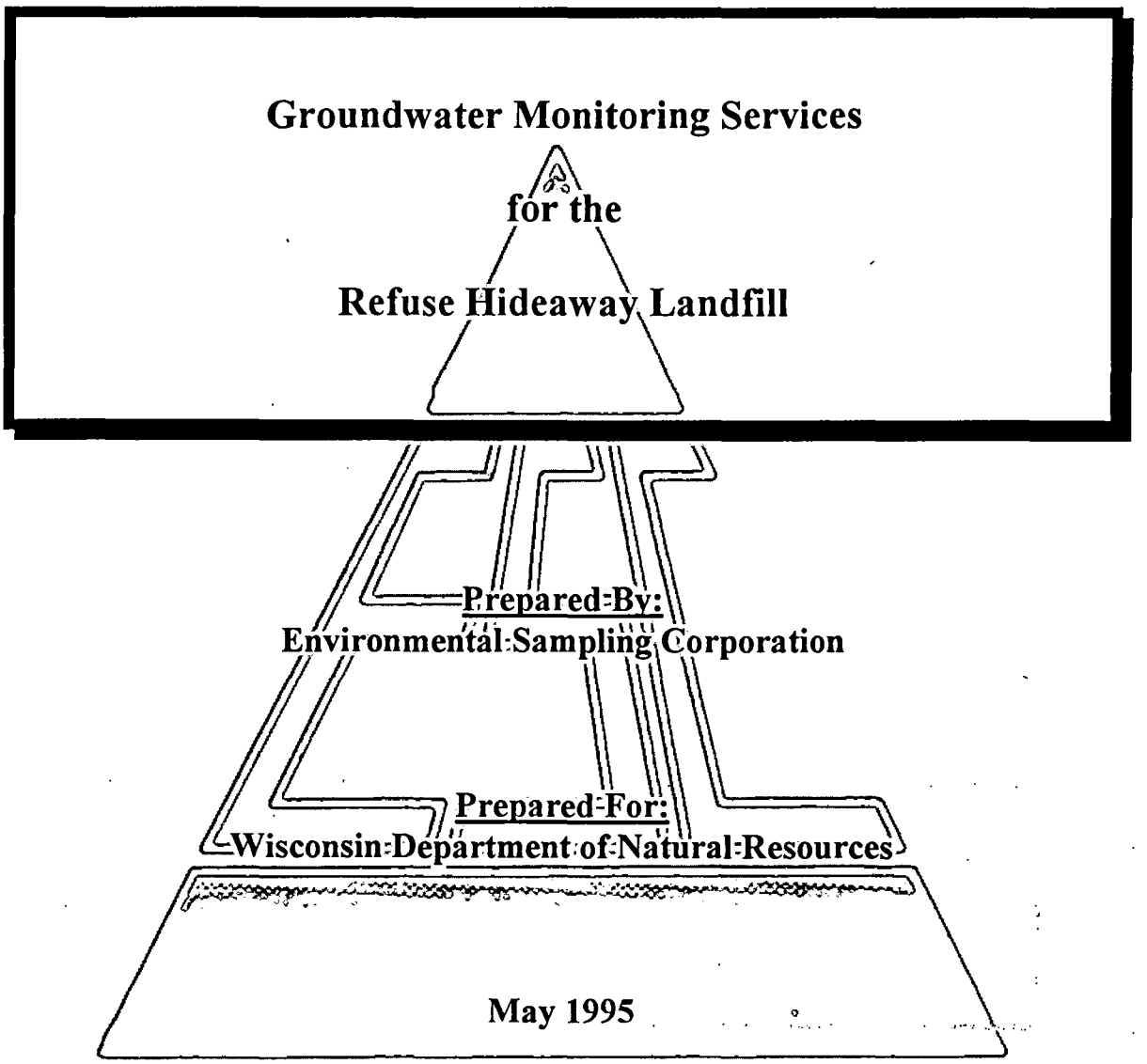
ENVIRONMENTAL SAMPLING CORPORATION

QUALITY ASSURANCE PLAN

Groundwater Monitoring Services

for the

Refuse Hideaway Landfill



Prepared By:
Environmental Sampling Corporation

Prepared For:
Wisconsin Department of Natural Resources

May 1995

P.O. Box 12 • Muskego, WI 53150-0012 • (414) 895-3157 • FAX (414) 895-6074

ENVIRONMENTAL SAMPLING CORPORATIO

May 2, 1995

Ms. Theresa Evanson
Hydrogeologist
Wisconsin Dept. of Natural Resources
101 S. Webster Street, Room 161
P.O. Box 7921
Madison, WI 53707-7921

RE: Quality Assurance Plan
Groundwater Monitoring at the Refuse Hideaway Landfill
Town of Middleton, Dane County.

Dear Theresa:

Environmental Sampling Corporation (ESC) appreciates the opportunity to prepare and submit this Quality Assurance Project Plan. I have contacted Sun Laboratories, Inc. and the sample containers will be shipped to ESC by Friday of next week. I will be in contact with the property owners early next week. We plan to start sampling on May 15th and have the fieldwork completed by May 17th.

Please call me at (608) 592-7508 if you have any questions or require clarification. We look forward to discussing the pending project with you in person soon.

Respectfully submitted,
Environmental Sampling Corporation

Thomas P. Van Biersel
Technical Director

Enclosure

Environmental Sampling Corporation
7699 HWY 113, Lodi, WI 53555

WISCONSIN
DEPT. OF NATURAL RESOURCES
George E. Meyer
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

101 South Webster Street
Box 7921
Madison, Wisconsin 53707
TELEPHONE 608-266-2621
TELEFAX 608-267-3579
TDD 608-267-6897

May 9, 1995

IN REPLY REFER TO: 113112010

Thomas Van Biersel
Environmental Sampling Corporation
P.O. Box 12
Muskego, WI 53150-0012

SUBJECT: Comments on the Quality Assurance Plan for the Groundwater Monitoring Services at the Refuse Hideaway Landfill

Dear Mr. Van Biersel:

Thank you for your timely submittal of the Quality Assurance Plan for semi-annual groundwater sampling at the Refuse Hideaway Landfill. I have a few comments on this plan:

1. Section 2.3, Private Residence Well Purging Procedures. Please change the purging duration from "approximately 10 to 20 minutes" to "at least 20 minutes".

2. Section 2.3, Private Residence Sample Collection. Please add: "The nearest faucet to the pressure tank will be run to flush the water pipe and will then be set so as to provide a continuous trickle . . ."

3. Section 3.4, Quality Control.

   a. Unless it is required by NR 149 and the Laboratory Certification Program, it is our preference that a matrix spike/matrix spike duplicate be analyzed instead of a matrix spike/laboratory duplicate.

   b. Please explain the definition and use of a "blank spike solution".

   c. Please explain the statement, "The matrix and blank spike solutions will contain appropriate compounds that change on an annual rotating basis."

4. Section VI: Report Preparation. The groundwater monitoring data submitted on a formatted diskette must also contain the water level measurement data. The ASCII format contains a field for water level data.

The Master Keys for the well locks include: #2325 and 2121. Three wells south of the landfill have Master key locks #2001. The landfill gate lock is #2002. Any wells that need replacement locks should be replaced with #2121, if possible. If you need any of these keys, please let me know and I can mail them or you can pick them up at my office.

I look forward to working with you on this project. Please call me if you have any questions about this letter or any aspect of the sampling program. I will try visit with your staff during field sampling next week if my schedule allows. Thank you for your work on this project.

Sincerely,

Terry Evanson, Hydrogeologist
Emergency & Remedial Response Section
Bureau of Solid & Hazardous Waste Management

TAE:tae\o&mgms\qap.cmt

ENVIRONMENTAL SAMPLING CORPORATIO

May 12, 1995

Ms. Theresa Evanson
Hydrogeologist
Wisconsin Dept. of Natural Resources
101 S. Webster Street, Room 161
P.O. Box 7921
Madison, WI 53707-7921

RE: Quality Assurance Plan Addendum
Groundwater Monitoring at the Refuse Hideaway Landfill
Town of Middleton, Dane County.

Dear Theresa:

Environmental Sampling Corporation (ESC) appreciates the opportunity to prepare and submit this Quality Assurance Project Plan Addendum. This addendum was prepared in response to your letter of May 9, 1995.

The following are ESC's responses to your comments:

Item 1:
Section 2.3 of the QAP will be revised to read "at least 20 minutes" instead of "approximately 10 to 20 minutes."

Item 2:
Section 2.3 of the QAP will be revised to include "the nearest faucet to the pressure tank will be run to flush the water pipe and will then be set so as to provide a continuous trickle..."

Item 3a:
Sun Laboratories, Inc. will analyze a matrix spike/matrix spike duplicate (MS/MSD).

Item 3b:
A blank spike is a laboratory blank (water) spiked with the same spiking solution used in the MS/MSD.

Item 3c:
The statement "the matrix and blank spiking solution will contain appropriate compounds that change on an annual rotating basis" means that on a yearly basis, the compounds in the spike solution are rotated so that all compounds are used sometime during the year but no all compounds are used the whole year.

Item 4:
The report submitted on a formatted diskette will include water level data.

As discussed over the phone, we will start sampling on May 15th and have the fieldwork completed by May 17th. The private residence wells are scheduled to be sampled either on Monday afternoon or Tuesday Morning.

Please call me at (608) 592-7508 if you have any questions or require clarification.

Respectfully submitted,
Environmental Sampling Corporation

Thomas P. Van Biersel
Technical Director

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Section I : Introduction

1.1 Background

Environmental Sampling Corporation (ESC) has been retained by the Wisconsin Department of Natural Resources (WDNR) to prepare this Quality Assurance Plan (QAP) and to perform groundwater monitoring at the Refuse Hideaway Landfill (RHL) located in Middleton, Wisconsin.

1.2 Purpose and Scope

The QAP includes groundwater quality monitoring activities for the RHL.

This QAP outlines the procedures which will insure the proper quality assurance (QA) and quality control (QC) for the RHL project. The QAP includes a copy of (1) ESC's QAP for field activities and (2) Sun's QAP for laboratory analyses.

