range 22 East, bounded and described as follows: Commencing at the SW corner of said 1/4 Section; thence S 89° 07' 20" E, 520.00 feet along the south line of said 1/4 Section to a point; thence N 00° 52' 40" E, 275.00 feet to a point on the east ROW line of South 6th Street; thence northwesterly 351.10 feet along the arc of a curve whose radius is 755 feet, whose center lies to the west and whose chord bears N 12° 26' 39.5" W, 347.94 feet to a point on said east ROW; thence N 25° 45' 59" W, 46.53 feet to a point on said east ROW; thence northwesterly 348.14 feet along the arc of a curve, whose center lies to the east, whose radius is 770.00 feet and whose chord bears N 12° 48' 49.5" W, 345.19 feet to a point on said east ROW; thence N 00° 08' 20" E along said east ROW, 994.86 feet to a point; thence southeasterly 215.02 feet along the arc of a curve whose radius is 440.00 feet, whose center lies to the southwest and whose chord bears S 62° 26' 40" E, 212.89 feet to a point; thence S 48° 26' 40" E, 214.73 feet to the point of beginning of the lands to be described which is the northeast corner of CSM No. 923; thence southeasterly 397.19 feet along the arc of a curve whose radius is 560.00 feet, whose center lies to the north and whose chord bears S 68° 45' 47.5" E, 388.91 feet to a point; thence S 89° 04' 55" E, 87.13 feet to a point; thence S 00° 08' 20" W, 374.68 feet to a point; thence N 89° 05' 32" W, 450.00 feet to a point; thence N 00° 08' 20" E, 509.82 feet to the point of beginning and containing 4.2 acres.

OAK CREEK
Department Of Community Development
8640 SOUTH HOWELL AVENUE — OAK CREEK, WISCONSIN 53154-0027

PLANNING
(414) 768-6527

FAX (414) 768-9587

April 13, 1992

Wisconsin Department of
Natural Resources
2300 North 3rd Street
P.O. Box 12436
Milwaukee, WI 53212

Attention: Ms. Margaret Graefe

Dear Ms. Graefe:

In response to your conversation with Mayor Dale Richards of the City of Oak Creek, I am enclosing copies of the two environmental reports prepared on a parcel of City-owned land in our Northbranch Industrial Park. Please review these documents and advise the Mayor or myself what our next steps should be.

Thank you for your cooperation in this matter.

Very truly yours,

Paul E. Milewski

Paul E. Milewski, AICP
Director of Community Development

PEM:njh

Enclosures

Layne GeoSciences, Inc.

Project No. 61.2806

SITE INVESTIGATION OF CITY OF OAK CREEK PROPERTY ADJACENT TO THE FORAN SPICE COMPANY

Prepared for:

Mr. Alan Goto
FORAN SPICE COMPANY
Oak Creek, Wisconsin

April 1992

Layne GeoSciences, Inc. A Subsidiary of Layne-Western Company, Inc.

N4140 DuPlainville Road • Pewaukee, Wisconsin 53072 • 414/691-2662 • 414/691-9279 (FAX)

April 8, 1992

Mr. Alan Goto
Foran Spice Company
7616 S. Sixth St.
Oak Creek, WI 53154

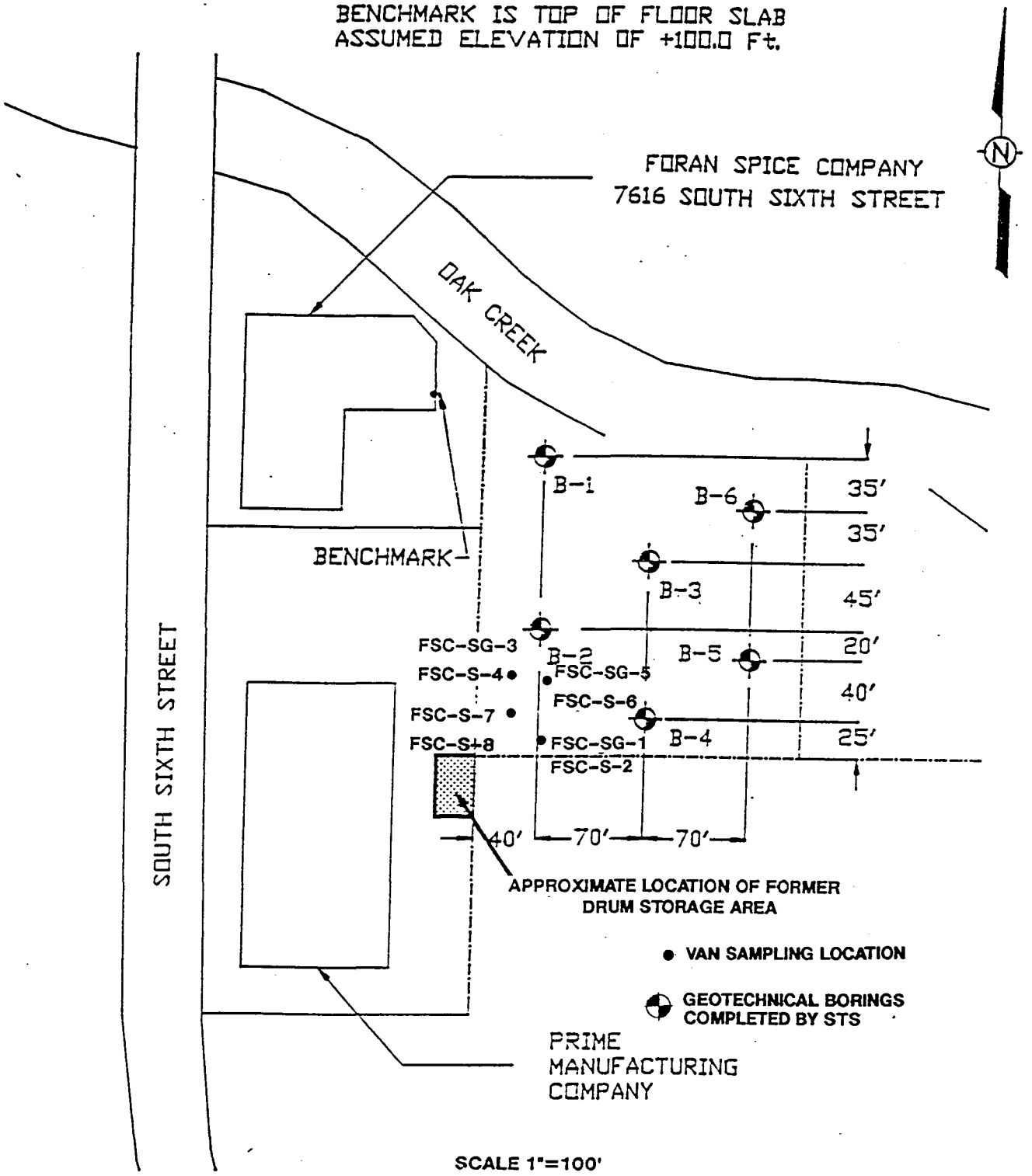
Dear Alan:

Please find enclosed the results the in-field analytical survey conducted by Layne GeoSciences, Inc. (LGI) during February and March, 1992 at the City of Oak Creek property located adjacent to the Foran Spice Company. The objective of the survey was to determine whether subsurface contamination is present at the site as a result of spills or leaks which occurred at a drum storage area located at an adjacent property circa 1981. This potential environmental hazard was identified during a Phase 1 environmental audit conducted for the Foran Spice Company on the adjacent City property. The Phase 1 environmental audit identified solvents including trichloroethylene (TCE), 1,1,1 Trichlorethane (TCA), naphthalene, and mineral spirits as being stored on an adjacent property.

In conducting the survey, LGI utilized its field sampling and analytical van equipped with a hydraulic ram for sample collection and a laboratory-grade gas chromatograph (GC) for on-site sample analysis. Subsurface soil and soil gas samples were collected and analyzed during the survey. Soil samples were also submitted for subsequent confirmatory laboratory analysis.

SAMPLING PROCEDURES

Soil and soil gas samples were collected from each of four locations at the City of Oak Creek property (Figure 1). Soil samples were collected from beneath the water table using a thin-walled sample tube advanced to the desired depth using the van's hydraulic ram. Once the tube was driven to the desired depth, the drive point was removed from the tip and the tube driven an additional foot thereby forcing soil into the tube. The soil was then extruded from the tube utilizing the hydraulic ram and then split into two sections with one used for on site wet headspace analysis and the other preserved for possible future laboratory analysis.



SCALE 1"=100'

SITE MAP TAKEN FROM STS FEASIBILITY STUDY REPORT

LGI Layne GeoSciences, Inc.
A Subsidiary of LAYNE-WESTERN COMPANY, INC.

FIGURE 1

SAMPLING LOCATIONS

FORAN SPICE CO.
OAK CREEK, WI

Drawn by:	[illegible] 12/19/92	Checked by:			Drawing number
		Approved by:			

Soil gas sampling (above the water table) was accomplished by driving a probe rod to a desired depth and then withdrawn approximately 6 inches, thereby leaving a void space in the soil section. A sample manifold with vacuum and sampling ports was then threaded onto the top probe rod and a minimum of three volumes evacuated from the probe rods using a calibrated vacuum apparatus. Once the probe rod assembly had returned to atmospheric pressure, a 1 ml syringe was purged several times with the soil gas before withdrawing a 0.5 ml sample for immediate injection into the GC.

IN-FIELD ANALYTICAL PROCEDURES

All of the collected samples were field analyzed for TCE, TCA and the range of volatile organics which could be associated with mineral spirits, mainly, benzene, ethylbenzene, toluene and xylene (BETX). The analyses were performed utilizing the on-board GC which is equipped with a photoionization detector (PID) and an electron capture detector (ECD) mounted in series. The PID was used for quantification of the volatile fraction within the mineral spirits organics down to a detection limit of 10 parts per million (ppm). Trichloroethylene and TCA were quantified using the ECD which has a detection limit of 0.005 ppm.

Soil sample analysis was performed utilizing a wet headspace method. The process entails placing approximately 20 grams ($\pm$1g) of soil into a volatile organic analysis (VOA) vial into which 15 milliliters (ml) of distilled water is added. The vial is then capped with a teflon septum lid, labeled and the vial mildly agitated by inverting it 5 times to promote volatilization of the contaminants. A 1 ml syringe was then purged several times with vapor from the vial headspace prior to withdrawing a 0.5 ml sample for immediate injection into the GC. The analytical results are included in Appendix A along with all the quality assurance/quality control runs.

RESULTS

In-Field Analytical Results

LGI field analyses showed no evidence of mineral spirits. However, TCA was detected at concentrations of 0.377 ppm and 0.265 ppm in samples FSC-S-4 and FSC-S-7, respectively. Other samples showed detects of TCA and TCE near the background levels detected in the equipment blanks. The equipment blanks (needle and VOA vial blanks) showed trace detects of TCA ranging from no detect to 0.073 ppm. These concentrations were most likely caused by background ambient air. The results of these blanks are included with the sample results in Appendix A. Due to the nature of a mobile laboratory in an industrial setting it is difficult to maintain a totally contaminant-free atmosphere, however, in most of the samples analyzed the possible background levels are negligible.

The results obtained during the field analyses were for contaminant concentrations in the vial headspace and not in the soil itself. Therefore, although the wet headspace methodology provides for excellent contaminant recovery and evaluation of relative concentrations, the results may be from one to three orders of magnitude greater than those obtained utilizing standard laboratory methods.

Laboratory Analytical Results

Soil samples FSC-S-4, and FSC-S-6 were analyzed for naphthalene (EPA 8270), diesel range organics, TCE, and TCA. Although contamination was detected during the field analysis, none of the contaminant analytes were detected during the laboratory analysis. Copies of the laboratory analytical reports are included in Appendix B.

In response to the difference between laboratory and field results, LGI returned to the site on March 17, 1992 to collect additional samples from a fourth location in an effort to resolve the discrepancy (Figure 1). Soil samples were collected from the location from depths of 9.5-10.5 feet (FSC-S-7) and 15-16 feet (FSC-S-8). Sample FSC-S-7 was a saturated sand which showed a detect of 0.265 ppm TCA. Sample FSC-S-8 was a very dense and apparently dry silty clay which showed no detect of either TCE or TCA.

Laboratory analysis of the FSC-S-7 sample also detected 0.2 ppm TCA. Although this concentration is near the reported laboratory detection limit of 0.15 ppm, the results confirm the presence of the contaminant in the saturated sand unit beneath the site. A copy of the second round laboratory results is provided in Appendix B.

CONCLUSION

The LGI field analytical survey, conducted on the City of Oak Creek property, identified TCA in the saturated portion of the subsurface adjacent to a former off-site drum storage area. The field results were confirmed by the second laboratory analysis. The presence of TCA in the saturated samples indicates that groundwater is the primary mode of contaminant transport from the suspected drum storage area to the City property. The laboratory result of 0.200 ppm reflects a concentration relative to the soil mass of the sample rather than a concentration in the groundwater. Therefore, in order to accurately assess groundwater contaminant concentrations as well as flow direction, monitoring well installation and appropriate groundwater sampling procedures are recommended. This action would enable TCA concentrations in groundwater to be compared directly with Wisconsin administrative code NR 140 water quality standards (TCA enforcement standard-0.200 ppm).

LGI appreciates the opportunity of performing this work for the Foran Spice Company. Please feel free to contact me at your convenience with any questions or comments regarding the investigation or this report.

Sincerely,
Layne GeoSciences, Inc.
A subsidiary of Layne Western, Co.

John C. Osborne
Senior Hydrogeologist/Division Manager

APPENDIX A

Field Screening Results

Layne GeoSciences, Inc. In-Field Analytical Survey

Client: Foran Spice
Project: 61.2806
Date: 2/26/92

Sample	Depth (feet)	Analyte	Conc. (ppm)	Comments
		February 28		
9.96 ppm TCA	na	TCA TCE		Calibration.
10.00 ppm TCE	na	TCA TCE		Calibration.
FSC-SG1	4	TCA TCE	ND 0.009	
Needle Blank 1	na	TCA TCE	0.01 0.016	
FSC-S-2	5.5-6.5	TCA TCE	0.062 0.031	
VOA/DI Blank 1	na	TCA TCE	0.073 0.025	
FSC-SG-3	5	TCA TCE	0.035 ND	
Needle Blank 2	na	TCA TCE	0.011 ND	
FSC-S-4	6.5-7.5	TCA TCE	0.377 0.034	
FSC-S-4 Duplicate	6.5-7.5	TCA TCE	0.655 0.034	TCA value likely higher due to being warmed in van.
VOA/DI Blank 2	na	TCA TCE	0.034 0.013	
FSC-SG-5	4	TCA TCE	ND ND	
FSC-S-6	5.5-6.5	TCA TCE	0.06 ND	

Sample	Depth	Analyte	Conc.	Comments
	March 17			
9.96 ppm TCA	na	TCA TCE		Calibration.
10.00 ppm TCE	na	TCA TCE		Calibration.
VOA/DI Blank	na	TCA TCE	0.066 0.061	
FSC-S-7	9.5-10.5	TCA TCE	0.265 0.044	
FSC-S-7 Duplicate	9.5-10.5	TCA TCE	0.396 ND	Higher TCA value likely due to being warmed in van.
Needle Blank	na	TCA TCE	0.047 0.038	
Needle Blank	na	TCA TCE	0.023 0.043	
FSC-S-8	14-15	TCA TCE	ND ND	

SG - soil gas sample
S - soil sample
TCA - 1,1,1-trichloroethane
TCE - trichloroethylene
na - not applicable
ND - no detect
all concentrations in part per million (ppm)

APPENDIX B

Laboratory Analytical Results

Precision Analytical Lab, Inc
205 West Galena
Milwaukee, WI 53212

Phone: (414) 272-5222

Layne Geo Sciences
4140 North Plainville Rd.
Pewaukee, WI

Attn: Jon Roraff
Invoice Number:

Order #: 92-02-151
Date: 03/18/92 15:27
Work ID: Foran Spice
Date Received: 02/27/92
Date Completed: 03/18/92
Client Code: LAYNE_GEO

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	FSC-S-4	02	FSC-S-6

Laboratory ID Number (Wisconsin DNR): 241369260

Certified By
Jeff Bushner

Sample: 01A FSC-S-4 **Collected: 02/26/92**

Test Description	Result	Limit	Units	Analyzed	By
1,1,1-Trichloroethane	< 5.0		ppb	03/03/92	JJB
8270 Soil					
Acenaphthene	--		ug/kg	03/17/92	LJS
Acenaphtylene	--		ug/kg	03/17/92	LJS
Anthracene	--		ug/kg	03/17/92	LJS
Benzidine	--		ug/kg	03/17/92	LJS
Benzoic acid	--		ug/kg	03/17/92	LJS
Benzo(a)anthracene	--		ug/kg	03/17/92	LJS
Benzo(b)fluoranthene	--		ug/kg	03/17/92	LJS
Benzo(k)fluoranthene	--		ug/kg	03/17/92	LJS
Benzo(g,h,i)perylene	--		ug/kg	03/17/92	LJS
Benzo(a)pyrene	--		ug/kg	03/17/92	LJS
Benzyl alcohol	--		ug/kg	03/17/92	LJS
Bis(2-chloroethoxy)methane	--		ug/kg	03/17/92	LJS
Bis(2-chloroethyl)ether	--		ug/kg	03/17/92	LJS
Bis(2-chloroisopropyl)ether	--		ug/kg	03/17/92	LJS
Bis(2-ethylhexy)phthalate	--		ug/kg	03/17/92	LJS
4-Bromophenyl phenyl ether	--		ug/kg	03/17/92	LJS
Butyl benzyl phthalate	--		ug/kg	03/17/92	LJS
4-Chloroaniline	--		ug/kg	03/17/92	LJS
2-Chloronaphthalene	--		ug/kg	03/17/92	LJS
4-Chloro-3-methylphenol	--		ug/kg	03/17/92	LJS
2-Chlorophenol	--		ug/kg	03/17/92	LJS
4-Chlorophenyl phenyl ether	--		ug/kg	03/17/92	LJS
Chrysene	--		ug/kg	03/17/92	LJS
Dibenz(a,h)anthracene	--		ug/kg	03/17/92	LJS
Di-n-butylphthalate	--		ug/kg	03/17/92	LJS
1,3-Dichlorobenzene	--		ug/kg	03/17/92	LJS
1,4-Dichlorobenzene	--		ug/kg	03/17/92	LJS
1,2-Dichlorobenzene	--		ug/kg	03/17/92	LJS
3,3'-Dichlorobenzidine	--		ug/kg	03/17/92	LJS
2,4-Dichlorophenol	--		ug/kg	03/17/92	LJS
Diethyl Phthalate	--		ug/kg	03/17/92	LJS
2,4-Dimethylphenol	--		ug/kg	03/17/92	LJS
Dimethyl Phthalate	--		ug/kg	03/17/92	LJS
4,6-Dinitro-2-methylphenol	--		ug/kg	03/17/92	LJS
2,4-Dinitrophenol	--		ug/kg	03/17/92	LJS
2,4-Dinitrotoluene	--		ug/kg	03/17/92	LJS
2,6-Dinitrotoluene	--		ug/kg	03/17/92	LJS
Di-n-octylphthalate	--		ug/kg	03/17/92	LJS
Fluoranthene	--		ug/kg	03/17/92	LJS
Fluorene	--		ug/kg	03/17/92	LJS
Hexachlorobenzene	--		ug/kg	03/17/92	LJS
Hexachlorobutadiene	--		ug/kg	03/17/92	LJS
Hexachlorocyclopentadiene	--		ug/kg	03/17/92	LJS
Hexachloroethane	--		ug/kg	03/17/92	LJS
Indeno(1,2,3-cd)pyrene	--		ug/kg	03/17/92	LJS
Isophorone	--		ug/kg	03/17/92	LJS

