PIERS
Environmental Services

Preliminary Site Assessment, Groundwater Well Installation and 1st Quarterly Report

for Feb 1997

3744 Depot Road
Hayward, CA

PERFORMED FOR

Eric O. Freeberg
River Bend Properties, Inc.
P. O. Box 9440
Rancho Santa Fe, CA 92067-4440

PREPARED BY:

PIERS ENVIRONMENTAL SERVICES INC.
100 N. Winchester Blvd., Suite 230
Santa Clara, CA 95050

PROJECT NO. 95253
February 1997

PIERS
Environmental Services

100 N. Winchester Blvd., Suite 230
Santa Clara, CA 95050

Tel. (408) 559-1248 Fax (408) 559-1224

February 10, 1997

Mr. Eric Freeberg
River Bend Properties, Inc.
P.O. Box 9440
Rancho Santa Fe, CA 92067-4440

AND

Ms. Amy Leech
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Subject: **Preliminary Site Assessment, Groundwater Well Installation, and 1st Quarterly Report: 3744 Depot Road, Hayward, California**

Please find attached the Preliminary Site Assessment at 3744 Depot Road, Hayward, California. PIERS Environmental is pleased to be of service to you on this project. If you have any questions, please do not hesitate to call.

Very truly yours,

Stuart G. Solomon
Principal

Lawrence D. Pavlak, C.E.G. No 1187

REGISTERED GEOLOGIST
LAWRENCE D. PAVLAK
№ 1187
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

TABLE OF CONTENTS

1.0 INTRODUCTION AND ENVIRONMENTAL HISTORY

This preliminary site assessment has been prepared by PIERS Environmental Services, (PIERS) to further assess soil and/or groundwater contamination at a former Underground Storage Tank (UST) site, located at 3744 Depot Road, Hayward, California. The site is located in a commercial/industrial district of Hayward, California, and is currently vacant, and in the process of being leased. A 500 gallon underground waste oil tank and a 1000 gallon underground gasoline tank were apparently excavated and removed from the site in the late 1980's by the previous tenant without a permit. The UST's were subsequently disposed of by the tenant. No soil samples were retrieved at the time of removal, and no tank closure report submitted. Subsequent to the tank removals, the Alameda County Department of Environmental Health (ACDEH) became aware of the situation, and requested that the property owner collect samples from the tank excavations. An environmental consultant apparently collected the required samples, however, a report on the sample results was not forwarded to the agency. The consultant has since closed the business, and no records are available. The previous tenant and property owners (Patricia and Kenneth Hein) are now (assumed) bankrupt, and the property was foreclosed on by the lender (Jack Lotz and Jesse Allen). The property was recently sold to River Bend Properties, Inc.. Both the former and current owners are now considered the Responsible Parties for the environmental requirements at this site.

PIERS performed a "Limited Phase II Environmental Assessment" on the Property in August 1995. The PIERS report on this assessment is dated September 12, 1995, and is on file with the ACDEH. In the PIERS investigation, five exploratory borings were drilled at the site. Soil samples were collected from each boring, and groundwater grab samples were collected from the down-gradient boring at each tank pit. A third groundwater grab sample was collected from a well discovered along the western property line by Amy Leech (ACDEH representative) during her site visit. An overview of the significant findings resulting from laboratory analyses of these soil and groundwater samples is as follows:

- Up to 3300 Parts Per Million (PPM) of Oil and Grease, and 2795 Parts Per Billion (PPB) of Semi-Volatile Organic Compounds (SVOC's) was discovered in soil sampled from the immediate area of the former waste oil tank. 390 PPM of Oil and Grease, and up to 600 PPB of Volatile Organic Compounds (VOC's) were detected in a sample of groundwater collected from the immediate area down-gradient from the former waste oil tank.

- Groundwater sampled in the immediate area down-gradient from the former gasoline tank was found to contain 43,000 PPB of Total Petroleum Hydrocarbons as Gasoline (TPHg), and 300 PPB of Benzene.

2.0 PURPOSES AND OBJECTIVES

In order to meet the requirements of the ACDEH and the Regional Water Quality Control Board (RWQCB), PIERS performed this Preliminary Site Assessment to delineate and assess the extent of soil and groundwater impact, and to formulate a plan for site closure. This work was performed in accordance with a workplan submitted to the ACDEH on July 2, 1996.

