FID 241 486630
ERR/ERP

SWANSON ENVIRONMENTAL INC.

November 18, 1994

Ms. Pam Mylotta
Wisconsin DNR
P.O. Box 12436
Milwaukee, WI 53212

Dear Pam:

Enclosed is one copy of the *Initial Site Investigation Results and Workplan* for the site located at 12305 West Silver Spring Road, Milwaukee, Wisconsin.

Sincerely,

SWANSON ENVIRONMENTAL, INC.

Deborah Young
Project Coordinator

DY/ajg

wp/ajg/dy/mylotta3.ltr/11-94

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FID 241486630
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INITIAL SITE INVESTIGATION
RESULTS AND WORKPLAN
12305 WEST SILVER SPRING ROAD
MILWAUKEE, WISCONSIN

NOVEMBER 15, 1994

Prepared for:

Allwaste
5151 San Felipe, Suite 1600
Houston, Texas 77056-3609

Prepared by:

Swanson Environmental, Inc.
3315 North 124th Street
Brookfield, Wisconsin 53005

Report prepared by,

SWANSON ENVIRONMENTAL, INC.

Deborah Young
Project Coordinator

Report reviewed by,

SWANSON ENVIRONMENTAL, INC.

James R Meverden

James R. Meverden JB
Director
Wisconsin/Illinois Operations

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I. INTRODUCTION

Swanson Environmental, Inc. (SEI) was retained by Allwaste to conduct a limited site investigation at the Allwaste site located at 12305 West Silver Spring Road, Milwaukee, Wisconsin. The site is located in the Northwest Quarter of Section 31, Township 8 North, Range 21 East. The site location is depicted in Figure 1.

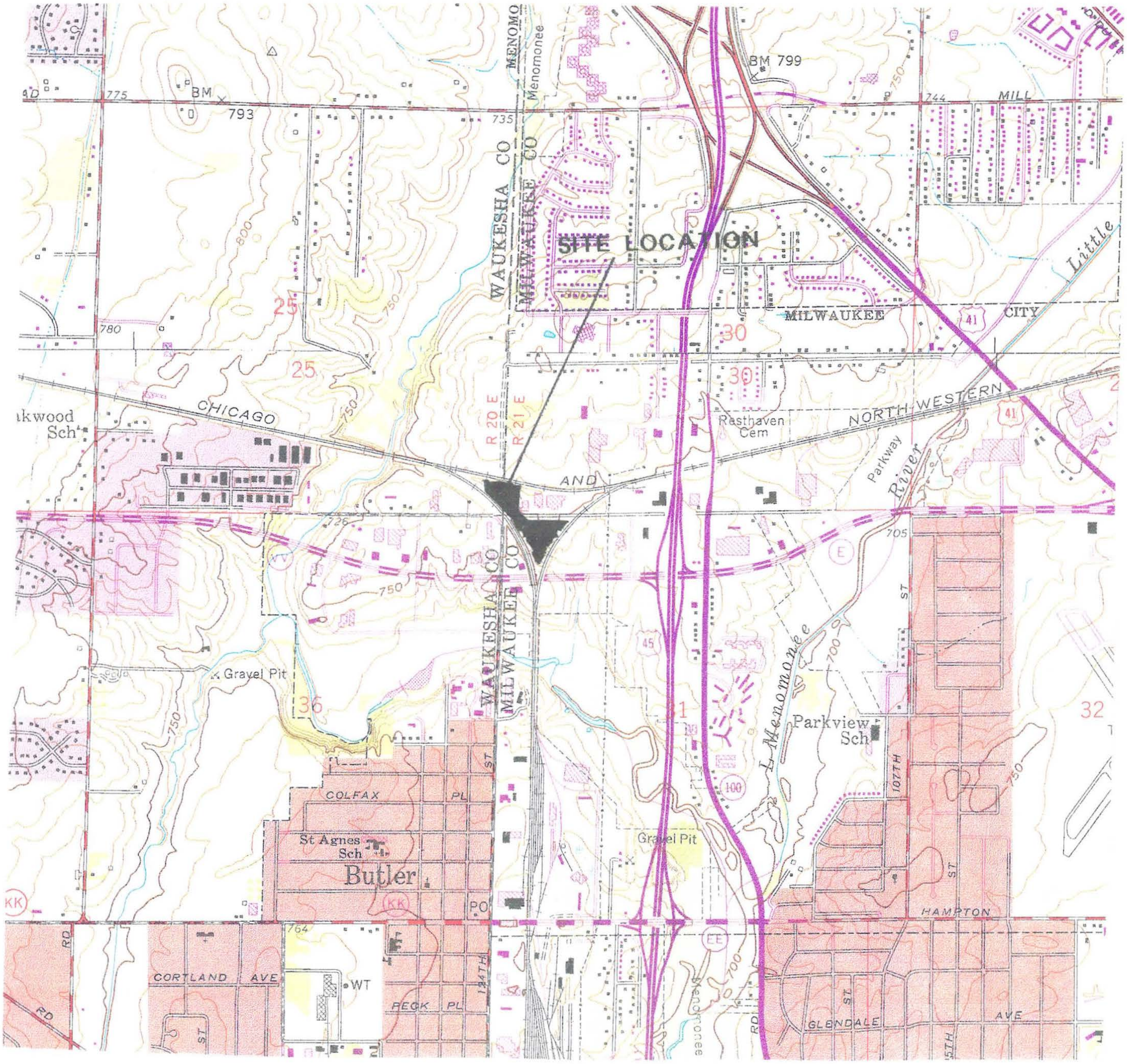
II. BACKGROUND

A Phase I assessment completed at the subject property revealed a heavily stained area beneath an aboveground waste oil storage tank. A limited Phase II investigation was conducted to identify the level of contamination present.

One hand auger borehole was installed on the site as shown in Figure 2. The hand auger borehole was installed using a stainless steel sampling device which was decontaminated between samples with soap and triple rinsed with deionized water. The borehole was extended to an approximate six to eight-inch depth at which time a sample was collected. The soil sample was analyzed for diesel range organics (DRO), gasoline range organics (GRO), and the eight RCRA metals. Results are summarized in Table 1. Sample collection and decontamination was completed per the field procedure plan in Appendix II.