Test Description	Result	Limit	Units	Analyzed	By
2-Methylnapthalene	--		ug/kg	03/17/92	LJS
2-Methylphenol (o-cresol)	--		ug/kg	03/17/92	LJS
4-Methylphenol (p_cresol)	--		ug/kg	03/17/92	LJS
Napthalene	< 660		ug/kg	03/17/92	LJS
2-Nitroaniline	--		ug/kg	03/17/92	LJS
3-Nitroaniline	--		ug/kg	03/17/92	LJS
4-Nitroaniline	--		ug/kg	03/17/92	LJS
Nitrobenzene	--		ug/kg	03/17/92	LJS
2-Nitrophenol	--		ug/kg	03/17/92	LJS
4-Nitrophenol	--		ug/kg	03/17/92	LJS
N-Nitrosodimethylamine	--		ug/kg	03/17/92	LJS
N-Nitrosodiphenylamine	--		ug/kg	03/17/92	LJS
N-Nitroso-Di-N-Propylamine	--		ug/kg	03/17/92	LJS
Pentachlorophenol	--		ug/kg	03/17/92	LJS
Phenanthrene	--		ug/kg	03/17/92	LJS
Phenol	--		ug/kg	03/17/92	LJS
Pyrene	--		ug/kg	03/17/92	LJS
1,2,4-Trichlorobenzene	--		ug/kg	03/17/92	LJS
2,4,5-Trichlorophenol	--		ug/kg	03/17/92	LJS
2,4,6-Trichlorophenol	--		ug/kg	03/17/92	LJS
TPH Gas Range Organics	< 5.0		ppm	03/05/92	SEL
Trichloroethylene	< 5.0		ppb	03/03/92	JJB

Sample: 02A FSC-S-6 **Collected: 02/26/92**

Test Description	Result	Limit	Units	Analyzed	By
1,1,1-Trichloroethane	< 5.0		ppb	03/03/92	JJB
8270 Soil					
Acenaphthene	--		ug/kg	03/17/92	LJS
Acenaphtylene	--		ug/kg	03/17/92	LJS
Anthracene	--		ug/kg	03/17/92	LJS
Benzidine	--		ug/kg	03/17/92	LJS
Benzoic acid	--		ug/kg	03/17/92	LJS
Benzo(a)anthracene	--		ug/kg	03/17/92	LJS
Benzo(b)fluoranthene	--		ug/kg	03/17/92	LJS
Benzo(k)fluoranthene	--		ug/kg	03/17/92	LJS
Benzo(g,h,i)perylene	--		ug/kg	03/17/92	LJS
Benzo(a)pyrene	--		ug/kg	03/17/92	LJS
Benzyl alcohol	--		ug/kg	03/17/92	LJS
Bis(2-chloroethoxy)methane	--		ug/kg	03/17/92	LJS
Bis(2-chloroethyl)ether	--		ug/kg	03/17/92	LJS
Bis(2-chloroisopropyl)ether	--		ug/kg	03/17/92	LJS
Bis(2-ethylhexy)phthalate	--		ug/kg	03/17/92	LJS
4-Bromophenyl phenyl ether	--		ug/kg	03/17/92	LJS
Butyl benzyl phthalate	--		ug/kg	03/17/92	LJS
4-Chloroaniline	--		ug/kg	03/17/92	LJS
2-Chloronaphthalene	--		ug/kg	03/17/92	LJS
4-Chloro-3-methylphenol	--		ug/kg	03/17/92	LJS
2-Chlorophenol	--		ug/kg	03/17/92	LJS
4-Chlorophenyl phenyl ether	--		ug/kg	03/17/92	LJS

Test Description	Result	Limit	Units	Analyzed	By
Chrysene	--		ug/kg	03/17/92	LJS
Dibenz(a,h)anthracene	--		ug/kg	03/17/92	LJS
Di-n-butylphthalate	--		ug/kg	03/17/92	LJS
1,3-Dichlorobenzene	--		ug/kg	03/17/92	LJS
1,4-Dichlorobenzene	--		ug/kg	03/17/92	LJS
1,2-Dichlorobenzene	--		ug/kg	03/17/92	LJS
3,3'-Dichlorobenzidine	--		ug/kg	03/17/92	LJS
2,4-Dichlorophenol	--		ug/kg	03/17/92	LJS
Diethyl Phthalate	--		ug/kg	03/17/92	LJS
2,4-Dimethylphenol	--		ug/kg	03/17/92	LJS
Dimethyl Phthalate	--		ug/kg	03/17/92	LJS
4,6-Dinitro-2-methylphenol	--		ug/kg	03/17/92	LJS
2,4-Dinitrophenol	--		ug/kg	03/17/92	LJS
2,4-Dinitrotoluene	--		ug/kg	03/17/92	LJS
2,6-Dinitrotoluene	--		ug/kg	03/17/92	LJS
Di-n-octylphthalate	--		ug/kg	03/17/92	LJS
Fluoranthene	--		ug/kg	03/17/92	LJS
Fluorene	--		ug/kg	03/17/92	LJS
Hexachlorobenzene	--		ug/kg	03/17/92	LJS
Hexachlorobutadiene	--		ug/kg	03/17/92	LJS
Hexachlorocyclopentadiene	--		ug/kg	03/17/92	LJS
Hexachloroethane	--		ug/kg	03/17/92	LJS
Indeno(1,2,3-cd)pyrene	--		ug/kg	03/17/92	LJS
Isophorone	--		ug/kg	03/17/92	LJS
2-Methylnapthalene	--		ug/kg	03/17/92	LJS
2-Methylphenol (o-cresol)	--		ug/kg	03/17/92	LJS
4-Methylphenol (p_cresol)	--		ug/kg	03/17/92	LJS
Napthalene	< 660		ug/kg	03/17/92	LJS
2-Nitroaniline	--		ug/kg	03/17/92	LJS
3-Nitroaniline	--		ug/kg	03/17/92	LJS
4-Nitroaniline	--		ug/kg	03/17/92	LJS
Nitrobenzene	--		ug/kg	03/17/92	LJS
2-Nitrophenol	--		ug/kg	03/17/92	LJS
4-Nitrophenol	--		ug/kg	03/17/92	LJS
N-Nitrosodimethylamine	--		ug/kg	03/17/92	LJS
N-Nitrosodiphenylamine	--		ug/kg	03/17/92	LJS
N-Nitroso-Di-N-Propylamine	--		ug/kg	03/17/92	LJS
Pentachlorophenol	--		ug/kg	03/17/92	LJS
Phenanthrene	--		ug/kg	03/17/92	LJS
Phenol	--		ug/kg	03/17/92	LJS
Pyrene	--		ug/kg	03/17/92	LJS
1,2,4-Trichlorobenzene	--		ug/kg	03/17/92	LJS
2,4,5-Trichlorophenol	--		ug/kg	03/17/92	LJS
2,4,6-Trichlorophenol	--		ug/kg	03/17/92	LJS
TPH Gas Range Organics	< 5.0		ppm	03/05/92	SEL
Trichloroethylene	< 5.0		ppb	03/03/92	JJB

-- Not requested

The samples ordered for 1,1,1-Trichloroethane and Trichloroethene were analyzed according to Method 8240 (SW 846 Test Methods for Evaluating Solid Waste - Physical/Chemical Methods)

The samples ordered for Naphthalene were analyzed according to Method 8270 (SW 846 Test Methods for Evaluating Solid Waste - Physical/Chemical Methods)

The samples ordered for GRO were analyzed by the "TPH Analytical Method for Gas and Diesel " according to the guidelines of the state of California. The products analyzed for by this method are Gasoline and Mineral Spirits.

Sample was covered air tight in approved container, shipped in cooler from the source to our lab, temperature upon arrival was 4 degrees C.

All analysis as per approved methods found in one or more of the following:
Standard Methods for the Evaluation of Water and Wastewater, 16th Edition.
Methods for Chemical Analysis for Water and Wastes, Revised March 1983, EPA 600/4-79-020
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition 1986 EPA SW846

Analysis performed and certified by Precision Analytical Laboratory.

CHAIN OF CUSTODY RECORD

PROJ. NO.

PROJECT NAME: Foran Spice

SAMPLERS: Weh / Roraff

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCA & TCE *	Naphthalene (8270)	Mineral Spirits (GRO or DRO)				SAMPLE DESCRIPTION
	2/25			✓	FSC-S-4	3	✓	✓	✓				Soil
	2/25			✓	FSC-S-6	3	✓	✓	✓				Soil

* 1,1,1- trichloroethane
trichloroethylene

Relinquished By:	Date / Time	Received By:	Relinquished By:	Date / Time	Received By:
Jon Roraff	2/27/91 3:15p	Richard Lesley			
Relinquished By:	Date / Time	Received By:	Relinquished By:	Date / Time	Received By:

Remarks:

Report To: Jon Roraff / Bob Weh

Layne GeoSciences, Inc.

N4140 DuPlainville Road • Pewaukee, Wisconsin 53072 • 414/691-2662 • 414/691-9279 (FAX)

Mac Donald Research Group, Inc.

1441 North Mayfair Road
Milwaukee, Wisconsin 53226

23 March 1992

Layne GeoSciences, Inc.
N4140 Duplainville Road
Pewaukee, WI 53072

Project : Foran Spice
Invoice #: 6615

8071

I.D.	Date	Location	111 trichloroethane	% Total Solid
01	3-17-92	Foran 9.5'-10.5'	0.2ppm	87.4%

111 trichloroethane MLD = 0.15ppm

Limits of Quantitation:

Soil TPH = 0.15ppm each
Water TPH = 2ppb each
Lead = 0.01ppm (soil)
10.0 ppb (water)

Soil PVOC = 0.15ppm each
Water PVOC = 0.2ppb each
Chlorides = 0.05mg/L

Water VOC's = 0.2ppb eac

H. S. MacDonald

Hector S. MacDonald
Analyst

NVLAP 1247 AIHA 53005002 AAR 1253 WI Lab #241358480

(414) 491-2949 Office — (414) 771-7151

PROJ. NO.

PROJECT NAME: Foran Spice

SAMPLERS: Koraft / Weh

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	1,1,1 - Trichloroethane	SAMPLE DESCRIPTION
	3/17	2:00		✓	FORAN 9.5 - 10.5'	1	✓	
	~~3/17~~	~~2:30~~		✓	~~FORAN 15 - 16'~~	~~1~~	✓	

Relinquished By:	Date / Time	Received By:	Relinquished By:	Date / Time	Received By:
Jon Koraft	3/17/92 3:45	Don Weh			
Relinquished By:	Date / Time	Received By:	Relinquished By:	Date / Time	Received By:

Remarks: Jon

Report To: Jon Koraft

Layne GeoSciences, Inc.
N4140 DuPlainville Road • Pewaukee, Wisconsin 53072 U.S.A

4/13
0910 hrs

called Mayor Richards

Prime Manufacturing
7730 S 6th St.
Oak Creek
WID 006097042

Mayor says land is owned by City of Oak Creek and adjacent property owner is interested in purchasing the property.

Potential buyer did EIS on Prime Mfg property and found 0.2 ppm TCA. Wants to know answers to questions like cleanup/liability responsibilities if they purchase.

Mayor says that there was a DNR investigation at the property in 1985 as a result of leaking barrels.

L Miller.

ENVIRONMENTAL ASSESSMENT
FOR
FORAN SPICE COMPANY

Regarding the Property Referred to as
The City Parcel Behind
7730 South Sixth Street
Oak Creek, Wisconsin

Prepared by

Reinhart, Boerner, Van Deuren,
Norris & Rieselbach, s.c.
111 East Wisconsin Avenue,
Suite 1800
Milwaukee, Wisconsin 53202
414-271-1190

February 7, 1992

EXHIBITS FOR
ENVIRONMENTAL ASSESSMENT
FOR
FORAN SPICE COMPANY

Regarding the Property Referred to as
The City Parcel Behind
7730 South Sixth Street
Oak Creek, Wisconsin

Prepared by

Reinhart, Boerner, Van Deuren,
Norris & Rieselbach, s.c.
111 East Wisconsin Avenue,
Suite 1800
Milwaukee, Wisconsin 53202
414-271-1190

February 7, 1992

TABLE OF CONTENTS

1. PURPOSE AND SCOPE OF ASSESSMENT.

Reinhart, Boerner, Van Deuren, Norris & Rieselbach, s.c. was retained by Foran Spice Company ("Foran Spice") to perform a Phase I Preliminary Environmental Site Assessment of the property referred to by the City of Oak Creek as the property behind 7730 South Sixth Street in Oak Creek, Wisconsin (the "Property"). Foran Spice intends to acquire and develop the Property to supplement current operations. This report has been prepared for the exclusive use of Foran Spice for the sole purpose of assisting Foran Spice in evaluating the potential environmental risks associated with the Property. This report may not be relied upon by anyone other than Foran Spice.

Our objective was to evaluate for potential environmental contamination and liabilities that may result from current and past activities on the Property or nearby sites.

The Preliminary Environmental Site Assessment consisted of:

(a) review and analysis of information and materials supplied by state, county and city personnel in response to our requests;

(b) an on-site visit by Mark A. Yannett;

(c) interviews with county, city and governmental agency officials;

(d) review of aerial photographs;

(e) review of state and federal lists identifying known or potential hazardous waste sites;

(f) review of topographic, geologic and hydrogeologic data; and

(g) review of a 60-year chain-of-title report.

The conclusions set forth in this report are based upon information obtained from the sources noted above and those noted elsewhere in this report. The scope of our assessment did not include sampling or analysis of soil or groundwater. Our review of state, county and city records and files was limited to those made available to us during the course of our assessment. We did not independently verify the accuracy of the representations or statements made by state, county or city personnel.

2. CONCLUSION.

Based upon our review as identified in this report, and subject to the statements set forth in section 1 and the Limiting Conditions section of this report, we found no specific evidence to indicate that the Property is a source of environmental contamination or that it suffers from contamination to such an extent as to have a material adverse effect on the value of the Property or which would presently result in any material liability for Foran Spice under any federal or state laws. However, as with any property which is in proximity to industrial and commercial activities, there is a risk of subsurface contamination on the Property. For that reason and as more comprehensively discussed in this section, we recommend

Phase II subsurface analysis. It was beyond the scope of our Phase I assessment to perform soil or groundwater sampling to determine whether the Property suffers from either soil or groundwater contamination.

In our opinion, two issues merit further consideration:

(a) On-site Debris. From approximately 1981 to 1988, the City of Oak Creek Fireman's Union utilized the Property for BMX-bicycle racing activities. Scattered debris, consisting primarily of metal racks, 50 gallon marker drums, an empty storage trailer, several empty paint cans, tires and miscellaneous plastic debris, remains on site from these previous activities. We recommend that the City of Oak Creek or the Fireman's Union, or both, remove this debris from the Property prior to the transfer of title to Foran Spice.

(b) Off-site Contaminants. The Wisconsin Department of Natural Resources' ("WDNR") List of Statewide Spills and Hazardous Incident Report (July 1991) and List of Leaking Underground Storage Tanks (August 1991) identify two properties which are potential sources of groundwater contamination in the vicinity of the Property, Prime Manufacturing Corporation ("Prime Manufacturing") and Western Machine Company ("Western"). We have no specific information which indicates that contamination from these sites has impacted the Property and we have not performed subsurface investigation or analysis to confirm this possibility. However, because the Property is

downgradient of Prime Manufacturing and Western, the Property is potentially vulnerable to the migration of contaminants by way of groundwater movement from the Prime Manufacturing and Western sites onto the Property. It is also possible that the present Foran Spice property has been impacted by subsurface contaminants, although we have no reason to suspect this other than the identification of the two off-site sources by WDNR.

For the reasons set forth below, we recommend Foran Spice perform Phase II analysis of the groundwater at the Property. In brief, we have reason to believe WDNR's scope of investigation of the Prime Manufacturing and Western events was inadequate to determine their impact to downgradient properties. Furthermore, Foran Spice may ultimately need to investigate the possibility of groundwater contamination if it ever develops the Property in a manner which requires subsurface disturbance or sells the Property to a purchaser with similar development objectives.

At the outset, we must note several important facts regarding the likelihood of off-site contaminants impacting the Property.

(i) WDNR typically targets the source of environmental contamination, rather than the impacted property, for investigation and remediation responsibilities. The classes of parties who are responsible for investigating and remediating hazardous substance spills in Wisconsin include the

person who causes the hazardous substance discharge or the person who possesses or controls the discharged hazardous substance. The Wisconsin Supreme Court has determined that an owner of property on which hazardous substance contamination is present "possesses or controls" the discharge for the purposes of the Wisconsin Spill Law. However, we reiterate that WDNR prefers to hold the party which causes the contamination or which possesses or controls the source of the contamination financially responsible for correcting such conditions.

(ii) WDNR cooperated with Prime Manufacturing and Western to correct the conditions at those sites. With respect to Prime Manufacturing, WDNR determined in April 1985 that Prime Manufacturing had adequately addressed the improper storage of 12 to 18 drums of hazardous wastes on the Prime Manufacturing property, near the western boundary of the Property. With respect to Western, WDNR concluded in October 1989 that no further action was necessary because soils contaminated with heavy oils discharged from underground storage tanks had been removed and earlier analyses of groundwater from the Western site did not indicate the presence of any contaminants in the groundwater.

Therefore, for both of the potential off-site sources of groundwater contamination, WDNR concluded that the responsible party was not required to conduct further analyses of the soil or groundwater or any further remedial

effort. In the case of Prime Manufacturing, WDNR concluded subsurface investigation was not necessary at any time during the investigation.