3.0 INVESTIGATION SCOPE OF WORK

The investigation included drilling four exploratory borings and converting two of them to groundwater monitoring wells. The scope of work included soil and groundwater grab sampling from the exploratory borings, installation of two groundwater monitoring wells, development and sampling of the two new wells and an existing well located on site, and hydraulic gradient characterization.

3.1 Location of E-borings and Monitoring Wells

Locations of the borings are shown on **Figure 2**. These locations were selected based on an evaluation of previous investigation data.

3.2 Drilling, Sampling, and Well Installation Methods

Prior to initiating drilling, a monitoring well installation permit was obtained from Zone 7-Alameda County Flood Control and Water Conservation District. A copy of this permit is attached in **Appendix A**.

Prior to mobilization of the drill rig on-site, and prior to leaving the site, all associated equipment and well installation devices were thoroughly cleaned to remove soil, oil, grease, mud, tar, etc. The cleaning process consisted of high pressure steam cleaning of the drilling equipment and a high pressure hot water final rinse. Before drilling the boring, all drilling equipment was steam-cleaned.

For monitoring wells MW-1 and MW-2, a nominal 8-inch diameter boring was advanced using a truck mounted hollow stem auger. For exploratory borings P-1 and P-2, the concrete at the surface was cored, and the borings drilled using a 3 ½ inch diameter, stainless steel, hand driven auger. Soils were visually inspected and logged using the Unified Soil Classification System. Soil samples were collected from MW-1 and MW-2 at a depth of 5.5 feet (ft.) below surface grade (BSG) and from P-1 and P-2 at a depth of approximately 6 ft. BSG. Olfactory and visual observations are noted on the boring logs (attached in **Appendix B**).

3.2.1 Soil Sampling Procedures

All sampling was performed in accordance with the current PIERS Sampling Protocols which are attached to this document as **Appendix F**.

One soil sample was collected from each of the four borings at the depth of the soil/water interface.

1. All logging was done using the Unified Soil Classification System, together with pertinent geologic observations.

2. Soil sampling tools (split spoons, cores, etc.) were disassembled, steam-cleaned or cleaned in soapy (TSP) water, rinsed with clean tap water and finally rinsed with tap or distilled water, and air-dried prior to taking each sample. The cleaned tools were then reassembled with similarly cleaned, dry brass sample liners and carefully lowered into the hollow stem augers for the collection of the sample.

3. The soil samples in the lowermost brass liners in the sampling tool (if in good condition) were retained for chemical testing. The samples were labeled and capped in the field in their original liners. Sample liner ends were covered with Teflon film and clean plastic caps and taped.

4. The remaining soil samples were extruded from the other liners in the field and lithologically logged. Sampler shoe cuttings and the soil samples not retained for chemical analysis were placed in 55-gallon drums at the site. These spoils will be properly disposed of.

5. All samples retained for chemical analysis stored in a chilled, clean, and covered ice chest for transport to the Laboratory.

Copies of the Chain-of-Custody forms and the laboratory chemical analytical reports are attached as **Appendix C**.

3.2.2 - Chemical Analysis and Results

The soil sample collected from boring MW-1 was analyzed at Entech Analytical Laboratories, Inc. for the presence of TPHg, and Benzene, Toluene, Ethyl Benzene, and Total Xylenes (BTEX) by EPA Methods 8015/8020. The soil sample collected from boring MW-2 was analyzed for TPHg, and BTEX, Oil and Grease, SVOC's, and VOC's.

Soil samples collected from P-1 and P-2 were immediately tested in the field using the NuHanby Field Test for Volatile Organic Compounds - a color-reactive VOC extraction method. NuHanby claims a VOC detection limit in soil of 1 PPM.

TABLE 1. SOIL CHEMICAL DATA

Sample I.D. ▸	MW1@5.5	MW2@5.5	P-1	P-2
Analysis ▾				
TPHg	ND	ND	NA	NA
BTEX	ND	ND	NA	NA
TRPH	NR	52 PPM	NA	NA
VOC's	ND NA	ND	NA	NA
SVOC's	ND NA	ND	NA	NA
Field VOC's	NA	NA	ND	ND

ND = Not Detected at Laboratory Detection Limits
NA = Not Analyzed
PPM = Parts Per Million (Mg/Kg)

Copies of the Chain-of-Custody forms and the laboratory chemical analytical reports are attached as **Appendix C**.