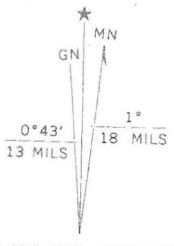
TABLE 1
SOIL SAMPLE RESULTS (ppm)
12305 West Silver Spring Road
4/13/94

Parameter	HA-1
DRO	2370
GRO	ND
Arsenic	2.1
Barium	42.0
Cadmium	5
Chromium	36
Lead	269
Mercury	ND
Silver	ND
Selenium	ND



SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL



UTM GRID AND 1971 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

WAUWATOSA QUADRANGLE
WISCONSIN
7.5 MINUTE SERIES (TOPOGRAPHIC)
SE/4 WAUKESHA 15' QUADRANGLE
AND
MENOMONEE FALLS, WIS.
NE/4 WAUKESHA 15' QUADRANGLE
N4307.5—W8800/7.5

FIGURE 1
SITE LOCATION MAP
12305 WEST SILVER SPRING ROAD
MILWAUKEE, WISCONSIN

DATE:	10/10/94	DRAWN BY:	DLY
PROJECT:	WE 1932	APPROVED:	JM

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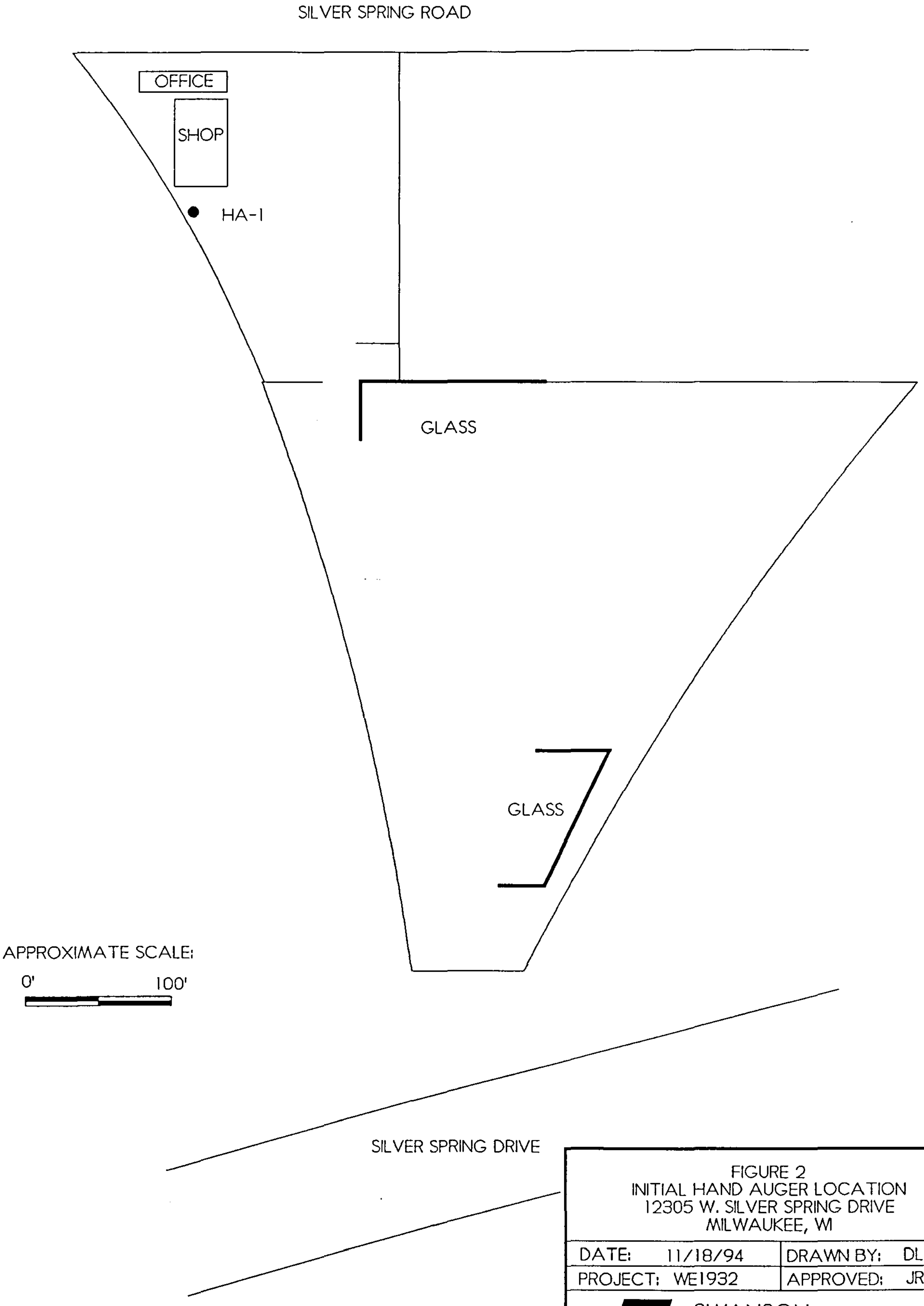

FIGURE 2
INITIAL HAND AUGER LOCATION
12305 W. SILVER SPRING DRIVE
MILWAUKEE, WI

DATE: 11/18/94	DRAWN BY: DLY
PROJECT: WE1932	APPROVED: JRM

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Sample results reveal elevated level detects of DRO, lead and cadmium. All of the other metal results are within common ranges found in natural soil.

III. PROPOSED PHASE III INVESTIGATION

A. Soil Investigation

The proposed soil investigation will entail installation of several additional shallow soil borings to fully delineate surface contamination found in the hand auger samples collected from around the waste oil AST.

The borings will be conducted using a Geoprobe (where access will allow) or hand augering devices (in less accessible areas). A Geoprobe is a van mounted hydraulic drill rig which allows cost effective collection of numerous soil samples. An attempt will be made to place the initial boring through the most heavily contaminated soil. This will be done in an effort to define the vertical extent of contamination. Next, several borings will be placed to surround the most heavily contaminated area in an attempt to determine the horizontal extent of contamination. Where possible, borings will be spaced approximately twenty feet apart and will surround the contamination. Boreholes will be installed on a twenty-foot grid until the extent of horizontal contamination is defined.

Initially, four borings around and one through the middle of the heavily contaminated area are being proposed. Boreholes will be conducted to an approximate four-foot depth with duplicate samples being collected from zero to two feet and two to four feet. If contamination appears to extend past the four-foot depth, boreholes will be continued until the vertical extent of contamination is reached. Field screening samples will be collected and screened with a photoionization detector (PID) equipped with a 10.6 eV lamp. Based on field screening results one to two samples per boring will be submitted for laboratory analysis. Samples will be analyzed for DRO, lead and cadmium. The borings will then be abandoned per NR 141 requirements.

B. Report

Following receipt of all analytical results, a comprehensive report will be prepared outlining our findings, conclusions and recommendations. The report will also include information relating to potential remedial options.

APPENDIX I

FACILITY INFORMATION

FACILITY INFORMATION

Site Location: 12305 West Silver Spring Road
Milwaukee, Wisconsin 53225

Owner: Allwaste
5151 San Felipe, Suite 1600
Houston, Texas 77056-3609

Contact: Jennifer Black
(713) 625-7092

Consultant: Swanson Environmental, Inc.
3315 North 124th Street, Unit N
Brookfield, Wisconsin 53005

Contact: Deborah Young
(414) 783-0880

APPENDIX II

FIELD PROCEDURES PLAN

STANDARD FIELD PROCEDURES MANUAL

Swanson Environmental, Inc.
Wisconsin Consulting Division

Developed from Wisconsin Department of
Natural Resources guidelines.