The ESC's QAP includes the following:

1. Sample collection and handling procedures
2. Sample preservation procedures
3. Chain-of custody and shipping procedures
4. Field equipment decontamination procedures
5. Purge-water handling procedures

The Sun's (laboratory) QAP includes the following:

1. Sample handling procedures
2. Sample preservation procedures
3. Chain-of custody and shipping procedures
4. Trip blank rate and procedures
5. Matrix samples rate and procedures
6. Analysis methods and detection limits

A copy of the QAP will be kept at the site during field activities

Section II :Groundwater Sampling Procedures

2.1 Site-Specific Sampling Plan Summary

The RHL Site-Specific Sampling Plan (SSMP) for groundwater monitoring at the RHL site is described below. All sampling activities at the RHL site will be conducted in accordance with the SSMP. The SSMP indicates procedures and techniques for:

1. Water Level Measurement
2. Private Well Purging and Sampling
3. Monitoring Well Purging and Sampling
4. Sample Preservation and shipment
5. Chain-of-Custody

The following subsections describe general procedures and techniques for the measurement of water levels, well purging, and sample collection, bottle size, preservation, shipping and Chain-Of-Custody control.

2.2 Water Elevation Measurement Procedures

An accurate well-water measurement will be taken at the 57 monitoring wells, three surface water location and the Sather private well (see Table 2 and 3 - Appendix A).

The monitoring water levels will be taken with a portable electronic slope indicator or fiberglass tape and popper. The water level measurement will be recorded to the nearest 0.01 foot on the Field Information Form (Appendix B).

The surface water level will be taken by reading the stream gage. The water level measurement will be recorded to the nearest 0.01 foot on the Field Information Form.

The Sather private well water levels will be taken with a portable electronic slope indicator or fiberglass tape and popper. The water level measurement will be recorded to the nearest 0.01 foot on the Field Information Form.

2.3 Private Well Purging and Sampling Procedures

Private residence groundwater samples (see Table 2 - Appendix A) at RHL will be collected in accordance the SSMP. The SSMP was prepared using the WDNR's Groundwater Sampling Procedures, PUBL-WR-153 87, the WDNR's Field Manual, PUBL-W-168 87, and the United States Environmental Protection Agency's (EPA) "SW-846: Test Methods for Evaluating Solid Waste", November 1986, including December 1987 and November 1990 updates.

Procedures Prior to Sampling

The WDNR Project Manager and private well owners will be notified of the schedule by ESC at least 48 hours before each sampling event. Upon arrival at the well location, the condition of the well and its environs will be observed and documented on a Well Inspection Report Form (see Appendix B). Information to be noted includes the following:

- Condition of the pressure tank and associated piping
- Appearance of fresh paint on the well casing
- Condition of the well cover
- Well integrity
- Weather conditions and conditions near the sampling point (i.e. odor or wind direction when sampling for volatile organic compounds, and documentation of any physical activities upwind of the sampling location)
- Evidence of any surface contamination

Private Residence Well Purging Procedures

The private residence well will be purged by attaching a garden hose to an outdoor faucet and letting the water discharge to the ground, away from the house and well, for a duration of approximately ~~10 to~~ 20 minutes.

Private Residence Sample Collection

The private residence well samples will be collected as close as possible to the pressure tank. The samples will also be taken from a point on house plumbing which precedes any filtering, aerating or other water treatment system present at the residence. The nearest faucet to the pressure tank will be set so as to provide a continuous trickle flow, and the sample containers will be filled. The color, turbidity and odor of the sample will be noted. All results will be documented on the Field Information Form (Appendix B).

2.4 Monitoring Well Purging and Sampling Procedures

Groundwater samples at RHL will be collected in accordance with the SSMP. The SSMP was prepared using the WDNR's Groundwater Sampling Procedures, PUBL-WR-153 87, the WDNR's Field Manual, PUBL-W-168 87, and the United States Environmental Protection Agency's (EPA) "SW-846: Test Methods for Evaluating Solid Waste", November 1986, including December 1987 and November 1990 updates.

Procedures Prior to Sampling

The WDNR Project Manager will be notified by ESC at least 48 hours before each sampling event of the schedule. Upon arrival at the well location, the condition of the well and its environs will be observed and documented on a Well Inspection Report Form (see Appendix A). Information to be noted includes the following:

- Condition of the well's identification sign
- Appearance of fresh paint on the well
- Condition of the locking cap and key
- Well integrity, to include: condition of the well cement footing, protective casing and sloped-surface seal
- Any physical activity, to include: obstructions or kinks in the casing, water in the annuls, grease around the top of the well
- Weather conditions (i.e. wind direction when sampling for volatile organic compounds and documentation of any physical activities upwind of the sampling location)
- Evidence of any surface contamination
- Well's protection post status

Monitoring Well Purging Procedures

The monitoring well purging system to be used at RHL consists of purging equipment individually dedicated to each well. The equivalent of four standing-water volumes (measured from the depth to water/inflated packer to the bottom of the well) will be removed or purged from the well prior to sampling (for approximate volume see Table 1 - Appendix A). In addition, a water level probe will be used to continually monitor the water level above the packer during purging. This procedure will insure that leakage around the packer is not occurring. This procedure insures that samples are drawn from the aquifer, not from stagnant water left in the well between sampling events. If a monitoring well does not recharge sufficiently the packer will be deflated and the entire water column evacuated. If the well does not recharge within 24 hours, the well will be considered "dry" for the sampling event. The WDNR Project Manager in Madison will be notified if a normal well is deemed dry during a sampling event.

During the purging operation, the flow rate from the bladder pump will be up to a maximum of 9 liters/minute. All results of the purging operation will be documented on the Field Information Form (see Appendix B). The purging water from monitoring wells identified as contaminated based on the previous round of groundwater sampling will be containerized. The handling of the purging water is discussed in Section V.

Monitoring wells P-20SR and P-21S will be purged using dedicated bailers. The purging activities will be performed so as not to alter the groundwater chemistry. The bailers will be carefully lowered into the wells and the water removed from the top of the water column.

Sample Collection

The monitoring well sampling system to be used at RHL consists of sampling equipment individually dedicated to each well. This procedure prevents any potential cross-contamination which can occur between wells when using conventional water sampling practices. During the sampling operation, the flow rate from the bladder pump will be decreased from the purging maximum of 9 liters/minute to the sampling minimum of approximately 100 mL/minute. The color, turbidity and odor of the sample will be noted. All results will be documented on the Field Information Form (Appendix A).

Monitoring wells P-20SR and P-21S will be sampled using dedicated bailers. The sampling activities will be performed so as not to alter the chemistry of the sample. The bailers will be carefully lowered into the wells and the water removed from the top of the water column.

QA/QC Sampling Procedures

The following QA/QC samples will be collected as part of the program:

- One set of trip blanks will be included with each batch of routine samples
- One temperature blank will be included with each batch of routine samples
- One replicate sample will be collected every round

Field blanks will not be collected, since the sampling systems are individually dedicated to each well.

2.5 Equipment Decontamination Procedures

The equipment used for groundwater monitoring at RHL will not be lowered into the monitoring well, with the exception of the water level probe. The water level probe will be cleaned with laboratory grade soap prior to leaving ESC's office and triple rinsed with distilled water in between monitoring wells. In addition, the water level probe used at the Sather private well will be rinsed with a chlorine solution followed by a triple distilled water rinse prior to insertion into the well.

2.6 Sample Preservation and Shipment Procedures

The appropriate sample bottles and preservatives that have been prepared in accordance with EPA specifications by the laboratory will be used to collect samples from each well. Containers for collecting samples for volatile organics analysis will be filled to slightly more than full before the cap is placed on the container, to insure that it is head-space free. A set of trip blanks will be included with each batch of routine samples.

Immediately after collection, bottles will be placed in an insulated cooler with frozen ice packs. Field Information Forms and signed Chain-of-Custody Forms will also be placed in the cooler. The coolers will then be sealed and delivered to the laboratory. All arrivals are scheduled for same-day or next-day delivery to the laboratory.

2.7 Chain-of-Custody Procedures

At the time each sample is collected, a Chain-of-Custody Form will be completed and placed in the cooler . With the transfer of sample possession to a subsequent custodian, the Chain-of-Custody form will be signed by the person taking custody of the cooler. Upon receipt of the samples at the laboratory, the seal will be broken, and the condition of the samples, date, time, temperature, and cooler number will be recorded by the receiver. The Chain-of-Custody records will be included in the analytical report prepared by the laboratory, and will be consolidated as an integral part of that report.

As part of the Chain-Of-Custody procedure, each sample container will be labeled with the sample ID number, bottle type and size, preservative, and the analytical testing method requested.

All sampling procedures, measurements, and observations are to be recorded on the Field Information Forms and Chain-Of-Custody Forms as follows:

- Facility site number and name, sample point ID, sample date and time, and source codes
- Field measurements (i.e. depth to water, groundwater elevation and well depth)
- Purging information (i.e. date, start time, elapsed hours, water volume in casing and actual water volume purged)
- Purging and sampling equipment (i.e. dedicated bailers or bladder pumps)
- Field test results, including pH, temperature, and specific conductance
- Field observations and weather conditions
- Appearance of sample (i.e. odor, color and turbidity)

The sampler's identification, laboratory custodian's identification (with signature), and the date and time of arrival will be noted on the Chain-of-Custody Form. The laboratory custodian will verify that the seal is intact, note that the custody has not been broken, and make notes of the sample bottle condition on the form. These forms will be retained by the laboratory and returned with the results of the analyses

Section III : Laboratory Procedures

ESC has contracted the analytical portion of the project to:

Sun Laboratories, Inc.
1898 Pride Terrace
Green Bay, WI 54313

Attn. Gary Pfister
Technical Services Representative
Phone: (414) 434-8411
Fax: (414) 434-8415

Sun Laboratories, Inc. (Sun) is a Wisconsin certified laboratory (ID# 405143200) under Wisconsin Administrative Code NR 149.

Sun will perform the VOC analyses required in the RFB, using methods SW846-8260 and USEPA 524.2.