Where the sources of contamination are off-site, WDNR has identified the persons which are responsible for the off-site contamination and WDNR has concluded no further action is necessary, we typically conclude that the owner or purchaser of property downgradient from the contaminant sources does not need to conduct subsurface analyses for evidence of impact by the off-site contaminant sources. We base such a conclusion on the fact that WDNR rarely holds the owner of property impacted by an off-site source liable for cleanup of the contamination, particularly where a responsible party has already been identified and WDNR has issued a no further action determination.

However, we are compelled to recommend that Foran Spice sample and analyze the groundwater of the Property prior to taking title to the Property for the following reasons:

(i) We question WDNR's conclusions regarding the absence of any need for further investigation at the Prime Manufacturing and Western sites. With respect to Prime Manufacturing, the WDNR file indicates that an unknown quantity of cleaning material, off-specification paint waste and solvents leaked from damaged drums stored 50 feet east of the rear overhead-door of the Prime Manufacturing building. WDNR required Prime Manufacturing to properly remove and dispose of

the leaking drums, which Prime Manufacturing accomplished in April 1985. However, WDNR did not require and Prime Manufacturing did not perform any soil sampling or groundwater monitoring to determine the impact of the hazardous waste leakage on the soils and groundwater in the vicinity of the drum storage area.

With respect to Western, the monitoring wells which were positioned south, northwest and north of the location of the leaking underground storage tanks were not properly positioned to detect groundwater contamination, which may have migrated from the leaking underground storage tanks onto the Property. Groundwater in the vicinity of the leaking underground storage tanks moved, and presumably still moves, from west to east. No monitoring wells were placed between the leaking underground storage tanks and the eastern property line of Western. Moveover, the groundwater monitoring wells, which were installed in February 1989, were not even sampled in April 1989 at the time the leaking underground storage tanks were removed. WDNR apparently closed this case without first determining the impact of the leaking underground storage tanks on the quality of the groundwater in the area.

Therefore, while WDNR concluded no further action was necessary at both the Prime Manufacturing and Western facilities, we question the bases upon which these determinations were made. In spite of a lack of requiring

further investigation on the part of Prime Manufacturing or Western, it is possible that any undetected contaminants associated with those properties could have migrated with the prevailing groundwater movement onto the Property.

(ii) If Foran Spice ever develops the Property in a manner which disturbs the subsurface, Foran Spice could exacerbate the potentially existing contaminants. While WDNR typically requires only the parties which cause a discharge of a hazardous substance or which own or operate property on which a source of hazardous substance contamination is located to investigate or remediate contamination, WDNR will consider parties which exacerbate or spread existing contaminants to have caused a discharge for the purposes of the Wisconsin Spill Law. Foran Spice could feasibly purchase and develop the Property in a manner which would not worsen existing contamination. For example, if Foran Spice intended to purchase the Property with the strict intent of using it only as a paved parking lot, we would not recommend Phase II groundwater sampling and analysis. However, if Foran Spice believes it might develop the Property in a manner which would necessitate subsurface work, we recommend that Foran Spice sample and analyze the groundwater prior to acquisition for the contaminants likely to have been released to the groundwater at the Prime Manufacturing and Western sites. Similarly, any subsequent purchaser who intends to develop the Property in a

manner necessitating subsurface work would in all likelihood require groundwater sample collection and analysis before it purchases the Property.

Foran Spice could, theoretically, postpone analysis of the groundwater until such time as subsurface disturbance is imminent. However, from the standpoint of evaluating the suitability of the Property for development as well as determining the ultimate marketability of the Property, we recommend that Foran Spice undertake the collection and analysis of groundwater samples prior to taking title to the Property.

3. BACKGROUND.

3.1 On-Site Visit. Mr. Yannett visited the Property on December 17, 1991. During the visit, Mr. Yannett interviewed Allen Goto (Plant Engineer, Foran Spice). Mr. Goto provided Mr. Yannett with a copy of the City Plat/Planning Map. Weather conditions at the time of the on-site visit were overcast and cold and the ground was covered with approximately one-quarter inch of snow. Weather conditions did not adversely affect Mr. Yannett's ability to observe the Property other than to inhibit observation of the ground surface of the Property and nearby sites.

3.2 Property Description. The Property consists of one parcel of vacant land located in the City of Oak Creek, Milwaukee County, adjacent to South Sixth Street (see

Exhibit A). The parcel identified in this report includes approximately 4.3 acres (see Exhibit B) located east of and adjoining the properties of Foran Spice and Prime Manufacturing and west of and adjoining a City of Oak Creek baseball field. The Property has no direct access other than across the adjoining properties (see Exhibit C).

Topographically, the parcel is flat with small soil mounds developed for the purposes of a BMX-bicycle racing track. Overall, the parcel slopes in a mostly northerly direction toward the North Branch of Oak Creek waterway (see Exhibit D).

The Property is part of the Oak Creek Watershed and adjoins the regional floodplain area. In addition, the Property adjoins a small section of the North Branch of Oak Creek waterway.

3.3 Site Geology and Hydrogeology. In general, the Property consists of well-drained to poorly-drained subsoils of silty clay loam and silty clay. The subsoils are very shallow to moderately deep over a silty clay loam glacial till. Generally, these subsoils are formed with 1% to 3% slopes.

Review of regional groundwater flow direction information for the area indicates an east-northeast groundwater flow direction toward the adjoining North Branch waterway is likely. The regional groundwater flow for the Oak Creek Watershed consists of three segments: (i) the shallow sand and

gravel aquifer; (ii) the shallow dolomite aquifer; and (iii) the deep sandstone aquifer. The sand and gravel aquifer, at approximately 5 feet below ground surface, flows toward surface waterbodies and/or streams. The dolomite aquifer, which is hydraulically interconnected with the sand and gravel aquifer, is generally found from 5 feet to 10 feet below ground surface and flows east toward Lake Michigan. The sandstone aquifer, at over 200 feet below ground surface, flows north toward the City of Milwaukee. The North Branch of Oak Creek waterway flows south and is a tributary to Oak Creek.

3.4 Historic Property Information and Use. Based upon the general use of lands in the area for agricultural, residential, commercial, industrial and waste disposal purposes and the absence of information which suggests any development of the Property beyond the Fireman's Union BMX-bicycle racing track, we find no indication of any usage of the Property which has had an adverse environmental impact. However, debris from the former BMX-bicycle racing track still remains across the Property.

4. CHARACTERISTICS OF THE PROPERTY.

4.1 General Environmental Conditions. We did not observe evidence of any significant adverse environmental impact on the surface of the Property, nor are significant adverse environmental impacts evident from on-site activities related to the Fireman's Union BMX-bicycle racing track

activities. However, observation of the ground surface of the Property was limited due to light snow cover, such that minor surficial stains or discolorations were not readily visible.

We did observe scattered debris consisting of metal racks, 50-gallon empty marker drums, an empty storage trailer, a billboard, several cans of used paint, two or three tires and miscellaneous plastic debris across the surface of the Property. This debris should be removed from the Property and properly disposed of by the City of Oak Creek prior to transfer of title to Foran Spice (see Exhibit E).

4.2 Storage Tanks. During our on-site visit, we did not observe any aboveground storage tanks ("ASTs") or see any indication of underground storage tanks ("USTs"). However, we did not perform a magnetometer survey of the Property, which would have detected buried metal objects and buried steel tanks, piping or barrels. We interviewed City personnel and checked governmental records for indications that USTs are or once were present. No one we interviewed was aware of any ASTs or USTs on the Property.

4.3 PCBs. During our on-site visit, we did not observe, and no one we interviewed was aware of, any electrical transformers or capacitors on the Property that were likely to contain PCBs.

4.4 Asbestos. During our on-site visit, we did not observe, and no one we interviewed was aware of, any asbestos-containing materials or asbestos wastes on the Property.

4.5 Zoning Ordinance. According to information available from the City of Oak Creek Planning Office, the Property is zoned as M-2. This zoning code is described as General Manufacturing. In addition to the general use allowance under the M-2 designation, the Property has a special-use approval by the City of Oak Creek which expanded the M-2 classification for the Property to include the BMX-bicycle racing track organized by the local Fireman's Union. According to the City Planning Office, the M-2 code particularly regulates building size and will regulate building materials in the near future. It is beyond the scope of this assessment to evaluate the implications of the zoning designation upon development of the Property. We assume Foran Spice will investigate the requirements of the City of Oak Creek Zoning Regulations prior to acquiring the Property, to the extent Foran Spice deems necessary.

4.6 Wetlands. Currently available information from the City of Oak Creek indicates that no part of the Property is designated as a wetland. However, the City of Oak Creek lists the adjacent baseball field as a wetland area, but not as a wetland-zoned area. According to the City of Oak Creek, the neighboring wetland designation should not affect development of the Property.

5. OPERATING PROCESS REVIEW.

5.1 Solid and Hazardous Waste Management. An uncertain amount of soil-type material has been disposed of or moved across the surface of the Property. We have not performed any tests or reviewed any records which document the exact nature of the materials actually deposited on or moved across the Property. The City of Oak Creek acquired title to the Property and adjacent areas in the early 1960s to develop the area as an industrial park (see Exhibit F). The local Fireman's Union used the Property under agreement with the City of Oak Creek as a BMX-bicycle racing track from approximately 1981 to 1988. Development of the BMX-track involved moving soils to create soil mounds across the Property. Aerial photographs of the Property and nearby area indicate several distinct events when topsoils on and adjacent to the Property have been disturbed (see Exhibit G). However, it is unclear from these photographs whether any adverse environmental impact to the Property occurred, or is likely to have occurred.

Currently, the area of deposited material on the Property is grass-covered. Soil testing to determine construction feasibility was performed by STS in six locations to a depth of 16 feet below ground surface across the Property on December 17, 1991. Such testing typically includes determining soil types, compressive strength and load bearing capacity. According to Mr. Goto, no fill material other than soils and no

adverse impact to soil or groundwater, such as staining, discoloration or odors, were observed by STS personnel during this soil testing. STS did not perform any sampling or analyses to determine if chemical contaminants exist in the soil and/or groundwater on the Property.

In the event the debris deposited on or moved across the Property contains potentially hazardous substances, materials or wastes, or contains wastes improperly managed under RCRA or WDNR regulations, liability for cleaning up this contamination could be imposed on Foran Spice once title to the Property is conveyed to Foran Spice. While we have not performed any testing to verify whether any hazardous material was disposed of on the Property, we have no evidence which indicates that this occurred. As a result, we do not believe it is presently necessary to do any further investigation with regard to this point.

In addition, since approximately 1988, surficial debris related to the BMX-racing track has been disposed of across the surface of the Property. Our observations indicate that this debris consists of metal racks, 50-gallon empty marker drums, an empty storage trailer, a billboard, several cans of used paint, two or three tires and miscellaneous plastic articles. We did not observe any indication of significant adverse environmental impacts from the debris remaining on the surface of the Property, but we have not

performed any testing to verify this. As a result, we recommend the surficial BMX-track related debris be removed from the Property and properly disposed of by the City of Oak Creek, prior to transfer of title to Foran Spice. In our opinion, it is presently not necessary to perform any further investigation with regard to the BMX-track debris.

5.2 Air Quality Management. During our on-site visit, we did not observe, and no one we interviewed was aware of, any air emission sources on the Property.

5.3 Water Quality Management. The use of the Property for a BMX-bicycle racing track and disposal of solid waste, such as metal debris, suggests a very low potential for groundwater and/or surface water contamination by leachate emanating from this surficial debris on the Property. We have not performed any testing to verify whether groundwater or surface water has been adversely impacted. In our opinion, no further investigation of surface waters or on-site groundwater is necessary due to these solid wastes disposed of on the surface of the Property.

6. ENVIRONMENTAL AGENCY RECORDS.

6.1 Overview of Agency Records. We reviewed several federal and state lists to determine whether the Property or nearby properties are either a known or potential source of subsurface contamination which might pose an adverse environmental impact to the Property or a material liability to Foran

Spice. None of the records reviewed list the Property as a source of soil or groundwater contamination or indicate that specific sources of such contamination exist on the Property.

However, we conclude that a potential for contamination of on-site groundwater from off-site sources exists. This conclusion is based on a review of WDNR files, spill records, UST registration and leaking UST reports, active and abandoned landfill lists and files, hazardous waste site inventory lists, United States Environmental Protection Agency ("U.S. EPA") Superfund National Priorities List, U.S. EPA Facilities Index System list ("FINDS") and U.S. EPA CERCLIS listings.

6.2 Leaking UST ("LUST") Records. We reviewed WDNR's August 1991 list of leaking USTs to identify LUSTs on the Property or in the vicinity of the Property. WDNR's lists indicate several off-site locations where leaks have occurred within one mile of the Property. One of the off-site UST leakage events occurred at Western, located at 7655 South Sixth Street, directly across South Sixth Street from Foran Spice and the Property (see Exhibit H). Due to the unknown extent of the leakage and the proximate location of the event, we reviewed background information in addition to the WDNR lists. This additional review was undertaken to better quantify the nature, extent and timeframe of the leak, as well as the likelihood of any adverse environmental impact to the Property and the necessity for monitoring well installation on the Property.

According to WDNR files, WDNR investigated the soil and groundwater of the former Western site in 1989. During February 1989, monitoring wells were installed in the north, west and south areas of the site as part of a pretransaction investigation of the Western site. Data from the three wells indicated no adverse impact to the groundwater at the site had occurred, but showed groundwater flow direction to be predominantly easterly at 9.4 to 12.5 feet below ground surface. No monitoring wells were installed at this time along the eastern section of Western's site.

In April 1989, three LUSTs were removed at Western under WDNR supervision. WDNR files indicate soils contaminated with up to 11,000 ppm of hydrocarbons were removed to depths of 9 and 11 feet below ground surface, but groundwater was not encountered during the excavation process. WDNR did not require sampling and analysis of the groundwater from the three monitoring wells installed on the site in February 1989 for chemical contaminants during the LUST investigation. WDNR closed the case in October 1989 under a no further action determination (see Exhibit I).

We conclude the Western LUSTs might pose a threat to groundwater on the Property based on the following facts:
(i) the Property is downgradient of the Western site;
(ii) migration of the contaiminants would have moved east along the building wall and not toward the adjacent south monitoring

well; (iii) no monitoring wells were located downgradient of the LUSTs; (iv) WDNR did not require collection and analysis of groundwater samples from the three existing monitoring wells at the time of the removal of the USTs; and (v) no underbuilding investigation or investigation under the concrete UST pad was performed at the time of the removal of the USTs. Therefore, although the WDNR issued a no further action letter regarding the LUSTs, we believe the investigation may have been inadequate to verify whether or not the leaking USTs impacted the groundwater downgradient of the USTs. Because the Property is downgradient of Western, we cannot conclude the 1989 Western event has not impacted or will not impact the Property.

However, we have not performed any sampling to verify the extent, if any, to which the groundwater on the Property has been adversely impacted by this off-site leak. The only method available at this time to verify whether the Property is contaminated from these LUSTs is to install groundwater monitoring wells on the Property (see section 2 of this report for a more detailed discussion of our Phase II recommendation).

6.3 Spill Records. The WDNR has maintained records since 1978 of toxic and hazardous substance spills. The WDNR spill list reflects only spills reported to the WDNR and this list is poorly organized and managed by the WDNR. As a result, there is no assurance that there have not been spills on the

Property or within a one-mile radius of the Property in addition to those identified in the WDNR spill listing. We reviewed the list available from the WDNR Southeast District office for any spill incidents on the Property or within a one-mile radius of the Property.

The WDNR list we reviewed reflected no spills on the Property, but indicated numerous spills within a one-mile radius of the Property. One spill occurred at Prime Manufacturing, located at 7730 South Sixth Street, south and directly adjoining Foran Spice and west of the Property (see Exhibit H). According to the WDNR spill list, an unknown quantity of cleaning material was released at Prime Manufacturing from an unknown quantity of leaking drums in 1985. Waste generator reports from the WDNR indicate Prime Manufacturing generates TCE, mineral spirits, TCA and naphtha wastes. Due to the unknown extent of the leakage and the proximate location of the event, we reviewed additional background information in addition to the WDNR lists. This additional review was undertaken to better quantify the nature, extent and timeframe of the spill, as well as the likelihood of any adverse environmental impact to the Property and the necessity for monitoring well installation on the Property.

According to WDNR files and the WDNR Spill Coordinator assigned to the project in 1985, 12 to 18 drums of off-specification paint wastes and solvents were improperly

stored at the Prime Manufacturing property for three to four years. This drum storage area was located approximately 50 feet from the rear of the building directly east of the rear overhead doorway in an area which adjoins the Property. Storage of these wastes for several years resulted in damage to the drums and leakage of hazardous wastes. A Notice of Noncompliance with Wisconsin Administrative Code Chapter NR 181 was issued by the WDNR in February 1985. Prime Manufacturing resolved the noncompliance issues by April 1985. No other compliance or release events have been reported by Prime Manufacturing or investigated by WDNR prior to or after this 1985 event. The WDNR did not require, and Prime Manufacturing did not initiate, soil sampling or groundwater monitoring in response to the 1985 leak event (see Exhibit J).

We conclude that the drum storage area poses a potential threat to groundwater on the Property. We reach this conclusion based on the following facts: (i) the leakage history of the drum storage area prior to 1985 is unknown; (ii) the 1985 leakage event may have involved several drums of hazardous wastes; (iii) the extent of any contamination to soil or groundwater has not been investigated; (iv) the drum storage area is located immediately adjacent to the Property; and (v) the direction of groundwater flow from Prime Manufacturing is east-northeasterly toward the Property.

Although the WDNR has not investigated additional environmental concerns at Prime Manufacturing and the 1985 violations have been resolved, we believe the uncertain leakage history of the storage area and undetermined extent of the 1985 event warrant consideration of groundwater testing prior to Foran Spice taking title to the Property. We have not performed any sampling to verify the extent, if any, to which the groundwater on the Property has been adversely impacted by this off-site leak. The only method available at this time to verify whether the Property is contaminated from the hazardous waste storage practices at Prime Manufacturing is to install groundwater monitoring wells on the Property (see section 2 of this report for a more detailed discussion of our Phase II recommendation).

6.4 Lists of Identified and Potential Hazardous Waste Sites. We reviewed the 1990 WDNR Registry of Waste Disposal Sites in Wisconsin, the WDNR List of Licensed Landfills in Wisconsin dated August 28, 1991, the 1987 WDNR Inventory of Sites or Facilities Which May Cause or Threaten to Cause Environmental Pollution, the WDNR List of Hazardous Waste Generators, the current U.S. EPA CERCLIS List of Potential Hazardous Waste Sites, the current U.S. EPA FINDS list and the current U.S. EPA Superfund National Priorities List of Contaminated Facilities to determine if any potential environmental problems have been identified on the Property or in the vicinity of the Property.