Approved for JRM 11/18/94
Date

Updated 1/94

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I. FIELD BOOK

The importance of accurate, complete field books cannot be overstressed. Your bound field book is a legal document that you will have to defend if you end up as a witness in a lawsuit.

- The field book is company property. If you are not using it in the field, it should be accessible to everyone in the office.
- Everyone's field book will be checked periodically.
- When you start a new field book, leave the first few pages blank for an index. Number the pages as you go and keep the index up-to-date. This shows that no pages have been removed.
- Except for unusual circumstances or small jobs, start every new job on a separate page. This will make them easier to find later and allow simpler copying if the notes have to be put in a report.
- In general, the field book entries should include the following:

  Project name
  Date and time
  Location
  Weather
  Equipment used
  Calibration and time
  Decontamination procedure (pre and post)
  Sample preservation
  Site sketches (if necessary)
  General observations
  People on-site
  PPE

Other specific information is necessary for different types of sampling, but this is a general overview.

II. SOIL SAMPLING

A. General Sampling

Wear a new pair of latex or surgical gloves for each sample.

Collect samples with a decontaminated trowel, syringe or sampling device.

Collect and preserve samples per current agency guidelines and analytical procedures.

Quality Control - all samples collected for laboratory analysis must be placed on ice in a cooler to maintain sample integrity.

B. Soil Borings

Split-spoon soil samples will be collected continuously throughout each boring.

The soil contained in the split-spoon will be divided down the middle of the spoon (lengthwise). Half of the sample will be containerized for laboratory analysis and the other half for a field screening sample. If more or less than one-half of the split-spoon sample is needed for laboratory analysis, try to take similar amounts, throughout the entire length of the split spoon for laboratory analysis and field screening.

C. Test Pits or Excavations

Duplicate soil samples will be collected at regular intervals (preferably every 2-2.5 feet), at changes in soil type, and directly above the water table through use of a backhoe bucket.

III. SOIL BORING LOGS

Record observations of the drilling activities in your field book. Note the following in your field book.

- Blow counts: record the number of hammer blows per 6-inch interval.
- Recovery: record the amount of material recovered in the sampler using a ruler or tape measure.
- USCS code: classify soil using the Unified Soil Classification System, attached.
- Describe soil identifying the predominant constituent first (e.g.: clay, silty with some gravel...). Be sure to include color, moisture, sorting, interbedding, organics, etc.
- Record field screening result.
- Make note of anything unusual (e.g.: gasoline odor, discoloration, etc.).
- Record the total depth of boring or well (e.g.: boring terminated at 16 feet). Make note if boring was converted to monitoring well.
- Record the borehole number, interval sampled and sample # (e.g. B-1:4-6)

- Note any moist/wet zones as these will be needed to help identify the water table.
- Record the time the sample collected.
- If boring is abandoned, note how many bags of what were used to abandon it.
- Make a brief sketch of the site showing approximate boring/well locations.

IV. MONITORING WELL INSTALLATION

A. Well Casing

Selection of well casing and screen materials will be made with consideration for the geochemistry, anticipated lifetime of the monitoring program, well depth, chemical parameters to be monitored and other site-specific factors. For example, steel casings and screens deteriorate in corrosive environments; PVC deteriorates in contact with ketones, esters and aromatic and halogenated hydrocarbons; and polypropylene deteriorates in contact with oxidizing acids, aliphatic hydrocarbons, and aromatic hydrocarbons.

B. Well Installation

1. Determine the length and placement of the well screen depending upon the water table depth. On water table observation wells the well screens are typically 10 feet long and may not exceed 15 feet in length. Well screens on piezometers may not exceed 5 feet in length. The section of screen should intersect the water table to allow for fluctuations in the water table levels. For example, if your water table depth is 15 feet, they your boring should be drilled to 23 feet and installed with a 10 foot section of screen. Approximately two feet of screen should be above the water table.

2. Use only commercially manufactured screens or slotted casings. Field slotting of casing is not permitted.

3. Screw together the well plug (bottom) to the screened section of pipe and insert into borehole. If the surrounding soil is loosely consolidated or caves, then the auger may be left in the borehole while installing the well piping. Hold screen and screw on the riser pipe as needed to reach surface. Do not use any glues or sealants to assemble wells.

4. Determine the depth to the top of screen and record it in your field book. Also record information on construction of the monitoring well. It is helpful to draw a picture of the well in your field book, noting the depth of the well, filter pack, and filter pack seal and the annular space seal.

5. Place the filter pack by slowly pouring filter pack material directly into the space between well screen and the open borehole wall. As stated above, if the borehole will not stand open, gradually pull back the auger string in small increments and slowly pour filter pack directly into the space between the auger wall and the well casing and screen. The filter pack will consist of coarse sand.

6. Care should be taken to prevent filter pack material from bridging between the borehole wall or augers and the well screen and casing. This can be accomplished by using a tamping device to ensure that the material passes through the augers. In some cases, shaking the well pipe inside the borehole or augers will be helpful.

7. The filter pack material will be placed from the bottom of the well to the top of the screen. If there is room, the filter pack should extend 2 feet above the top of the screen. This may be reduced as needed to build the well. Note the kind and amount of coarse sand used in your field book.

8. The filter pack seal is made up of fine sand and bentonite. If possible, 2 feet of fine sand should be placed above the coarse sand. This amount can be reduced to as little as 6 inches, but some fine sand should be installed. Record the kind and amount of fine sand used.

9. Place a minimum of 2 feet of bentonite pellets or chips on top of the filter pack seal for an annular space seal. Record depth to the top of the bentonite seal and amount and type of bentonite used in your field book.

10. Fill the rest of the annular space with bentonite chips or pellets up to a level appropriate for the well cover. Keep in mind that bentonite will heave in moisture and frost conditions, so do not over-fill.

11. A 7 foot protective cover pipe is typically required, but may be reduced to insure that it does not extend through the annular space seal or into the filter pack.

12. The casing can be cut if needed to accommodate the well cover. A mark should be placed on the well casing. This mark will be used for all water table measurements. Place an expandable well cap on the opening if using flush-mount well cover. Place a cap on the opening if using an aboveground cover. All wells must be locked with a padlock.

13. Construct a concrete surface pad around the flush-mount well cover and make sure that the sides slope away from the well to prevent rainwater and mud from collecting in the well cover crevices. However, do not mound it up too high if it is located in an area that will be plowed in winter. Construct a concrete surface or natural soil pad around aboveground well covers.

