

RECEIVED
N.C. Dept. of EHNHR

JUN 3 1994

Winston-Salem
Regional Office

**Soil Assessment and Ground Water
Monitoring Report, and
Corrective Action Plan
Draper Corporation
Greensboro, North Carolina
June 3, 1994**

Prepared for

**Draper Corporation
Greensboro, North Carolina**

Prepared by

**Aquaterra, Inc
Greensboro, North Carolina**

June 3, 1994

Mr. Richard Sieg
North Carolina Department of Environment,
Health & Natural Resources
Division of Environmental Management
Winston-Salem Regional Office
Winston-Salem, North Carolina 27106-3256

Reference: Soil Assessment and Ground Water Report
and Corrective Action Plan
Draper Corporation
Greensboro, North Carolina
Aquaterra Job No. 4302900

Dear Mr. Walker:

Aquaterra, Inc. is pleased to present this report on the Soil Assessment and Ground Water Report along with the revised Corrective Action Plan. This report details our field activities as well as our report and recommendations.

If you require additional information, please contact me at (910) 852-5003.

Sincerely,

AQUATERRA, INC.

Susan W. Bennett
for

Susan Kite, P.G.
Project Manager/ Project Geologist

Kirk B. Pollard

Kirk B. Pollard
Senior Project Manager



cc: George House - Brooks Pierce McLendon Humphrey & Leonard, L.L.P.
Denny Walker - Draper Corporation

GR4060/SK/KBP/hmk

**Soil Assessment and Ground Water
Monitoring Report, and
Corrective Action Plan
Draper Corporation
Greensboro, North Carolina
June 3, 1994**

1 Introduction

Draper Corporation (Draper) operates a textile machinery design, manufacturing, and repair facility at 5644 Hornaday Road in Greensboro, North Carolina (see Figure 1). On December 16, 1992, Triad Environmental Consultants, Inc., (Triad) conducted the removal and closure assessment of a 30,000-gallon #4 fuel oil underground storage tank (UST) and its associated transfer piping. The closure assessment indicated petroleum hydrocarbon impacted soils existed adjacent to the former UST and transfer piping excavation. Triad subsequently excavated and disposed of approximately 860 tons of impacted soils. Further assessment, including additional soil sampling and the sampling of three on-site ground water monitoring wells (MW-6, MW-13, MW-14), indicated petroleum hydrocarbon impacted soils remained on-site and that ground water may have been impacted.

Based on their interpretation of the assessment results, Triad prepared a Corrective Action Plan (CAP) for submittal to the North Carolina Department of Environment, Health, and Natural Resources, Division of Environmental Management (DEM). Draper requested that Aquaterra, Inc., (Aquaterra) review the CAP prepared by Triad. Based on our review, Aquaterra felt that Triad had not sufficiently defined either the horizontal and vertical extent of soil impact or the presence of impact to ground water. Therefore, Aquaterra determined that further soil and ground water assessment and sampling activities were necessary to determine both the horizontal extent of impact and whether remediation by excavation was feasible, and to confirm the presence of ground water impact as reported by Triad.

2 Scope of Work

Aquaterra mobilized to the Draper site on April 5 and 6, 1994, to conduct site assessment activities. In order to determine both the horizontal extent of impact to soils and the feasibility of remediation by excavation, and to confirm the status of the ground water on-site, Aquaterra

- sampled six on-site ground water monitoring wells,
- installed eight soil borings, and
- collected fifteen soil samples for laboratory analysis.

Based on the results of the soil sampling activities, Aquaterra remobilized to the site on May 17 and 18, 1994, to install and sample six soil borings.

All soil borings were installed, and all soil and ground water samples were collected following the procedures outlined in Appendix A. The samples were stored and transported following EPA-approved chain-of-custody procedures.

2.1 Ground Water Assessment

Aquaterra used individual, disposable bailers to collect one ground water sample from each of six on-site monitoring wells (MW-2, MW-6, MW-7, MW-13, MW-14, and AS-2)(see Figure 2). Due to physical constraints, a ground water sample could not be extracted from monitoring well AS-1. Per North Carolina Department of Environment, Health, and Natural Resources, Division of Environmental Management (DEM) guidelines, the samples were submitted to Hydrologic, Inc., (Hydrologic) in Morrisville, North Carolina, for analysis of base/neutral extractable compounds, including identification and quantification of the ten highest peaks of tentatively identified compounds (TICs), according to EPA Method 625.

2.2 Soil Assessment

In order to delineate the horizontal extent of impact, Aquaterra used decontaminated hand augers to advance eight soil borings in the vicinity of the former UST and transfer piping locations. Based on organic vapor analyzer (OVA) readings and visual indicators, a total of fifteen soil samples (SS-1A, SS-1B, SS-2A, SS-2B, SS-3A, SS-3B, SS-4A, SS-5A, SS-5B, SS-6A, SS-6B, SS-7A, SS-7B, SS-8A, SS-8B) were collected from a depth of either 5 or 10 feet below grade (see Figure 2). The collected soil samples were submitted to Hydrologic for analysis of oil and grease according to SW-846 Method 9071.

Based on the results of the initial soil sampling program, Aquaterra returned to the Draper site to install and sample six additional soil borings (SS-9, SS-10, SS-10A, SS-11, SS-12, and SS-13). The soil borings were installed in locations closer to the former product line and UST areas (see Figure 2). Sample SS-10A was collected from a depth of approximately 5 feet below grade, and the remaining samples were collected from a depth of approximately 8 feet below grade. The six soil samples were submitted to Research & Analytical Laboratories, Inc., in Kernersville, North Carolina, for analysis of oil and grease according to SW-846 Method 9071.

3 Analytical Results

Soil and ground water analytical laboratory reports are contained in Appendix B.

3.1 Ground Water Analytical Results

No compounds were reported above the method detection limits for base/neutral extractable compounds according to EPA Method 625, with the one exception of bis (2-ethylhexyl) phthalate at 6 $\mu\text{g/L}$ in monitoring well AS-2. Because this compound has not shown in previous sampling events Aquaterra feels this is the result of sampling or laboratory relic. However, additional sampling will confirm whether the compound is present in the ground water.

3.2 Soil Analytical Results

Analytical results from the initial round of soil sampling indicated the presence of oil and grease in soil samples SS-1A (16 mg/kg), SS-2A (13 mg/kg), and SS-6B (21 mg/kg)(see Table 1). The reported levels are all well below the DEM action level of 250 mg/kg for oil and grease.

Analytical results from the second round of sampling indicated the presence of oil and grease in all six samples at concentrations ranging from 94.1 mg/kg in sample SS-9 to 4,590 mg/kg in sample SS-13. Only sample SS-13 had a concentration above the 250 mg/kg DEM action level (see Table 1).

4 Conclusions

Based on the analytical results, ground water does not appear to be impacted with petroleum constituents at concentrations above the 15A NCAC 2L .0202 Ground Water Quality Standards.

Based on the analytical results and field observations, it appears that a limited amount of soil beneath the transfer piping has been impacted by oil and grease at concentrations exceeding the 250 mg/kg DEM action level. The impact to soils at concentrations above the DEM action level appears to be limited to an area beneath the transfer piping near the boiler room (see Figure 2).

Analytical results also indicate that the clean up action already taken by Triad has successfully remediated the impacted soils adjacent to the former UST location and a majority of the area beneath and adjacent to the former transfer piping location.

5 Corrective Action Plan

5.1 Corrective Action Objectives

In accordance with DEM guidelines, the ultimate goal of this CAP is to restore the soil to a final target clean-up level and to protect ground water from possible impact. This CAP will address the remediation of soils and the monitoring of ground water over time.

According to the most recent analytical results, there is a limited area of soil impact beneath the former transfer line near the boiler room. The sample collected in this area indicated approximately 4,590 mg/kg oil and grease at a depth of approximately 8 feet below grade. Due to the apparently small area of impact, Aquaterra will be using the DEM action level for oil and grease of 250 mg/kg as the target clean-up level.

5.2 Health and Safety

A health and safety plan (HASP) exists for the site as required under 29 CFR Part 1910 (Federal Register, Vol. 51, No. 244, pp 45654 to 45675, December 19, 1986).

The HASP addresses safety and standard operating procedures, anticipated hazards, exposure limits, levels of dermal and respiratory protection, emergency medical care of personnel, contingency plan for sudden releases of hazardous materials, emergency procedures, and ambient air monitoring.

5.3 *Evaluation of Remedial Alternatives*

The following section details the possible remedial alternatives for the impacted soils at the site.

5.3.1 *In Situ Soil Washing*

In situ soil washing would require an infiltration gallery to either *wash* the contaminated soils or transport nutrients to the soils. Due to space constraints and the limited amount of impacted soil, this would not be a feasible alternative.

5.3.2 *Vapor Extraction*

A soil vapor extraction system can be used to extract the volatile constituents from fuel oils in the unsaturated zone, as well as create a more aerobic environment to assist in degradation of the fuel oil. A soil vapor extraction system can be installed as a trench or as vertical extraction points. However, due to the limited quantity of soil requiring remediation, and the proximity of these soils to the building, as well as this method being more suited for volatile soil contaminants, vapor extraction is not considered a reasonable or economic alternative.

5.3.3 *No Action*

A no action response would allow natural attenuation and biodegradation to remediate the site. However, the concentration of oil and grease detected in sample SS-13 significantly exceeds the DEM action level of 250 mg/kg, and the migration of constituents down to the water table through leaching remains a possibility. Therefore, no action is not a feasible option.

5.3.4 *Soil Excavation*

During UST closure activities, Triad apparently removed as much contaminated soil as they thought necessary. Aquaterra's assessment activities indicated that only a limited amount of impacted soil remains on site near the boiler room. All other areas appear to have been remediated to below the DEM action level for oil and grease. Therefore, excavation and disposal of the small amount of remaining impacted soil appears to be the most cost-effective and efficient method of clean-up.

5.4 *Proposed Corrective Action*

The soil underlying the site has been impacted by petroleum products apparently from the past operation of a #4 fuel oil UST. As indicated above in Section 5.3.4, Aquaterra recommends excavating the remaining impacted soil. The area to be excavated measures approximately 5 feet long by 5 feet wide and will be continued, depending upon OVA readings, to a depth of approximately 10 feet (see Figure 3). In addition, the excavation activities will be guided by the structural integrity

concerns of the adjacent building. In addition, quarterly ground water monitoring should be conducted to both confirm the earlier results and to ensure that ground water does not subsequently become impacted.