3.2.3 Groundwater Grab Sampling

Borings P-1 and P-2 were extended to approximately 1 foot below the static level of groundwater, and grab samples of the groundwater from each boring were collected. A new disposable bailer was inserted into each boring, and samples retrieved. The samples were immediately decanted into clean 1-liter containers, and tested in the field using the NuHanby Field Test for Volatile Organic Compounds. **NuHanby claims a VOC detection limit in water of 100 PPB.**

3.2.4 Groundwater Field Test Results

Neither of the groundwater samples retrieved from P-1 or P-2 were found to contain detectable VOC's by the NuHanby Field Test method.

3.2.5 Conversion to Groundwater Monitoring Wells

Borings MW-1 and MW-2 were extended to a total depth of 15 feet BSG into a confining layer of highly plastic, inorganic clay (Bay Mud). Groundwater was first encountered in MW-1 at a depth of approximately 6 ft. BSG, and in MW-2 at approximately 7 ft. BSG. The well casings and screens for the monitoring wells were constructed with 2-inch diameter, Schedule 40, flush-joint threaded PVC casing. The PVC screen was factory-milled with 0.020 inch slots. The screen was installed at the interval from the bottom of the boring to approximately 5 ft. BSG, (1 to 2 ft. above the static level of groundwater).

A sand pack of clean washed Monterey 2/12 sand was placed adjacent to the entire screened interval and extended a distance of at least 2 feet above the top of the screen. The sand pack was placed by carefully pouring sand down the annulus between the hollow stem and the well casing. The auger was raised periodically and an auger flight removed to allow the sand to fill the annulus between the casing and the borehole wall.

A 1 foot thick bentonite pellet seal was placed above the sand pack. The seal was placed in the same manner as the sand pack. The bentonite was hydrated with clean water at the quantity of 1 gallon per pound of bentonite. The bentonite was hydrated three times and allowed to swell for a minimum of 45 minutes.

The annulus above the bentonite seal was grouted with a cement/bentonite grout. The bentonite content of the grout was approximately three percent by weight. The grout consisted of clean water mixed with Portland cement and powdered bentonite. The grout was placed in the same manner as the sand pack, or after the auger flights were entirely withdrawn from the borehole.

Well completion consisted of a locking PVC cap and subsurface traffic-rated utility box set at or slightly above grade in concrete.

3.3 Monitoring Well Development and Sampling

3.3.1 Monitoring Well Development

On November 25, 1996, the new wells (MW-1 and MW-2) and the existing well (MW-3) were developed by bailing with clean equipment in order to prepare the wells for collection of representative groundwater samples. A minimum of 10 casing volumes of groundwater was purged from each well. Electrical conductivity (EC), pH, and temperature were measured periodically to ensure that these parameters stabilized during the course of development. Water generated during development was stored separately, on-site, in labeled 55-gallon drums pending analytical results.

3.3.2 Sampling Procedure

On November 26, 1996, the three wells were purged by bailing with clean equipment in order to prepare the wells for collection of representative groundwater samples. Four casing volumes of groundwater were purged from each well. EC, pH, and temperature were measured periodically to ensure that these parameters stabilized during the course of development. Water generated during development was stored separately, on-site, in labeled 55-gallon drums pending analytical results.

Groundwater samples were collected from the three wells after the water levels had re-equilibrated from development. Groundwater samples were collected from the three wells as follows:

> Water samples were collected using a new bailer for each well. An effort was made to minimize exposure of the samples to air.

Sample containers were obtained directly from the analytical laboratory

To ensure that the analytical laboratory has a sufficient volume of sample for analyses, a duplicate sample was collected from each well. Both samples were labeled identically.

Sample containers were labeled with self-adhesive tags. Field personnel labeled each tag, using waterproof ink, with the following information:

Sampling location and number, project name, date and time samples were noted along with treatment (preservatives, filtered, etc.) name, or other identifier of the sampler.

Subsequent to collection, the samples were immediately stored in a chilled ice chest. Samples were transported under Chain-of-Custody documentation to Entech Analytical Laboratories, Inc., a State-certified laboratory.

The field sampler signed and dated the Chain-of-Custody Record when custody was transferred. The original imprint of the Chain-of-Custody Record accompanied the sample containers. A duplicate copy was retained by PIERS.

Sample bottles, bottle caps, and septa were protected from solvent contact or other contamination between time of receipt and time of actual usage at the sampling site.

Sampling equipment was cleaned after its use at each sampling location. Thermometers, pH electrodes, and EC probes were also cleaned after the sampling of each well. Cleaning procedures were as follows:

Scrub with a TSP water solution; Rinse with potable water;

Care was taken to collect all excess water resulting from the sampling and cleaning procedures. The excess water was contained in a pre-labeled 55-gallon drum on-site pending receipt of laboratory analyses.