14. Further clarifications and procedures can be found in NR 141.

V. MONITORING WELL DEVELOPMENT

Wait a minimum of 12 hours after installation before beginning development.

A. Wells That Cannot be Purged Dry

1. Surge and purge for a minimum of 30 minutes using either a bailer or a surge block.

2. Containerize all purge water.

3. After the surging and purging cycle, bail ten well volumes of water from the well, or bail until the well produces sediment-free water.

4. Well volume calculation

$$V_1 + V_2 = \text{Well volume}$$
$$V_1 = \pi(D_1/2)^2 H_1 \text{ ft}^3$$
$$V_2 = N\pi H_2[(D_3/2)^2 - (D_2/2)^2]$$

N = porosity of filter pack
D_1 = inside diameter of well casing, feet
D_2 = outside diameter of well casing, feet
D_3 = diameter of borehole
H_1 = height of water column
H_2 = length of filter pack or the height of the water column in water table observation well

(Source Wisconsin DNR NR 141)

B. Wells That Can Be Purged Dry

1. Develop the well in a manner which limits agitation.

2. Wells may not be surged and no water may be added to the well.

3. Development is complete when five well volumes are removed, when sediment-free water is produced or when the well has been purged dry three times.

Record in your field book the depth to water, depth to bottom, the method used to develop the well, the amount of time spent purging the well, the time of day and the water clarity, as these will be needed to complete the well development form.

VI. MONITORING WELL PURGING AND GROUNDWATER SAMPLING

A. Water Level Measurements (Water level meter)

1. Slowly lower probe into well by pulling cable from the reel.

2. Continue lowering until beeper sounds and/or light turns on, indicating that the water table has been reached.

3. Note and record depth to water by reading the graduated probe cable to nearest 1/10 of a foot below top of well casing at designated, marked location. A survey should be completed to determine height of this well casing above ground surface.

4. Continue to lower probe into well until bottom is encountered. Read and record depth to bottom of well.

5. Thoroughly decontaminate device between each well with soap and DI water.

B. Purging

1. Prior to sampling, the groundwater monitoring wells, the depth to groundwater and depth to bottom will be measured.

2. Wear a new pair of latex or surgical gloves for each well.

3. Measure an appropriate length of rope for the bailer and attach to the bailer using a secure knot. Samples should always be collected with a teflon bailer. Check the knot periodically.

4. Purge wells in the same order of sampling. Purge the least contaminated wells first, most contaminated last (in descending order). If contamination is unknown (i.e. it was clean last time or you don't have any idea), sample upgradient wells first, downgradient wells last.

5. Remove at least four casing volumes (see equation 1) if possible. If not possible, pump or bail well dry.

6. When purging, do not allow bailer to fall freely into the water. Lower bailer slowly into the water introduce as little air and turbulence to the water as possible.

7. Determining volume to be purged:

$$V = [\pi \times (D/2)^2 \times H] \times 7.48 \times 4$$

When

V = Total volume of water to be purged, gallons
D = Inside diameter of well in feet
H = Height of water column in well in feet (depth to bottom of well minus depth to water)

Table 1

Inside diameter (Inches)	Gallons per foot of water column
1	0.163
1.25	0.255
1.5	0.367
2	0.652
3	0.469
4	2.610

(Source WDNR PUBL-WR-168-87)

C. Special Procedures When Sampling for VOCs:

1. Evaluate the area around the sampling point prior to sample collection for possible air contamination by VOCs. Products that may give off VOCs and possibly contaminate a sample include perfumes and cosmetics, skin applied pharmaceuticals, suntan lotion, and automotive products (gasoline, starting fluid, windshield deicers, carburetor cleaners, automotive exhaust), insect repellents, lock lubricants, etc.

2. Wear clean gloves (latex or surgical).

3. Collect samples for organic compounds from the bottom of a full bailer as soon as it is brought to the surface.

4. Use a clean bottom-emptying device when using a bailer to sample for VOCs.

5. Do not use a suction pump when sampling for VOCs.

6. Keep the VOC sample bottles and the containers used for mailing the bottles tightly sealed to prevent possible contamination.

7. Remove the cap ring from the sample vial. Make sure that the teflon liner does not fall out. If the liner falls out, replace it in the cap ring and flush the cap with reagent grade water.

8. Add the appropriate preservative such as HCl to 40 milliliter sample vials. (If 1:1 HCl is used, add ten drops. If concentrated HCl is used, add five drops.)

9. Fill the sample vial immediately by allowing the water stream to strike the inner wall of the vial to minimize formation of air bubbles. <u>Do not rinse the sample vial before filling</u>. Fill the sample vial, with a minimum of turbulence, until the water forms a positive meniscus at the brim. Allow the vial to overflow slightly.

10. Replace the cap quickly by gently setting it on the water meniscus. Tighten firmly, but <u>do not over tighten</u>. Invert the vial and tap it lightly. If you see air bubbles in the sample, do not add more sample. Empty the vial and <u>use the extra vial</u> to collect another sample. If bubbles form in the sample collected in the extra vial, empty the vial and collect the sample again in the same vial. Do not filter samples collected for VOC analysis.

11. Repeat this procedure for the other vials, <u>opening only one at a time</u>.

12. Further clarifications and procedures can be found in <u>Groundwater Sampling Procedures</u>, Wisconsin Department of Natural Resources Document PUBL-WR-168-87.

D. In-Field Analyses

1. Slowly pour unfiltered portion into a clean container for required in-field analyses, such as temperature, specific conductance, pH, color, odor and turbidity (see Section VI).

2. Slowly pour portions for any other unfiltered samples.

E. Inorganic Analyses

1. Slowly fill transfer bottle, being careful not to splash or otherwise aerate the water. Immediately filter directly into sample bottles (see Section F). Preserve the samples as required.

F. Field Filtering

1. Samples are usually only filtered before an analysis for inorganic compounds. DO NOT filter samples for volatile organic compound analysis.

2. Use appropriate disposable filter cartridges if they are available. There is less likelihood for contamination with this style of filter. If cartridge style filters are not available, use membrane filter apparatus with a prefilter. Handle filters with plastic or teflon coated forceps. Do not use metal forceps.

3. If using a filter apparatus, flush it with ~500 ml of DI water prior to filtering the sample.

4. Pump sample through filter. Discard the first 20 to 150 milliliters of sample to pass through the filter prior to filling the sample bottle.

5. Collect samples needed.

6. Remove and discard filter cartridge (or membrane and prefilter) rinse all tubing and/or apparatus with at least 500 ml of DI water.