Due to the fact the soils were previously treated at Cunningham Brick, it is recommended the same facility be utilized for the treatment of the excavated impacted soil.

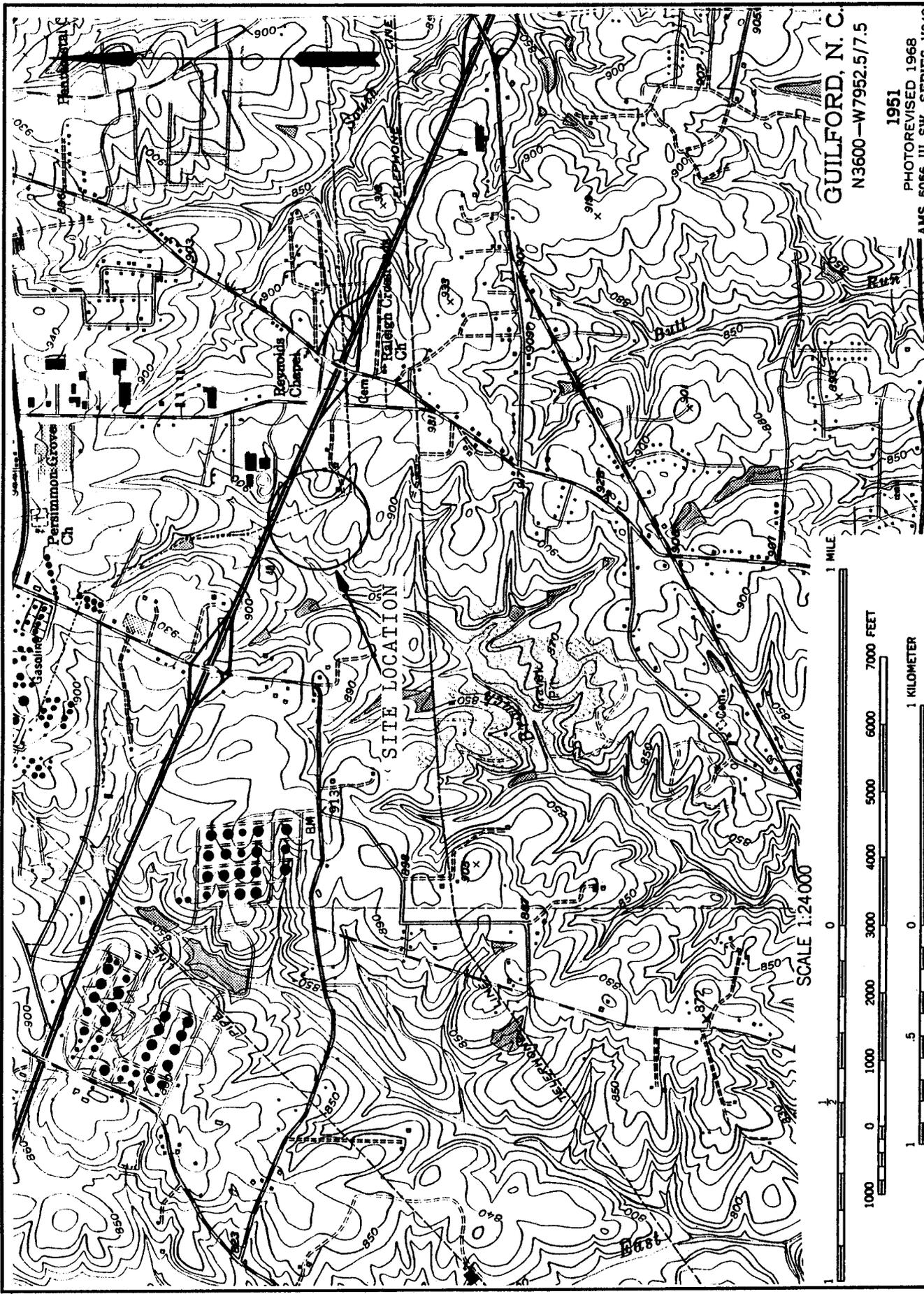
Aquaterra proposes to sample the ground water in existing monitoring wells MW-2, MW-6, MW-7, MW-13, MW-14, and AS-2 on a quarterly basis for analysis of base/neutral extractable compounds, including identification and quantification of the ten highest peaks of tentatively identified compounds (TICs), according to EPA Method 625. Ground water level measurements will be collected in each well prior to purging the wells during each sampling event. This sampling schedule will be maintained for a period of one year. If concentrations remain at or below current concentrations in all wells for the duration of the monitoring period, Aquaterra will recommend clean closure of the site. If concentrations increase in any well, but remain below 2L Standards, the monitoring period may be extended. If concentrations increase in any well above 2L Standards for at least two consecutive sampling events, this CAP will be revised to address ground water remediation.

Access to the wells will be maintained during the life of the monitoring period (see Figure 2). Following clean closure of the site, the monitoring wells will be properly abandoned according to North Carolina regulations.

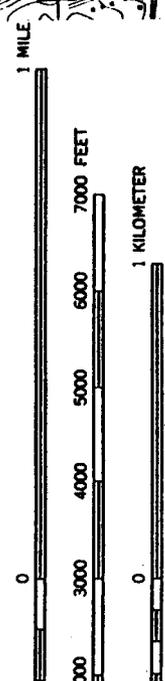
Aquaterra will provide quarterly ground water monitoring reports to DEM to document the potential impact to ground water. The reports will include a description of field activities, the ground water analytical results, a water table contour map, and conclusions and recommendations.

5.5 Required Permits

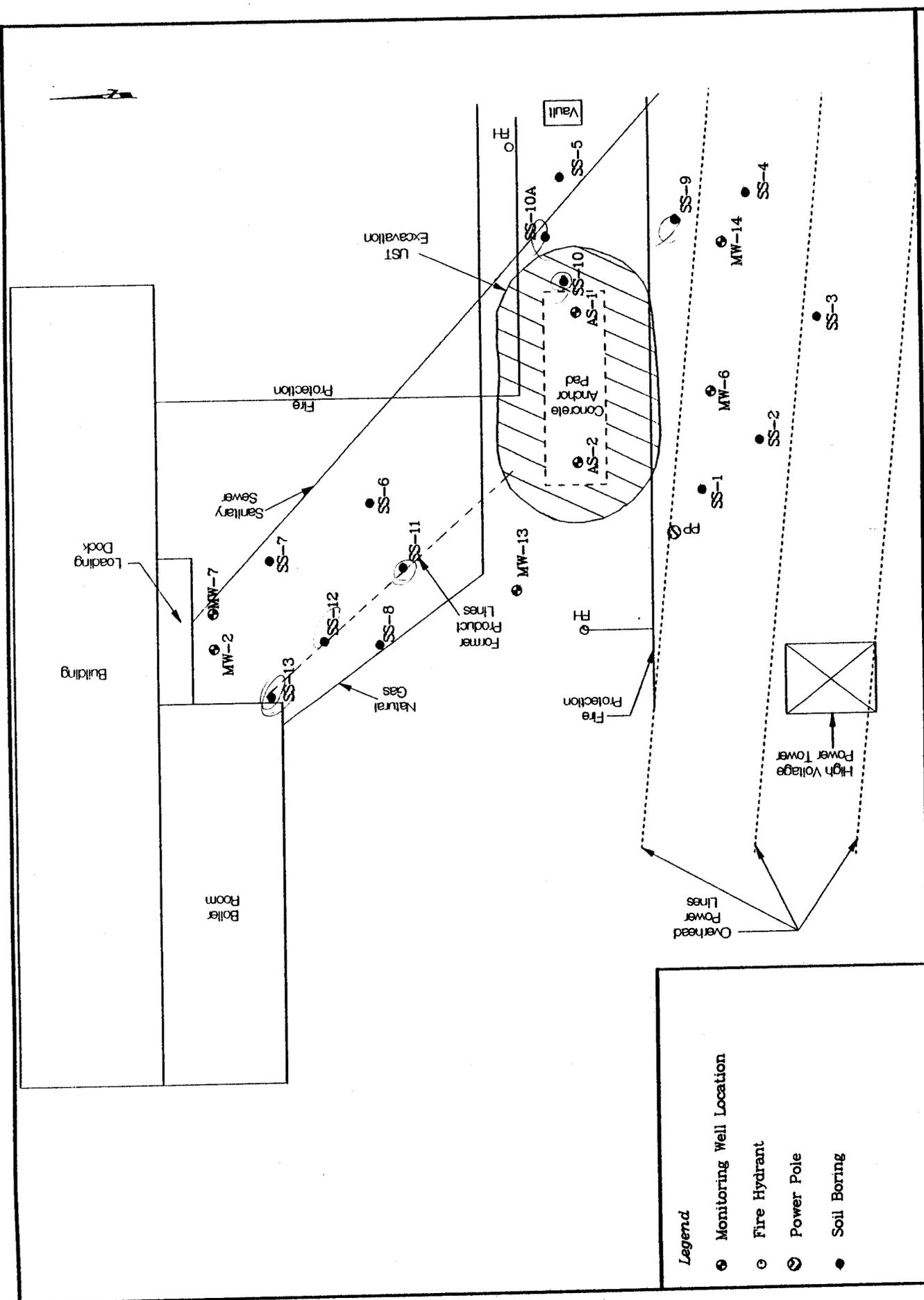
No permits are required for pursuing monitoring only as a remedial alternative.