The Property is not identified on any of the lists reviewed. However, several disposal sites in the vicinity of the Property are identified on these lists (see Exhibit K). The inclusion of a facility on one of the disposal site lists does not necessarily indicate an adverse impact to the environment or to the Property has occurred, but that disposal activity is occurring.

Additional review of WDNR files indicates the disposal sites located in the surrounding area are either controlled sites or under investigation. As a result, a low likelihood of adverse environmental impact to the Property or material liability to Foran Spice due to these disposal sites exists. We do not recommend further investigation concerning the sites identified on these lists.

SOURCES OF INFORMATION

1. Physical inspection of the Property and surrounding areas by Mark A. Yannett.

2. Interview with Allen Goto, Plant Engineer, Foran Spice Company, Oak Creek, Wisconsin.

3. Interview with Paul Milesky, City Planner, City of Oak Creek Planning Office, Oak Creek, Wisconsin.

4. Interview with Gina Keenan, Environmental Specialist, WDNR, Milwaukee office.

5. Interview Michael W. Zillmer, WDNR, Solid Waste Specialist (formerly Spill Coordinator), Milwaukee office.

6. Review of aerial photographs dated March 1963, April 1967, April 1970, May 1975, April 1980, April 1985 and March 1990 from the Southeastern Wisconsin Regional Planning Commission, Waukesha, Wisconsin.

7. Review Hydro-Search, Inc. Leaking UST Investigation Report for the former West Machine Company facility dated October 1989.

8. Review of U.S. Department of Interior Geological Survey, Topographic Map, 7.5 Minute Series, Oak Creek Quadrangle, revised 1971.

9. Review 60-year chain-of-title report prepared by Chicago Title Company, Milwaukee, Wisconsin, dated January 3, 1992.

10. Review of the U.S. Department of Agriculture Soil Conservation Service Soil Survey for Milwaukee and Waukesha Counties dated July 1971.

11. Review of the Comprehensive Plan for the Oak Creek Watershed, SEWRPC, Planning Report No. 36 dated August 1986.

12. Review of WDNR Inventory of Sites or Facilities Which May Cause or Threaten to Cause Environmental Pollution dated July 1987.

13. Review of the WDNR List of Hazardous Waste Generators dated May 1991.

14. Review of the WDNR Statewide Spills and Hazardous Incident Report issued for January 1, 1978 through April 30, 1991.

15. Review of the WDNR Registry of Waste Disposal Sites in Wisconsin dated February 1990.

16. Review of WDNR List of Licensed Landfills in Wisconsin dated August 28, 1991.

17. Review of the WDNR List of Leaking Underground Storage Tanks dated August 1991.

18. Review of the WDNR Hazard Ranking List dated April 1988.

19. Review of U.S. EPA Superfund Program CERCLIS Site Location Listing dated February 1991.

20. Review of U.S. EPA Superfund National Priorities List dated April 1991.

21. Review of U.S. EPA Facilities Index System list dated November 21, 1991.

LIMITING CONDITIONS

The conclusions in this report are only as valid as the information upon which they are based. Information obtained from interviews of current owners or operators of the Property, current or former neighbors, local officials, state agency officials and others depends upon the veracity of the source. We have attempted to identify those situations in which inconsistencies or inaccuracies were apparent. Our investigation included a review of information provided by others in an attempt to determine if prior owners may have used the Property in ways that could have created environmental risks. We have relied upon the accuracy of that information and prior uses might not be evident from these records checked in connection with our assessment.

Findings presented in this report are based upon observation of current practices and conditions only. The conclusions are not necessarily indicative of future conditions at the site.

Aerial photographs and other public environmental records reviewed in connection with this assessment were those readily available within the time provided to us and the budget established for this project.

QUALIFICATIONS

Reinhart, Boerner, Van Deuren, Norris & Rieselbach, s.c. is a law firm of 109 attorneys with a diversified general commercial practice. The central office is located in Milwaukee, Wisconsin with other offices in Neenah (Wisconsin), Denver and New York City. The firm represents clients in more than 40 states and our attorneys are licensed to practice in Wisconsin, Arizona, California, Colorado, the District of Columbia, Florida, Illinois, Michigan and New York. The Environmental Law Department consists of the following seven attorneys and three environmental technicians:

MICHAEL H. SIMPSON. Education: Northwestern University (B.A., 1968); University of Chicago (M.B.A., 1969); University of Wisconsin (J.D., cum laude, 1975). Member: State Bars of Wisconsin, California and Colorado. Mike is the head of the Environmental Law Department and manages the firm's nonlitigation environmental matters where he has been active in counseling clients on environmental matters relating to sales, acquisitions and loans. Mike also advises clients on environmental enforcement defense, compliance and permitting matters, and has represented clients before the Wisconsin Department of Natural Resources and the U.S. Environmental Protection Agency. Mike frequently lectures on environmental issues and is the co-author of Real Estate Transactions System (State Bar of Wisconsin publication). This book includes a

chapter on environmental risks and liabilities in real estate transactions in Wisconsin. Mike is also a member of the firm's Real Estate Department where his areas of expertise are commercial development, leasing, lending and property tax assessments. Mike is a member of the Natural Resources, Energy and Environmental Law Section and the Environmental Law Committee of the Real Property, Probate and Trust Section of the American Bar Association.

JEFFREY P. CLARK. Education: Georgetown University (B.A., magna cum laude, 1976); University of Wisconsin-Madison (J.D., 1979). Member: State Bars of Wisconsin and Colorado. Jeff manages the firm's environmental litigation matters and administrative proceedings handled by the firm. Jeff represents clients before federal trial and appellate courts throughout the nation and before state courts in Wisconsin and Colorado. Jeff also represents clients before the WDNR and the U.S. EPA. Jeff is also a member of the firm's Litigation Department. Before joining the firm, Jeff served as a law clerk in the Environmental Protection Unit of the Wisconsin Department of Justice where he worked on various environmental litigation matters involving the WDNR. Jeff is a member of the Environmental Litigation Committee of the Section of Litigation of the American Bar Association.

JOHN M. VAN LIESHOUT. Education: Marquette University (B.A., magna cum laude; J.D., 1981). Member:

Phi Beta Kappa and State Bar of Wisconsin. John focuses his practice on environmental litigation, including Superfund, wetlands and UST issues. John also counsels manufacturers, lenders, fiduciaries and trustees on environmental matters. John has written extensively on environmental matters, including Bankers Beware: Liability of Lending Institutions Under Superfund for the Hofstra Property Law Journal and Superfund Municipal Settlement Policy for the Municipal Attorney. John also speaks frequently to legal, governmental and real estate groups. John is vice chair of the Natural Resources Committee of the American Bar Association's General Practice Section, is a member of the ABA Environmental Insurance Litigation Committee and serves as a member of the program committee of the State Bar of Wisconsin's Environmental Law Section.

STEVEN P. BOGART. Education: Carroll College (B.S., magna cum laude, 1981); University of Wisconsin (J.D., cum laude, 1984). Order of the Coif. Member: State Bar of Wisconsin and the American Bar Association. Steve counsels clients in employee right-to-know, community right-to-know and insurance matters and assists with environmental litigation. Steve is also a member of the firm's Litigation and Labor Law Departments working in the area of employee relations.

WILLIAM P. SCOTT. Education: University of Wisconsin-Madison (B.A., Geology & Geophysics, 1978; M.S.,

Geology, 1988; J.D., 1988). Member: State Bar of Wisconsin and the American Bar Association. Bill's environmental background includes substantial course work in geology, soil science and urban and regional planning, and also courses in botany, ecology, wildlife ecology, hydrogeology, advanced chemistry and physics. Before attending law school, Bill worked for seven years as a geologist with a multidisciplinary scientific research unit of the University of Wisconsin. During law school, Bill served as a law clerk in the Environmental Protection Division of the Wisconsin Department of Justice. Since law school, Bill has advised clients on soil and groundwater contamination problems, including representing clients in matters before the WDNR. Bill has also been active in representing clients in stock- and asset-purchase transactions.

EDWARD B. WITTE. Education: University of Vermont (B.A., 1983); Vermont Law School (J.D., cum laude, 1989, Masters of Studies of Environmental Law, magna cum laude, 1989). Member: State Bar of Wisconsin and the American Bar Association. Prior to joining the firm, Ned was employed as a legal clerk in the Environmental Enforcement Division of the Vermont Attorney General's Office and as an environmental law consultant to a private law firm in Hanover, New Hampshire.

CAROLYN A. SULLIVAN. Education: Duke University (A.B., Economics, 1987); University of Wisconsin-Madison (J.D.,

cum laude, 1991). Member: Wisconsin, Milwaukee and American Bar Associations. Environmental background includes course work at Vermont Law School's Environmental Law Program.

SCOTT D. PRILL. Education: University of Iowa (B.S., General Science, 1974; M.S., Environmental Engineering, 1977); Keller Graduate School of Management (M.B.A., 1988, with Distinction). Member: Iowa Academy of Science, American Water Resources Association and National Water Well Association. Scott's environmental experience includes seven years as an environmental scientist with a hazardous waste management consulting company. His experience consisted of all phases of project work, including project design, implementation, data analysis, report preparation and presentation and overall project management. Scott also served four years as a limnologist for the University of Iowa Hygienic Laboratory where he was responsible for conducting water quality studies throughout the State of Iowa.

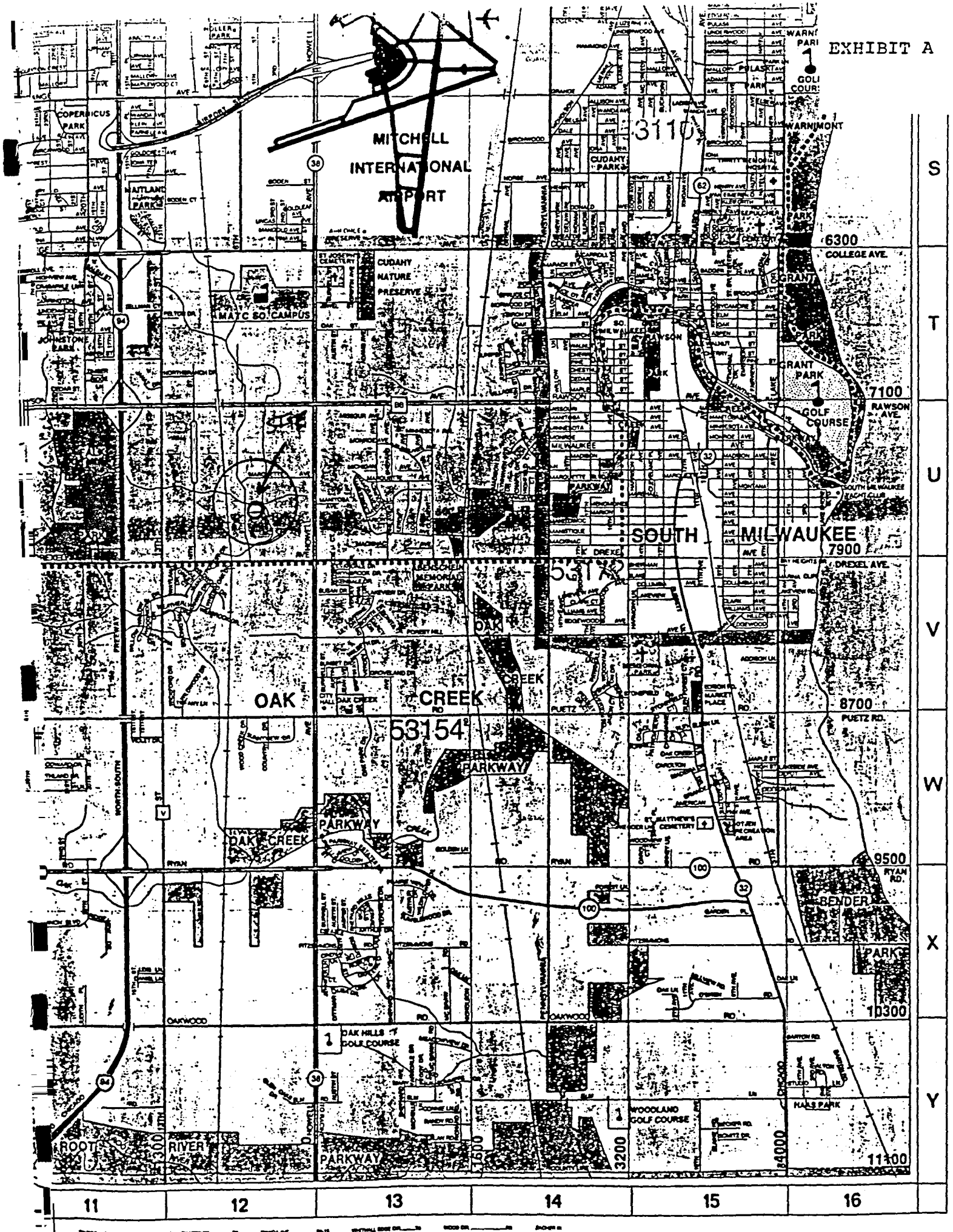
JAMES H. MUELLER, P.E. Education: University of Wisconsin-Milwaukee (B.S.C.E., 1981, M.S.C.E., 1984). Jim is a licensed professional engineer in Wisconsin with ten years' experience in environmental disciplines, including considerable work in LUST corrective action procedures, hazardous waste management, environmental assessments of real estate and wastewater discharge permitting. Jim has spent three years as

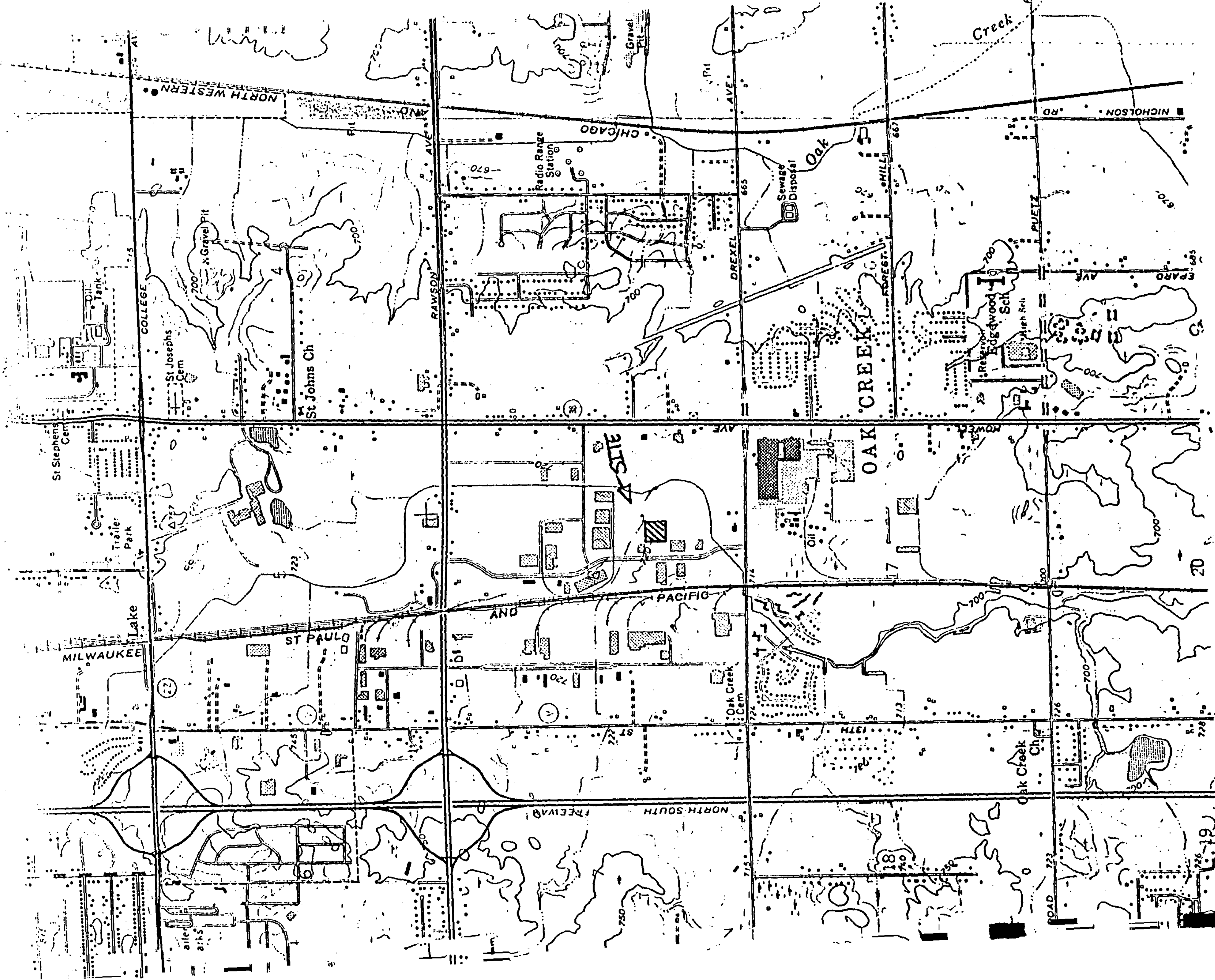
a process engineer working in development, process verification and pilot testing of treatment systems with a major wastewater treatment equipment manufacturer. In addition, Jim spent two years with the U.S. Peace Corps in Kenya where he worked on water and environmental sanitation program development and implementation with the Ministry of Water Development and UNICEF. Jim is a member of the Water Pollution Control Federation, the National Water Well Association and the MMSD Greater Milwaukee Toxics Minimization Task Force.