G. In-Field Measurements

1. Temperature and pH

   a. Rinse pH electrode and temperature probe with DI water. Blot dry with a Kimwipe.

   b. Calibrate instrument with appropriate buffer solutions according to manufacturer's instructions. Rinse with DI water and blot dry with Kimwipe. The temperature of the buffers and the sample should be within 5°C of each other. Calibration should be done first thing on the day of sampling and then every five samples, or three hours, whichever is sooner.

   c. Immerse electrodes in sample, allow the instrument to equilibrate (no more than three minutes). Sample should be in a clean glass beaker. Use portable magnetic stirrer if possible.

   d. Read values to the nearest 0.1 unit and record.

   e. Remove electrodes, rinse with DI water and store in saturated KCl, low pH buffer, or solution provided. Rinse and blot dry electrodes before using again. Also rinse beaker and magnetic stir bar between samples.

2. Conductivity

   a. Set up and calibrate the conductivity meter according to the manufacturer's instructions.

   b. Set the dial to the desired range for measurement (ex: x100 umhos/cm range).

   c. Rinse probe and blot dry.

    d. Immerse probe into sample and allow instrument to equilibrate (less than two minutes). If possible, measure conductivity simultaneously with pH and temperature using magnetic stirrer.

    e. Read and record values and units. Correct the measurement to 25°C using the equation supplied by the manufacturer (if not already corrected by the meter).

    f. Rinse probe thoroughly with DI water and store.

3. Color, Odor, and Turbidity:

    a. Color: Note color after filtration against a white background.

    b. Odor: Carefully wave you hand over the opening of the sample container and note any distinct smell. Do not smell the sample directly, particularly when dealing with hazardous or unknown materials.

    c. Turbidity: Comment on turbidity, such as cloudy, turbid, clear.

H. Quality Control/Quality Assurance

Sample from the least contaminated to the most contaminated well.

1. Field Blanks:

    a. Collect the field blanks when sampling downgradient wells.

    b. Collect a minimum of one field blank per sampling event or one every ten samples, whichever is greater.

    c. The field blank should be collected by pouring deionized water into a decontaminated bailer. The sample should then be collected the same as a VOC sample.

2. Trip Blank:

    a. Include a trip blank in each sample container used to collect organic-compound samples (one trip blank per cooler).

    b. Be sure trip blank is kept cool or on ice (but not frozen) at all times.

3. Field Duplicates:

    a. Collect a field duplicate for each sampling event or one every ten samples, whichever is greater.

4. Split Samples:

    a. Sample the well, filter the sample (if required) and collect the sample in two containers for separate analysis.

    b. Preserve the sample according to the instructions from your laboratory.

    c. Fill one bottle completely from each set until all bottles are filled when collecting split samples for volatile organic compound analysis.

5. Chain-of-Custody - Chain-of-custody forms acceptable for use in Wisconsin must be correctly filled out. When these forms are filled out, appropriate copies should be placed in the correct file.

Remove and dispose of rope. Decontaminate bailer or mark bailer as to well number if dedicated and place in protective sleeve.

VII. SAMPLE PRESERVATION AND SAMPLE HANDLING

- Preserve samples as directed by laboratory.

- All sample containers will be ordered from SEI's certified laboratory or the laboratory which will analyze the samples.

- Soil and groundwater samples for volatile organic compounds will be filled so that no headspace remains, unless otherwise required.

- Place samples in a cooler with ice and chill until delivered to the laboratory. A temperature blank must be present if icepacks are used.

- A chain of custody (sample attached) should be completed and signed for all samples. The following information should be included.

    1. The time and date the samples were taken
    2. Sample ID # (field and lab numbers)
    3. The project name and address
    4. Who collected the sample/sample method
    5. A sample location description
    6. The parameters the sample is to be analyzed for
    7. Number of containers
    8. The sample type (soil or groundwater)
    9. The method of collection

- The laboratory should record the sample temperature when they receive it. Be sure samples are adequately iced to 4°C. This may require a temperature blank.

VIII. EQUIPMENT OPERATION

A. Photoionization Detection (PID) Meter - Microtip

The field instrument used by SEI is a Photovac Microtip photoionization detector (PID) which has a 10.6 electrovolt lamp.

1. The PID will be calibrated at the beginning of each day with a 100 ppm isobutylene standard.

   The PID will be re-calibrated at midday if used all day. Also, PID will be re-calibrated if:

   a. humidity changes significantly
   b. temperature changes 15°F or more
   c. after any repairs

2. If the PID calibration appears to be disturbed/inconsistent at any point during the day, the PID should be recalibrated.

3. One headspace sample should be collected from the same location along with the laboratory sample. The headspace samples are not to be submitted to the laboratory.

4. Headspace samples will be collected by filing a new one quart plastic bag 1/2 to 3/4 full with soil. A headspace fill line shall be marked on all containers.

5. Immediately after filling the bag 1/2 to 3/4 full of soil, the bag will be sealed.

6. The headspace samples will then be agitated and broken up for at least 30 seconds.

7. All headspace samples must be allowed to equilibrate prior to analysis, according to the table below.

Ambient outside temp.	Min. amount of time a sample must equilibrate at 70°F or greater
40°F	40 min.
41-55°F	20 min.
56-69°F	10 min.
70°F	5 min.

8. Headspace samples should not be warmed in direct sunlight.

9. As soon as equilibration is reached, the samples should be analyzed promptly. This is accomplished by inserting the tip of the PID in the plastic bag. Make sure to seal the bag around the PID tip. Record the highest PID reading. Record the time of field screening, results, equilibration time, temperature and any other conditions.

10. The following documentation should be included along with the field screening results.

    a. Ambient outside temperature
    b. Temperature where samples allowed to equilibrate
    c. Weather conditions (relative humidity, rain, sun, etc.)
    d. Field instrument make and model
    e. Date of last factory calibration
    f. Field calibration gas and concentration
    g. Date and time of last field calibration
    h. Lamp energy in electrovolts
    i. Instrument gain setting
    j. Erratic instrument readings
    k. Cleaning or repairs performed in the field
    l. Use - instrument units as isobutylene
    m. Relative moisture content, if known
    n. Odor
    o. Any quenching.

B. Microtip Calibration

1. Turn instrument on.

2. Unit will display "warming up, please wait".

3. The instrument will then display the time, date, event number, current detected concentration and the instrument status.

4. Check the battery by pushing button 1 ("batt"). Normal battery levels are between 9-16 watts.

5. Fill the span gas bag.
    a. Connect the regulator to the span gas (100 ppm isobutylene).
    b. Open the gas bag valve by turning counter clockwise.
    c. Attach the gas bag to the regulator using the adapter nut.
    d. Turn the regulator knob about 1/2 turn to start the gas flow.
    e. Fill the bag 1/2 full.
    f. Turn the regulator off.
    g. Close the gas bag valve.
    h. Remove the gas bag adaptor from the regulator.
    i. Empty bag.
    j. Repeat once and refill bag.

k. Remove the regulator from span gas tank.