GUILFORD, N. C.
 N3600-W7952.5/7.5
 1951
 PHOTOREVISED 1968
 AMS 5056 III SW-SERIES V842



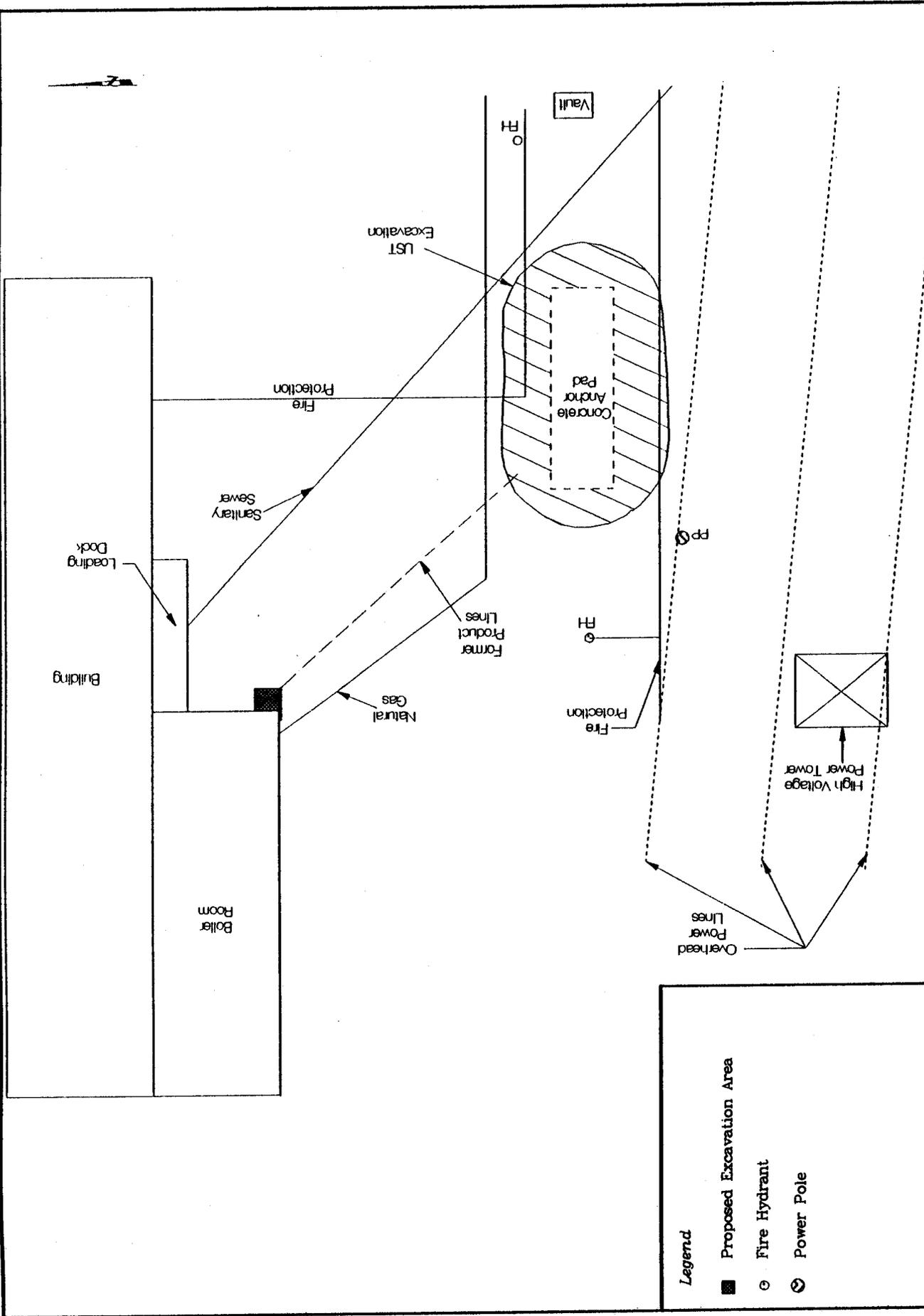
		Author sk		Drawing 43029-1		Layers 0		Date 4-27-94		Title Site Location Map	
		Job No. 4302900		Revisions 000		Figures 1		Scale 1:24,000		Project Draper Corporation Greensboro, North Carolina	



Legend

- Monitoring Well Location
- Fire Hydrant
- ⊕ Power Pole
- Soil Boring

aquaterra A GREAT LAKES CHEMICAL CORPORATION COMPANY		Author JTD	Drawing 43029-1	Layers 0	Date 4-27-94	Title Monitoring Well and Soil Boring Location Map	
		Job No. 4302900	Revision 2	Figure 2	Scale 1" = 30'	Project Draper Corporation Greensboro, North Carolina	



- Legend**
- Proposed Excavation Area
 - Fire Hydrant
 - ⊙ Power Pole

 Aqua Terra A GREAT LAKES CHEMICAL CORPORATION COMPANY		Author	JTD	Drawing	43029-1	Layers	0	Date	4-27-94	Title	Proposed Excavation Area
		Job No.	4302900	Revision		Figure	3	Scale	1" = 30'	Project	Draper Corporation Greensboro, North Carolina

Table 1

Draper Corporation Laboratory Results for Oil & Grease
Greensboro, North Carolina

Soil Sample No.	Sample Date	Oil & Grease (mg/kg)
SS-1A	4/4/94	16.0
SS-1B	4/4/94	BDL
SS-2A	4/4/94	13.0
SS-2B	4/4/94	BDL
SS-3A	4/4/94	BDL
SS-3B	4/4/94	BDL
SS-4A	4/4/94	BDL
SS-5A	4/4/94	BDL
SS-5B	4/4/94	BDL
SS-6A	4/6/94	BDL
SS-6B	4/6/94	21.0
SS-7A	4/6/94	BDL
SS-7B	4/6/94	BDL
SS-8A	4/6/94	BDL
SS-8B	4/6/94	BDL
SS-9	5/17/94	94.1
SS-10	5/17/94	132.0
SS-11	5/17/94	94.9
SS-12	5/17/94	126.0
SS-13	5/17/94	4,590.0
SS-10A	5/18/94	125.0

Field Parameters

Prior to ground water sample collection, the water level in each well is measured with a decontaminated electric water level probe. Water level measurements are used to construct a ground water contour map (either water table or potentiometric) and to calculate the well volume. The wells are purged by removing three to five times the well volume or until dry with individual decontaminated Teflon bailers to remove stagnant water so that a representative ground water sample is obtained. Temperature, specific conductivity, and pH are measured and recorded in the field.

Sample Collection Protocols

Ground water samples are normally collected within 1 hour of purging to minimize the loss of any volatile organic compounds (VOCs) present. Laboratory decontaminated bottom-valve Teflon bailers attached to new nylon cord are used to withdraw the samples.

All ground water samples are collected and decanted into laboratory provided containers appropriate for the parameters being analyzed, preserved as required by the analytical technique, and are labeled with the following information: sampler's name, date of collection, sample number, analysis to be performed, and project number. Samples are stored and transported to the analytical laboratory in an insulated cooler chilled to approximately 4°C. To ensure sample integrity, all samples are transported in accordance with EPA chain-of-custody protocols. All samples are transported to the laboratory within a 24-hour holding time.

Decontamination Procedures

Equipment decontamination is essential to assure valid, representative samples are collected and to eliminate the potential for cross-contamination between sample points. Aquaterra strives to decontaminate equipment in the laboratory or office. However, equipment such as water level probes, sampling trowels, or hand auger buckets often must be decontaminated in the field.

Field Decontamination

The decontamination procedures outlined below are used for field equipment (e.g., hand augers, split spoon sampling device, trowels) that comes into direct contact with the material being sampled and that is used more than once at a particular site.

1. Phosphate-free soap (Alconox or equivalent) and distilled water rinse (Note: If the equipment becomes contaminated with oils or other possible organic residues, then the equipment will be washed with isopropyl alcohol.)
2. Triple distilled water rinse

Drill rigs and drilling equipment (e.g., augers, drill rod, bits, stabilizers, hammers) are decontaminated between each boring with high pressure steam and scrub brush. If equipment does not come clean with high pressure steam and scrubbing, the equipment is washed with a phosphate free soap. If oily or chemical residues are present, the equipment is rinsed with isopropyl alcohol and potable water.

Teflon Bailer Decontamination

Teflon bailers are decontaminated at an analytical laboratory using the following procedure:

1. Non-phosphate detergent and hot tap water wash
2. Tap water rinse
3. 10% Nitric acid solution wash/rinse
4. Tap water rinse
5. Deionized water rinse
6. Isopropyl alcohol wash
7. Second isopropyl alcohol rinse
8. Organic free water rinse
9. Air dried and wrapped in aluminum foil with shiny side out
10. Sealed in plastic bags

Soil Boring Installations

Soil borings are used to characterize soil profiles, to determine the presence of organic vapors, and to obtain soil samples for subsequent laboratory analysis. Soil borings may be advanced either manually with a decontaminated hand auger or using a drill rig equipped with hollow-stem augers or other drilling equipment. Soil samples are typically collected from borings installed with a drill rig at 5-foot intervals using a split-spoon sampling device as described in ASTM D 1586-84. Soil samples are typically collected from borings advanced with a hand auger at 1 to 2-foot intervals.

The completed boring is ready for monitoring well installation or is abandoned. If the boring is terminated below the water table, abandonment entails backfilling with a cement grout. Otherwise the boring is abandoned by backfilling with cuttings or other natural material.

Soil Classification

Undisturbed soil samples are logged in the field and classified according to the Unified Soil Classification System (ASTM D 2488-84).

Headspace Screening

Soils are screened with an organic vapor analyzer (OVA) for total volatile organic compounds (VOCs), which may indicate organic or petroleum hydrocarbon contamination. A typical procedure for screening soils involves filling a clean container approximately halfway with soil and sealing the container with aluminum foil. This creates a headspace in which the VOCs in the soil accumulate and equilibrate. After allowing approximately 10 minutes for this processes to occur, the probe of the OVA is then inserted through the aluminum foil seal into the headspace of the container to obtain a VOC reading.

Sample Collection Protocols

Soil samples selected for laboratory analysis are collected into laboratory provided containers appropriate for the parameters being analyzed and are labeled with a minimum of the following information: sampler's name, date of collection, sample number, analysis to be performed, and project number. Soil samples are stored and transported to the analytical laboratory in an insulated cooler chilled to approximately 4°C. To ensure sample integrity, all samples are transported in accordance with EPA chain-of-custody protocols.

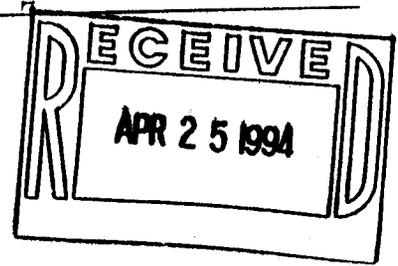
RECEIVED APR 19 1994

RECEIVED APR

Cenref Labs

Analytical Chemistry Laboratories

April 15, 1994



REPORTING:

HydroLogic-Morrisville
2500 Gateway Centre Blvd.
Suite 900
Morrisville, NC 27560

Attention: Pomeroy Smith

INVOICING:

HydroLogic-Morrisville
2500 Gateway Centre Blvd.
Suite 900
Morrisville, NC 27560

Attention: Pomeroy Smith

CENREF PROJECT NUMBER: PR940563

DATE COMPLETED: April 15, 1994
DATE RECEIVED: April 6, 1994

PROJECT DESCRIPTION:

5 water samples for Aquaterra, Inc. taken 4-5-94.
Project #4303000 Draper Ground Water. *RUSH*

Enclosed is the laboratory report for the project described above. If you have any questions or if we can be of further assistance, please feel free to contact us. We appreciate your business and look forward to serving you again soon.