3.3.3 Laboratory Analyses

The following analyses were performed by the State-certified laboratory on groundwater samples obtained from the monitoring wells:

TABLE 2. GROUNDWATER CHEMICAL DATA

Sample I.D.	MW-1	MW-2	MW-3
Analysis			
TPHg	ND	ND	NA
BTEX	ND	ND	NA
~~TRPH~~	NA	ND	ND
VOC's	NA	ND	NA
SVOC's	ND NA	32 PPB *	NA

ND = Not Detected at Laboratory Detection Limits * Di-n-butylphthalate
NA = Not Analyzed
PPM = Parts Per Billion (ug/liter)

Copies of the Chain-of-Custody forms and the laboratory chemical analytical reports are attached as **Appendix C**.

3.4 Characterization of Horizontal Groundwater Gradient

In order to obtain accurate groundwater elevations, monitoring well head elevations were surveyed by a California Registered Civil Engineer to an accuracy of 0.01 ft. Elevations for the new wells were taken from a known City of Hayward Datum reference point. Water levels in each of the on site monitoring wells was measured within a one hour period. The water surface elevations in the wells were calculated using the survey data. Then the horizontal hydraulic gradient was calculated based on accurately determined well locations. The groundwater underlying the site was calculated to flow north northeasterly at a gradient of approximately 0.002.

northwest ? - see map

The well survey data and groundwater gradient map are contained in **Appendix E**.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Each of the new groundwater monitoring wells was positioned within 10 to 15 ft. down-gradient from the former underground fuel tanks. According to the Merck Index Encyclopedia for Chemicals and Drugs, the 32 PPB of Di-n-butylphthalate detected in the water sampled from MW#2 is a chemical used in insect repellant. PIERS speculates that the sample may have been contaminated by the sampler's gloves or clothing.

The sample results indicate that there has been little, if any, migration of contaminants outside of the immediate vicinity of both former tanks. PIERS recommends that each of the two former tank pits be over-excavated, and that extremity soil samples be collected and analyzed for target analytes. The excavated soil could be treated on site using biological microbial enhancement, or disposed of at an appropriate landfill. The down-gradient wells MW-1 and MW-2 should be sampled for three additional quarters, and, assuming that the results remain non-detect for target analytes, the site should be granted a no-further-action status.

If you have any questions regarding this work, please do not hesitate to call PIERS.

Respectfully submitted this 10th day of February 1997.