6. Get a clean air sample (preferably air which is free from gases and vapors) which is called the zero gas.

7. Press the Cal button (#8). The instrument will ask for zero gas.

8. Press enter and the instrument will calibrate.

9. The instrument will then ask for the span gas concentration. Enter the known concentration of 100 ppm and press enter.

10. Connect the span gas bag adaptor nut to the inlet and press enter.

11. The instruments display will revert to normal, and it is ready for use.

12. Record calibration data including time, temperature, wait and lamp (model, etc.).

Calibrate periodically during use (steps 5-11).

C. Hermit Data Logger with Pressure Transducer

Aquifer tests may be conducted using slug and pump tests. Pump tests involve measuring the water level drawdown in observation wells over an extended period of time. Slug tests measure the recovery of water level in a well following the rapid removal or addition of an inert slug. In either case, data may be collected using a Hermit Data Logger and a pressure transducer.

The person performing the slug test should be very familiar with the operation of the Hermit Data Logger and should have a copy of the instruction manual on hand. The procedure outline below assumes no instrument operational problems or programming errors will occur, although these are common.

Calibration - no field calibration can be accomplished. As noted in the instruction manual, only factory calibration is accomplished on these instruments. Factory calibration should occur at least once a year.

Operation:

1. Check and reset clock if necessary.

2. Enter the test definition parameters:
    Select test: 0
    Select sampling mode: LOG
    Select active input: 1
    Select type of input: LEVEL

3. Enter the transducer parameters:
    REF.: skip this parameter for now
    SCALE: set to value marked on transducer
    OFFS.: set to zero or as marked on transducer
    DSP.: select top of casing mode and English or metric units
    HI AL: set off
    LOW AL: set off

4. Connect the transducer to the unit and set the transducer into the well at the desired depth. The transducer must be set below the lowest anticipated drawdown, although it is not necessary that it be set at the bottom of the well.

5. Use the XD key to display the transducer depth and to verify that all connections have been made properly.

6. Install the inert slug into the well. Do this slowly so as not to surge the well or damage the transducer. Using your measurements of water level, transducer depth and well bottom, install the inert slug to it is completely submerged below the water, but no closer than one foot above the transducer.

7. Measure the depth to water. Wait until it has returned to the level measured before the inert slug was installed in the well. If the water level recovers very slowly wait until 90% of the water-level rise has dissipated.

8. Go back and enter the reference level of the water. This can be the initial level of the water with respect to the top of casing or zero if only changes in level are important.

9. Use the START function to begin collecting data, synchronizing this with the onset of pumping, slug removal or addition.

10. After one minute, stop the pump and simultaneously press the STOP function on the keyboard. Immediately after pressing the STOP function, press the START function again. This will begin the collection of recovery data. The data collection time depends on the type of aquifer test.

11. If an inert slug was inserted or removed, allow the water levels to recover for four log cycles.

12. Use the STOP function to end data collection. The final data may be viewed, output to a computer, or another test may be run by selecting a new test number.

IX. EQUIPMENT DECONTAMINATION

Sampling equipment should be decontaminated by the following procedure.

A. Soil Sampling Equipment

1. Physically remove as much soil as possible from trowel or auger
2. Wash with scrub brush and detergent solution
3. Triple rinse with DI water
4. Containerize wash water for future disposal.
5. Place decontaminated equipment in clean ziploc bag

B. Groundwater Sampling Equipment

1. Take apart bailer
2. Wash bailer and bottom emptying device in detergent (Alconox) solution. Use a cleaning brush to scrub.
3. Rinse with hot tap water (from carboy)
4. Rinse with hexane (optional - use when product discovered)
5. Triple rinse with DI water.
6. Containerize all wash water for future disposal.
7. Place bottom emptying device in clean ziploc bag. Place decontaminated bailer in clean plastic sealed sleeve.
8. Dispose of rope and gloves (do not reuse).
9. If filtering tubes are decontaminated for reuse, follow procedures 2-8.

X. SAMPLING WATER FROM WATER SUPPLY WELLS

- 1. Raw Water: Locate a tap between the well and any other equipment like water conditioning units, pressure tank, heater, filters, etc. Do not use faucets that swivel; they can be a source of bacteria or air.

2. Delivered water (NR 109 - Safe Drinking Water): Locate the nearest tap after the well and any other equipment like water conditioning units, pressure tank, heater, filters, etc. Do not use faucets that swivel; they can be a source of bacteria or air.

- If tap has aerator, remove it.
- Run water until cold, for at least ten minutes, or until well pump turns on.
- Reduce water flow to a thin stream to reduce aeration as much as possible.
- For volatile organic compounds:
    1. Remove the cap ring from the sample vial. Make sure that the teflon liner does not fall out. If the liner falls out, replace it in the cap ring and flush the cap with running water for 30 seconds.
    2. Fill the sample vial immediately by allowing the water stream to strike the inner wall of the vial to minimize formation of air bubbles. Do not rinse the sample vial before filling. Fill the sample vial, with a minimum of turbulence, until the water forms a positive meniscus at the brim. Allow the vial to overflow slightly.
    3. Replace the cap quickly by gently setting it on the water meniscus. Tighten firmly, but do not over tighten. If you see air bubbles in the sample, do not add more sample. Empty the vial and use the extra vial to collect sample. If bubbles form in the sample collected in the extra vial, empty the vial and collect the sample again.
    4. Repeat this procedure for the other vials, opening only one at a time.
- For Pesticides:
    1. Use amber 1-liter bottles (or as otherwise indicated by lab). Collect at least two sample bottles and one for each other pesticide tested for after two. Sampling guidelines are otherwise identical to those for organic compounds.
- Procedures for other parameters:
    1. Bacteria: Sampling tap should be metal and thoroughly disinfected with a propane torch for at least 30 seconds.
    2. Consult with laboratory for necessary procedures, protocols and containers.

APPENDIX III

ANALYTICAL RESULTS

SWANSON ENVIRONMENTAL INC.