Respectfully,

Robert T. Hart
Project Manager



COMPANY NAME: HydroLogic-Morrisville

CENREF PROJECT NUMBER: PR940563

SAMPLE IDENTIFICATION

CROSS REFERENCE SHEET

<u>CENREF SAMPLE NUMBER</u>	<u>CLIENT SAMPLE IDENTIFICATION</u>	<u>SAMPLE DATE</u>
2684	#MW-2	4/5/94
2685	#MW-7	4/5/94
2686	#MW-13	4/5/94
2687	#MW-6	4/5/94
2688	#MW-14	4/5/94



COMPANY NAME: HydroLogic-Morrisville
 CENREF PROJECT NUMBER: PR940563
 CENREF SAMPLE NUMBER: SBLK-1
 SAMPLE IDENTIFICATION: Method Blank
 CLIENT PROJECT NAME: Aquaterra, Inc.
 CLIENT PROJECT NUMBER: 941139
 DATE EXTRACTED: 4/7/94
 DATE/TIME ANALYZED: 4/12/94 @ 12:33

METHOD EPA 823

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Phenol	108-95-2	5	BDL
Bis(2-chloroethyl) ether	111-44-4	5	BDL
2-Chlorophenol	95-57-8	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL
1,2-Dichlorobenzene	95-50-1	5	BDL
Bis(2-chloroisopropyl) ether	108-60-1	5	BDL
N-Nitroso-di-n-propylamine	621-64-7	5	BDL
Hexachloroethane	67-72-1	5	BDL
Nitrobenzene	98-95-3	5	BDL
Isophorone	78-59-1	5	BDL
2-Nitrophenol	88-75-5	5	BDL
2,4-Dimethylphenol	105-67-9	5	BDL
Bis(2-chloroethoxy) methane	111-91-1	5	BDL
2,4-Dichlorophenol	120-83-2	5	BDL
1,2,4-Trichlorobenzene	120-82-1	5	BDL
Naphthalene	91-20-3	5	BDL
Hexachlorobutadiene	87-68-3	5	BDL
4-Chloro-3-methylphenol	59-50-7	5	BDL
2,4,6-Trichlorophenol	88-06-2	5	BDL
2-Chloronaphthalene	91-58-7	5	BDL
Dimethylphthalate	131-11-3	5	BDL
Acenaphthylene	208-96-8	5	BDL
Acenaphthene	83-32-9	5	BDL
2,4-Dinitrophenol	51-28-5	25	BDL
4-Nitrophenol	100-02-7	25	BDL
2,4-Dinitrotoluene	121-14-2	5	BDL
2,6-Dinitrotoluene	606-20-2	5	BDL
Diethylphthalate	84-66-2	5	BDL
4-chlorophenyl-phenylether	7005-72-3	5	BDL



Page 2 continued

COMPANY NAME: Hydrologic-Morrisville
CENREF PROJECT NUMBER: PR940563
CENREF SAMPLE NUMBER: SBLK-1
SAMPLE IDENTIFICATION: Method Blank

METHOD EPA 825

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Fluorene	86-73-7	5	BDL
4,6-Dinitro-2-methylphenol	534-52-1	25	BDL
4-Bromophenyl-phenylether	101-55-3	5	BDL
Hexachlorobenzene	118-74-1	5	BDL
Pentachlorophenol	87-86-5	25	BDL
Phenanthrene	85-01-8	5	BDL
Anthracene	120-12-7	5	BDL
Di-n-Butyl Phthalate	84-74-2	5	1 J
Fluoranthene	206-44-0	5	BDL
Pyrene	129-00-0	5	BDL
Butylbenzylphthalate	85-68-7	5	BDL
3,3'-Dichlorobenzidine	91-94-1	10	BDL
Benzo(a)anthracene	56-55-3	5	BDL
Bis(2-ethylhexyl)phthalate	117-81-7	5	BDL
Chrysene	218-01-9	5	BDL
Di-n-Octyl Phthalate	117-84-0	5	BDL
Benzo(b)fluoranthene	205-99-2	5	BDL
Benzo(k)fluoranthene	207-08-9	5	BDL
Benzo(a)pyrene	50-32-8	5	BDL
Indeno(1,2,3-cd)pyrene	193-39-5	5	BDL
Dibenz(a,h)anthracene	53-70-3	5	BDL
Benzo(g,h,i)perylene	191-24-2	5	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: J = Reported compound is below the SDL-quantitation is an estimate.



COMPANY NAME: Hydrologic-Morrisville
 CENREF PROJECT NUMBER: PR940563
 CENREF SAMPLE NUMBER: 2684
 SAMPLE IDENTIFICATION: #MM-2
 CLIENT PROJECT NAME: Aquaterra, Inc.
 CLIENT PROJECT NUMBER: 941139
 DATE SAMPLED: 4/5/94
 DATE EXTRACTED: 4/7/94
 DATE/TIME ANALYZED: 4/12/94 @ 20:23

METHOD EPA 825

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Phenol	108-95-2	5	BDL
Bis(2-chloroethyl) ether	111-44-4	5	BDL
2-Chlorophenol	95-57-8	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL
1,2-Dichlorobenzene	95-50-1	5	BDL
Bis(2-chloroisopropyl) ether	108-60-1	5	BDL
N-Nitroso-di-n-propylamine	621-64-7	5	BDL
Hexachloroethane	67-72-1	5	BDL
Nitrobenzene	98-95-3	5	BDL
Isophorone	78-59-1	5	BDL
2-Nitrophenol	88-75-5	5	BDL
2,4-Dimethylphenol	105-67-8	5	BDL
Bis(2-chloroethoxy) methane	111-91-1	5	BDL
2,4-Dichlorophenol	120-83-2	5	BDL
1,2,4-Trichlorobenzene	120-82-1	5	4 J
Naphthalene	91-20-3	5	BDL
Hexachlorobutadiene	87-68-3	5	BDL
4-Chloro-3-methylphenol	59-50-7	5	BDL
2,4,6-Trichlorophenol	88-06-2	5	BDL
2-Chloronaphthalene	91-58-7	5	BDL
Dimethylphthalate	131-11-3	5	BDL
Acenaphthylene	208-96-8	5	BDL
Acenaphthene	83-32-9	5	BDL
2,4-Dinitrophenol	51-28-5	25	BDL
4-Nitrophenol	100-02-7	25	BDL
2,4-Dinitrotoluene	121-14-2	5	BDL
2,6-Dinitrotoluene	606-20-2	5	BDL
Diethylphthalate	84-66-2	5	BDL
4-Chlorophenyl-phenylether	7005-72-3	5	BDL



COMPANY NAME: HydroLogic-Morrisville
 CENREF PROJECT NUMBER: PR940563
 CENREF SAMPLE NUMBER: 2684
 SAMPLE IDENTIFICATION: #M4-2
 DATE SAMPLED: 4/5/94

Method EPA 625

<u>ANALYSIS</u>	<u>CAS No.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Fluorene	86-73-7	5	BDL
4,6-Dinitro-2-methylphenol	534-52-1	25	BDL
4-Bromophenyl-phenylether	101-55-3	5	BDL
Hexachlorobenzene	118-74-1	5	BDL
Pentachlorophenol	87-86-5	25	BDL
Phenanthrene	85-01-8	5	BDL
Anthracene	120-12-7	5	BDL
Di-n-Butyl Phthalate	84-74-2	5	2 J B
Fluoranthene	206-44-0	5	BDL
Pyrene	129-00-0	5	BDL
Butylbenzylphthalate	85-68-7	5	BDL
3,3'-Dichlorobenzidine	91-94-1	10	BDL
Benzo(a)anthracene	56-55-3	5	BDL
Bis(2-ethylhexyl)phthalate	117-81-7	5	2 J
Chrysene	218-01-9	5	BDL
Di-n-Octyl Phthalate	117-84-0	5	BDL
Benzo(b)fluoranthene	205-99-2	5	BDL
Benzo(k)fluoranthene	207-08-9	5	BDL
Benzo(a)pyrene	50-32-8	5	BDL
Indeno(1,2,3-cd)pyrene	193-39-5	5	BDL
Dibenz(a,h)anthracene	53-70-3	5	BDL
Benzo(g,h,i)perylene	191-24-2	5	BDL

BDL = Below Sample Detection Limit
 SDL = Sample Detection Limit

COMMENTS: J = Reported compound is below the SDL-quantitation is an estimate.
B = Compound detected in the blank.



COMPANY NAME:

HydroLogic-Morrisville

CENREF PROJECT NUMBER:

PR940563

CENREF SAMPLE NUMBER:

2685

SAMPLE IDENTIFICATION:

#MM-7

CLIENT PROJECT NAME:

Aquaterra, Inc.