3.1 Sampling Handling Procedures:

Sample Bottles

Sun will provide 40 ml vials obtained from I-Chem or of equivalent quality. These containers are cleaned by I-Chem in accordance with USEPA protocols. A minimum of three vials per sampling point will be required. All vials are to be filled with zero headspace.

Sample Preservation

Each vial will contain 0.5 ml of 1 to 1 hydrochloric acid (HCl) as a preservative. Caution must be taken to not overfill vials and wash out the HCl. Samples should also immediately be preserved "on ice". It is best to isolate each sampling point(set of vials) by enclosing them in a plastic zip top bag.

Sample Shipping

Samples are to be packed on ice in coolers provided by Sun. Sun's courier will pickup samples within 24 hours of notification or if needed samples can be shipped same-day or next-day delivery.

Sample Receipt

A designated Sample Custodian is responsible for samples received by Sun. This individual trained in all custody requirements. The following are Sun's sample receipt procedures:

1. Upon receipt of the samples at the laboratory, the seal will be broken, and the condition of the samples, date, time, temperature, and cooler number will be recorded by the Sample Custodian. The presence of leaking or broken containers will be noted on the chain-of-custody form and the ESC Project manager will be informed. The Sample Custodian will sign the chain of custody forms thus assuming custody of the samples.

2. The information on the chain-of-custody form will be compared with that on the sample labels to verify sample identity. Any inconsistencies will be resolved with field sampling representatives before sample analysis begins.

3. Sample will be moved to one of the sample storage refrigerators for storage prior to analysis. Storage location will be recorded on the chain-of-custody form. Refrigerators are maintained at O to 4 degrees C.

4. The Sample Custodian will maintain the original of the chain-of-custody in the sample log at Sun' office. Copies are provided to the Organic Laboratory Supervisor.

5. Sample information, laboratory number, field sample number, date collected and received, project and client identification, and parameters to be analyzed are logged into the laboratory information Management System (LIMS)

3.2 Chain-of-Custody Procedures

Chain-of-Custody documentation will be shipped with sample containers. These forms will be completed by ESC's field personnel, with acknowledgment of time and date of transfer, and returned with the samples to Sun.

3.3 Trip Blanks

Dated, preserved 40 ml vials of blank water will be provided by Sun. Each container used for the collection, storage and shipping of samples must also hold a trip blank.

3.4 Quality Control

All GC/MS analyses will include analysis of a method blank, a matrix spike and a laboratory duplicate in each lot or twenty(20) or fewer samples . The matrix and blank spike solutions will contain appropriate compounds that change on an annual rotating basis. In addition surrogate compounds are spiked into each sample.

3.5 Analytical Methods

The methods used for this project will be:

Volatile Organics - Method 524.2
"Methods for the Determination of Organic Compounds in Drinking Waters" EPA/600/4-88/039, December 1988, EPA/600/4-90/020, July 1990 and EPA/600/R92-129, August 1992.

Volatile Organics - Method 8260
"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", USEPA, SW-846, 3rd edition, Revision 1, 1986-1991.

The analyses Method Detection Limits (MDL) Reports are included in Appendix C.

Section IV : Laboratory Data Validation

The May 1995 data will be validated by:

Environmental Chemistry Consulting Services
6414 Copps Avenue, #201
Madison, WI 53716

Attn. Michael Linsken
Phone: (608) 221-8700
Fax: (608) 222-2549

The data validation will included the following tasks:

1. Perform data validation services for groundwater samples to be analyzed for 524.2 and for 8260 volatile organics.

2. Validate the data in general accordance with the "National Functional Guidelines". Provide a copy of validated "Form 1" style data with any validation qualifiers highlighted.

3. Prepare a technical memorandum describing the findings of the validation.

Section V : Waste Management

The investigative waste to be managed by ESC as part of the RHL project will include the following:

1. Purging water from contaminated monitoring wells

2. Sampling and decontamination water

The water generated by groundwater sampling activities at the following monitoring wells with detectable concentration of total chlorinated hydrocarbon will be containerized and transported to the RHL leachate tank:

- P-17S
- P-20SR
- P-21S
- P-22S and P-22D
- P-27S and P-27D
- P-29S
- P-31S, P-31IA, P-31IB, and P-31D
- P-40I

The water generated by groundwater sampling activities at all other sampling points will be discharged to the ground away from the monitoring point.

Section VI : Report Preparation

Semiannual Sampling Submittal

One copy of a sampling report will be submitted to the WDNR. This report will include the following technical data:

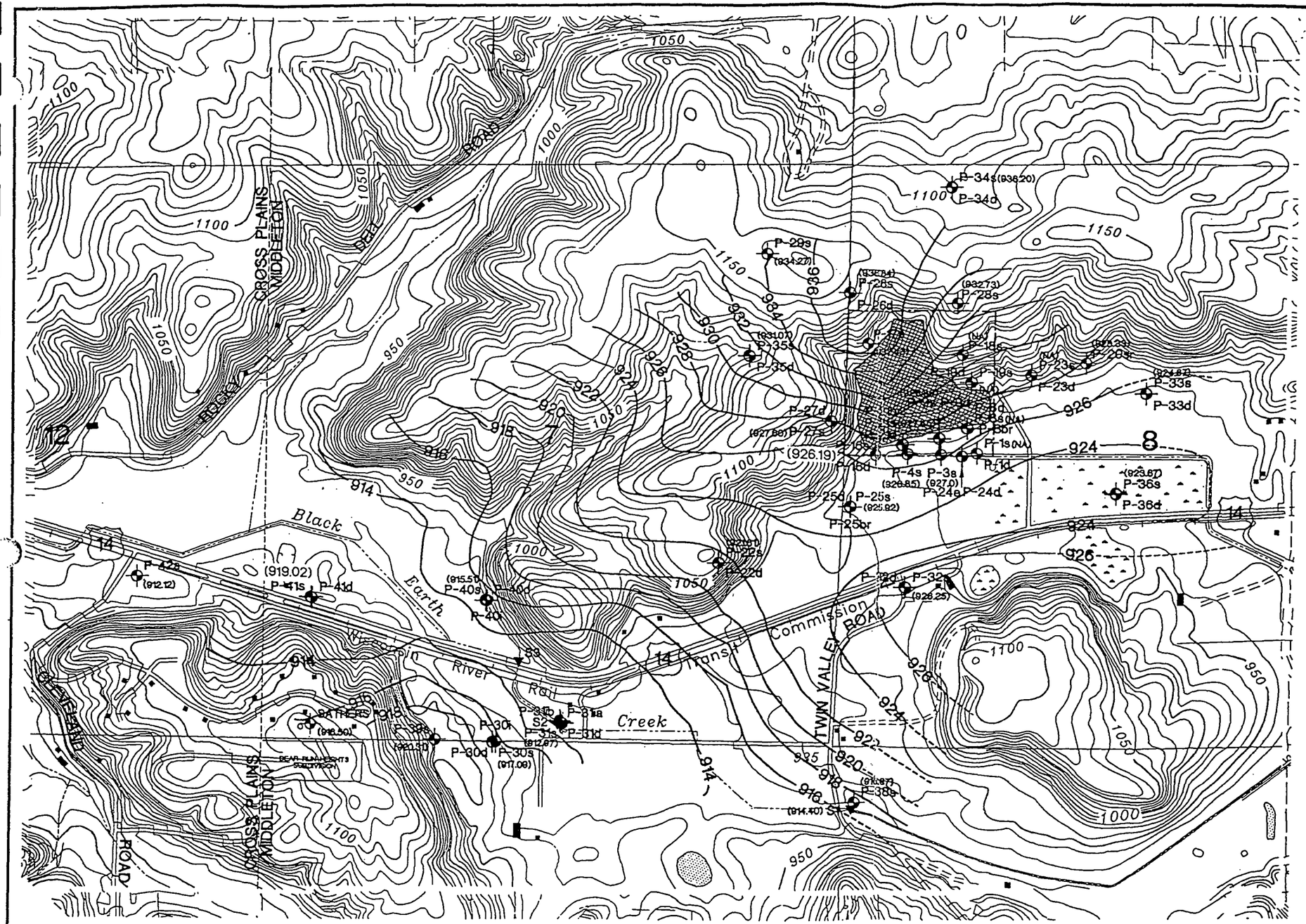
1. Water level measurements
2. Field information forms
3. Well inspection reports
4. Field chain-of-custody records
5. Laboratory reports
6. Laboratory QA/QC qualifiers
7. Groundwater monitoring data on one formatted diskette, in accordance with the RFB

All other pertinent information (e.g. laboratory reports) will be submitted by ESC to the WDNR within 60 days of receipt. This information will be submitted:

Ms. Theresa Evanson
Wisconsin Dept. of Natural Resources
101 S. Webster Street
P.O. Box 7921
Madison, WI 53707-7921

APPENDIX A

Site Information



EXPLANATION

- FILL LIMITS
- REFUSE HIDEAWAY PROPERTY BOUNDARY
- PRIVATE RESIDENCE
- P-34s — MONITOR WELL LOCATION, DESIGNATION AND GROUND-WATER ELEVATION (ft. msl)
- 930 — GROUND-WATER CONTOUR (ft. msl, dashed where inferred)

Note: The water level measured at P-41s is not included in the water table because of an anomalously high measurement which is most likely related to geologic materials and subsequent hydraulic conductivity variations and is not representative of the overall water table configuration.

N

SCALE

0 2000

Feet

Base map compiled from U.S.G.S. 7.5' Middleton, WI topographic quadrangle map, 1983. Contour interval 10 feet. National Geodetic Vertical Datum of 1929.