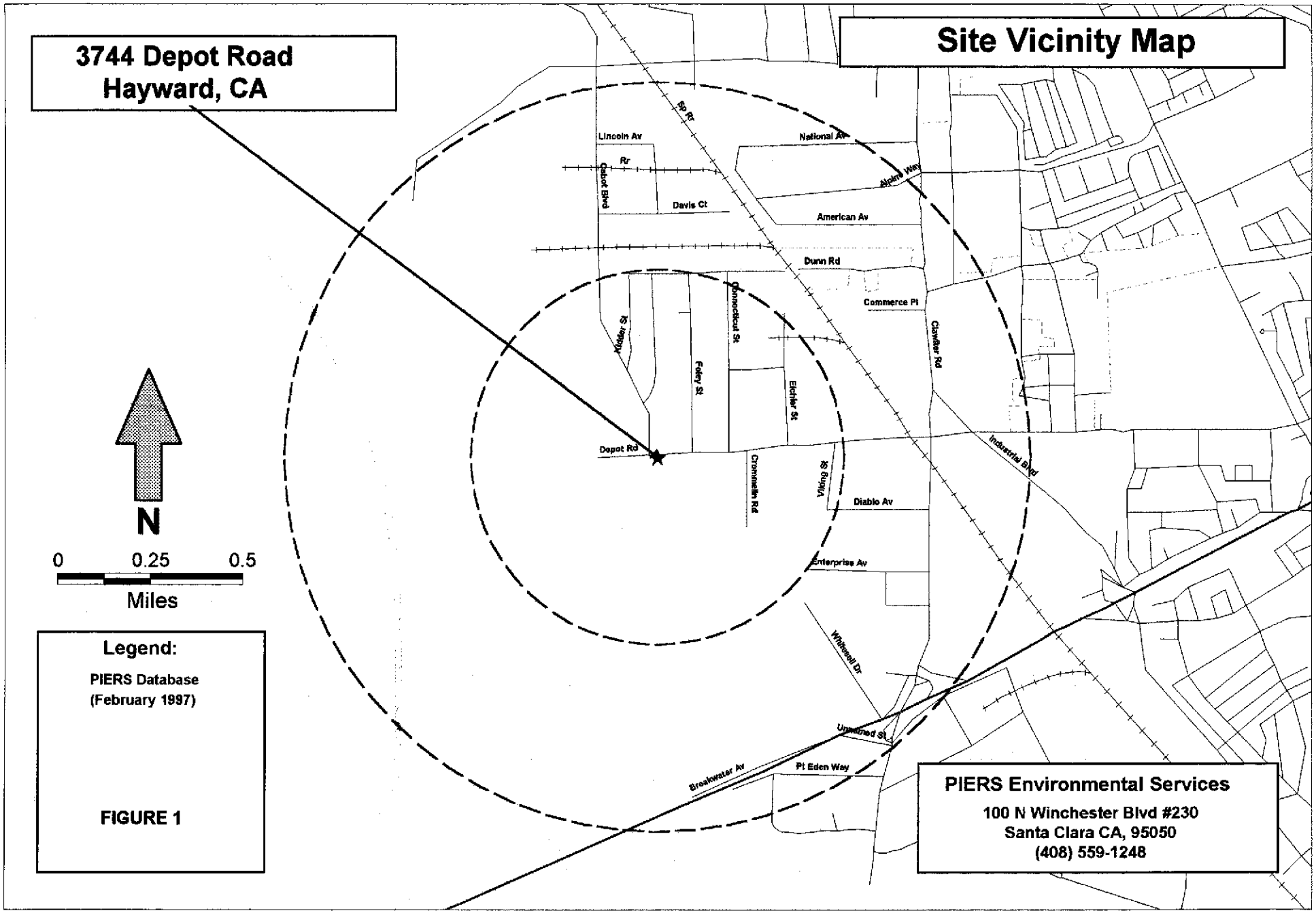
FIGURES 1 AND 2

Figure 1: Site Vicinity Map

Figure 2: Site Plan with Groundwater Well Locations

Site Vicinity Map

3744 Depot Road
Hayward, CA

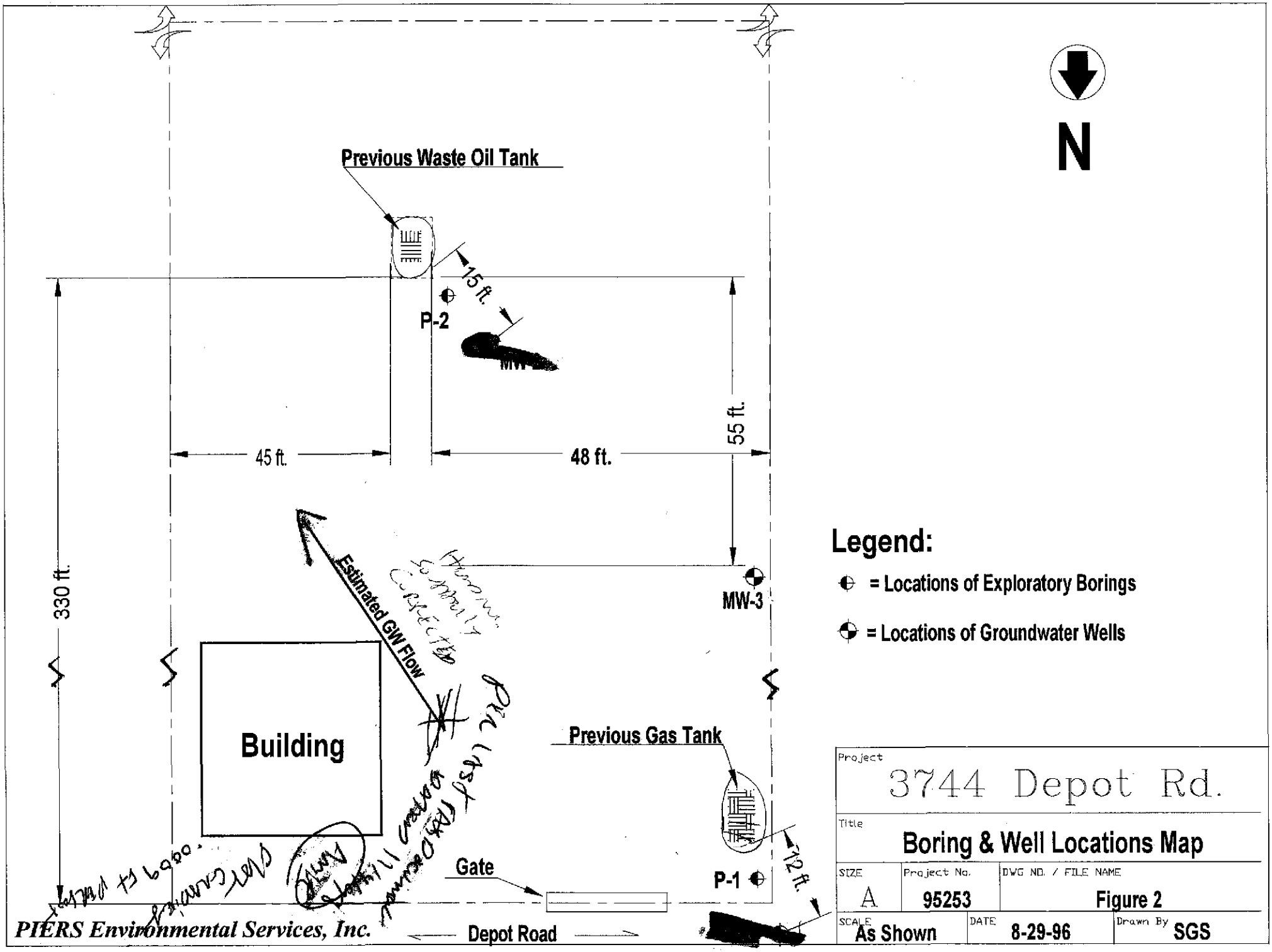


Legend:

PIERS Database
(February 1997)

FIGURE 1

PIERS Environmental Services
100 N Winchester Blvd #230
Santa Clara CA, 95050
(408) 559-1248


N
Previous Waste Oil Tank
15 ft.
P-2
MW-1
45 ft.
48 ft.
55 ft.
330 ft.
Estimated GW Flow
MW-3
Building
Previous Gas Tank
Gate
P-1
12 ft.
Depot Road
PIERS Environmental Services, Inc.
Legend:
= Locations of Exploratory Borings
= Locations of Groundwater Wells
Project
3744 Depot Rd.
Title
Boring & Well Locations Map
SIZE
A
Project No.
95253
DWG NO. / FILE NAME
Figure 2
SCALE
As Shown
DATE
8-29-96
Drawn By
SGS

APPENDIX A

Well Installation Permit

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 3744 Depot Road
Hayward, CA 94545

CLIENT
Name Riverbend Properties
Address PO Box 9540 Voice (619) 756-6637
City Rancho Santa Fe, CA Zip 92067-4440

APPLICANT
Name Piers Environmental Services
100 N. Barranca #710 Fax 408 559-1224
Address Voice 559-1248
City Santa Clara Zip 95050

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection		General	
Water Supply		Contamination	X
Monitoring	X	Well Destruction	