CLIENT PROJECT NUMBER:

941139

DATE SAMPLED:

4/5/94

DATE EXTRACTED:

4/7/94

DATE/TIME ANALYZED:

4/12/94 @ 21:22

Method EPA 625

<u>ANALYSIS</u>	<u>CAS No.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Phenol	108-95-2	5	BDL
Bis(2-chloroethyl) ether	111-44-4	5	BDL
2-Chlorophenol	95-57-8	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL
1,2-Dichlorobenzene	95-50-1	5	BDL
Bis(2-chloroisopropyl) ether	108-60-1	5	BDL
N-Nitroso-di-n-propylamine	621-64-7	5	BDL
Hexachloroethane	67-72-1	5	BDL
Nitrobenzene	98-95-3	5	BDL
Isophorone	78-59-1	5	BDL
2-Nitrophenol	88-75-5	5	BDL
2,4-Dimethylphenol	105-67-9	5	BDL
Bis(2-chloroethoxy) methane	111-91-1	5	BDL
2,4-Dichlorophenol	120-83-2	5	BDL
1,2,4-Trichlorobenzene	120-82-1	5	1 J
Naphthalene	91-20-3	5	BDL
Hexachlorobutadiene	87-68-3	5	BDL
4-Chloro-3-methylphenol	59-50-7	5	BDL
2,4,6-Trichlorophenol	88-06-2	5	BDL
2-Chloronaphthalene	91-58-7	5	BDL
Dimethylphthalate	131-11-3	5	BDL
Acenaphthylene	208-96-8	5	BDL
Acenaphthene	83-32-9	5	BDL
2,4-Dinitrophenol	51-28-5	25	BDL
4-Nitrophenol	100-02-7	25	BDL
2,4-Dinitrotoluene	121-14-2	5	BDL
2,6-Dinitrotoluene	606-20-2	5	BDL
Diethylphthalate	84-66-2	5	BDL
4-Chlorophenyl-phenylether	7005-72-3	5	BDL



COMPANY NAME: Hydrologic-Morrisville
 CENREF PROJECT NUMBER: PR940563
 CENREF SAMPLE NUMBER: 2685
 SAMPLE IDENTIFICATION: #MW-7
 DATE SAMPLED: 4/5/94

METHOD EPA 825

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Fluorene	86-73-7	5	BDL
4,6-Dinitro-2-methylphenol	534-52-1	25	BDL
4-Bromophenyl-phenylether	101-55-3	5	BDL
Hexachlorobenzene	118-74-1	5	BDL
Pentachlorophenol	87-86-5	25	BDL
Phenanthrene	85-01-8	5	BDL
Anthracene	120-12-7	5	BDL
Di-n-Butyl Phthalate	84-74-2	5	2 J B
Fluoranthene	206-44-8	5	BDL
Pyrene	129-00-0	5	BDL
Butylbenzylphthalate	85-68-7	5	BDL
3,3'-Dichlorobenzidine	91-94-1	10	BDL
Benzo(a)anthracene	56-55-3	5	BDL
Bis(2-ethylhexyl)phthalate	117-81-7	5	2 J
Chrysene	218-01-9	5	BDL
Di-n-Octyl Phthalate	117-84-0	5	BDL
Benzo(b)fluoranthene	205-99-2	5	BDL
Benzo(k)fluoranthene	207-08-9	5	BDL
Benzo(a)pyrene	50-32-8	5	BDL
Indeno(1,2,3-cd)pyrene	193-39-5	5	BDL
Dibenz(a,h)anthracene	53-70-3	5	BDL
Benzo(g,h,i)perylene	191-24-2	5	BDL

BDL = Below Sample Detection Limit
 SDL = Sample Detection Limit

COMMENTS: J = Reported compound is below the SDL-quantitation is an estimate.
B = Compound detected in the blank.



COMPANY NAME: HydroLogic-Morrisville
 CENREF PROJECT NUMBER: H940563
 CENREF SAMPLE NUMBER: 2686
 SAMPLE IDENTIFICATION: #MW-13
 CLIENT PROJECT NAME: Aquaterra, Inc.
 CLIENT PROJECT NUMBER: 941139
 DATE SAMPLED: 4/5/94
 DATE EXTRACTED: 4/7/94
 DATE/TIME ANALYZED: 4/12/94 @ 22:10

METHOD EPA 625

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Phenol	108-95-2	5	BDL
Bis(2-chloroethyl) ether	111-44-4	5	BDL
2-Chlorophenol	95-57-8	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL
1,2-Dichlorobenzene	95-50-1	5	BDL
Bis(2-chloroisopropyl) ether	108-60-1	5	BDL
N-Nitroso-di-n-propylamine	621-64-7	5	BDL
Hexachloroethane	67-72-1	5	BDL
Nitrobenzene	98-95-3	5	BDL
Isophorone	78-59-1	5	BDL
2-Nitrophenol	88-75-5	5	BDL
2,4-Dimethylphenol	105-67-9	5	BDL
Bis(2-chloroethoxy)methane	111-91-1	5	BDL
2,4-Dichlorophenol	120-83-2	5	BDL
1,2,4-Trichlorobenzene	120-82-1	5	BDL
Naphthalene	91-20-3	5	BDL
Hexachlorobutadiene	87-68-3	5	BDL
4-Chloro-3-methylphenol	59-50-7	5	BDL
2,4,6-Trichlorophenol	88-06-2	5	BDL
2-Chloronaphthalene	91-58-7	5	BDL
Dimethylphthalate	131-11-3	5	BDL
Acenaphthylene	208-96-8	5	BDL
Acenaphthene	83-32-9	5	BDL
2,4-Dinitrophenol	51-28-5	25	BDL
4-Nitrophenol	100-02-7	25	BDL
2,4-Dinitrotoluene	121-14-2	5	BDL
2,6-Dinitrotoluene	606-20-2	5	BDL
Diethylphthalate	84-66-2	5	BDL
4-Chlorophenyl-phenylether	7005-72-3	5	BDL



COMPANY NAME: Hydrologic-Morrisville
 CENREF PROJECT NUMBER: PR940563
 CENREF SAMPLE NUMBER: 2686
 SAMPLE IDENTIFICATION: #MW-13
 DATE SAMPLED: 4/5/94

METHOD EPA 825

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Fluorene	86-73-7	5	BDL
4,6-Dinitro-2-methylphenol	534-52-1	25	BDL
4-Bromophenyl-phenylether	101-55-3	5	BDL
Hexachlorobenzene	118-74-1	5	BDL
Pentachlorophenol	87-86-5	25	BDL
Phenanthrene	85-01-8	5	BDL
Anthracene	120-12-7	5	BDL
Di-n-Butyl Phthalate	84-74-2	5	1 J B
Fluoranthene	206-44-0	5	BDL
Pyrene	129-00-0	5	BDL
Butylbenzylphthalate	85-68-7	5	BDL
3,3'-Dichlorobenzidine	91-94-1	10	BDL
Benzo(a)anthracene	56-55-3	5	BDL
Bis(2-ethylhexyl)phthalate	117-81-7	5	BDL
Chrysene	218-01-9	5	BDL
Di-n-Octyl Phthalate	117-84-0	5	BDL
Benzo(b)fluoranthene	205-99-2	5	BDL
Benzo(k)fluoranthene	207-08-9	5	BDL
Benzo(a)pyrene	50-32-8	5	BDL
Indeno(1,2,3-cd)pyrene	193-39-5	5	BDL
Dibenz(a,h)anthracene	53-70-3	5	BDL
Benzo(g,h,i)perylene	191-24-2	5	BDL

BDL = Below Sample Detection Limit
 SDL = Sample Detection Limit

COMMENTS: J = Reported compound is below the SDL-quantitation is an estimate.
B = Compound detected in the blank.



COMPANY NAME: Hydrologic-Morrisville
 CENREF PROJECT NUMBER: PR040563
 CENREF SAMPLE NUMBER: 2687
 SAMPLE IDENTIFICATION: #MW-6
 CLIENT PROJECT NAME: Aquaterra, Inc.
 CLIENT PROJECT NUMBER: 941139
 DATE SAMPLED: 4/5/94
 DATE EXTRACTED: 4/7/94
 DATE/TIME ANALYZED: 4/12/94 @ 22:58

METHOD EPA 625

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Phenol	108-95-2	5	BDL
Bis(2-chloroethyl) ether	111-44-4	5	BDL
2-Chlorophenol	95-57-8	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL
1,2-Dichlorobenzene	95-50-1	5	BDL
Bis(2-chloroisopropyl) ether	108-60-1	5	BDL
N-Nitroso-di-n-propylamine	621-64-7	5	BDL
Hexachloroethane	67-72-1	5	BDL
Nitrobenzene	98-95-3	5	BDL
Isophorone	78-59-1	5	BDL
2-Nitrophenol	88-75-5	5	BDL
2,4-Dimethylphenol	105-67-9	5	BDL
Bis(2-chloroethoxy) methane	111-91-1	5	BDL
2,4-Dichlorophenol	120-83-2	5	BDL
1,2,4-Trichlorobenzene	120-82-1	5	BDL
Naphthalene	91-20-3	5	BDL
Hexachlorobutadiene	87-68-3	5	BDL
4-Chloro-3-methylphenol	59-50-7	5	BDL
2,4,6-Trichlorophenol	88-06-2	5	BDL
2-Chloronaphthalene	91-58-7	5	BDL
Dimethylphthalate	131-11-3	5	BDL
Acenaphthylene	208-96-8	5	BDL
Acenaphthene	83-32-9	5	BDL
2,4-Dinitrophenol	51-28-5	25	BDL
4-Nitrophenol	100-02-7	25	BDL
2,4-Dinitrotoluene	121-14-2	5	BDL
2,6-Dinitrotoluene	606-20-2	5	BDL
Diethylphthalate	84-66-2	5	BDL
4-Chlorophenyl-phenylether	7005-72-3	5	BDL



COMPANY NAME: Hydrologic-Morrisville
 CENREF PROJECT NUMBER: PR940563
 CENREF SAMPLE NUMBER: 2687
 SAMPLE IDENTIFICATION: #MW-6
 DATE SAMPLED: 4/5/94

METHOD EPA 825

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> (ug/1)	<u>RESULT</u> (ug/1)
Fluorene	86-73-7	5	BDL
4,6-Dinitro-2-methylphenol	534-52-1	25	BDL
4-Bromophenyl-phenylether	101-55-3	5	BDL
Hexachlorobenzene	118-74-1	5	BDL
Pentachlorophenol	87-86-5	25	BDL
Phenanthrene	85-01-8	5	BDL
Anthracene	120-12-7	5	BDL
Di-n-Butyl Phthalate	84-74-2	5	2 J B
Fluoranthene	206-44-0	5	BDL
Pyrene	129-00-0	5	BDL
Butylbenzylphthalate	85-68-7	5	BDL
3,3'-Dichlorobenzidine	91-94-1	10	BDL
Benzo(a)anthracene	56-55-3	5	BDL
Bis(2-ethylhexyl)phthalate	117-81-7	5	3 J
Chrysene	218-01-9	5	BDL
Di-n-Octyl Phthalate	117-84-0	5	BDL
Benzo(b)fluoranthene	205-99-2	5	BDL
Benzo(k)fluoranthene	207-08-9	5	BDL
Benzo(a)pyrene	50-32-8	5	BDL
Indeno(1,2,3-cd)pyrene	193-39-5	5	BDL
Dibenz(a,h)anthracene	53-70-3	5	BDL
Benzo(g,h,i)perylene	191-24-2	5	BDL

BDL = Below Sample Detection Limit
 SDL = Sample Detection Limit

COMMENTS: J = Reported compound is below the SDL-quantitation is an estimate.
B = Compound detected in the blank.