SIMON HYDRO-SEARCH

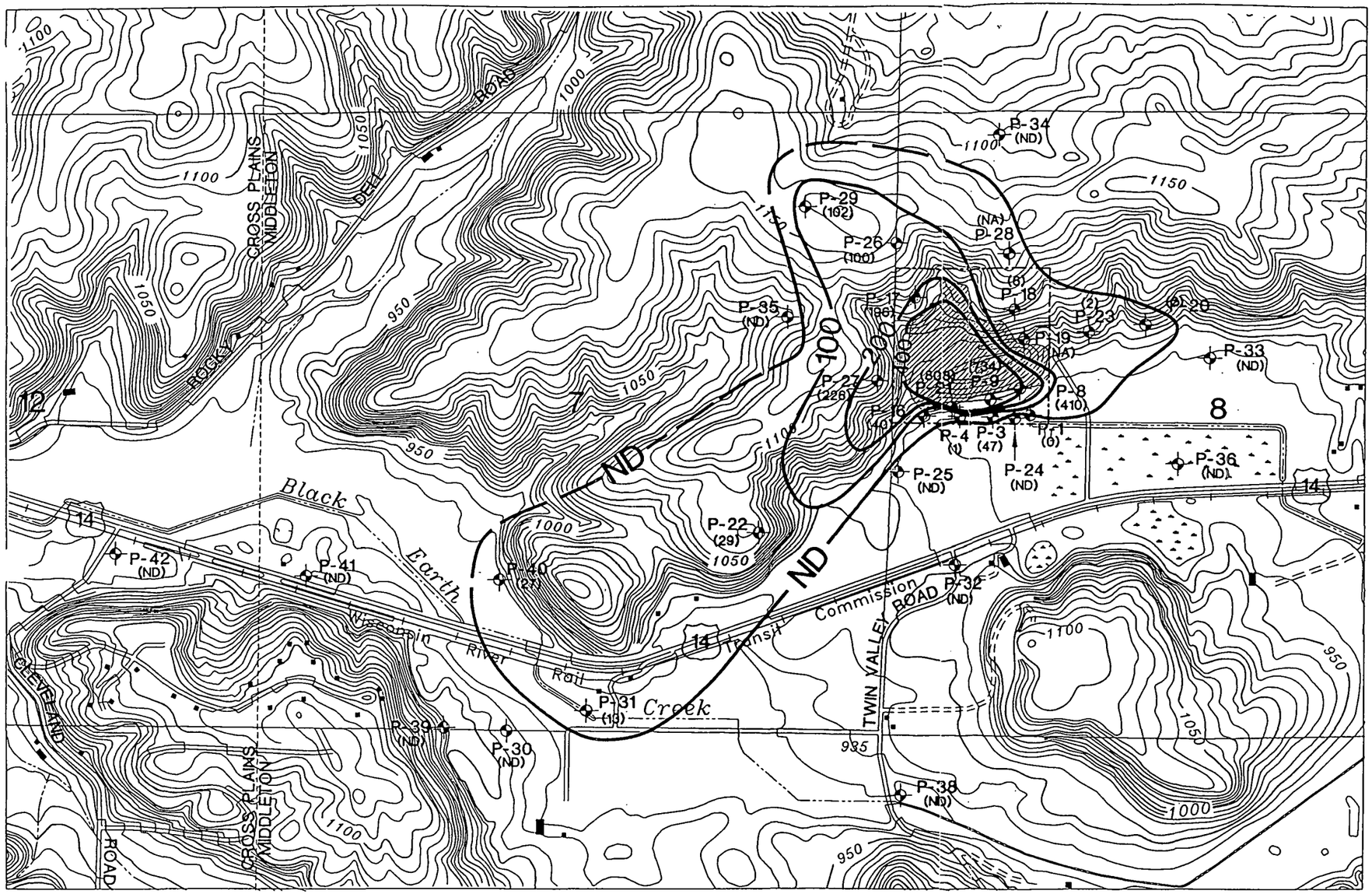
Brookfield Lakes Corporate Center XII
175 N. Corporate Drive, Suite 100
Brookfield, Wisconsin 53045

Dsgn. by: MGL	Chk. by: WJ	Apprv. by: JEN
PROJECT: 301483135	DATE: 03/21/94	

WI DEPT OF NATURAL RESOURCES
REFUSE HIDEAWAY LANDFILL

WATER TABLE MAP (October 18, 1993)

DRAWING: 3135-B4	FIGURE: 3-11



EXPLANATION

- REFUSE HIDEAWAY LANDFILL PROPERTY BOUNDARY
- FILL LIMITS
- P-39 (ND) — MONITOR WELL LOCATION, DESIGNATION, AND TOTAL CHLORINATED HYDROCARBONS (ppb)
- 100 — TOTAL CHLORINATED HYDROCARBONS CONTOUR (ppb), DASHED WHERE INFERRED

TOTAL CHLORINATED HYDROCARBON VALUES OBTAINED JANUARY, 1991

* Methylene chloride, a common laboratory artifact, has not been included in this total.

ND – not detected
NA – not available

N

SCALE
0 2500
FEET

Hydro-Search, Inc.
HYDROLOGISTS
GEOLOGISTS
ENGINEERS
Reno Denver Milwaukee Irvine

PROJECT: 148E13673 | DATE: 04/11/91

WI DEPT. OF NATURAL RESOURCES
REFUSE HIDEAWAY LANDFILL

TOTAL CHLORINATED HYDROCARBONS ISOCONCENTRATION MAP

DRAWING NO.: 1367-11 | FIGURE: 5-6

TABLE 1

MONITOR WELLS INCLUDED IN SEMI-ANNUAL SAMPLING

WELL NUMBER	WELL DEPTH (feet)	DEPTH TO GROUNDWATER (feet)[1]	APPROXIMATE PURGE VOL. (gal)[2]	DEDICATED QED SYSTEM[3]	ANALYTICAL METHOD
P-17S	158.75	145	8.8	Yes	SW846-8021
P-20SR	64.41	45.78	11.9	No	SW846-8021
P-21S	19.6	16.27	2.2	No	SW846-8021
P-22S	185.15	178.4	4.3	Yes	SW846-8021
P-22D	217.34	179.23	7.3	Yes, p.m.	SW846-8021
P-27S	188.83	180.92	5.1	Yes	SW846-8021
P-27D	204.28	181.41	7.2	Yes, p.m.	SW846-8021
P-29S	253.10	246.52	4.2	Yes	SW846-8021
P-30I	140.74	25.63	8.8	Yes, p.m.	USEPA 502.2
P-30D	287.29	27.60	56.0	Yes, p.m.	SW846-8021
P-31S	25.37	6.04	12.4	Yes	SW846-8021
P-31IA[4]	93.24	11.28	8.5	Yes, p.m.	SW846-8021
P-31IB[4]	132.71	10.64	8.1	Yes, p.m.	SW846-8021
P-31D[4]	255.93	9.83	8.3	Yes, p.m.	SW846-8021
P-34S	183.73	171.21	8.0	Yes	SW846-8021
P-34D	273.35	173.42	7.9	Yes, p.m.	SW846-8021
P-35S	183.60	170.09	8.6	Yes	SW846-8021
P-35D	250.79	174.15	8.2	Yes, p.m.	SW846-8021
P-40I	102.79	16.41	8.8	Yes, p.m.	SW846-8021
P-40D	253.45	17.49	8.6	Yes, p.m.	SW846-8021
P-41D	103.02	21.70	8.6	Yes, p.m.	USEPA 502.2

NOTES:

[1]Depth in feet below top of well casing

[2]4x the estimated casing volume, from "Refuse Hideaway Landfill Ground Water Monitoring Study", June, 1991, Table 4-7

[3]Yes indicates a bladder pump only; Yes, p.m. indicates a bladder pump and purge mizer system

[4]Wells equipped with mechanical packers in the QED equipment (P-31IA, P-31IB, P-31D)

TABLE 2

PRIVATE WELL OWNERS AND SAMPLING LOCATIONS

(All samples analyzed according to U.S. EPA method 502.2)