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger Hollow Stem
Cable ___ Other ___

DRILLER'S LICENSE NO. 589652

WELL PROJECTS

Drill Hole Diameter	8	in.	Maximum Depth	20	ft.
Casing Diameter	2	in.	Number	2	
Surface Seal Depth	1	ft.			

GEOTECHNICAL PROJECTS

Number of Borings			Maximum Depth		ft.
Hole Diameter		in.			

ESTIMATED STARTING DATE 10/15/96
ESTIMATED COMPLETION DATE 10/15/96

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] Date 10/8/96

FOR OFFICE USE

PERMIT NUMBER 96750
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 15 Oct 96
Wyman Hong

6/1232

15 October 1996

ZONE 7
WATER RESOURCES ENGINEERING
DRILLING ORDINANCE

TRIDECS CORPORATION
3513 ARDEN ROAD
HAYWARD
WELL 3S/2W 31R80
PERMIT 96751

Destruction Requirements:

1. Drill out the well so that the casing, seal, and gravel pack are removed to the bottom of the well.

2. Sound the well as deeply as practicable and record for your report.

3. Using a tremie pipe, fill the hole to 2 feet below the lower of finished grade or original ground with neat cement.

4. After the seal has set, backfill the remaining hole with compacted material.

These destruction requirements as proposed by Stuart Solomon of Piers Environmental Services meet or exceed the Zone 7 minimum requirements.