COMPANY NAME: HydroLogic-Morrisville
 CENREF PROJECT NUMBER: H940563
 CENREF SAMPLE NUMBER: 2688
 SAMPLE IDENTIFICATION: #MW-14
 CLIENT PROJECT NAME: Aquaterra, Inc.
 CLIENT PROJECT NUMBER: 941139
 DATE SAMPLED: 4/5/94
 DATE EXTRACTED: 4/7/94
 DATE/TIME ANALYZED: 4/12/94 @ 23:47

METHOD EPA 825

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> (ug/1)	<u>RESULT</u> (ug/1)
Phenol	108-95-2	5	BDL
Bis(2-chloroethyl) ether	111-44-4	5	BDL
2-Chlorophenol	95-57-8	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL
1,2-Dichlorobenzene	95-50-1	5	BDL
Bis(2-chloroisopropyl) ether	108-60-1	5	BDL
N-Nitroso-di-n-propylamine	621-64-7	5	BDL
Hexachloroethane	67-72-1	5	BDL
Nitrobenzene	98-95-3	5	BDL
Isophorone	78-59-1	5	BDL
2-Nitrophenol	88-75-5	5	BDL
2,4-Dimethylphenol	105-67-9	5	BDL
Bis(2-chloroethoxy) methane	111-91-1	5	BDL
2,4-Dichlorophenol	120-83-2	5	BDL
1,2,4-Trichlorobenzene	120-82-1	5	BDL
Naphthalene	91-20-3	5	BDL
Hexachlorobutadiene	87-68-3	5	BDL
4-Chloro-3-methylphenol	59-50-7	5	BDL
2,4,6-Trichlorophenol	88-06-2	5	BDL
2-Chloronaphthalene	91-58-7	5	BDL
Dimethylphthalate	131-11-3	5	BDL
Acenaphthylene	208-96-8	5	BDL
Acenaphthene	83-32-9	5	BDL
2,4-Dinitrophenol	51-28-5	25	BDL
4-Nitrophenol	100-02-7	25	BDL
2,4-Dinitrotoluene	121-14-2	5	BDL
2,6-Dinitrotoluene	606-20-2	5	BDL
Diethylphthalate	84-66-2	5	BDL
4-Chlorophenyl-phenylether	7005-72-3	5	BDL



COMPANY NAME: Hydrologic-Morrisville
 CENREF PROJECT NUMBER: PR940563
 CENREF SAMPLE NUMBER: 2688
 SAMPLE IDENTIFICATION: #MW-14
 DATE SAMPLED: 4/5/94

METHOD EPA 825

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Fluorene	86-73-7	5	BDL
4,6-Dinitro-2-methylphenol	534-52-1	25	BDL
4-Bromophenyl-phenylether	101-55-3	5	BDL
Hexachlorobenzene	118-74-1	5	BDL
Pentachlorophenol	87-86-5	25	BDL
Phenanthrene	85-01-8	5	BDL
Anthracene	120-12-7	5	BDL
Di-n-Butyl Phthalate	84-74-2	5	2 J B
Fluoranthene	206-44-0	5	BDL
Pyrene	129-00-0	5	BDL
Butylbenzylphthalate	85-68-7	5	BDL
3,3'-Dichlorobenzidine	91-94-1	10	BDL
Benzo(a)anthracene	56-55-3	5	BDL
Bis(2-ethylhexyl)phthalate	117-81-7	5	2 J
Chrysene	218-01-9	5	BDL
Di-n-Octyl Phthalate	117-84-0	5	BDL
Benzo(b)fluoranthene	205-99-2	5	BDL
Benzo(k)fluoranthene	207-08-9	5	BDL
Benzo(a)pyrene	50-32-8	5	BDL
Indeno(1,2,3-cd)pyrene	193-39-5	5	BDL
Dibenz(a,h)anthracene	53-70-3	5	BDL
Benzo(g,h,i)perylene	191-24-2	5	BDL

BDL = Below Sample Detection Limit
 SDL = Sample Detection Limit

COMMENTS: J = Reported compound is below the SDL-quantitation is an estimate.
B = Compound detected in the blank.



RECEIVED APR 21 1994

Cenref Labs

Analytical Chemistry Laboratories

April 18, 1994

REPORTING:

HydroLogic-Morrisville
2500 Gateway Centre Blvd.
Suite 900
Morrisville, NC 27560

Attention: Pomeroy Smith

INVOICING:

HydroLogic-Morrisville
2500 Gateway Centre Blvd.
Suite 900
Morrisville, NC 27560

Attention: Pomeroy Smith

CENREF PROJECT NUMBER: PR940563B

DATE COMPLETED: April 18, 1994
DATE RECEIVED: April 7, 1994

PROJECT DESCRIPTION:

1 water sample for Aquaterra, Inc. taken 4-5-94. Project #4303000 Draper
Ground Water. *RUSH*

Enclosed is the laboratory report for the project described above. If you
have any questions or if we can be of further assistance, please feel free
to contact us. We appreciate your business and look forward to serving you
again soon.

Respectfully,



Robert T. Hart
Project Manager



COMPANY NAME: HydroLogic-Morrisville

CENREF PROJECT NUMBER: PR940563B

SAMPLE IDENTIFICATION

CROSS REFERENCE SHEET

CENREF SAMPLE NUMBER

2723

CLIENT SAMPLE IDENTIFICATION

#AS-2

SAMPLE DATE

4/5/94



COMPANY NAME:

HydroLogic-Morrisville

CENREF PROJECT NUMBER:
 CENREF SAMPLE NUMBER:
 SAMPLE IDENTIFICATION:
 CLIENT PROJECT NAME:
 CLIENT PROJECT NUMBER:
 DATE SAMPLED:
 DATE EXTRACTED:
 DATE/TIME ANALYZED:

PR940563B
 2723
 #AS-2
 Aquaterra, Inc.
 #941139
 4/5/94
 4/11/94
 4/14/94 @ 20:26

Method EPA 625

<u>ANALYSIS</u>	<u>CAS No.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Phenol	108-95-2	5	2 J
Bis(2-chloroethyl) ether	111-44-4	5	BDL
2-Chlorophenol	95-57-8	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL
1,2-Dichlorobenzene	95-50-1	5	BDL
Bis(2-chloroisopropyl) ether	108-60-1	5	BDL
N-Nitroso-di-n-propylamine	621-64-7	5	BDL
Hexachloroethane	67-72-1	5	BDL
Nitrobenzene	98-95-3	5	BDL
Isophorone	78-59-1	5	BDL
2-Nitrophenol	88-75-5	5	BDL
2,4-Dimethylphenol	105-67-9	5	BDL
Bis(2-chloroethoxy)methane	111-91-1	5	BDL
2,4-Dichlorophenol	120-83-2	5	BDL
1,2,4-Trichlorobenzene	120-82-1	5	BDL
Naphthalene	91-20-3	5	BDL
Hexachlorobutadiene	87-68-3	5	BDL
4-Chloro-3-methylphenol	59-50-7	5	BDL
2,4,6-Trichlorophenol	88-06-2	5	BDL
2-Chloronaphthalene	91-58-7	5	BDL
Dimethylphthalate	131-11-3	5	BDL
Acenaphthylene	208-96-8	5	BDL
Acenaphthene	83-32-9	5	BDL
2,4-Dinitrophenol	51-28-5	25	BDL
4-Nitrophenol	100-02-7	25	BDL
2,4-Dinitrotoluene	121-14-2	5	BDL
2,6-Dinitrotoluene	606-20-2	5	BDL
Diethylphthalate	84-66-2	5	BDL
4-Chlorophenyl-phenylether	7005-72-3	5	BDL



COMPANY NAME: Hydrologic-Morrisville
 CENREF PROJECT NUMBER: PR940563B
 CENREF SAMPLE NUMBER: 2723
 SAMPLE IDENTIFICATION: #AS-2
 DATE SAMPLED: 4/5/94

METHOD EPA 823

<u>ANALYSIS</u>	<u>CAS No.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Fluorene	86-73-7	5	BDL
4,6-Dinitro-2-methylphenol	534-52-1	25	BDL
4-Bromophenyl-phenylether	101-55-3	5	BDL
Hexachlorobenzene	118-74-1	5	BDL
Pentachlorophenol	87-86-5	25	BDL
Phenanthrene	85-01-8	5	BDL
Anthracene	120-12-7	5	BDL
Di-n-Butyl Phthalate	84-74-2	5	BDL
Fluoranthene	206-44-0	5	BDL
Pyrene	129-00-0	5	BDL
Butylbenzylphthalate	85-68-7	5	BDL
3,3'-Dichlorobenzidine	91-94-1	10	BDL
Benzo(a)anthracene	56-55-3	5	BDL
Bis(2-ethylhexyl)phthalate	117-81-7	5	6
Chrysene	218-01-9	5	BDL
Di-n-Octyl Phthalate	117-84-0	5	BDL
Benzo(b)fluoranthene	205-99-2	5	BDL
Benzo(k)fluoranthene	207-08-9	5	BDL
Benzo(a)pyrene	50-32-8	5	BDL
Indeno(1,2,3-cd)pyrene	193-39-5	5	BDL
Dibenz(a,h)anthracene	53-70-3	5	BDL
Benzo(g,h,i)perylene	191-24-2	5	BDL

BDL = Below Sample Detection Limit
 SDL = Sample Detection Limit

COMMENTS: J = Reported compound is below the SDL-quantitation is an estimate.



COMPANY NAME:

HydroLogic-Morrisville

CENREF PROJECT NUMBER:

PR940563B

CENREF SAMPLE NUMBER:

SKK-1

SAMPLE IDENTIFICATION:

Method Blank

CLIENT PROJECT NAME:

Aquaterra, Inc.