Spring

Arvid & Margaret Sather
7911 Deer Run Road
Cross Plains, WI 53582
798-2262

William & Evelyn Plummer
7877 Deer Run Road
Cross Plains, WI 53582
798-1153

Raymond & Mary Bula
RFD 1, 7872 Deer Run East
Cross Plains, WI 53528
798-3772

William & Willa Brener
4306 Fawn Court
Cross Plains, WI 53528
798-4701

Richard & Margaret Friedman
4318 Fawn Court
Cross Plains, WI 53528
798-3899

Richard Summers
4610 Rocky Dell Road, Route 1
Middleton, WI 53562
831-4414

Fall

Arvid & Margaret Sather
7911 Deer Run Road
Cross Plains, WI 53582
798-2262

David W. Knoche
7873 Deer Run Road
Cross Plains, WI 53528
798-3348

Daniel & Patricia Sommers
7892 Deer Run Road
Cross Plains, WI 53528
798-4665

Sharon Foster & Arne Theseau
4310 Fawn Court
Cross Plains, WI 53528
798-2251

Loyal & Bernice Durand
4314 Fawn Court
Cross Plains, WI 53528
798-2943

Eunice Schulenburg
7902 USH 14
Cross Plains, WI 53528
831-0495

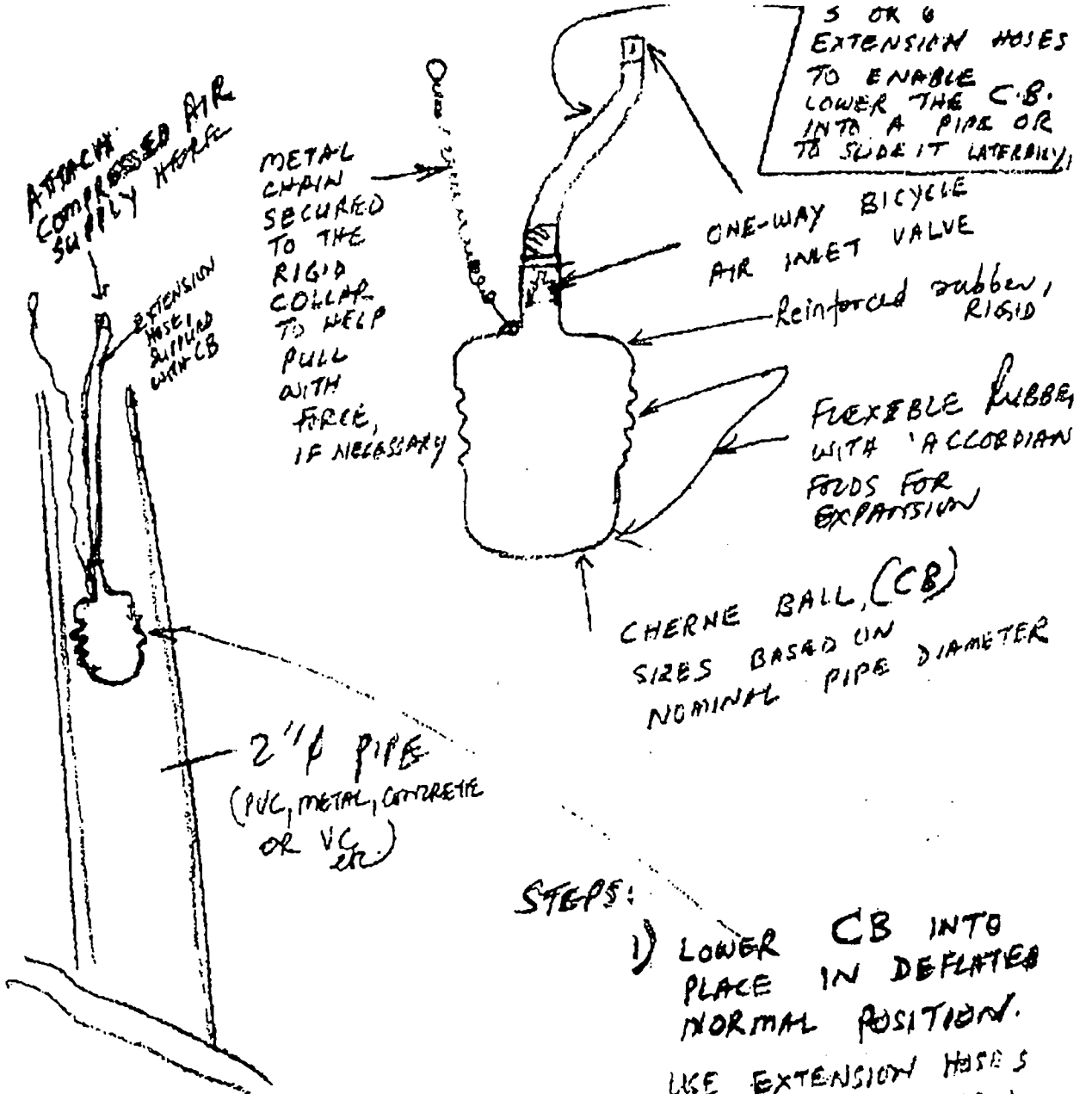
Mr. Wayne Rounds
7785 Low Road
Middleton, WI 53528
home - 231-1063
farm - 831-2240

TABLE 3

Survey Elevations and State Plane Coordinate Data for Wells and Stream Gages

WELL NUMBER	NORTHING	EASTING	ELEV. TOP OF PVC*	ELEV. GROUND SURFACE*
P- 1D	NA	NA	926.67	922.90
P- 1S	NA	NA	924.39	922.80
P- 3S	NA	NA	932.79	931.40
P- 4S	NA	NA	929.89	928.60
P- 8BR	NA	NA	929.52	926.90
P- 8D	NA	NA	930.98	928.80
P- 8S	NA	NA	932.50	929.30
P- 9D	NA	NA	930.43	927.90
P- 9S	NA	NA	932.09	930.10
P-16D	NA	NA	936.30	933.70
P-16S	NA	NA	935.96	933.70
P-17S	NA	NA	1081.75	1079.00
P-18S	NA	NA	1020.57	1018.40
~~P-19D~~	~~NA~~	~~NA~~	~~963.06~~	~~963.40~~
~~P-19S~~	~~NA~~	~~NA~~	~~963.09~~	~~963.40~~
P-20SR	400760.196	2114048.936	961.78	959.92
P-21BR	NA	NA	935.19	932.90
P-21D	NA	NA	935.81	933.20
P-21S	400023.020	2112413.014	936.43	934.39
P-22D	NA	NA	1088.94	1086.73
P-22S	NA	NA	1088.20	1086.12
P-23D	NA	NA	961.53	958.50
P-23S	NA	NA	961.71	958.90
P-24D	NA	NA	927.25	925.10
P-24S	NA	NA	927.39	925.00
P-25BR	NA	NA	943.27	941.30
P-25D	NA	NA	943.86	941.60
P-25S	399460.102	2111936.170	943.14	941.18
P-26D	NA	NA	1149.63	1147.50
P-26S	NA	NA	1150.95	1148.87
P-27D	NA	NA	1095.56	1093.20
P-27S	NA	NA	1095.23	1092.40
P-28S	NA	NA	1124.33	1122.00
P-29S	401764.628	2111168.437	1163.10	1160.03
P-30D	397312.973	2108689.295	932.97	930.99
P-30I	397312.925	2108723.696	930.94	929.14
P-30S	397314.176	2108696.339	932.61	930.46
P-31D	397480.881	2109348.981	915.72	913.17
P-31IA	397491.580	2109330.771	916.77	914.06
P-31IB	397506.572	2109319.575	916.49	913.51
P-31S	397496.409	2109324.923	916.59	913.58
P-32D	398727.780	2112438.774	942.66	940.64
P-32S	398722.470	2112445.073	943.73	940.75
P-33D	400479.547	2114584.319	928.50	926.05
P-33S	400484.658	2114584.371	928.55	926.29
P-34D	402370.954	2112825.043	1090.98	1087.75
P-34S	402363.579	2112823.313	1091.10	1088.57
P-35D	400837.154	2111016.837	1087.70	1084.93
P-35S	400829.841	2111021.458	1087.90	1085.15
P-36D	399577.291	2114322.482	924.34	922.46
P-36S	399566.638	2114324.412	924.49	922.03
P-38S	396770.012	2111993.414	923.21	920.67
P-39S	397338.166	2108162.977	946.08	943.72
P-40D	398602.680	2108633.189	922.98	920.36
P-40I	398599.543	2108626.154	922.28	919.93
P-40S	398602.399	2108615.279	922.01	919.61
P-41D	398631.342	2107000.621	924.82	922.70
P-41S	398637.024	2106988.603	925.58	924.02
P-42S	398823.780	2105401.796	917.62	915.26
S1	396725.035	2111964.897	913.04	NA
S2	397490.427	2109295.183	909.33	NA
S3	398059.847	2108930.113	909.32	NA
Sathers	397380.454	2106998.473	1132.50	1131.95

* Feet msl



STEPS:

1) LOWER CB INTO PLACE IN DEFLATED NORMAL POSITION.

USE EXTENSION HOSES AS NECESSARY. WHEN HOSE IS CONNECTED TO CB - THE AIR INLET VALVE IS OPEN AT THE CB BUT 'CLOSED' AT THE UPPER END!

STEP: 2) INFLATE AS RECOMMENDED WITH AIR (30-60psi)

3) THE CB EXPANDS TO SEAL THE PIPE TO A LEAK TIGHT POSITION EVEN IF PIPE IS NOT 'CIRCULAR', THERE ARE SOLIDS, SLURRY / DEBRIS RESIDUE ETC. DUE TO CONSTRUCTION ACTIVITIES. PULL CHAIN TO TEST!

4) DISCONNECT AIR SUPPLY & MAINTAIN SEAL UNTIL DESIRED. DEFLATE BY ANTICLOCKWISE NEEDLE VALVE TO DEFLATE

Post-it™ Fax Note 7671	Date 3-16-94	# of pages ▶ 1
To TERRY EVANSON	From Judy FASSBENDER	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

ALWAYS PRO ERLY CLEAN THE PIPEL E BEFORE INSTALLING A PNEUMATIC PLUG. Clean any foreign material from the pipe before plug is installed. Cleaning methods may include using a high pressure cleaner or by using a wire brush followed with a water flush. Remove any sharp objects that may puncture plug upon inflation. If any debris remains in the pipe it may cause the plug to seal improperly or cause damage to the plug upon inflation.

PROPER PNEUMATIC PLUG PLACEMENT IN PIPE

⚠ CAUTION

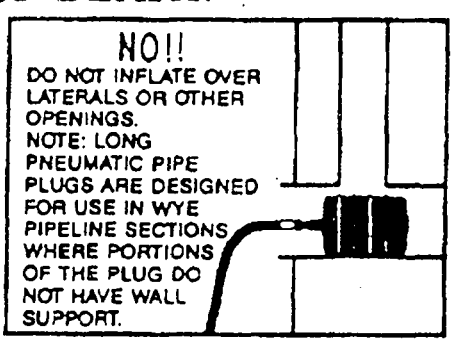
NEVER allow pneumatic plug to protrude from the end of a pipeline during inflation or use.

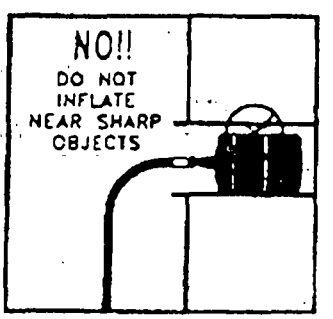
NEVER inflate a pneumatic plug outside of a pipeline.

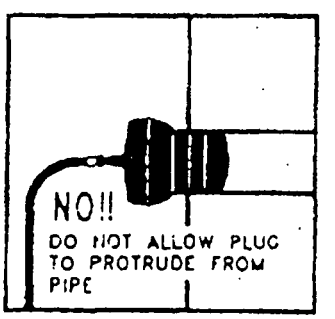
NEVER inflate a pneumatic plug over or near a sharp object or obstruction. Puncture of the plug body and failure of product may result.

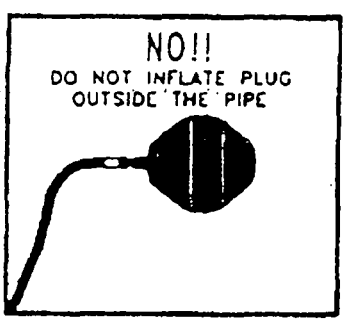
NEVER inflate a pneumatic plug over lateral openings. Note: Cherne Long-Test Balls and Vari-Ball plugs are designed for use in Wye pipeline sections where portions of the plug do not have wall support.