ANALYTICAL REPORT

Date: 04/26/94

SEI Project Number: WL10183
Client Project: Allwaste
Project Number: WE1932

Report For: Swanson Environmental, Inc.
3720 North 124th Street
Milwaukee, WI 53222

Attn: Ms. Debra Young

Certified By:
Clark J. Crosby
Laboratory Manager

ANALYTICAL REPORT

Report Date: 04/26/94

To: Swanson Environmental, Inc.
3720 North 124th Street
Milwaukee, WI 53222

Attn: Ms. Debra Young

Date Received: 04/13/94
Your Reference: WE1932

SEI Project: WL 10183
Date Collected: 04/13/94

Our Reference					AA00501
Sample Point					**HA-1**
Analyte	**Units**	**PQL**	**Analytical Method**	**Analyzed**	**Result**
WDNR-DRO	mg/Kg	1.0	WDNR-DRO	04/19/94	2370
DRO Extraction	Date Extracted		WDNR-LUST		04/13/94
WDNR-GRO	mg/Kg	10	WDNR-GRO	04/19/94	Not Detected
Arsenic, Total	mg/Kg	0.2	SW846-7060	04/20/94	2.1
Barium, Total	mg/Kg	0.02	SW846-6010	04/20/94	42.0
Cadmium, Total	mg/Kg	1	SW846-6010	04/20/94	5
Chromium, Total	mg/Kg	1.0	SW846-6010	04/20/94	36
Lead, Total	mg/Kg	5.0	SW846-6010	04/20/94	269
Mercury, Total	mg/Kg	0.01	SW846-7471	04/19/94	Not Detected
Silver, Total	mg/Kg	2.0	SW846-6010	04/20/94	Not Detected
Selenium, Total	mg/Kg	0.2	SW846-7740	04/19/94	Not Detected

ANALYTICAL REPORT

Report Date: 04/26/94

To: Swanson Environmental, Inc.
3720 North 124th Street
Milwaukee, WI 53222

Date Received: 04/13/94
Your Reference: WE1932

Attn: Ms. Debra Young

SEI Project: WL 10183
Date Collected: 04/13/94

Our Reference					AA00502
Sample Point					**HA-2**
Analyte	**Units**	**PQL**	**Analytical Method**	**Analyzed**	**Result**
WDNR-DRO	mg/Kg	1.0	WDNR-DRO	04/19/94	1800
DRO Extraction	Date Extracted		WDNR-LUST		04/13/94
WDNR-GRO	mg/Kg	10	WDNR-GRO	04/19/94	580

SWANSON ENVIRONMENTAL INC.

ANALYTICAL REPORT

Report Date: 04/26/94

To: Swanson Environmental, Inc.
3720 North 124th Street
Milwaukee, WI 53222

Attn: Ms. Debra Young

Date Received: 04/13/94
Your Reference: WE1932

SEI Project: WL 10183
Date Collected: 04/13/94

Our Reference					AA00503
Sample Point					**HA-3**
Analyte	**Units**	**PQL**	**Analytical Method**	**Analyzed**	**Result**
WDNR-DRO	mg/Kg	1.0	WDNR-DRO	04/19/94	3900
DRO Extraction	Date Extracted		WDNR-LUST		04/13/94
WDNR-GRO	mg/Kg	10	WDNR-GRO	04/19/94	110
Benzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Bromobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Bromodichloromethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
n-Butylbenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
sec-Butylbenzene	mg/Kg	0.04	SW846-8021	04/15/94	Not Detected
tert-Butylbenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Carbon tetrachloride	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Chlorobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Chlorodibromomethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Chloroethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Chloroform	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Chloromethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
2-Chlorotoluene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
4-Chlorotoluene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2-Dibromo-3-chloropropane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2-Dibromomethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2-Dichlorobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,3-Dichlorobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,4-Dichlorobenzene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
Dichlorodifluoromethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected

ANALYTICAL REPORT

SEI Project: WL 10183
Date Collected: 04/13/94

Our Reference					AA00503
Sample Point					**HA-3**
Analyte	**Units**	**PQL**	**Analytical Method**	**Analyzed**	**Result**
1,1-Dichloroethane	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
1,2-Dichloroethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,1-Dichloroethene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
cis-1,2-Dichloroethene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
trans-1,2-Dichloroethene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
1,2-Dichloropropane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,3-Dichloropropane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
2,2-Dichloropropane	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
Di-isopropyl ether	mg/Kg	0.15	SW846-8021	04/15/94	Not Detected
Ethylbenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Hexachlorobutadiene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
Isopropylbenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
p-Isopropyltoluene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Methylene chloride	mg/Kg	0.05	SW846-8021	04/15/94	0.08
Methyl-tert-butyl ether	mg/Kg	0.15	SW846-8021	04/15/94	Not Detected
Naphthalene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
n-Propylbenzene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
1,1,2,2-Tetrachloroethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Tetrachloroethene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Toluene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2,3-Trichlorobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2,4-Trichlorobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,1,1-Trichloroethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,1,2-Trichloroethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Trichloroethene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Trichlorofluoromethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2,4-Trimethylbenzene	mg/Kg	0.04	SW846-8021	04/15/94	Not Detected
1,3,5-Trimethylbenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Vinyl Chloride	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
o-Xylenes	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected

ANALYTICAL REPORT

SEI Project: WL 10183
Date Collected: 04/13/94

Our Reference					AA00503
Sample Point					**HA-3**
Analyte	**Units**	**PQL**	**Analytical Method**	**Analyzed**	**Result**
m & p Xylenes	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected

SWANSON ENVIRONMENTAL INC.

ANALYTICAL REPORT

Report Date: 04/26/94

To: Swanson Environmental, Inc.
3720 North 124th Street
Milwaukee, WI 53222

Attn: Ms. Debra Young

Date Received: 04/13/94
Your Reference: WE1932

SEI Project: WL 10183
Date Collected: 04/13/94

Our Reference					**AA00504**
Sample Point					**HA-4**
Analyte	**Units**	**PQL**	**Analytical Method**	**Analyzed**	**Result**
WDNR-DRO	mg/Kg	1.0	WDNR-DRO	04/19/94	903
DRO Extraction	Date Extracted		WDNR-LUST		04/13/94
WDNR-GRO	mg/Kg	10	WDNR-GRO	04/19/94	Not Detected
Benzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Bromobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Bromodichloromethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
n-Butylbenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
sec-Butylbenzene	mg/Kg	0.04	SW846-8021	04/15/94	Not Detected
tert-Butylbenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Carbon tetrachloride	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Chlorobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Chlorodibromomethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Chloroethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Chloroform	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Chloromethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
2-Chlorotoluene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
4-Chlorotoluene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2-Dibromo-3-chloropropane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2-Dibromomethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2-Dichlorobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,3-Dichlorobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,4-Dichlorobenzene	mg/Kg	0.04	SW846-8021	04/15/94	Not Detected
Dichlorodifluoromethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected

ANALYTICAL REPORT

SEI Project: WL 10183
Date Collected: 04/13/94

Our Reference					AA00504
Sample Point					**HA-4**
Analyte	**Units**	**PQL**	**Analytical Method**	**Analyzed**	**Result**
1,1-Dichloroethane	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
1,2-Dichloroethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,1-Dichloroethene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
cis-1,2-Dichloroethene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
trans-1,2-Dichloroethene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
1,2-Dichloropropane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,3-Dichloropropane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
2,2-Dichloropropane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Di-isopropyl ether	mg/Kg	0.15	SW846-8021	04/15/94	Not Detected
Ethylbenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Hexachlorobutadiene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
Isopropylbenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
p-Isopropyltoluene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Methylene chloride	mg/Kg	0.05	SW846-8021	04/15/94	0.43
Methyl-tert-butyl ether	mg/Kg	0.15	SW846-8021	04/15/94	Not Detected
Naphthalene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
n-Propylbenzene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
1,1,2,2-Tetrachloroethane	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
Tetrachloroethene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Toluene	mg/Kg	0.02	SW846-8021	04/15/94	0.04
1,2,3-Trichlorobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2,4-Trichlorobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,1,1-Trichloroethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,1,2-Trichloroethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Trichloroethene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Trichlorofluoromethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2,4-Trimethylbenzene	mg/Kg	0.04	SW846-8021	04/15/94	Not Detected
1,3,5-Trimethylbenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Vinyl Chloride	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
o-Xylenes	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected