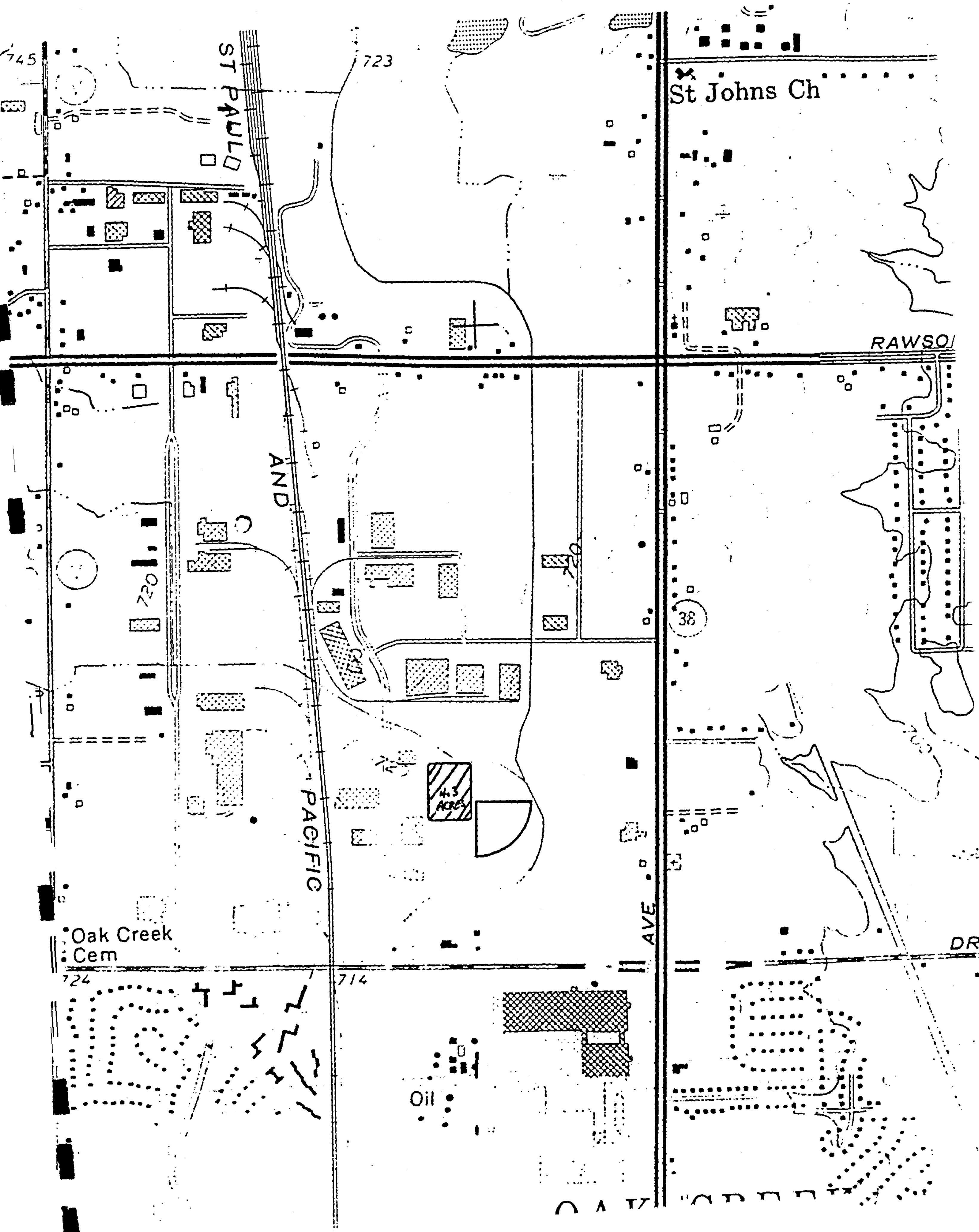
MARK A. YANNETT. Education: East Stroudsburg University (B.S., Biological Biochemistry, 1983); The Pennsylvania State University (Master of Environmental Pollution Control, 1986); Vermont Law School (Master of Studies in Environmental Law, cum laude, 1990). Member: The American Chemical Society (since 1983). Mark has completed extensive course work in the analytical chemistry, biochemistry, environmental engineering and legal disciplines. Mark also has comprehensive professional experience in environmental science. He has developed numerous Environmental Risk Assessment reports under CERCLA. His most recent position with the New Jersey Department of Environmental Protection provided him the opportunity to consult on and coordinate the technical aspects of over 175 ECRA hazardous waste sites. Mark has specialized in using innovative investigatory and remedial

techniques. Mark has also had extensive experience in industrial-to-residential conversion projects.

EXHIBIT A


MITCHELL INTERNATIONAL AIRPORT
COPERNICUS PARK
MAITLAND PARK
CUDAHY NATURE PRESERVE
MATC SO. CAMPUS
CUDAHY PARK
WARNIMONT PARK
GRANT PARK
GOLF COURSE
SOUTH MILWAUKEE
OAK CREEK
PARKWAY
OAK HILLS GOLF COURSE
WOODLAND GOLF COURSE
BENDER PARK
HALES PARK
ROOT RIVER PARKWAY
COLLEGE AVE.
RAWSON AVE.
DREXEL AVE.
PUETZ RD.
RYAN RD.
OAKWOOD RD.
6300
7100
7900
8700
9500
10300
11100
53172
53154
S
T
U
V
W
X
Y
11
12
13
14
15
16


NORTH WESTERN
AND
CHICAGO
NICHOLSON
RD
Creek
Oak
Gravel Pit
Radio Range Station
Sewage Disposal
COLLEGE
RAWSON
AVE
DREXEL
AVE
FOREST
HILL
PUETZ
Reservoir
Edgewood Sch
High Sch
Gravel Pit
Oil Tank
St Josephs Cem
St Johns Ch
St Stephens Cem
Trailer Park
SITE
OAK CREEK
PACIFIC
AND
ST PAUL
MILWAUKEE
Lake
Oak Creek Cem
Oil
Oak Creek Ch
NORTH SOUTH FREEWAY
ROAD



745
723
ST PAUL
St Johns Ch
RAWSO
AND
720
38
4.3 ACRES
PACIFIC
AVE
Oak Creek
Cem
DR
724
714
Oil

EXHIBIT B

LEGAL DESCRIPTION
FOR A PORTION OF CITY OWNED LAND
BEHIND 7730 South 6th Street

All that land in the SE 1/4 of Section 8, Town 5 North, Range 22 East, bounded and described as follows: Commencing at the SW corner of said 1/4 Section; thence S 89° 07' 20" E, 520.00 feet along the south line of said 1/4 Section to a point; thence N 00° 52' 40" E, 275.00 feet to a point on the east ROW line of South 6th Street; thence northwesterly 351.10 feet along the arc of a curve whose radius is 755 feet, whose center lies to the west and whose chord bears N 12° 26' 39.5" W, 347.94 feet to a point on said east ROW; thence N 25° 45' 59" W, 46.53 feet to a point on said east ROW; thence northwesterly 348.14 feet along the arc of a curve, whose center lies to the east, whose radius is 770.00 feet and whose chord bears N 12° 48' 49.5" W, 345.19 feet to a point on said east ROW; thence N 00° 08' 20" E along said east ROW, 994.86 feet to a point; thence southeasterly 215.02 feet along the arc of a curve whose radius is 440.00 feet, whose center lies to the southwest and whose chord bears S 62° 26' 40" E, 212.89 feet to a point; thence S 48° 26' 40" E, 214.73 feet to the point of beginning of the lands to be described which is the northeast corner of CSM No. 923; thence southeasterly 397.19 feet along the arc of a curve whose radius is 550.00 feet, whose center lies to the north and whose chord bears S 68° 45' 47.5" E, 388.91 feet to a point; thence S 89° 04' 55" E, 87.13 feet to a point; thence S 00° 08' 20" W, 374.68 feet to a point; thence N 89° 05' 32" W, 450.00 feet to a point; thence N 00° 08' 20" E, 509.82 feet to the point of beginning and containing 4.2 acres.

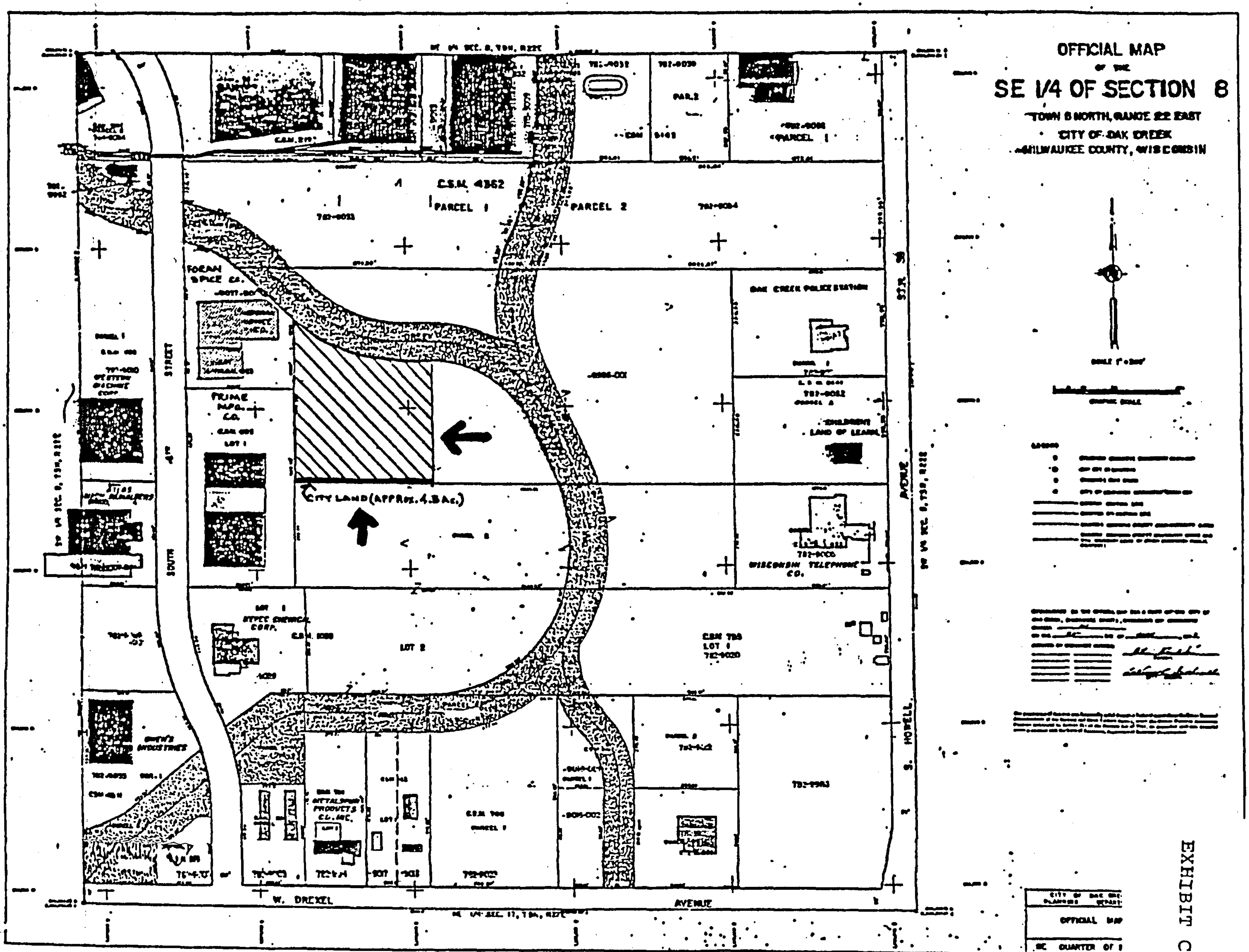
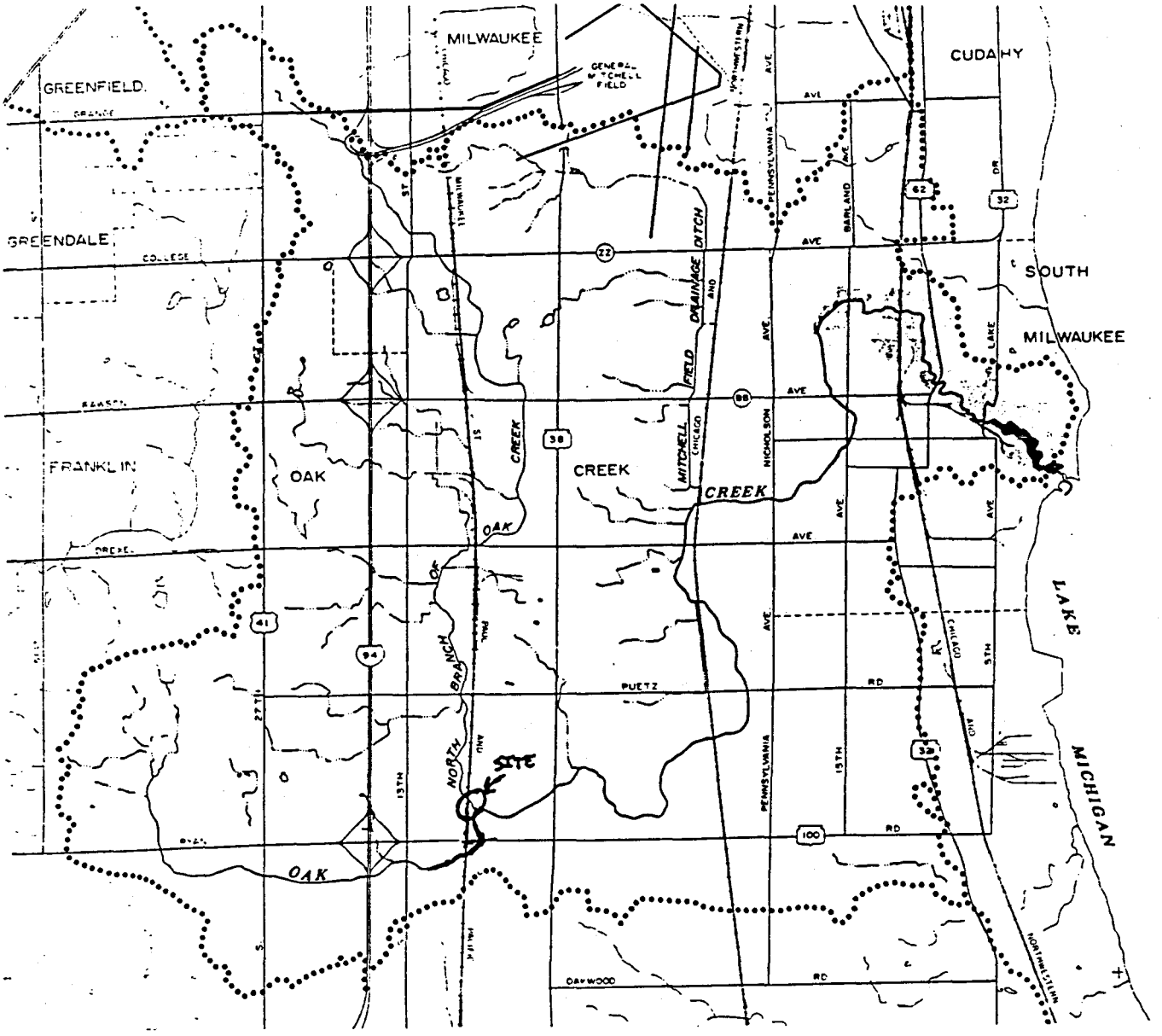

OFFICIAL MAP
SE 1/4 OF SECTION 8
TOWN 5 NORTH, RANGE 22 EAST
CITY OF OAK CREEK
MILWAUKEE COUNTY, WISCONSIN
C.S.M. 4362
PARCEL 1
PARCEL 2
FORAN SPICE CO.
PRIME MFG. CO.
OAK CREEK POLICE STATION
CHILDRENS LAND OF LEARN
CITY LAND (APPROX. 4.3 Ac.)
WISCONSIN TELEPHONE CO.
LOT 2
CSM 785
LOT 1
S. 4TH STREET
SOUTH
S. HOWELL AVENUE
W. DREXEL AVENUE

EXHIBIT C

Map 12

TOPOGRAPHIC CHARACTERISTICS OF THE OAK CREEK WATERSHED

EXHIBIT D



LEGEND

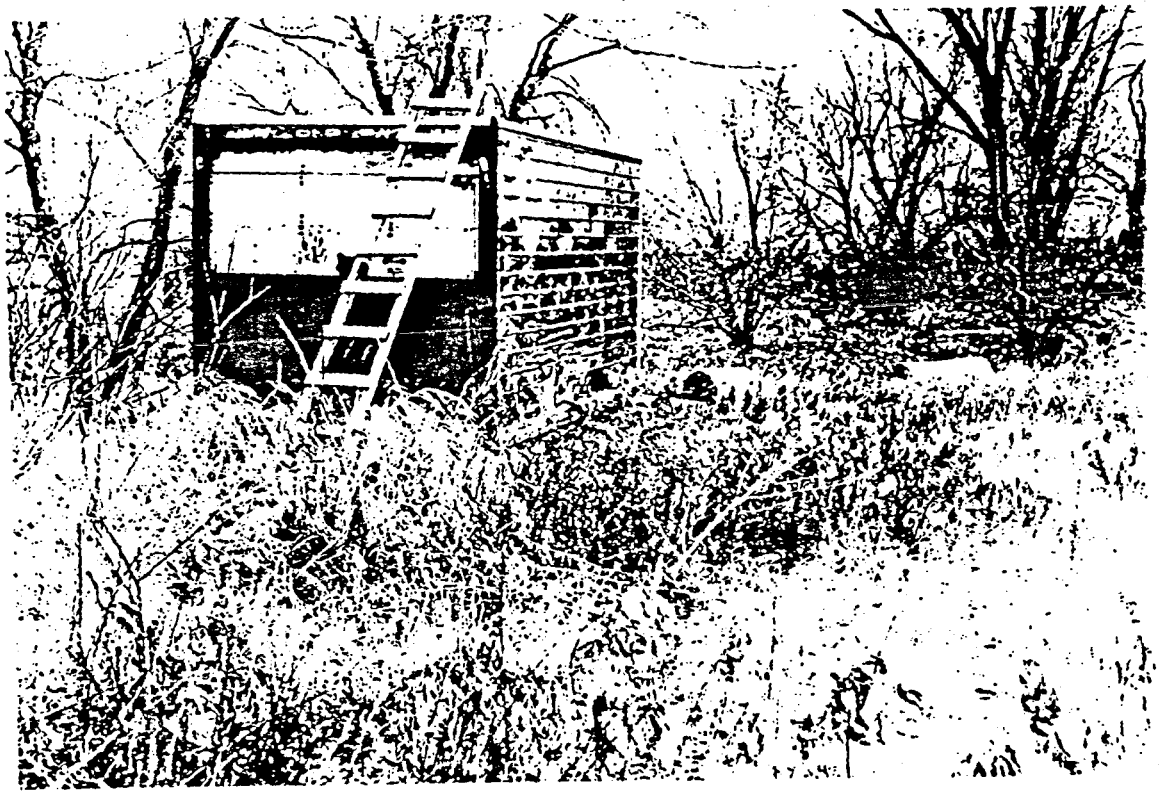
SURFACE ELEVATION IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM

- 800 - 849
- 750 - 799
- 700 - 749
- 650 - 699
- 600 - 649
- 550 - 599

Glacial deposits superimposed on underlying bedrock establish the overall topography of the Oak Creek watershed. Watershed topography is asymmetrical, with the eastern border of the watershed being about 80 to 140 feet below the western border. Surface elevations in the watershed range from a high of approximately 810 feet above National Geodetic Vertical Datum (mean sea level datum) at the western border of the watershed in the southwest corner of the City of Milwaukee to a low of approximately 590 feet above National Geodetic Vertical Datum at the mouth of Oak Creek, a maximum relief of 220 feet.