FAILURE TO FOLLOW THE ABOVE WARNINGS MAY CAUSE THE PRODUCT TO FAIL CAUSING PROPERTY DAMAGE, SERIOUS BODILY INJURY OR DEATH.









Prior to inflation position front of plug into pipeline a minimum distance of one pipeline diameter. Pneumatic plugs may elongate upon inflation and cause plug to protrude from pipeline if not initially placed far enough into pipe.

PROPER PNEUMATIC PLUG DEFLATION AND REMOVAL PROCEDURE

1. RELEASE ALL PIPE PRESSURE BEFORE DEFLATING A PNEUMATIC PLUG. CONSULT FACTORY FOR RECOMMENDATIONS IF DEFLATION UNDER BACKPRESSURE IS REQUIRED. 1-800-843-7584
2. RELEASE THE AIR IN THE PNEUMATIC PLUG THROUGH THE INFLATION HOSE UNTIL THE PLUG IS COMPLETELY DEFLATED.
3. REMOVE THE PLUG FROM THE PIPE.

⚠ CAUTION

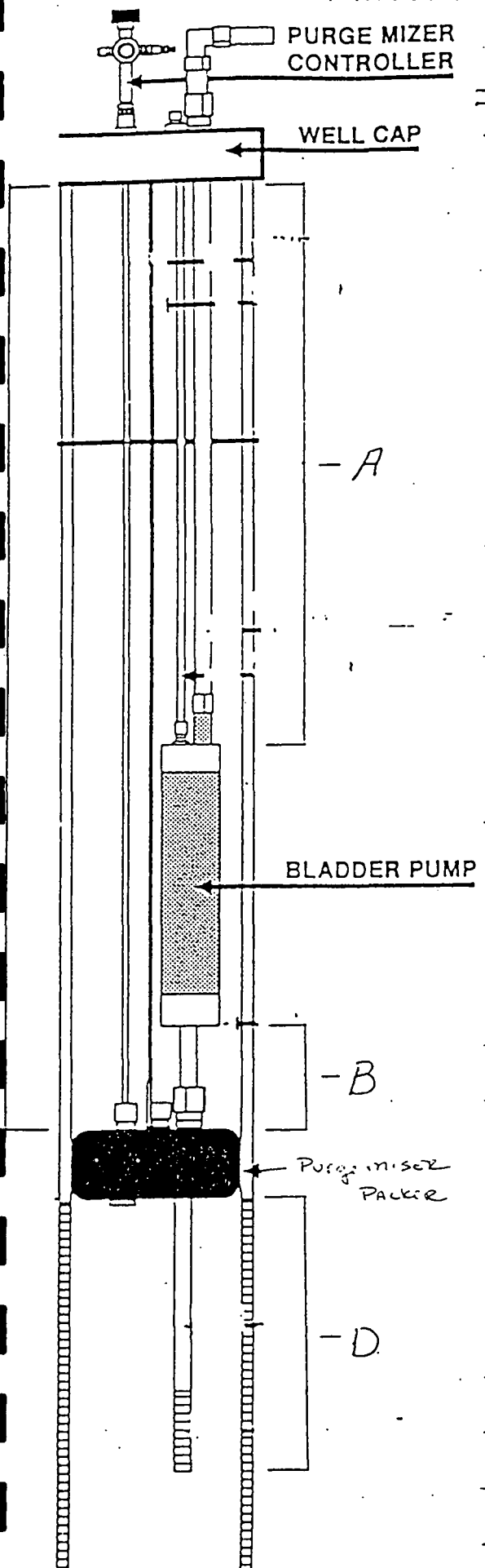
DO NOT ATTEMPT TO PULL THE PLUG FROM THE PIPE BEFORE IT IS COMPLETELY DEFLATED AND DO NOT REMOVE THE PLUG FROM THE PIPE BY PULLING THE EXTENSION HOSE. USE THE HANDLE PROVIDED WITH THE PLUG OR A LIFTING/INFLATION LINE (A CHERNE POLY LIFT LINE) TO REMOVE OR LIFT THE PNEUMATIC PLUG. USING THE INFLATION HOSE TO REMOVE OR LIFT THE PNEUMATIC PLUG, MAY CAUSE DAMAGE TO THE INFLATION LINE OR TO THE PLUG ITSELF WHICH CAN RESULT IN A DAMAGED OR UNSAFE PLUG.

FAILURE TO HEED THIS WARNING MAY RESULT IN PROPERTY DAMAGE, SERIOUS BODILY INJURY OR DEATH.

CLEAN AND INSPECT THE PNEUMATIC PLUG AFTER EVERY USE

A pneumatic plug should be cleaned and inspected after each use. Refer to page 13-14 of this booklet for further instructions. If a plug is to be stored for an extended period of time elastomeric surfaces may be given a light coat of preservative such as ARMOR ALL for protection.

Store the pneumatic plug in a clean dry place, away from sunlight and sources of ozone, such as electrical equipment. Store pneumatic plugs at a temperature below 110 degrees F. Exposure to excessive temperatures may cause damage to pneumatic plugs.



	A	B	C	D
P-17S	155	—	—	—
P-22S	183	—	—	—
P-22D*	213	—	206	—
P-27S	185	—	—	—
P-27D*	201	—	193	—
P-29S	250	—	—	—
P-30I	46	79.5	127	7
P-30D	48	151.5	194	1
P-31S	23	—	—	—
P-31IA	31	47.5	80	7
P-31IB	31	87.5	120	7
P-31D	30	211.5	243	7
P-34S	180	—	—	—
P-34D	196	63	261	7
P-35S	178	—	—	—
P-35D	197	39	238	7
P-40I	36	51.5	89	7
P-40D	38	200.5	240	7
P-41D	42	46	89.5	7

* The Pump is below the Packer for these wells

WELL WIZARD SPECIFICATIONS

3

[redacted]MER HydroSearch SALESPERSON WTS/BRAD

[redacted]K ORDER NO. DATE 5-30-91

[redacted] ID NO.	P295	P345	P34D	P35S	P35D	P17S
[redacted] SYSTEM TYPE.	A	A	D	A	D	A
[redacted] DIAMETER [redacted]HES)	2 →					→
[redacted] ELL DEPTH (FEET)	253.1	183.5	272.9	181.2	249.8	158.5
[redacted]ATIC WATER LEVEL [redacted]EET)	3.3 246.2	5.7 171.5	47.5 173.9	3.6 173.7	36.1 174.4	6.2 145.1
[redacted]ASING LENGTH TO [redacted]REEN (FEET)			262.9		239.8	
[redacted]CREEN LENGTH [redacted]FEET)	10 →					→
[redacted]LADDER PUMP [redacted]ODEL NO.	P1101 →		P1101D	P1101	P1101D	P1101
[redacted]ING MODEL NO. [redacted]FOR BLADDER PUMP)	PT5100 →					→
[redacted]TAL TUBING [redacted]ENGTH (FOR B.P.)	250x	180x	196x	178x	197x	155x
[redacted]GE PUMP/MIZER [redacted]ODEL NO.	4.8		4200		4200	
[redacted]BING/CABLE MODEL [redacted](P.PUMP/MIZER)			4010		4010	
[redacted]TAL TUBING/CABLE [redacted]GTH (P.PUMP/MIZ.)			261 x		238x	
[redacted]AP MODEL NO.	2120A →					→
[redacted]ROP TUBING MODEL			34501		34501	
[redacted]TAL DROP TUBING [redacted]NGTH			70x		46x	
[redacted]ATIC WATER LEVEL [redacted]ROBE TUBING MOD.						
[redacted]TAL PROBE TUBING [redacted]NGTH						
[redacted]ROBE MODEL NO.						

WELL WIZARD SPECIFICATIONS

CUSTOMER Hydro Search SALESPERSON -11 / [illegible]

ORDER NO. _____ DATE _____

[redacted] ID NO.	P22S	P22D	P27S	P27D		
[redacted] SYSTEM TYPE.	A	E	A	E		
[redacted] DIAMETER [redacted]IES)	2 →	→	→	→		
[redacted] DEPTH (FEET)	185.1	217.3	188.8	204.3		
[redacted]TATIC WATER LEVEL [redacted]T)	179.1 (2.8)	180 (17.9)	182 (3.2)	182.4 (10.5)		
ASING LENGTH TO [redacted]EEN (FEET)		207.3		194.3		
[redacted]CREEN LENGTH [redacted]EET)	10 →	→	→	→		
[redacted]LADDER PUMP [redacted]ODEL NO.	P1101	P1101	P1101	P1101		
[redacted]BING MODEL NO. [redacted]FOR BLADDER PUMP)	PT5100 →	→	→	→	→	→
[redacted]TAL TUBING [redacted]ENGTH (FOR B.P.)	183x	213 ~~203~~ x	185x	201x		
[redacted]RGE PUMP/MIZER [redacted]ODEL NO.		4200		4200		
[redacted]BING/CABLE MODEL [redacted]O.(P.PUMP/MIZER)		4010		4010		
[redacted]TAL TUBING/CABLE [redacted]NGTH (P.PUMP/MIZ.)		206x		193x		
[redacted]P MODEL NO.	2120A →	→	→	→		
[redacted]ROP TUBING MODEL [redacted]O.						
[redacted]OTAL DROP TUBING [redacted]NGTH			Pump w/ below packer			
[redacted]TATIC WATER LEVEL [redacted]ROBE TUBING MOD.						
[redacted]OTAL PROBE TUBING [redacted]ENGTH						
[redacted]ROBE MODEL NO.		✓				

Customer: SIMON HYDROSEARCH

Site/Location: REFUSE HIDEAWAY LANDFILL

Salesperson: MSP/WTS/TB

Date: 10/29/92

WELL ID NO.	P30I	P30D	P31S	P31IA	P31IB	P31D
WELL SYSTEM TYPE	F	F	F	F	F	F
Well Diameter (Inches)	2	2	2	2	2	2
Well Depth	140	287	25.5	93	133	256
Static Water Level	26	28	6	11	11	10
Casing Length to Screen						
Screen Length	10	10	15	10	10	10
BLADDER PUMP MODEL	P1101D	P1101D	P1101	P1101D	P1101D	P1101D
TUBING MODEL	PT5100	PT5100	PT5100	PT5100	PT5100	PT5100
TUBING LENGTH	46	48	23	31	31	30
STICK-UP ABOVE CAP	1	1	1	1	1	1
CAP MODEL	~~2120A~~	~~2120A~~ INVERTA	~~2120A~~ INVERTA	~~2120A~~ INVERTA	~~2120A~~ INVERTA	~~2120A~~ INVERTA
Cap Adapter Model	2302	2302		2302	2302	2302
Purge Pump Model						
Tubing Model						
Tubing Length						
Purge Mizer Model	4200	9999		4200	9999	9999
Cable/Tubing Model	4010	4010		4010	4010	4010
Cable/Tubing Length	127	274		80	120	243
Drop Tubing Model	34501	34501		34501	34501	34501
Drop Tubing Length	86.5	231.5		54.5	94.5	218.5
Water Level Probe Model						
Probe Tubing Model						
Tubing Length						
om Sounder Cable Length						
ll System Types:						

Bladder Pump only
- Bladder Pump below Purge Pump
- Bladder Pump above Purge Pump
Bladder Pump above Purge Mizer with Inlet Extension
Bladder Pump below Purge Mizer
- Bladder Pump with Electric Submersible above
Bladder Pump with Electric Submersible below
Bladder Pump above Purge Mizer, with Purge Pump and Inlet Extension
Bladder Pump, with tandem Purge Mizers
- Special...Detail here...