ANALYTICAL REPORT

SEI Project: WL 10183
Date Collected: 04/13/94

Our Reference					AA00504
Sample Point					**HA-4**
Analyte	**Units**	**PQL**	**Analytical Method**	**Analyzed**	**Result**
m & p Xylenes	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected

SWANSON ENVIRONMENTAL INC.

ANALYTICAL REPORT

Report Date: 04/26/94

To: Swanson Environmental, Inc.
3720 North 124th Street
Milwaukee, WI 53222

Attn: Ms. Debra Young

Date Received: 04/13/94
Your Reference: WE1932

SEI Project: WL 10183
Date Collected: 04/13/94

Our Reference					AA00505
Sample Point					**HA-5**
Analyte	**Units**	**PQL**	**Analytical Method**	**Analyzed**	**Result**
WDNR-DRO	mg/Kg	1.0	WDNR-DRO	04/19/94	Not Detected
DRO Extraction	Date Extracted		WDNR-LUST		04/13/94
WDNR-GRO	mg/Kg	10	WDNR-GRO	04/19/94	Not Detected
Benzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Bromobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Bromodichloromethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
n-Butylbenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
sec-Butylbenzene	mg/Kg	0.04	SW846-8021	04/15/94	Not Detected
tert-Butylbenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Carbon tetrachloride	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Chlorobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Chlorodibromomethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Chloroethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Chloroform	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Chloromethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
2-Chlorotoluene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
4-Chlorotoluene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2-Dibromo-3-chloropropane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2-Dibromomethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2-Dichlorobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,3-Dichlorobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,4-Dichlorobenzene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
Dichlorodifluoromethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected

ANALYTICAL REPORT

SEI Project: WL 10183
Date Collected: 04/13/94

Our Reference					AA00505
Sample Point					**HA-5**
Analyte	**Units**	**PQL**	**Analytical Method**	**Analyzed**	**Result**
1,1-Dichloroethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2-Dichloroethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,1-Dichloroethene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
cis-1,2-Dichloroethene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
trans-1,2-Dichloroethene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
1,2-Dichloropropane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,3-Dichloropropane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
2,2-Dichloropropane	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
Di-isopropyl ether	mg/Kg	0.15	SW846-8021	04/15/94	Not Detected
Ethylbenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Hexachlorobutadiene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
Isopropylbenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
p-Isopropyltoluene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Methylene chloride	mg/Kg	0.05	SW846-8021	04/15/94	Not Detected
Methyl-tert-butyl ether	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
Naphthalene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
n-Propylbenzene	mg/Kg	0.03	SW846-8021	04/15/94	Not Detected
1,1,2,2-Tetrachloroethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Tetrachloroethene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Toluene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2,3-Trichlorobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2,4-Trichlorobenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,1,1-Trichloroethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,1,2-Trichloroethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Trichloroethene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Trichlorofluoromethane	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
1,2,4-Trimethylbenzene	mg/Kg	0.04	SW846-8021	04/15/94	Not Detected
1,3,5-Trimethylbenzene	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
Vinyl Chloride	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected
o-Xylenes	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected

ANALYTICAL REPORT

SEI Project: WL 10183
Date Collected: 04/13/94

Our Reference					AA00505
Sample Point					**HA-5**
Analyte	**Units**	**PQL**	**Analytical Method**	**Analyzed**	**Result**
m & p Xylenes	mg/Kg	0.02	SW846-8021	04/15/94	Not Detected

SWANSON ENVIRONMENTAL INC.

ANALYTICAL REPORT

Report Date: 04/26/94

To: Swanson Environmental, Inc.
3720 North 124th Street
Milwaukee, WI 53222

Attn: Ms. Debra Young

Date Received: 04/13/94
Your Reference: WE1932

SEI Project: WL 10183
Date Collected: 04/13/94

Our Reference					AA00506
Sample Point					**HA-6**
Analyte	**Units**	**PQL**	**Analytical Method**	**Analyzed**	**Result**
Arsenic, Total	mg/Kg	0.1	SW846-7060	04/20/94	0.2
Barium, Total	mg/Kg	0.02	SW846-6010	04/20/94	1.50
Cadmium, Total	mg/Kg	1.0	SW846-6010	04/20/94	Not Detected
Chromium, Total	mg/Kg	1.0	SW846-6010	04/20/94	2
Lead, Total	mg/Kg	5.0	SW846-6010	04/20/94	57
Mercury, Total	mg/Kg	0.02	SW846-7471	04/19/94	0.15
Selenium, Total	mg/Kg	0.2	SW846-7740	04/19/94	Not Detected
Silver, Total	mg/Kg	2.0	SW846-6010	04/20/94	Not Detected

CHAIN OF CUSTODY RECORD

PROJ. NO.

PROJECT NAME Allwaste

SAMPLERS: D. Yang / M. Walczak

SEI #	STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION		NO. OF CONTAINERS	DRO	GRO	8 RCRA metals	VOCs						SAMPLE TYPE (Specify groundwater, soil, wastewater, sludge, etc.)
	HA-1	4/13/94	1010		X	HA-1		5	X	X	X							soil
	HA-2		1025			HA-2	collected	4	X	X								
	HA-3		1035			HA-3	with	5	X	X		X						
	HA-4		1045			HA-4	hand augering	5	X	X		X						
	HA-5		1105			HA-5	device	5	X	X		X						
	HA-6		1111			HA-6		1			X							

SAMPLE CONDITION: Received on Ice GB

SAMPLE LOCATION:

RELINQUISHED BY: M. Walczak	**DATE / TIME** 4/13/94 1220	**RELINQUISHED BY:**	**DATE / TIME**
RECEIVED BY: Gary E Barry	**DATE / TIME** 4/13/94 1220	**RECEIVED BY:**	**DATE / TIME**

SPECIAL REQUESTS:

REPORT TO:

NAME:

ADDRESS:

PHONE:

LABORATORY
3150 North Brookfield Rd.
Brookfield, WI 53045
(414) 783-6111
Fax (414) 783-5752

SWANSON ENVIRONMENTAL INC.