Source: SEWRPC.

EXHIBIT E



Warranty Deed from Walter Dellmann and Dorothy Dellmann, his wife, Frances Wrasse, Helen Ripp, f/k/a Helen Dellmann, Marie Zopf, f/k/a Marie Dellmann and Laura Van Beck, f/k/a Laura Dellmann to Alfred P. Wrasse and Frances Wrasse, his wife.

Dated: January 21, 1954 Recorded: January 22, 1954
Volume: 3247 Page: 549

Personal Representative's Deed by Frances Wrasse for Augusta Dellmann, to Alfred P. Wrasse and Frances Wrasse, his wife.

Dated: January 21, 1954 Recorded: January 22, 1954
Volume: 3247 Page: 551

Quit Claim Deed from Alfred P. Wrasse and Frances Wrasse, his wife to The City of Oak Creek.

Dated: July 14, 1964 Recorded: May 28, 1965
Reel: 249 Image: 1048 Document No: 4180866

Warranty Deed from Alfred P. Wrasse and Frances Wrasse, his wife to Oak Creek Industrial Development Corp.

Dated: July 22, 1965 Recorded: July 22, 1965
Reel: 258 Image: 1995 Document No: 4193664

Warranty Deed from Oak Creek Industrial Development Corporation to The City of Oak Creek.

Dated: July 22, 1965 Recorded: July 27, 1965
Reel: 259 Image: 1577 Document No: 419471

Warranty Deed from The City of Oak Creek to Oak Creek Industrial Development Corporation.

Dated: September 18, 1968 Recorded: October 18, 1968
Reel: 446 Image: 192 Document No: 4429391

Warranty Deed from Oak Creek Industrial Corporation to Foran Spice Company, Inc.

Dated: November 12, 1968 Recorded: November 14, 1968
Reel: 450 Image: 1053 Document No: 4429621

Warranty Deed from Foran Spice Company, Inc. to Foran Spice Company, Inc. Profit Sharing Trust.

Dated; November 12, 1968 Recorded: November 14, 1968
Reel: 450 Image: 1054 Document No: 4429622

Warranty Deed from Oak Creek Industrial Development Corporation to Foran Spice Company, Inc. Profit Sharing Trust.

Dated: March 25, 1971 Recorded: April 5, 1971
Reel: 579 Image: 1341 Document No: 4583076

This Deed is to correct Deed executed the 28th day of July, 1969.

Warranty Deed from Foran Spice Company, Inc. Profit Sharing Trust to Foran Spice Company, Inc.

Dated: December 1, 1972 Recorded: December 1, 1972
Reel: 691 Image: 1624 Document No: 4725041

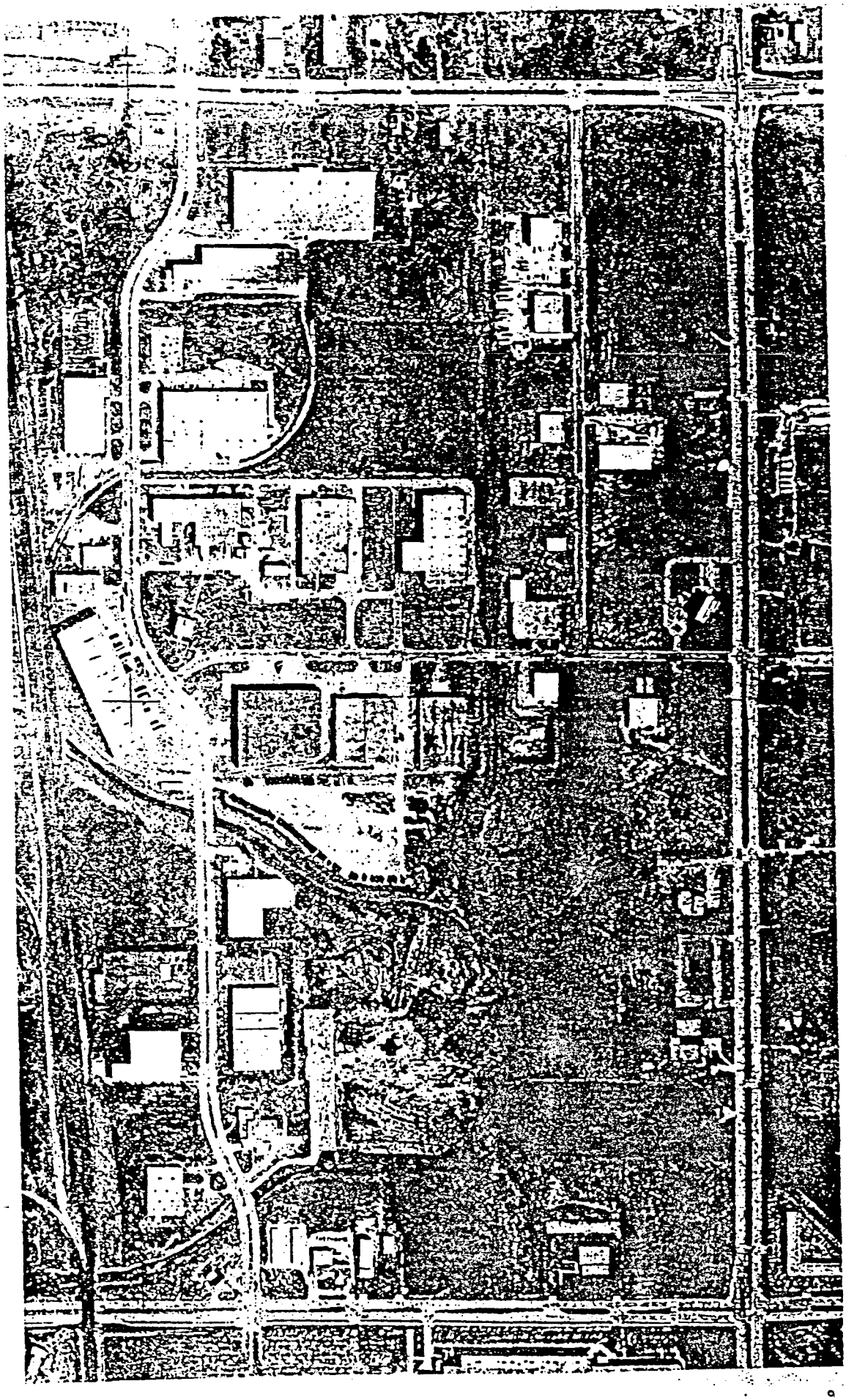
Warranty Deed from Foran Spice Company, Inc. to Dimes Realty Co., a co-partnership, consisting of Sam Eisenstadt and Miriam Lowe.

Dated: December 1, 1972 Recorded: December 1, 1972
Reel: 691 Image: 1625 Document No: 4725042

Warranty Deed from Dimes Realty Co., a co-partnership, consisting of Sam Eisenstadt and Miriam Lowe to Oak Creek Investments.

Dated: June 23, 1978 Recorded: August 24, 1978
Reel: 1140 Image: 1550 Document No: 5244875

EXHIBIT (

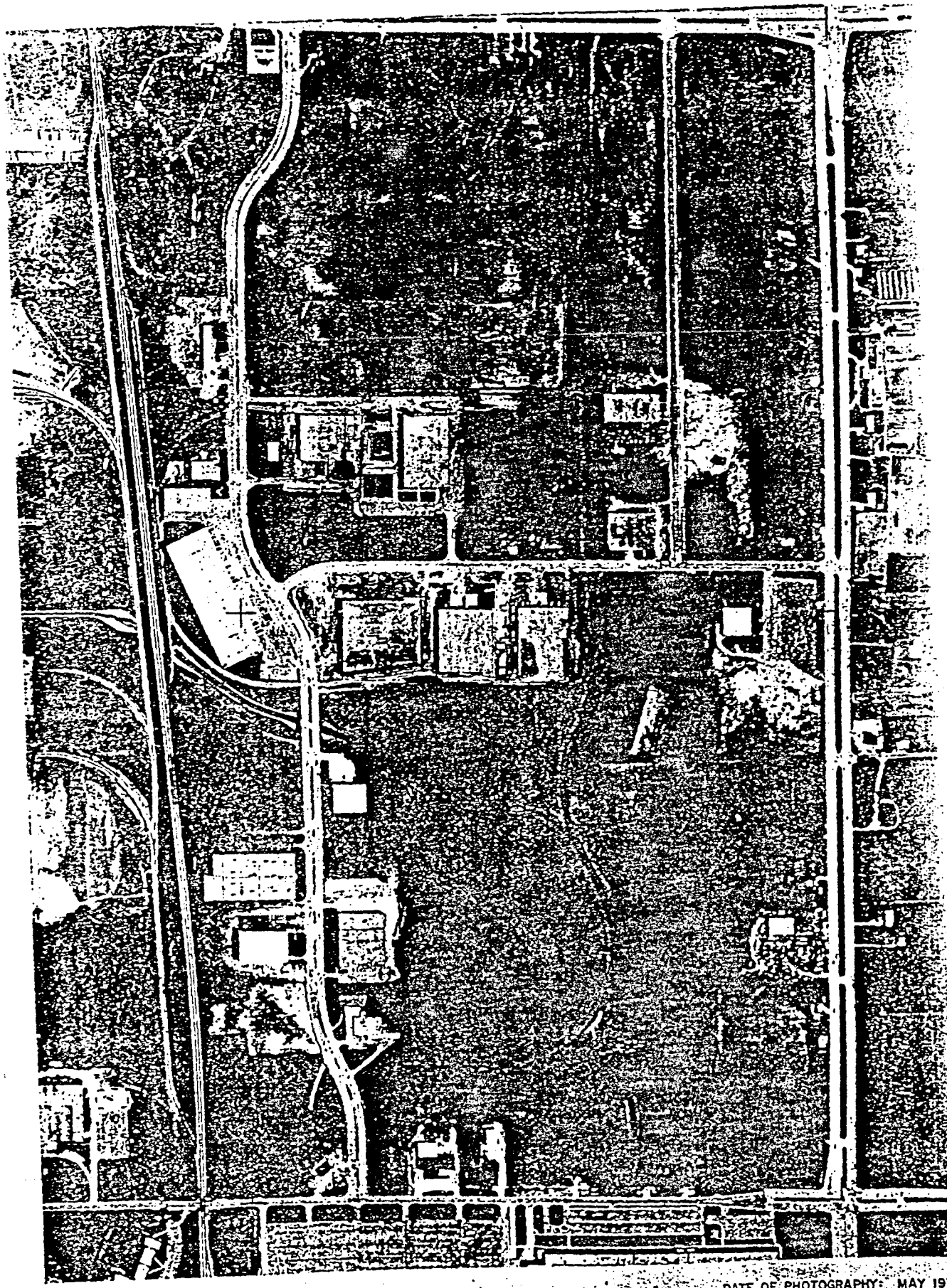


1"=400'

1"=400'

DATE OF PHOTOGRAPHY: MARCH 1985

DATE OF PHOTOGRAPHY: APRIL 1980



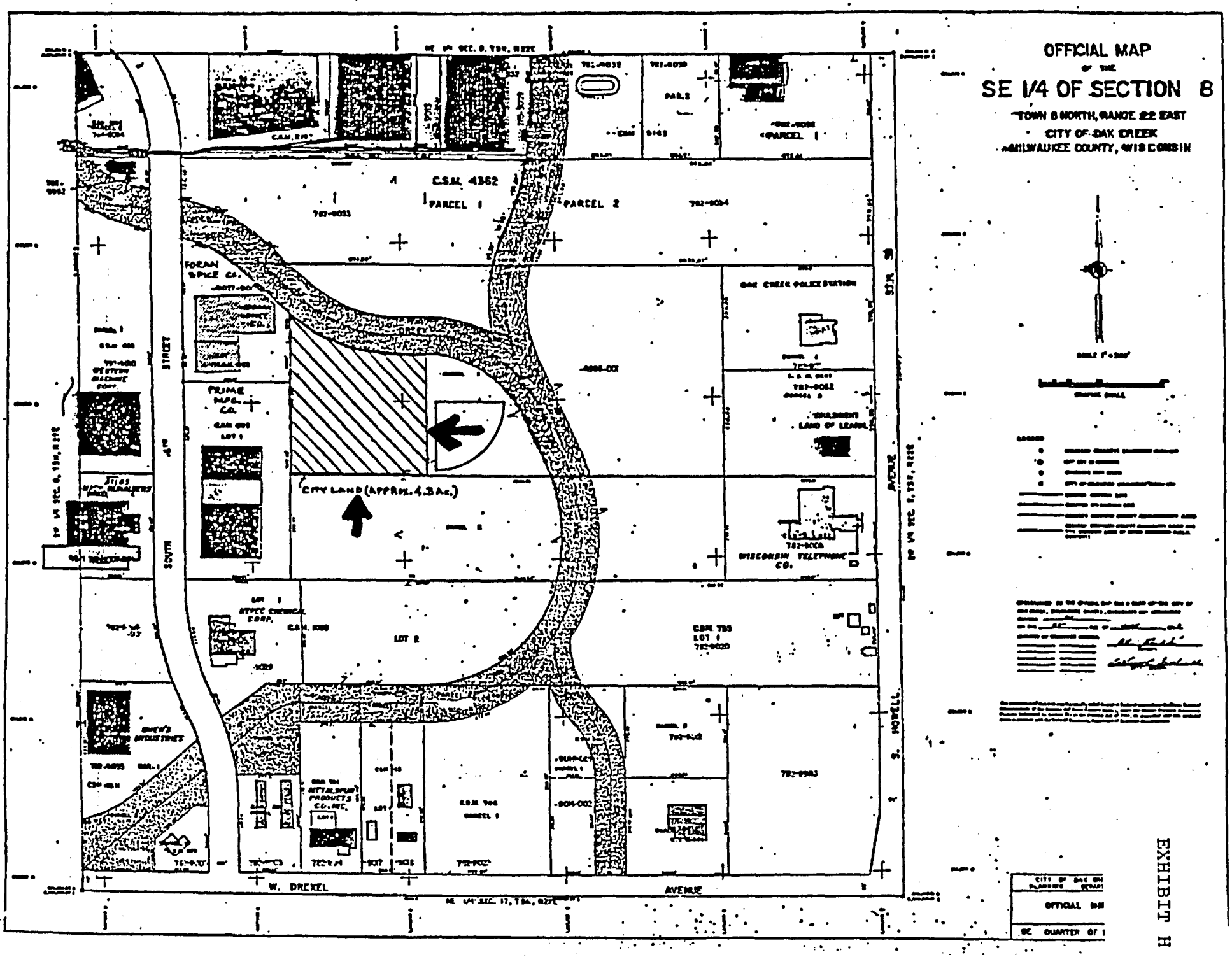
DATE OF PHOTOGRAPHY: MAY 19

)N

DATE OF PHOTOGRAPHY: APRIL 1970

DATE OF PHOTOGRAPHY: APRIL, 1967

DATE OF PHOTOGRAPH: MARCH 1


OFFICIAL MAP
OF THE
SE 1/4 OF SECTION 8
TOWN 5 NORTH, RANGE 22 EAST
CITY OF OAK CREEK
MILWAUKEE COUNTY, WISCONSIN
CSM 4362
PARCEL 1
PARCEL 2
CITY LAND (APPROX. 4.3 Ac.)
FORAN SPICE CO.
PRIME PAPER CO.
OAK CREEK POLICE STATION
WISCONSIN TELEPHONE CO.
ATTEC CHEMICAL CORP.
METALSPUN PRODUCTS CO., INC.
SOUTH 6TH STREET
S. HOWELL AVENUE
W. DREXEL AVENUE
EXHIBIT H

ge 7
ceived: 01/26/89

RADIAN CORP. REPORT Work Order # M9-01-054
Results by Sample

PLE ID B-2 82877XF FRACTION 02A TEST CODE EPA602 NAME EPA602 COMPOUNDS
Date & Time Collected 01/24/89 Category

ALYST MM
NSTRMT TRACOR INJECTD 01/27/89 FILE # 1.0 FACTOR UNITS ug/l

CAS#	COMPOUND	RESULT	DET LIMIT
71-43-2	Benzene	ND	.03
108-88-3	Toluene	ND	.37
100-41-4	Ethylbenzene	ND	.52
108-90-7	Chlorobenzene	ND	.65
106-46-7	1,4-Dichlorobenzene	ND	2.5
541-73-1	1,3-Dichlorobenzene	ND	1.0
95-50-1	1,2-Dichlorobenzene	ND	1.6
108-38-3	m-Xylene	ND	1.3
Mixture	o,p-Xylene	ND	1.1
	SURROGATES		
98-08-8	a,a,a-Trifluorotoluene	83.4%	recovery

TES AND DEINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES
Carroll D. Besadny
Secretary

Box 12436
Milwaukee, Wisconsin 53212
Fax: (414) 562-1258

September 21, 1989

File Ref: 4440

Mr. Dan Maddigan
Web Realty Co.
3238 S. 123rd Street
Milwaukee, WI 53227

Dear Mr. Maddigan:

RE: 7655 South 6th Street, Oak Creek, WI (former Western Machine Company)

This letter acknowledges the receipt of your report dated April 28, 1989, prepared for you by Hydro-Search, Incorporated. The report describes the removal of three underground storage tanks (U.S.T.'s) and impacted soils at the above referenced location. Based on the information supplied, remediation appears adequate at this time. Should environmental problems related to the former U.S.T.'s at this site be encountered in the future, further investigation may be required. Please contact me at the above referenced address or at (414) 562-9684, if you have any questions regarding this letter.