Customer: SIMON HYDROSEARCH

Site/Location: REFUSE HIDEAWAY LANDFILL

Salesperson: MSP/WTS/TB

Date: 10/29/92

WELL ID NO.	P40I	P40D	P41D			
WELL SYSTEM TYPE	F	F	F			
Well Diameter (Inches)	2	2	2			
Well Depth	102	253	102.5			
Static Water Level	16	18	22			
Casing Length to Screen						
Screen Length	10	10	10			
BLADDER PUMP MODEL	P1101D	P1101D	P1101D			
TUBING MODEL	PT5100	PT5100	PT5100			
TUBING LENGTH	36	38	42			
STICK-UP ABOVE CAP	1	1	1			
CAP MODEL	INNERTH ~~2120A~~	INNERTH ~~2120A~~	INNERTH ~~2120A~~			
Cap Adapter Model	2302	2302	2302			
Purge Pump Model						
Tubing Model						
Tubing Length						
Purge Mizer Model	4200	9999	4200			
Cable/Tubing Model	4010	4010	4010			
Cable/Tubing Length	89	240	89.5			
Drop Tubing Model	34501	34501	34501			
Drop Tubing Length	58.5	207.5	53			
Water Level Probe Model						
Probe Tubing Model						
Tubing Length						
Bottom Sounder Cable Length						

TOTAL B.P. TUBING LENGTH (FT) 325

TOTAL P.P. TUBING LENGTH (FT) 0

TOTAL P.M. TUBING LENGTH (FT) 1262.5

DROP TUBING LENGTH (FT) 1004.5

TOTAL PROBE TUBING LENGTH (FT) 0

0

TOTAL SOUNDER CABLE LENGTH (FT)

All System Types:

- Bladder Pump only
- Bladder Pump below Purge Pump
- Bladder Pump above Purge Pump
- Bladder Pump above Purge Mizer with Inlet Extension
- Bladder Pump below Purge Mizer
- Bladder Pump with Electric Submersible above
- Bladder Pump with Electric Submersible below
- Bladder Pump above Purge Mizer, with Purge Pump and Inlet Extension
- Bladder Pump, with tandem Purge Mizers
- Special...Detail here...

Appendix B

Field Forms

ENVIRONMENTAL SAMPLING CORPORATION **WELL INSPECTION REPORT**

SITE # |_|_|_|_| DATE |_|_|_|_|_|_| (YY MM DD)

SITE NAME: ______________________ SAMPLER NAME ______________________

WELL NO.	PROTECTIVE CASING	WELL CAP	LOCK	PERMANENT LEGIBLE LABELS	SURFACE SEAL	EASE OF INSERTING/ REMOVING BAILER	DEPTH OF SEDIMENT IN BOTTOM OF WELL	BLADDER PUMP OPERATIONAL	COMMENTS
	Y N	Y N	Y N	Y N	Y N			Y N	
	Y N	Y N	Y N	Y N	Y N			Y N	
	Y N	Y N	Y N	Y N	Y N			Y N	
	Y N	Y N	Y N	Y N	Y N			Y N	
	Y N	Y N	Y N	Y N	Y N			Y N	
	Y N	Y N	Y N	Y N	Y N			Y N	
	Y N	Y N	Y N	Y N	Y N			Y N	
	Y N	Y N	Y N	Y N	Y N			Y N	
	Y N	Y N	Y N	Y N	Y N			Y N	
	Y N	Y N	Y N	Y N	Y N			Y N	
	Y N	Y N	Y N	Y N	Y N			Y N	
	Y N	Y N	Y N	Y N	Y N			Y N	
	Y N	Y N	Y N	Y N	Y N			Y N	
	Y N	Y N	Y N	Y N	Y N			Y N	
	Y N	Y N	Y N	Y N	Y N			Y N	

______________________ ___/___/___
SIGNED DATE

ENVIRONMENTAL SAMPLING CORPORATION

Site # ____
Bottle Set: ____
Sample Point: ____

FIELD INFORMATION FORM

I. PURGING INFORMATION

PURGE DATE (YY MM DD)	START PURGE (2400 Hr Clock)	ELAPSED HRS	WATER VOL. IN CASING (Gallons)	ACTUAL VOLUME PURGED (Gallons)
____	__:__	__.__	____.__	____.__

PURGING AND SAMPLING EQUIPMENT

Purging Equipment ..... Dedicated |Y| |N| (circle one) Sampling Equipment ..... Dedicated |Y| |N| (circle one)

Purging Device/ Material ____
Sampling Device/ Material ____

A- Submersible Pump
B - Peristaltic Pump
C- Bladder Pump
D- Gas Lift Pump
E- Venturi Pump
G- Bailer
H- Scoop/Shovel
I- Piston Pump
X-_____ PURGING OTHER (SPECIFY)
X-_____ SAMPLING OTHER (SPECIFY)

J- Teflon
K- Stainless Steel
L- Polypropylene
M- PVC
N- Polyethylene

Tubing/rope- Purging ____
Tubing/rope- Sampling ____

A- Teflon
B- Tygon
C- Rope X-_____ (SPECIFY)
D- Polypropylene
E- Polyethylene
F- Combination teflon/ Polypropylene X-_____ PURGING OTHER (SPECIFY)
X-_____ SAMPLING OTHER (SPECIFY)

Filtering Devices 0.45 u: ____ A- In-Line Disposable B- Pressure C- Vacuum

II. FIELD MEASUREMENTS

Measuring Point Elevation	____.__	(ft/msl)	1st pH	__.__ (STD)
Depth to water From top of well casing	____.__	(ft)	2nd pH	__.__ (STD)
Groundwater Elevation	____.__	(ft/msl)	1st spec. cond.	____ umho/cm at 25 °C
Well Depth	____.__	(ft)	2nd spec. cond.	____ umho/cm at 25 °C

Eh ____ value ____ units

Sample Temp. ____.__ (° C)

Turbidity ____ value ____ units

Alkalinity ____ value ____ units

III. FIELD COMMENTS

Sample Appearance: _____ (if applicable) Odor: _____ Color: _____ Turbidity: _____

Weather Conditions: _____

Specific Comments: _____

I certify that sampling procedures were in accordance with applicable EPA, State, Site and ESC protocols

__/__/__ (Date) _____ (Signature) Employer : _____

ENVIRONMENTAL SAMPLING CORPORATION

FIELD CHAIN-OF-CUSTODY RECORD

SITE/FACILITY # ____ SITE NAME: [redacted]

SAMPLE POINT: ____ ____ SAMPLE DATE ____ ____ ____ (YY MM DD) SAMPLE TIME: __ : __ (2400 Hr Clock)

SOURCE CODES:

Well	(W)	Leachate System	(C)	Pretreatment Facility	(P)	River/Stream/Brook	(R)	Soil	(S)	Generation Pt.	(G)
Dewatering/Pressure Relief	(D)	Gas Condensate	(M)	Influent	(U)	Lake or Ocean	(L)	Bottom Sediment	(B)	Other	(X)
Surface Water Impoundment	(I)	Air	(A)	Effluent	(T)	Outfall	(O)	Noise	(N)	Specify _____	

ESC # **COOLER CONTENT**

SAMPLE I.D.	# OF BOTTLES	BOTTLE TYPE	PRESERVATIVE TYPE	ANALYTES/LAB GROUPS	FILTER	COMMENTS
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	

CHAIN OF CUSTODY CHRONICLE

1. Cooler Prepared By: (print) _____ Date: ___/___/___ Time: _____:_____ (2400 HR.)

   Signature : _____ Seal # : _____ Intact: _____

I have received these materials in good condition from the above person.

2. Name : _____ Signature: _____

   Date : ____/____/____ Time: _____:_____ (2400 HR.) Remarks: _____

I have received these materials in good condition from the above person.

3. Name : _____ Signature: _____

   Date : ____/____/____ Time: _____:_____ (2400 HR.) Remarks: _____

4. Cooler Sealed By: (print) _____ Date: ___/___/___ Time: _____:_____ (2400 HR.)

   Signature : _____ Seal # : _____ Intact: _____

LAB USE ONLY

Opened By : (Signature) _____ Date: ____/____/____ Time: _____:_____ (2400 HR.)

Cooler # _____ TEMP.° C _____ SEAL # _____ INTACT Y N

APPENDIX C

Sun laboratory, Inc. MDL Report

SUN LABORATORIES, INC.