CLIENT PROJECT NUMBER:

#941139

DATE EXTRACTED:

4/11/94

DATE/TIME ANALYZED:

4/14/94 @ 18:02

METHOD EPA 825

<u>ANALYSIS</u>	<u>CAS No.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Phenol	108-95-2	5	BDL
Bis(2-chloroethyl) ether	111-44-4	5	BDL
2-Chlorophenol	95-57-8	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL
1,2-Dichlorobenzene	95-50-1	5	BDL
Bis(2-chloroisopropyl) ether	108-60-1	5	BDL
N-Nitroso-di-n-propylamine	621-64-7	5	BDL
Hexachloroethane	67-72-1	5	BDL
Nitrobenzene	98-95-3	5	BDL
Isophorone	78-59-1	5	BDL
2-Nitrophenol	88-75-5	5	BDL
2,4-Dimethylphenol	105-67-9	5	BDL
Bis(2-chloroethoxy) methane	111-91-1	5	BDL
2,4-Dichlorophenol	120-83-2	5	BDL
1,2,4-Trichlorobenzene	120-82-1	5	BDL
Naphthalene	91-20-3	5	BDL
Hexachlorobutadiene	87-68-3	5	BDL
4-Chloro-3-methylphenol	59-50-7	5	BDL
2,4,6-Trichlorophenol	88-06-2	5	BDL
2-Chloronaphthalene	91-58-7	5	BDL
Dimethylphthalate	131-11-3	5	BDL
Acenaphthylene	208-96-8	5	BDL
Acenaphthene	83-32-9	5	BDL
2,4-Dinitrophenol	51-28-5	25	BDL
4-Nitrophenol	100-02-7	25	BDL
2,4-Dinitrotoluene	121-14-2	5	BDL
2,6-Dinitrotoluene	606-20-2	5	BDL
Diethylphthalate	84-66-2	5	BDL
4-Chlorophenyl-phenylether	7005-72-3	5	BDL



COMPANY NAME: HydroLogic-Morrisville
 CENREF PROJECT NUMBER: PR940563B
 CENREF SAMPLE NUMBER: SBK-1
 SAMPLE IDENTIFICATION: Method Blank

Method EPA 825

<u>ANALYSIS</u>	<u>CAS No.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Fluorene	86-73-7	5	BDL
4,6-Dinitro-2-methylphenol	534-52-1	25	BDL
4-Bromophenyl-phenylether	101-55-3	5	BDL
Hexachlorobenzene	118-74-1	5	BDL
Pentachlorophenol	87-86-5	25	BDL
Phenanthrene	85-01-8	5	BDL
Anthracene	120-12-7	5	BDL
Di-n-Butyl Phthalate	84-74-2	5	BDL
Fluoranthene	206-44-0	5	BDL
Pyrene	129-00-0	5	BDL
Butylbenzylphthalate	85-68-7	5	BDL
3,3'-Dichlorobenzidine	91-94-1	10	BDL
Benzo(a)anthracene	56-55-3	5	BDL
Bis(2-ethylhexyl)phthalate	117-81-7	5	BDL
Chrysene	218-01-9	5	BDL
Di-n-Octyl Phthalate	117-84-0	5	BDL
Benzo(b)fluoranthene	205-99-2	5	BDL
Benzo(k)fluoranthene	207-08-9	5	BDL
Benzo(a)pyrene	50-32-8	5	BDL
Indeno(1,2,3-cd)pyrene	193-39-5	5	BDL
Dibenz(a,h)anthracene	53-70-3	5	BDL
Benzo(g,h,i)perylene	191-24-2	5	BDL

BDL = Below Sample Detection Limit
 SDL = Sample Detection Limit

COMMENTS: _____



SEMIVOLATILE ORGANICS - GC/MS

LAB SPIKE / LAB SPIKE DUPLICATE

CENREF PROJECT I.D.: PR940563B

SAMPLE I.D.: LCS

DATE ANALYZED: 4/14/94

WATER

UNITS: µg/L

COMPOUND	CONC. ADDED	SAMP CONC	MS CONC	% REC	MSD CONC	% REC	RPD	QC LIMITS	
								RPD	% REC
2,4-TRICHLOROBENZENE	50	0	26	52	26	52	0	28	39-98
ACENAPHTHENE	50	0	36	72	34	68	6	31	46-118
2,4-DINITROTOLUENE	50	0	50	100*	45	90	11	38	24-96
BENZENE	50	0	45	90	40	80	12	31	26-127
N-NITROSODI-N-PROPYLAMINE	50	0	39	78	38	76	3	38	41-116
1,4-DICHLOROBENZENE	50	0	23	46	23	46	0	28	36-97
PENTACHLOROPHENOL	100	0	84	84	54	54	43	50	9-103
PHENOL	100	0	55	55	58	58	5	42	12-89
2-CHLOROPHENOL	100	0	59	59	60	60	2	40	27-123
4-CHLORO-3-METHYLPHENOL	100	0	74	74	74	74	0	42	23-97
4-NITROPHENOL	100	0	73	73	57	57	25	50	10-80

COMMENTS: 2,4-Dinitrotoluene recovery is high on LS-1 but RPD is OK.



IEA
An Aquanot Company

3610 WESTCOTE HWY.
CARY, N.C. 27513
PH # 919-677-0080
FAX # 919-677-0427

CHAIN OF CUSTODY RECORD

REGULATORY CLASSIFICATION - PLEASE SPECIFY

NPDES DRINKING WATER RCRA OTHER

NO: 4485

Page ___ of ___

941139

COMPANY

Aquatera Inc (Greensboro)

4303000 Draper Ground Water

D. Roman Dade Inc

CONTAINERS
OF
WATER
SOIL

AS-2 4/5 4:00 ✓ AS-2

625

THIS TO BE ADDED
TO 941139

IEA RUSH NO.

IEA QUOTE NO.

P.O. NO.

PROJECT MANAGER (PLEASE PRINT)

4-194 09:30

Gene Dinges

GNC

Susan Kite

41699 2:35

D. Roman Dade Inc

Standard Turnaround

~~R. D. Dade~~ 4/5 2:35

- BOTTLE INTACT
- PRESERVED
- CHILLED
- CUSTODY SEALS
- SEALS INTACT
- SEE REMARKS



IEA
An Aquanor Company

3000 WESTON BLDG.
CANTON, C. 27004
PH # 919-677-0090
FAX # 919-677-0427

CHAIN OF CUSTODY RECORD

REGULATORY CLASSIFICATION - PLEASE SPECIFY

NPDES DRINKING WATER RCRA OTHER

COMPANY

Aquawater, Inc. (GSO)

941139

Page 1 of 1

NO. 44487

CONTAINER # OF IN SOIL WATER

4303000 Draper Ground Water

J. Thomas Dadek

529

MW-2	4/5	11:15	✓	MW-2	1	✓
MW-7		11:48	✓	MW-7	1	✓
MW-13		12:40 1:24	✓	MW-13	1	✓
MW-6		1:24	✓	MW-6	1	✓
MW-14	✓	2:00	✓	MW-14	1	✓

IEA QUOTE NO.

4694 910

IEA RUSH NO.

P.O. NO.

PROJECT MANAGER (PLEASE PRINT)

Susan Kite

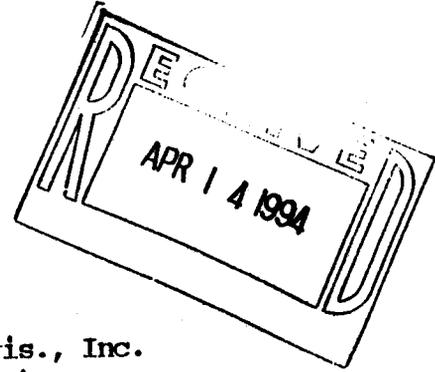
6-N2

REMARKS

- BOTTLE INTACT
- CUSTODY SEALS
- PRESERVED
- SEALS INTACT
- CHILLED
- SEE REMARKS

Standard turn around time
4-5-94 1700

FIELD NO.



April 11, 1994

REPORTING:

HydroLogic-Morris., Inc.
2500 Gateway Centre
Suite #900
Morrisville, NC 27560

Attention: Pomeroy Smith

INVOICING:

HydroLogic-Morris., Inc.
2500 Gateway Centre
Suite #900
Morrisville, NC 27560

PROJECT NUMBER: FL94-3808

DATE COMPLETED: April 11, 1994
DATE RECEIVED: April 6, 1994

PROJECT DESCRIPTION:

#4302900 Draper UST--9 soil samples to be analyzed for 9071, sampled on 04/04/94.

Enclosed is the laboratory report for the project described above. If you have any questions or if we can be of further assistance, please feel free to contact Billie Wakefield. We appreciate your business and look forward to serving you again soon.

Respectfully,

Benjamin Carl Esterle
Benjamin Carl Esterle
Laboratory Director

H Y D R O L O G I C , I N C .

COMPANY NAME: HydroLogic-Morris., Inc.
COMPANY PROJECT NUMBER: #4302900 DRAPER UST
HYDROLOGIC PROJECT NUMBER: FL94-3808
HYDROLOGIC SAMPLE NUMBER: 3808
HYDROLOGIC LAB I.D.#: 399
SAMPLE IDENTIFICATION: SS-1A
DATE SAMPLED: 4/4/94
DATE ANALYZED: 4/11/94

<u>ANALYSIS</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Oil and Grease	TPH 9071	mg/kg	10	16 ^u

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

H Y D R O L O G I C , I N C .

COMPANY NAME: HydroLogic-Morris., Inc.
COMPANY PROJECT NUMBER: #4302900 DRAPER UST

HYDROLOGIC PROJECT NUMBER: FL94-3808
HYDROLOGIC SAMPLE NUMBER: 3809
HYDROLOGIC LAB I.D.#: 399
SAMPLE IDENTIFICATION: SS-1B
DATE SAMPLED: 4/4/94
DATE ANALYZED: 4/11/94

<u>ANALYSIS</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Oil and Grease	TPH 9071	mg/kg	10	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

H Y D R O L O G I C , I N C .

COMPANY NAME: HydroLogic-Morris., Inc.
COMPANY PROJECT NUMBER: #4302900 DRAPER UST

HYDROLOGIC PROJECT NUMBER: FL94-3808
HYDROLOGIC SAMPLE NUMBER: 3810
HYDROLOGIC LAB I.D.#: 399
SAMPLE IDENTIFICATION: SS-2A
DATE SAMPLED: 4/4/94
DATE ANALYZED: 4/11/94

<u>ANALYSIS</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Oil and Grease	TPH 9071	mg/kg	10	13

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

H Y D R O L O G I C , I N C .

COMPANY NAME: HydroLogic-Morris., Inc.
COMPANY PROJECT NUMBER: #4302900 DRAPER UST

HYDROLOGIC PROJECT NUMBER: FL94-3808
HYDROLOGIC SAMPLE NUMBER: 3811
HYDROLOGIC LAB I.D.#: 399
SAMPLE IDENTIFICATION: SS-2B
DATE SAMPLED: 4/4/94
DATE ANALYZED: 4/11/94

<u>ANALYSIS</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Oil and Grease	TPH 9071	mg/kg	10	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

H Y D R O L O G I C , I N C .