Sincerely,

Bernice A. Aument

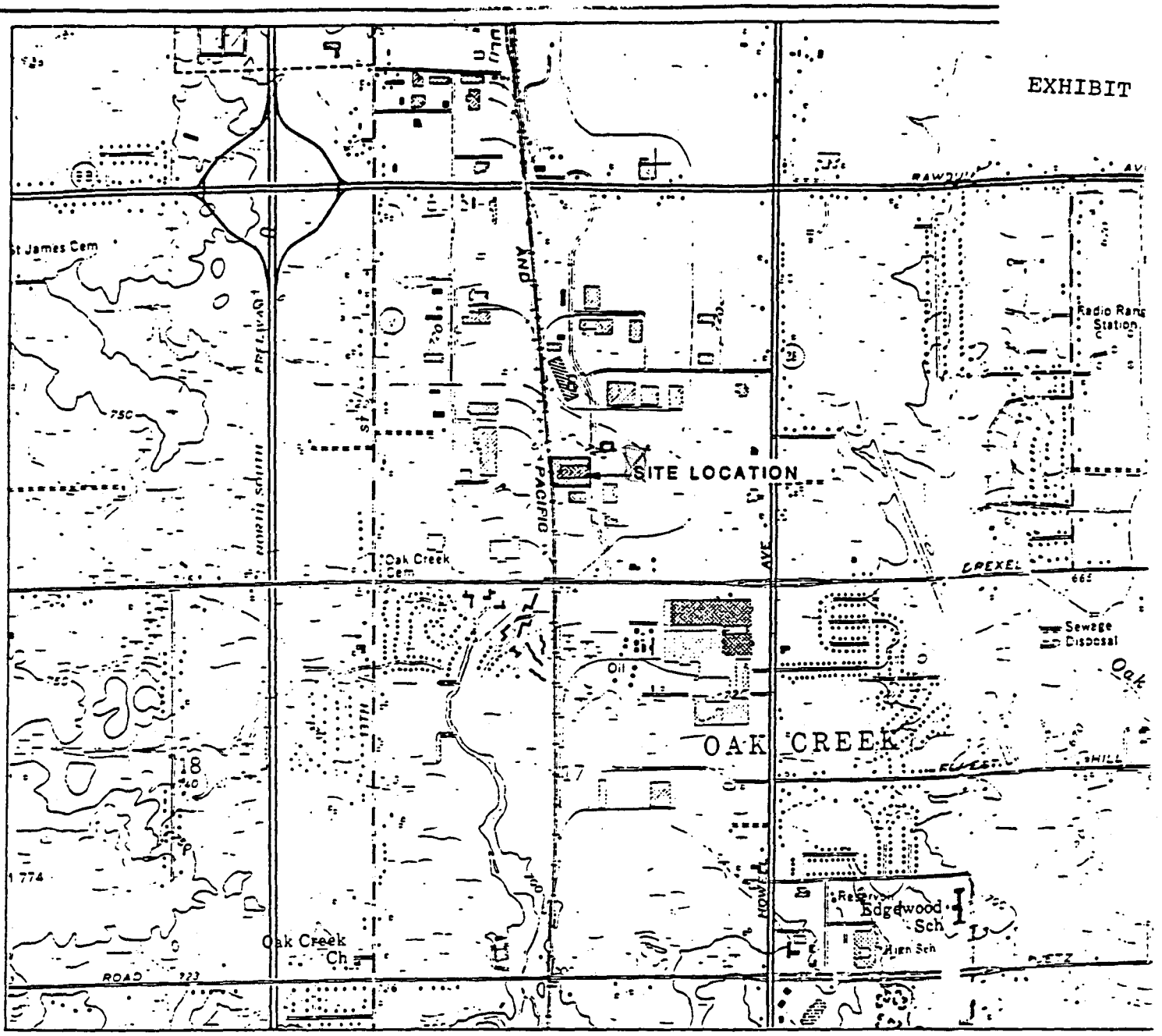
Bernice A. Aument
Environmental Repair Specialist

BAA:jmw

c: Mr. Thomas Bergamini - ERR-SW/3
Ms. Jennifer Johanson - Hydro-Search, INc.
Mr. Kevin Dittmar - Godfrey and Kahn
SED File

e 89 9252-1

EXHIBIT



SCALE

0 5000

FEET

CONTOUR INTERVAL 10 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

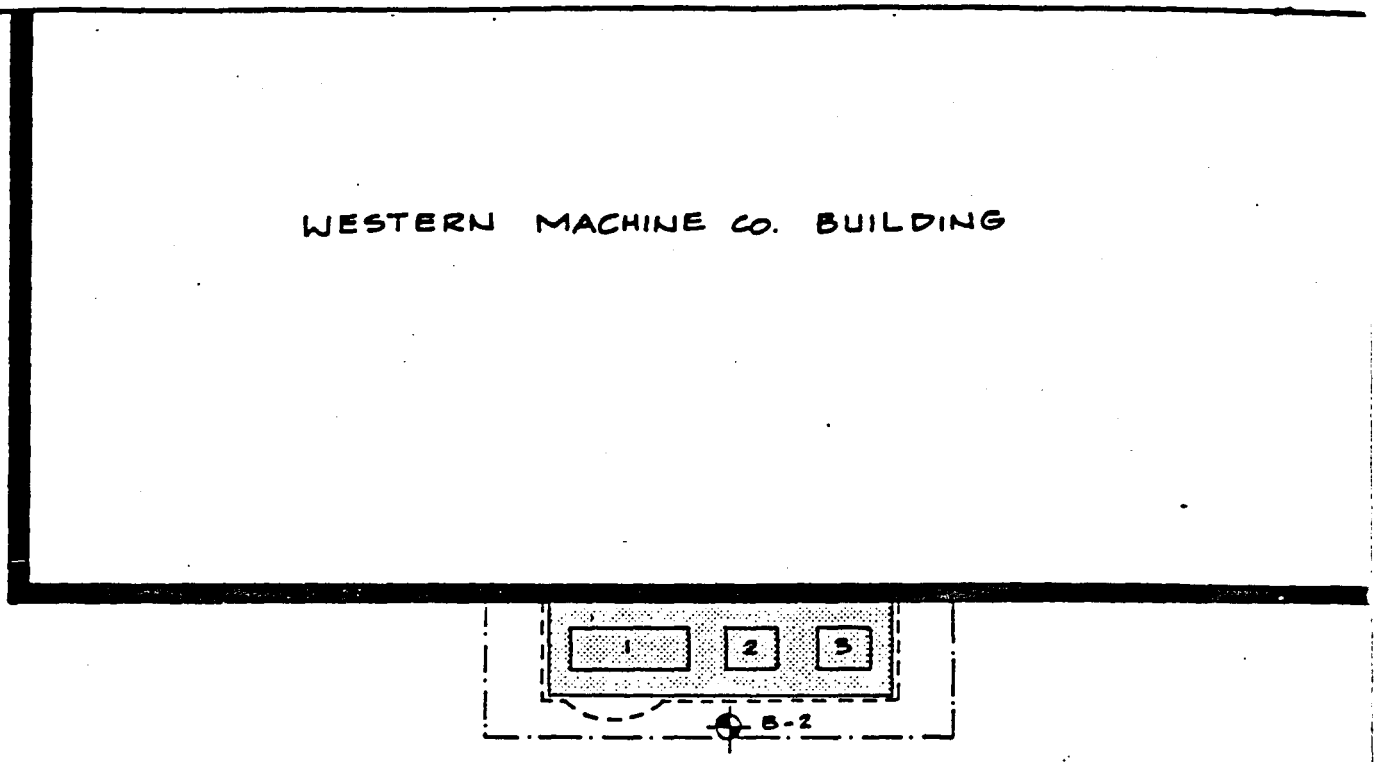
BASE MAP FROM U.S.G.S. 7.5' GREENDALE, WI TOPOGRAPHIC QUADRANGLE MAP, PHOTOREVISED 1971 AND 1976.

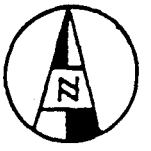
WEB REALTY COMPANY
MILWAUKEE, WI

SITE LOCATION AND LOCAL TOPOGRAPHY

PROJECT: 296E09513 | DATE: 4/18/89

Hydro-Search, Inc.
HYDROLOGISTS-GEOLOGISTS-ENGINEERS
RENO DENVER MILWAUKEE





SCALE

0 100

FEET

EXPLANATION

- CONCRETE SLAB FEB. 15 EXCAVATION LIMIT
- ----- MAR. 2 EXCAVATION LIMIT
- —·—·— MAR. 17-20 EXCAVATION LIMIT
- [1] FORMER UNDERGROUND STORAGE TANK LOCATION AND DESIGNATION
- B-2 ⊕ SOILS TESTING SERVICE, INC. WELL LOCATION AND DESIGNATION

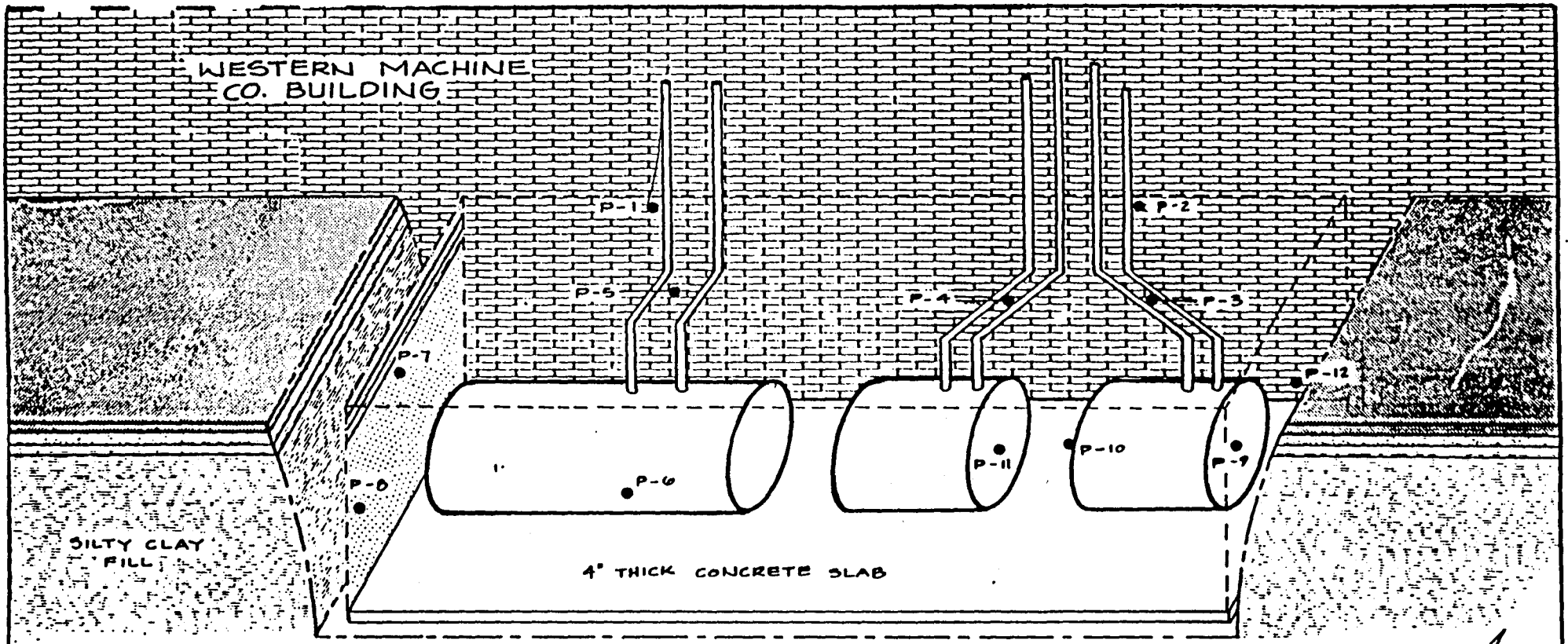
NOTE: SEE FIGURE 4 FOR EXCAVATION LIMIT DIMENSIONS.

WEB REALTY COMPANY
MILWAUKEE, WI

EXCAVATION LIMITS AND FORMER UNDERGROUND STORAGE TANK LOCATIONS

PROJECT: 296E09513 | DATE: 4/10/89

Hydro-Search, Inc.
HYDROLOGISTS·GEOLOGISTS·ENGINEERS



SCALE
0 10
FEET

EXPLANATION

P-6 ● PHOTOIONIZATION DETECTOR SURVEY SOIL SAMPLE LOCATION AND DESIGNATION

– – – – – FEB. 15 EXCAVATION LIMITS

— — — — APPROXIMATE MAR. 2 EXCAVATION LIMITS

4" THICK ASPHALT

4" THICK GRAVEL

4" SILTY CLAY FILL

BROWN PEBBLY SAND BACKFILL / ORIGINAL TANK BACKFILL MATERIAL

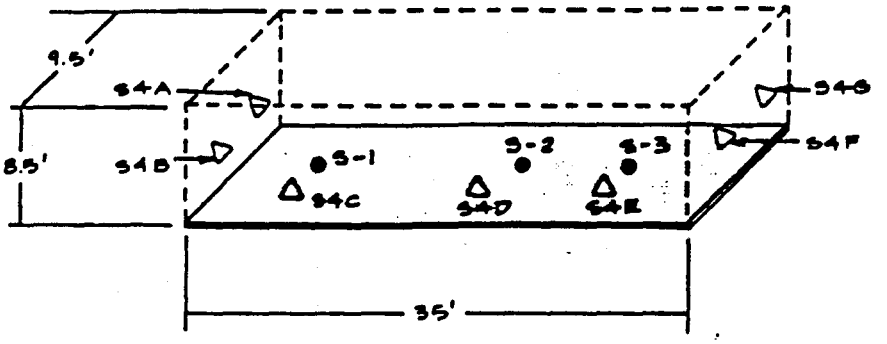
WEB REALTY COMPANY
MILWAUKEE, WI

SCHEMATIC PHOTOIONIZATION DETECTOR SURVEY LOCATIONS

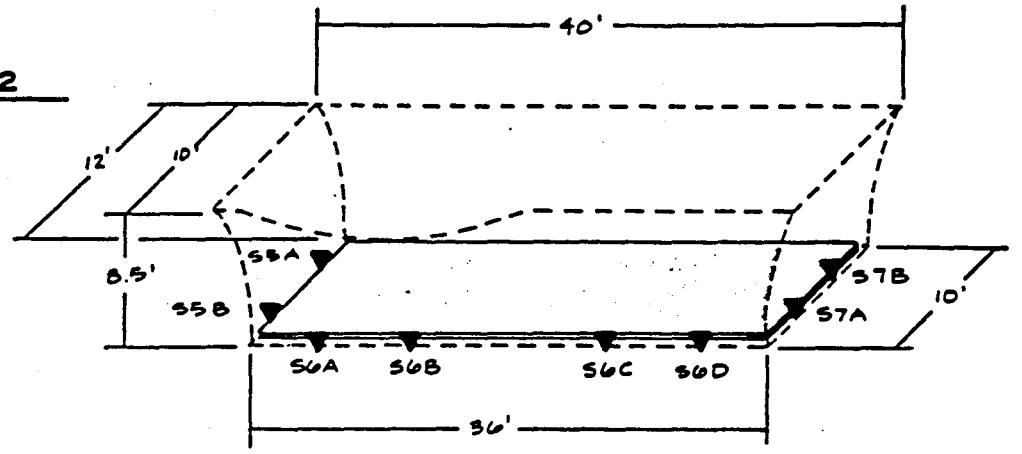
PROJECT: 296E09513 | DATE: 4/18/89

Hydro-Search, Inc.
HYDROLOGISTS-GEOLOGISTS-ENGINEERS
RENO DENVER MILWAUKEE

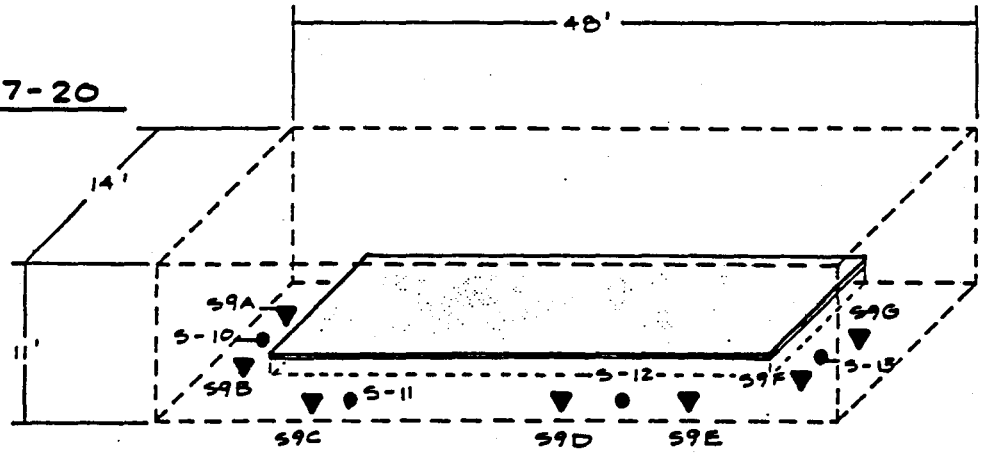
FEB. 15



MAR. 2



MAR. 17-20



EXPLANATION

S-1 ● DISCRETE SOIL SAMPLE LOCATION AND DESIGNATION

S4A △ EXCAVATION WALL COMPOSITE SOIL SAMPLE LOCATION AND DESIGNATION

S9A ▼ EXCAVATION FLOOR COMPOSITE SOIL SAMPLE LOCATION AND DESIGNATION

4" THICK CONCRETE SLAB

WEB REALTY COMPANY
MILWAUKEE, WI

EXCAVATION AND SOIL SAMPLING SUMMARY

PROJECT: 296E09513 | DATE: 4/7/89

Hydro-Search, Inc.
HYDROLOGISTS·GEOLOGISTS·ENGINEERS
RENO DENVER MILWAUKEE

FIGURE 4

APPENDIX D

STS, INC. WATER LEVEL MEASUREMENTS AND WATER QUALITY ANALYTICAL RESULTS

Cemedine USA, Inc.
STS Project No. 82877XF
February 27, 1989

Hydrogeologic Conditions

Three (3) monitoring wells were constructed to identify the general depth to groundwater, the direction of groundwater flow and to obtain representative groundwater samples. The following table presents the groundwater elevation information.

Water Levels

Well Location	Elev. of Top of Well Pipe (ft)	Elev. of Ground Surface (ft)	Elev. of Groundwater Table (ft) 2-2-89
B-1	101.0	98.5	86.1
B-2	99.4	99.5	87.0
B-3	100.8	98.0	88.6

Note: Benchmark: Finished floor of building at door east of tanks.
Assumed elevation = 100.0 feet.