MDL REPORT

524.2 / 8260

JscMDLRpt

13-Jul-94

Test	Testing?	MDL	Unit	Method
8260w				
	1,1,1,2-Tetrachloroethane	0.068	ug/l	8260
	1,1,1-Trichloroethane	0.105	ug/l	8260
	1,1,2,2-Tetrachloroethane	0.282	ug/l	8260
	1,1,2-Trichloroethane	0.116	ug/l	8260
	1,1-Dichloroethane	0.092	ug/l	8260
	1,1-Dichloroethene	0.575	ug/l	8260
	1,1-Dichloropropene	0.091	ug/l	8260
	1,2,3-Trichlorobenzene	0.134	ug/l	8260
	1,2,3-Trichloropropane	0.125	ug/l	8260
	1,2,4-Trichlorobenzene	0.09	ug/l	8260
	1,2,4-Trimethylbenzene	0.076	ug/l	8260
	1,2-Dibromo-3-chloropropan	0.410	ug/l	8260
	1,2-Dibromoethane	0.094	ug/l	8260
	1,2-Dichlorobenzene	0.080	ug/l	8260
	1,2-Dichloroethane	0.08	ug/l	8260
	1,2-Dichloropropane	0.141	ug/l	8260
	1,3,5-Trimethylbenzene	0.084	ug/l	8260
	1,3-Dichlorobenzene	0.088	ug/l	8260
	1,3-Dichloropropane	0.133	ug/l	8260
	1,4-Dichlorobenzene	0.033	ug/l	8260
	2,2-Dichloropropane	0.321	ug/l	8260
	2-Chlorotoluene	0.107	ug/l	8260
	4-Chlorotoluene	0.075	ug/l	8260
	Acetone	1	ug/l	8260
	Benzene	0.115	ug/l	8260
	Bromobenzene	0.066	ug/l	8260

Test	Testing?	MDL	Unit	Method
	Bromochloromethane	0.442	ug/l	8260
	Bromodichloromethane	0.083	ug/l	8260
	Bromoform	0.046	ug/l	8260
	Bromomethane	1.356	ug/l	8260
	Carbon tetrachloride	0.22	ug/l	8260
	Chlorobenzene	0.081	ug/l	8260
	Chloroethane	2.18	ug/l	8260
	Chloroform	0.090	ug/l	8260
	Chloromethane	0.799	ug/l	8260
	cis-1,2-Dichloroethene	0.138	ug/l	8260
	cis-1,3-Dichloropropene	0.146	ug/l	8260
	Di-isopropyl ether	1	ug/l	8260
	Dibromochloromethane	0.133	ug/l	8260
	Dibromomethane	0.125	ug/l	8260
	Dichlorodifluoromethane	0.320	ug/l	8260
	Ethylbenzene	0.078	ug/l	8260
	Hexachlorobutadiene	0.095	ug/l	8260
	Isopropylbenzene	0.092	ug/l	8260
	m&p-xylene	0.135	ug/l	8260
	Methyl Ethyl Ketone	1	ug/l	8260
	Methylene chloride	0.247	ug/l	8260
	MTBE	0.05	ug/l	8260
	n-Butylbenzene	0.082	ug/l	8260
	n-Propylbenzene	0.101	ug/l	8260
	Naphthalene	0.494	ug/l	8260
	o-xylene	0.129	ug/l	8260
	p-Isopropyltoluene	0.073	ug/l	8260
	sec-Butylbenzene	0.070	ug/l	8260
	Styrene	0.041	ug/l	8260

524.2 MDL 05/09/94 1.0 ug/L

	Compound	B59D1	B59D	B59D	B59D	B59D	B59D	B59D	STDE	MDL
1	dichlorodifluoromethane	0.80	0.86	0.71	0.88	0.72	0.80	0.62	0.09	0.27
2	chloromethane	0.96	0.91	0.89	0.99	0.85	0.93	0.79	0.06	0.20
3	vinyl chloride	0.85	0.92	0.73	0.85	0.88	0.73	0.78	0.07	0.22
4	bromomethane	2.02	2.61	2.25	2.44	2.35	2.23	1.94	0.22	0.68
5	chloroethane	1.07	1.07	1.10	1.02	1.12	1.03	0.95	0.05	0.17
6	trichlorofluoromethane	0.93	0.92	0.94	0.98	1.00	0.87	0.84	0.05	0.16
7	1,1-dichloroethene	1.00	0.81	0.97	1.04	1.03	0.92	0.89	0.08	0.24
8	methylene chloride	1.21	1.19	1.17	1.13	1.23	1.24	1.24	0.04	0.12
9	trans-1,2-dichloroethene	0.96	0.96	1.01	1.03	1.05	0.97	0.99	0.03	0.10
10	1,1-dichloroethane	1.06	1.15	1.02	1.06	1.06	1.03	1.04	0.04	0.12
11	2,2-dichloropropane	0.75	0.79	0.74	0.73	0.64	0.72	0.68	0.05	0.14
12	cis-1,2-dichloroethene	0.82	0.79	0.87	0.87	0.85	0.79	0.82	0.03	0.10
13	bromochloromethane	0.76	0.79	0.84	0.67	0.78	0.79	0.87	0.06	0.18
14	chloroform	0.94	0.86	0.93	0.88	0.89	0.92	0.95	0.03	0.10
15	1,1,1-trichloroethane	1.00	0.80	0.87	0.90	0.82	0.87	0.96	0.07	0.21
16	carbon tetrachloride	0.86	0.80	0.74	0.81	0.80	0.86	0.78	0.04	0.12
17	1,1-dichloropropene	0.67	0.79	0.69	0.73	0.73	0.71	0.67	0.04	0.12
18	benzene	0.89	0.91	0.92	0.92	0.88	0.87	0.85	0.02	0.08
19	1,2-dichloroethane	0.92	0.99	1.04	1.09	1.01	0.94	1.04	0.06	0.17
20	trichloroethene	0.84	0.82	0.92	0.91	0.82	0.93	0.86	0.04	0.14
21	1,2-dichloropropane	0.89	0.86	0.94	0.92	0.84	0.79	0.91	0.05	0.15
22	dibromomethane	0.97	0.93	0.92	0.88	1.01	0.85	0.87	0.05	0.17
23	bromodichloromethane	0.88	0.86	0.79	0.82	0.92	1.00	0.88	0.06	0.20
24	cis-1,3-dichloropropene	0.87	1.00	0.78	0.81	0.82	0.80	0.77	0.07	0.23
25	toluene	0.84	0.84	0.83	0.85	0.81	0.82	0.82	0.01	0.04
26	trans-1,3-dichloropropene	0.81	0.81	0.75	0.80	0.76	0.69	0.70	0.05	0.15
27	1,1,2-trichloroethane	0.84	0.93	0.86	0.87	0.82	0.87	0.87	0.03	0.10
28	tetrachloroethene	0.87	0.89	0.98	0.90	0.87	0.85	0.81	0.05	0.15
29	1,3-dichloropropane	0.91	0.93	0.96	0.90	0.92	0.96	0.97	0.03	0.08
30	dibromochloromethane	0.85	0.81	0.76	0.85	0.80	0.78	0.72	0.04	0.14
31	1,2-dibromomethane	0.83	0.83	0.92	0.87	0.90	0.91	0.83	0.04	0.12
32	chlorobenzene	0.86	0.87	0.86	0.84	0.86	0.80	0.85	0.02	0.07
33	1,1,1,2-tetrachloroethane	0.85	0.77	0.85	0.84	0.96	0.80	0.76	0.06	0.20
34	ethylbenzene	0.83	0.77	0.81	0.79	0.74	0.75	0.74	0.03	0.10
35	m&p-xylene	1.56	1.50	1.60	1.52	1.55	1.52	1.50	0.03	0.11
36	o-xylene	0.78	0.79	0.75	0.72	0.71	0.67	0.66	0.05	0.15
37	styrene	0.75	0.72	0.69	0.69	0.68	0.65	0.67	0.03	0.10
38	bromoform	0.72	0.76	0.73	0.74	0.75	0.77	0.72	0.02	0.06
39	isopropylbenzene	0.75	0.72	0.72	0.72	0.74	0.69	0.65	0.03	0.10
40	bromobenzene	0.82	0.88	0.83	0.84	0.85	0.79	0.80	0.03	0.09
41	1,1,2,2-tetrachloroethane	0.90	0.92	0.94	0.90	0.89	0.92	0.91	0.02	0.05
42	1,2,3-trichloropropane	0.94	0.87	1.03	0.96	1.03	0.90	0.89	0.06	0.19
43	n-propylbenzene	0.79	0.75	0.79	0.76	0.71	0.73	0.68	0.04	0.12
44	2-chlorotoluene	0.86	0.82	0.85	0.78	0.82	0.81	0.78	0.03	0.09
45	4-chlorotoluene	0.86	0.80	0.76	0.76	0.80	0.76	0.68	0.05	0.16
46	1,3,5-trimethylbenzene	0.71	0.74	0.74	0.74	0.74	0.75	0.66	0.03	0.09
47	tert-butylbenzene	0.72	0.69	0.68	0.74	0.69	0.68	0.63	0.03	0.10
48	1,2,4-trimethylbenzene	0.74	0.74	0.77	0.72	0.71	0.69	0.65	0.04	0.11
49	sec-butylbenzene	0.74	0.74	0.72	0.75	0.70	0.69	0.66	0.03	0.09
50	1,3-dichlorobenzene	0.91	0.84	0.85	0.89	0.84	0.83	0.81	0.03	0.10
51	4-isopropyltoluene	0.85	0.72	0.74	0.76	0.74	0.81	0.78	0.04	0.13
52	1,4-dichlorobenzene	0.89	0.85	0.86	0.87	0.92	0.86	0.81	0.03	0.10
53	1,2-dichlorobenzene	0.88	0.89	0.95	0.96	0.90	1.00	0.95	0.04	0.13
54	n-butylbenzene	0.75	0.76	0.77	0.76	0.73	0.71	0.70	0.03	0.08
55	1,2-dibromo-3-chloropropan	0.00	0.51	0.00	0.26	0.00	0.00	0.28	0.19	0.59
56	1,2,4-trichlorobenzene	0.78	0.77	0.85	0.82	0.79	0.79	0.73	0.04	0.11
57	hexachlorobutadiene	0.90	0.93	0.89	0.84	0.78	0.81	0.78	0.06	0.18
58	1,2,3-trichlorobenzene	0.80	0.76	0.83	0.79	0.83	0.85	0.84	0.03	0.09