COMPANY NAME: HydroLogic-Morris., Inc.
COMPANY PROJECT NUMBER: #4302900 DRAPER UST

HYDROLOGIC PROJECT NUMBER: FL94-3808
HYDROLOGIC SAMPLE NUMBER: 3812
HYDROLOGIC LAB I.D.#: 399
SAMPLE IDENTIFICATION: SS-3A
DATE SAMPLED: 4/4/94
DATE ANALYZED: 4/11/94

<u>ANALYSIS</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Oil and Grease	TPH 9071	mg/kg	10	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

H Y D R O L O G I C , I N C .

COMPANY NAME: HydroLogic-Morris., Inc.
COMPANY PROJECT NUMBER: #4302900 DRAPER UST

HYDROLOGIC PROJECT NUMBER: FL94-3808
HYDROLOGIC SAMPLE NUMBER: 3813
HYDROLOGIC LAB I.D.#: 399
SAMPLE IDENTIFICATION: SS-3B
DATE SAMPLED: 4/4/94
DATE ANALYZED: 4/11/94

<u>ANALYSIS</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Oil and Grease	TPH 9071	mg/kg	10	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

H Y D R O L O G I C , I N C .

COMPANY NAME: HydroLogic-Morris., Inc.
COMPANY PROJECT NUMBER: #4302900 DRAPER UST

HYDROLOGIC PROJECT NUMBER: FL94-3808
HYDROLOGIC SAMPLE NUMBER: 3814
HYDROLOGIC LAB I.D.#: 399
SAMPLE IDENTIFICATION: SS-4A
DATE SAMPLED: 4/4/94
DATE ANALYZED: 4/11/94

<u>ANALYSIS</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Oil and Grease	TPH 9071	mg/kg	10	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

H Y D R O L O G I C , I N C .

COMPANY NAME: HydroLogic-Morris., Inc.
COMPANY PROJECT NUMBER: #4302900 DRAPER UST

HYDROLOGIC PROJECT NUMBER: FL94-3808
HYDROLOGIC SAMPLE NUMBER: 3815
HYDROLOGIC LAB I.D.#: 399
SAMPLE IDENTIFICATION: SS-5A
DATE SAMPLED: 4/4/94
DATE ANALYZED: 4/11/94

<u>ANALYSIS</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Oil and Grease	TPH 9071	mg/kg	10	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

H Y D R O L O G I C , I N C .

COMPANY NAME: HydroLogic-Morris., Inc.
COMPANY PROJECT NUMBER: #4302900 DRAPER UST

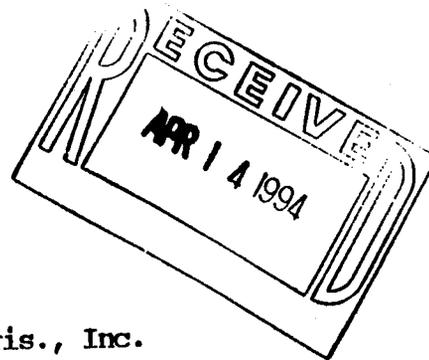
HYDROLOGIC PROJECT NUMBER: FL94-3808
HYDROLOGIC SAMPLE NUMBER: 3816
HYDROLOGIC LAB I.D.#: 399
SAMPLE IDENTIFICATION: SS-5B
DATE SAMPLED: 4/4/94
DATE ANALYZED: 4/11/94

<u>ANALYSIS</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Oil and Grease	TPH 9071	mg/kg	10	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

April 12, 1994



REPORTING:

HydroLogic-Morris., Inc.
2500 Gateway Centre
Suite #900
Morrisville, NC 27560

Attention: Pomeroy Smith

INVOICING:

HydroLogic-Morris., Inc.
2500 Gateway Centre
Suite #900
Morrisville, NC 27560

PROJECT NUMBER: FL94-3895

DATE COMPLETED: April 12, 1994

DATE RECEIVED: April 8, 1994

PROJECT DESCRIPTION:

#4302900--6 soil samples to be analyzed for 9071, sampled on 04/06/94.

Enclosed is the laboratory report for the project described above. If you have any questions or if we can be of further assistance, please feel free to contact Billie Wakefield. We appreciate your business and look forward to serving you again soon.

Respectfully,

Benjamin Carl Esterle
Benjamin Carl Esterle
Laboratory Director

H Y D R O L O G I C , I N C .

COMPANY NAME: HydroLogic-Morris., Inc.
COMPANY PROJECT NUMBER: #4302900
HYDROLOGIC PROJECT NUMBER: FL94-3895
HYDROLOGIC SAMPLE NUMBER: 3895
HYDROLOGIC LAB I.D.#: 399
SAMPLE IDENTIFICATION: SS-6A
DATE SAMPLED: 4/6/94
DATE ANALYZED: 4/11/94

<u>ANALYSIS</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Oil and Grease	TPH 9071	mg/kg	10	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

H Y D R O L O G I C , I N C .

COMPANY NAME: HydroLogic-Morris., Inc.
COMPANY PROJECT NUMBER: #4302900
HYDROLOGIC PROJECT NUMBER: FL94-3895
HYDROLOGIC SAMPLE NUMBER: 3896
HYDROLOGIC LAB I.D.#: 399
SAMPLE IDENTIFICATION: SS-6B
DATE SAMPLED: 4/6/94
DATE ANALYZED: 4/11/94

<u>ANALYSIS</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Oil and Grease	TPH 9071	mg/kg	10	21

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

HYDROLOGIC, INC.

COMPANY NAME: HydroLogic-Morris., Inc.
COMPANY PROJECT NUMBER: #4302900
HYDROLOGIC PROJECT NUMBER: FL94-3895
HYDROLOGIC SAMPLE NUMBER: 3897
HYDROLOGIC LAB I.D.#: 399
SAMPLE IDENTIFICATION: SS-7A
DATE SAMPLED: 4/6/94
DATE ANALYZED: 4/11/94

<u>ANALYSIS</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Oil and Grease	TPH 9071	mg/kg	10	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

H Y D R O L O G I C , I N C .

COMPANY NAME: HydroLogic-Morris., Inc.
COMPANY PROJECT NUMBER: #4302900
HYDROLOGIC PROJECT NUMBER: FL94-3895
HYDROLOGIC SAMPLE NUMBER: 3898
HYDROLOGIC LAB I.D.#: 399
SAMPLE IDENTIFICATION: SS-7B
DATE SAMPLED: 4/6/94
DATE ANALYZED: 4/11/94

<u>ANALYSIS</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Oil and Grease	TPH 9071	mg/kg	10	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

H Y D R O L O G I C , I N C .

COMPANY NAME: HydroLogic-Morris., Inc.
COMPANY PROJECT NUMBER: #4302900
HYDROLOGIC PROJECT NUMBER: FL94-3895
HYDROLOGIC SAMPLE NUMBER: 3899
HYDROLOGIC LAB I.D.#: 399
SAMPLE IDENTIFICATION: SS-8A
DATE SAMPLED: 4/6/94
DATE ANALYZED: 4/11/94

<u>ANALYSIS</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Oil and Grease	TPH 9071	mg/kg	10	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

Y D R O L O G I C , I N C .

COMPANY NAME: HydroLogic-Morris., Inc.
COMPANY PROJECT NUMBER: #4302900

HYDROLOGIC PROJECT NUMBER: FL94-3895
HYDROLOGIC SAMPLE NUMBER: 3900
HYDROLOGIC LAB I.D.#: 399
SAMPLE IDENTIFICATION: SS-8B
DATE SAMPLED: 4/6/94
DATE ANALYZED: 4/11/94

<u>ANALYSIS</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Oil and Grease	TPH 9071	mg/kg	10	BDL

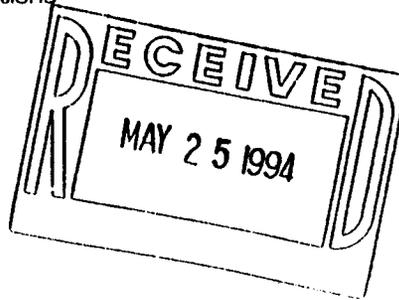
BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____



RESEARCH & ANALYTICAL LABORATORIES, INC.

Analytical/Process Consultations



23 May 1994

Aquaterra
319 J Westgate Drive
Greensboro, NC 27407

Attention: Mr. Kirk Pollard

Project Number: 4302900
Project Name: DRAPER

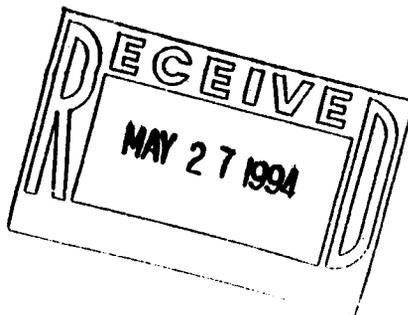
<u>Sample Number</u>	<u>Date Taken</u>	<u>Time (hrs)</u>	<u>Station Location</u>	<u>RAL Sample#</u>	<u>EPA* Method</u>	<u>Results (mg/kg)</u>
SS-9	5/17/94	1020	N/A	201892	9071	94.1
SS-10	5/17/94	1130	N/A	201893	9071	132
SS-11	5/17/94	1309	N/A	201894	9071	94.9
SS-12	5/17/94	1350	N/A	201895	9071	126
SS-13	5/17/94	1420	N/A	201896	9071	4,590

EPA Method 9071 = Total Petroleum Hydrocarbons As Oil & Grease
mg/kg = Milligrams Per Kilogram = Parts Per Million
< = Less Than or Below Detection Limits
N/A = Not Available



RESEARCH & ANALYTICAL LABORATORIES, INC.

Analytical/Process Consultations



26 May 1994

Aquaterra
319 J Westgate Drive
Greensboro, NC 27407

Attention: Mr. Kirk Pollard

Project Number: 4302900
Project Name: DRAPER

<u>Sample Number</u>	<u>Date Taken</u>	<u>Time (hrs)</u>	<u>RAL Sample#</u>	<u>EPA* Method</u>	<u>Results (mg/kg)</u>
SS-10A	5/18/94	1000	201933	9071	125

EPA Method 9071 = Total Petroleum Hydrocarbons As Oil & Grease
mg/kg = milligrams per kilogram = Parts Per Million