The depth to groundwater is about 10.5 to 12.5 feet. Groundwater flows towards the east to northeast.

ge 5 RADIAN CORP. REPORT Work Order # M9-01-054
ceived: 01/26/89 Results by Sample

MPLE ID B-2 82877XF FRACTION 02A TEST CODE EPA601 NAME EPA601 COMPOUNDS
Date & Time Collected 01/24/89 Category

NALYST MM FILE #
NSTRMT TRACOR INJECTD 01/27/89 FACTOR 1 UNITS ug/l

CAS#	COMPOUND	RESULT	DET LIMIT
74-87-3	Chloromethane	ND	6.6
74-83-9	Bromomethane	ND	14.9
75-71-8	Dichlorodifluoromethane	ND	100.0
75-01-4	Vinyl chloride	ND	3.2
75-00-3	Chloroethane	ND	2.2
75-09-2	Methylene chloride	ND	.63
75-69-4	Trichlorofluoromethane	ND	1.1
75-35-4	1,1-Dichloroethene	ND	.04
75-34-3	1,1-Dichloroethane	ND	.77
156-60-5	trans-1,2-Dichloroethene	ND	.05
67-66-3	Chloroform	ND	.23
107-06-2	1,2-Dichloroethane	ND	.34
71-55-6	1,1,1-Trichloroethane	ND	.15
56-23-5	Carbon tetrachloride	ND	.21
75-27-4	Bromodichloromethane	ND	.49
78-87-5	1,2-Dichloropropane	ND	.29
10061-02-6	trans-1,3-Dichloropropene	ND	1.2
79-01-6	Trichloroethene	ND	.05
124-48-1	Dibromochloromethane	ND	2.8
79-00-5	1,1,2-Trichloroethane	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.6
100-75-8	2-Chloroethylvinyl ether	ND	2.8
75-25-2	Bromoform	ND	45.8
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
127-18-4	Tetrachloroethene	ND	.49

HAZARDOUS WASTE ACTIVITY FORM

File Reference: 4430

DESIGNATED USE: [✓] Inspection Form Supplement
[ ] Non/Small Generator Follow-up
[ ] TSD Non-Activity Follow-up

A) GENERAL INFORMATION

EPA ID # ~~WID006097042~~ NOT AN OFFICAL # (if applicable) District SOUTHEAST

FACILITY NAME: PRIME MANUFACTURING CORP.

FACILITY LOCATION: 7730 SOUTH 6TH STREET
OAK CREEK, WI 53154

FACILITY CONTACT PERSON: RON WISNIEWSKI SR. TITLE: SAFETY DIR. + SHOP SUPERV.

TELEPHONE NUMBER: (414) 764-1400

DNR INSPECTOR: MICHAEL W. ZILLMER

B) CONTACT TYPE

Telephone Only [ ] Personal Meeting [ ]

Field Inspection [✓] Contact Date 11/27/85

DNR Master File Indicates Facility Type As: _____

C) WASTE STREAM INFORMATION

	WASTE TYPE	POTENTIAL HAZARDOUS CONSTITUENTS/CHARACTERISTICS	GENERATOR RATE	EPA WASTE CODE
1)	SPENT TCE	TOXIC	25 gal/mo	F001
2)	WASTE PAINT	IGN., EP TOXIC CR, PB		
3)				
4)				
5)				

Attach Waste Profile or Analysis for each Waste Stream or indicate how facility has complied with NR 181.22, Hazardous Waste Determination, for each Waste Stream

PRIME

PRIME MANUFACTURING CORPORATIO
7730 South 6th Street • Oak Creek, Wisconsin 531
Telephone: (414) 764-1400 Telex: 2-68

February 20, 1986

RCRA Activities
U.S. EPA Region V
Waste Management Div.
P.O. Box A3587
Chicago, IL 60690

Dear Sir:

Attched please find our application for an EPA ID number. We have at this time a temporary number WID006 097042 INVALID and have been informed that we need a permanent one. We are a small quantity generator of spent 1-1-1 Trichloroethane and paint/solvent waste, usually not more than 3 or 4 drums of each per year.

I would appreciate receiving a permanent EPA ID number as soon as possible.

Thank you,

PRIME MANUFACTURING CORPORATION

Liz Wildes

Liz Wildes
Director of Purchasing

Enclosure

LW/gd

D) WASTE MANAGEMENT INFORMATION

Indicate any on-site Treatment, Storage, or Disposal methods in use for the above Waste Streams:

N/A

If the waste is shipped off-site, indicate how it is transported, the transporter names, and whether licensed:

Paint wastes ⇒ Milwaukee Solvents

Spent TCE ⇒ Hydrite Chemical Co. (Cottage Grove)

Where is the waste being transported to:

Milwaukee Solvents + Chemicals

Hydrite Chemical Co

E) COMPLIANCE INFORMATION

Indicate any areas of Non-compliance with NR 181:

Storage of wastes > 90 days, drum(s) not in good condition ⇒ leaks

Additional Comments:

Facility Classification Based on District Verification: S.Q. GENERATOR

Signature: Michael W. Zillmer Date: 11/27/85

cc:

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES
P.O. Box 12436
Milwaukee, WI 53212

Carroll D. Besadny
Secretary

April 3, 1986 File Ref: 4430

Mr. Ron Wisniewski
Prime Manufacturing Corp.
7730 S. 6th Street
Oak Creek, WI 53154

Dear Mr. Wisniewski:

RE: Compliance Verification Inspection

On February 19, 1986 the Department conducted a follow-up inspection of your facility, located at 7730 S. 6th Street, Oak Creek, Wisconsin, to verify that all areas of non-compliance listed in the December 23, 1985 Notice of Non-compliance have been corrected.

At the time of the inspection the Department determined that your facility was in compliance with Chapter NR 181, Wisconsin Administrative Code. The Department will be conducting future inspections to monitor your facility's management of its hazardous wastes. If you have any questions, feel free to contact me at (414)562-9651.

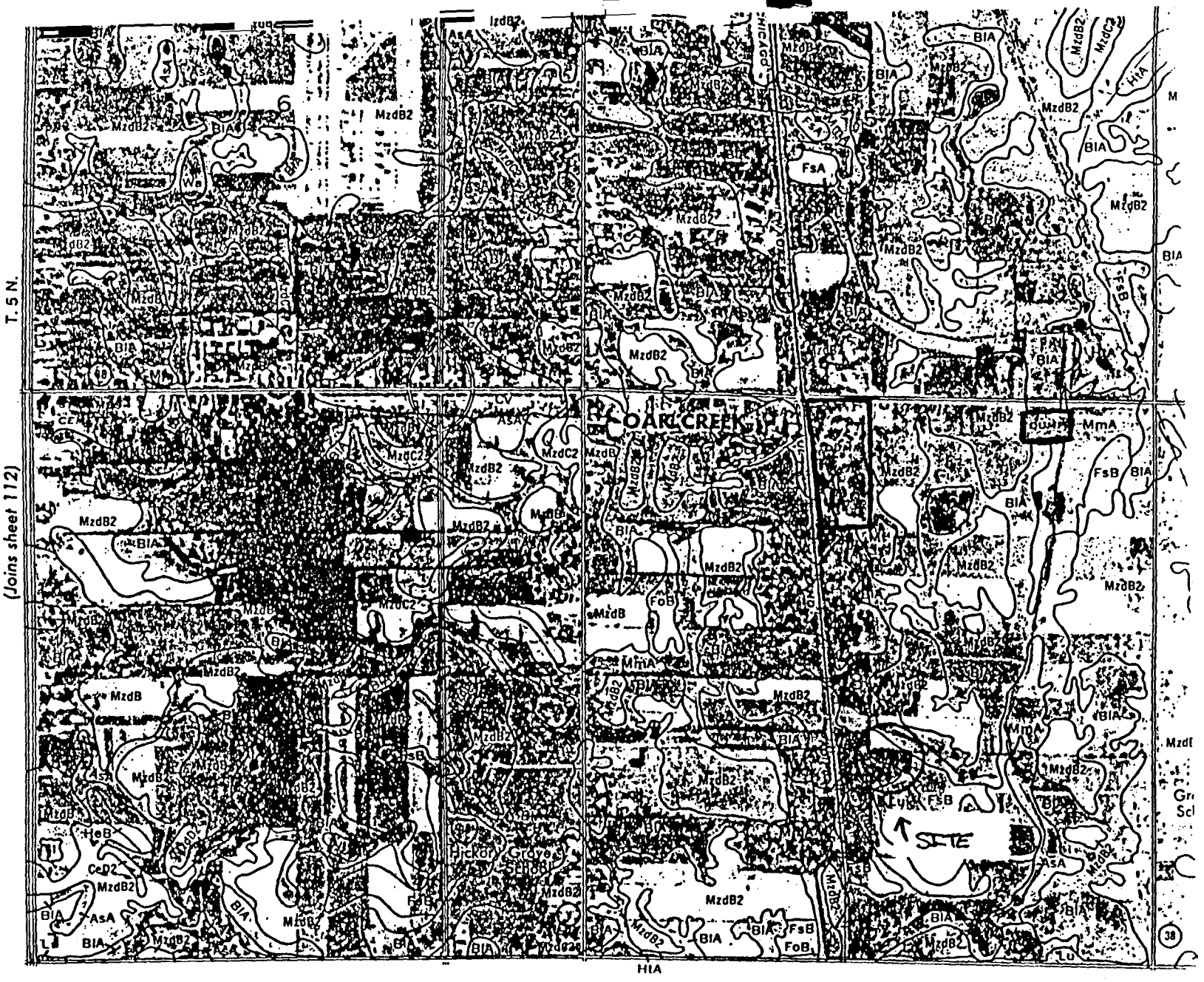
Sincerely,

Michael W. Zillmer

Michael W. Zillmer
Hazardous Waste Specialist

dlp

c: Bureau of Solid Waste Management - SW/3
Systems Management Section - SW/3



Scale 1: 15 840

1 ¾ ½ ¼ 0

5000 4000 3000 2000 1000 0

EXHIBIT K

DEPARTMENT OF NATURAL RESOURC

RECEIVED
DNR/HEADQUARTERS
SED

HAZARDOUS WASTE COMPLIANCE MONITORING AND ENFORCEMENT SUMMARY
FORM 4430-5 REV. 1-86

I. GENERAL INFORMATION

☐ CHANGE IN NAME, ADDRESS, GENERAL INFORMATION

DATE SENT TO BUREAU	DATE RECEIVED BY BUREAU	BY SECTIONS DATA ENTRY DATE INITIALS	ENTRY DATE INITIALS
	1/9/86		1/27/86

NAME OF FACILITY	EPA ID NUMBER	FID NUMBER
Prime Mfg Corp.	None	

STREET OR ROUTE (FACILITY LOCATION)	DATE OF CONTACT	TIME OF CONTACT
7730 S 6th	11-27-85	☐ A.M. ☐ P.M.

CITY, STATE, ZIP CODE	TELEPHONE NUMBER	DISTRICT/COUNTY
Oak Creek, WI 53154	( )	

TYPE OF CONTACT
☒ FIELD INSPECTION ☐ OTHER
☐ CONFERENCE

NAME OF CONTACTS AND TITLE OR POSITION (ENTER NONE IF NO CONTACT)
Ron Wisniewski Sr.

FACILITY STATUS (CHECK ALL THAT APPLY)

☐ TREATMENT
☐ STORAGE
☐ DISPOSAL
☐ TRANSPORTER (LIC # ________)
☐ GENERATOR-LARGE QUANT. > 1000 kg
☐ GENERATOR-ACUTE TOXICS > 1 kg
☒ GENERATOR-SM. QUANT. > 100 kg
☐ GENERATOR-VERY SM. QUANT. < 100 kg
☐ CLOSURE/CLOSED OPERATIONS
☐ NON-HAZARDOUS WASTE ENTITY
☐ OTHER ENTITY FOR ACTIVITY (SPECIFY RECOMMENDED STATUS)
☐ 90 DAY STORAGE ACCUMULATION
☐ 10 DAY TRANSFER FACILITY
☐ TREATMENT (Code) ________
☐ OTHER

REGULATORY STATUS AND REPORTING CHANGES

☐ THERE IS A CHANGE IN STATUS
☐ DELETE FROM REPORTING LIST
☐ CHANGE REPORTING STATUS TO QUARTERLY
☐ CHANGE REPORTING STATUS TO ANNUAL

EVALUATION TYPE (CHECK ALL THAT APPLY)

☒ 1. COMPLIANCE EVALUATION INSP.
☐ 2. SAMPLING INSP.
☐ 3. RECORD REVIEW
☐ 4. GROUND WATER MONITORING EVALUATION
☐ 5. FOLLOW-UP INSP. (DATE ________)
☐ 6. IMMEDIATE THREAT RESPONSE
☐ 7. LICENSING EVALUATION
☐ 8. ACTIVITY VERIFICATION
☐ 9. CLOSURE/LONG TERM CARE
☐ 10. ROUTINE SURVEILLANCE
☐ 11. OTHER ________

COMMENTS:

ENFORCEMENT ACTIONS (LIST VIOLATION AND/OR ENF. TYPE SEPARATELY)

ENF. UPDATE, DATE SENT

ENF. TYPE CODE	VIOL. DATE YY-MM-DD	DATE ISSUED YY-MM-DD	RESPONSE DUE YY-MM-DD	ACTUAL COMP. YY-MM-DD	ENF. DISP. CODE	NR 181 CODE CITATION	ADDITIONAL INFORMATION
NON	85-11-27	85-12-23	86-2-27	86-02-19	XR	181.06(1)	Non notifier
NON	85-11-27	85-12-23	86-2-27	86-02-19	XR	181.21(5)(a)	> 90 days accum
NON	85-11-27	85-12-23	86-2-27	86-02-19	XR	181.21(5)(a)2.b	(Check for leakage
NON	85-11-27	85-12-23	86-2-27	86-02-19	XR	181.21(5)(a)2.b	recontainerize if leaking
NON	85-11-27	85-12-23	86-2-27	86-02-19	XR	181.26	labeled, etc by DNR, DOT std
	- -	- -	- -	- -			
	- -	- -	- -	- -			
	- -	- -	- -	- -			

COMMENTS:

SIGNATURES AND ATTACHMENTS

SIGNATURE(S) Patrick [signature] to Mike Ellinas SED by Phone

DATE 1/27/86

ATTACHMENTS

REVIEWED BY DISTRICT

DATE

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

TE DIV. EMERGENCY GOVT. 608/266-3232
U.S. NAT'L. RESPONSE CENTER 800/424-8802
CHEMTREC/PESTICIDES/CHLORINE 800/424-9300

TOXIC AND INCIDENT F
FORM 4400-9

EXHIBIT J

DATE OF INCIDENT	DAY OF WEEK	TIME OF INCIDENT	REPORTED BY (NAME)	TELEPHONE
Ongoing ~~10-25-85~~	~~Fri~~	Ongoing ☐ AM ☐ PM	Anonymous	

DATE REPORTED	DAY OF WEEK	TIME REPORTED	AGENCY OR FIRM REPORTING	REPORTED THRU DIV. EMERG. GOVT.
10-25-85	Fri	9:10 ☒ AM ☐ PM		☐ YES ☒ NO

SUBSTANCE INVOLVED	QUANTITY	UNITS	PERSON OR FIRM RESPONSIBLE	
20 Drums c cleaning material	55 gallon		Prime Mfg.	
SUBSTANCE INVOLVED	QUANTITY	UNITS	CONTACT NAME	TELEPHONE NUMBER
			Mr. Liles	764 1400

PHYSICAL CHARACTERISTICS
☐ SOLID ☐ LIQUID COLOR ______
☐ SEMISOLID ☐ GAS ODOR ______

ADDRESS — STREET OR ROUTE: 7730 S. 6th
CITY, STATE, ZIP CODE: Oak Creek Wi

CAUSE OF INCIDENT

☐ TRANSP. RELATED ☒ FACILITY RELATED
SPCC PLAN ☐ YES ☐ NO ☐ NA

EXACT LOCATION DESCRIPTION (INTERSECTION, MILEAGE, ETC.): 7730 S. 6th St (in back of bldg)

COUNTY LOCATION

1/4 1/4, 1/4, SECTION, TOWN, RANGE: __ __, __, __, T__N, R__

DNR DISTRICT	DNR AREA	SURFACE WATERS AFFECTED	DRAIN. BASIN
		☐ YES ☐ NO ☐ POT	

NAME OF SURFACE WATER	NEAREST SURF. WATER	NEAREST STORM SEWER
	____ FT.	____ FT.

GROUNDWATERS AFFECTED	NEAREST WELL
☐ YES ☐ NO ☐ POT	☐ PRIV. ☐ MUNIC. ____ FT.

ACTION TAKEN BY SPILLER
☐ NO ACTION TAKEN ☐ NO NOTIFICATION ☐ DELAYED NOTIFICATION
☐ CONTAINMENT; TYPE
☐ CLEANUP; METHOD
☐ DISPOSAL; LOCATION
☐ FIRE DEPARTMENT ACTION
☐ CONTRACTOR HIRED; NAME
☐ OTHER ACTION

Mike — Note

WEATHER CONDITIONS
TEMPERATURE ____ °F
WIND SPEED ____ DIRECTION OF WIND

No imminent priority

PRECIPITATION ☐ YES ☐ NO
DIRECTION OF SPILL MOVEMENT

DATE DISTRICT NOTIFIED	DAY OF WEEK	TIME DISTRICT NOTIFIED	DISTRICT PERSON NOTIFIED	TELEPHONE NUMBER
10-25-85	Fri	9:10 ☒ AM ☐ PM	Sharon Howland	562 9615
DATE INVESTIGATED	DAY OF WEEK	TIME INVESTIGATED	PERSON INVESTIGATING	TELEPHONE NUMBER
		☐ AM ☐ PM	Mike Zellmer	414 / 562-965

ACTION TAKEN BY DNR
☒ NO ACTION TAKEN ☐ INVESTIGATION ☐ 29.29 ENFORCEMENT
☐ CONTAINMENT; TYPE Unsure of degree of
☐ CLEANUP; METHOD hazard To be followed
☐ SUPERVISE CLEANUP (PERSON) up as
☐ DISPOSAL; LOCATION part of scheduled
☐ SPILLER REQUIRED TO TAKE ACTION; TYPE
☐ CONTRACTOR HIRED BY DNR; NAME H.W. Program
☐ DNR SPILL EXPENSE SENT TO MADISON CENTRAL OFFICE. M. 10/25/85
☐ EVIDENCE COLLECTED:
☐ PHOTOGRAPHS ☐ STATEMENTS OF WITNESSES
☐ SAMPLES ☐ OTHER

LIST HUMAN HAZARDS OR CASUALTIES
☐ REAL ☐ POTENTIAL ☐ NONE

ENVIRONMENTAL HAZARD/DAMAGE ☐ REAL ☐ POTENTIAL
☐ VEGETATION
☐ FISH
☐ WILDLIFE
☐ BIRDS
☐ OTHER
☐ NONE
COMMENTS:

OTHER AGENCIES ON SCENE
LOCAL
STATE
FEDERAL

PERSON FILING THIS REPORT (PRINT NAME)

SIGNATURE	DATE SIGNED

ADDITIONAL COMMENTS:
Caller states drums are leaking - drums have been there 6 to 8 months behind building - sez some of the drums have used paint in them - sez Oak Creek is going to build a parking area [illegible]