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 3744 Depot Road
Hayward, CA 94545

CLIENT
Name Riverbend Properties
Address PO Box 9440 Voice (619) 756-0637
City Rancho Santa Fe, CA Zip 92067-4440

APPLICANT
Name Piers Environmental Services
100 N. Winchester #230 Fax 408 559-1224
Address Voice 559-1248
City Santa Clara Zip 95050

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection		General	
Water Supply		Contamination	X
Monitoring	X	Well Destruction	

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger Hollow Stem
Cable ___ Other ___

DRILLER'S LICENSE NO. 589652

WELL PROJECTS

Drill Hole Diameter	8	in.	Maximum		
Casing Diameter	2	in.	Depth	20	ft.
Surface Seal Depth	1	ft.	Number	2	

GEOTECHNICAL PROJECTS

Number of Borings			Maximum		
Hole Diameter		in.	Depth		ft.

ESTIMATED STARTING DATE 10/15/96
ESTIMATED COMPLETION DATE 10/15/96

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] Date 10/8/96

FOR OFFICE USE

PERMIT NUMBER ___
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

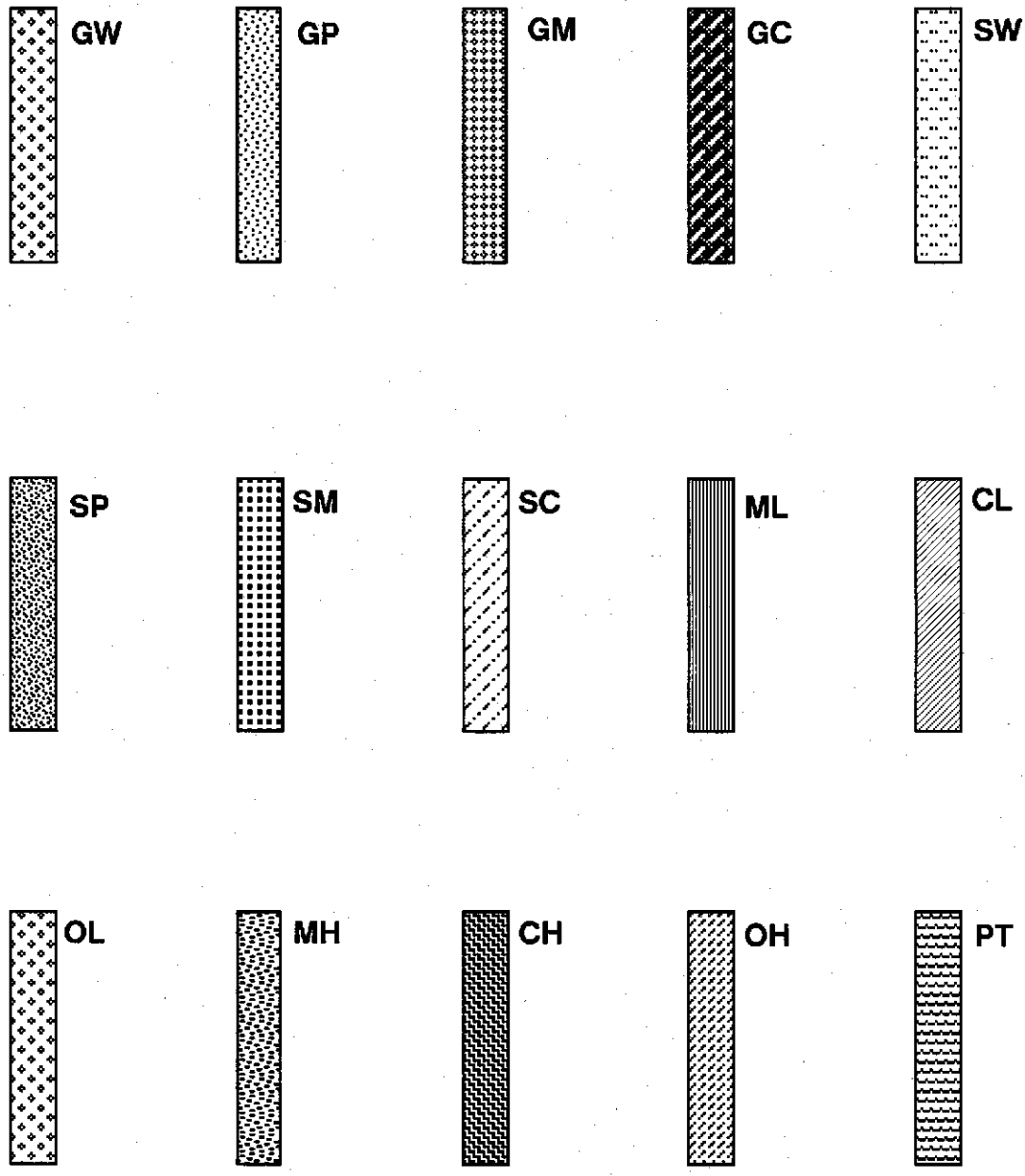
Approved ___ Date ___

91992

APPENDIX B

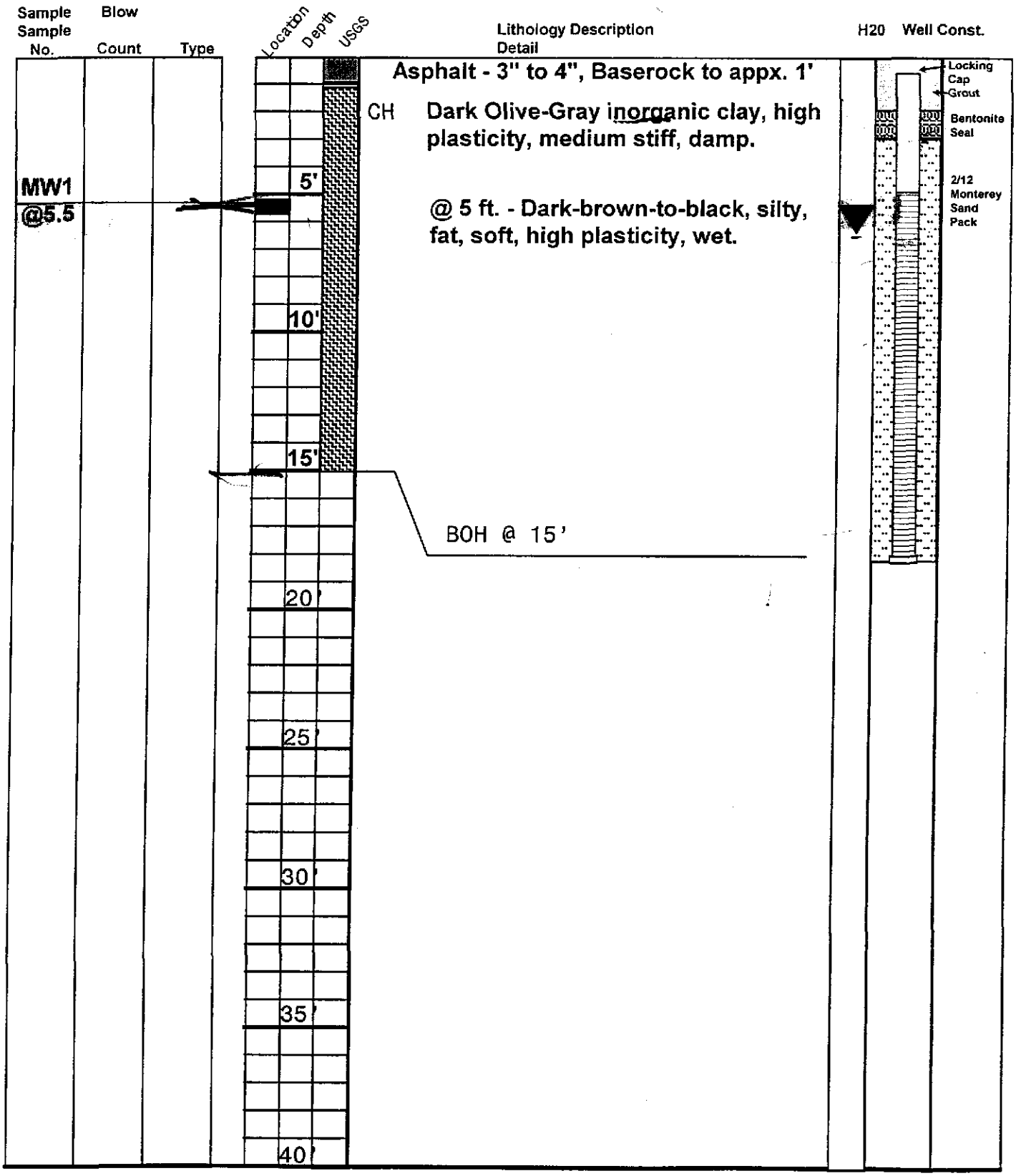
Boring Logs

PIERS Environmental USGS Soil Classification Symbols



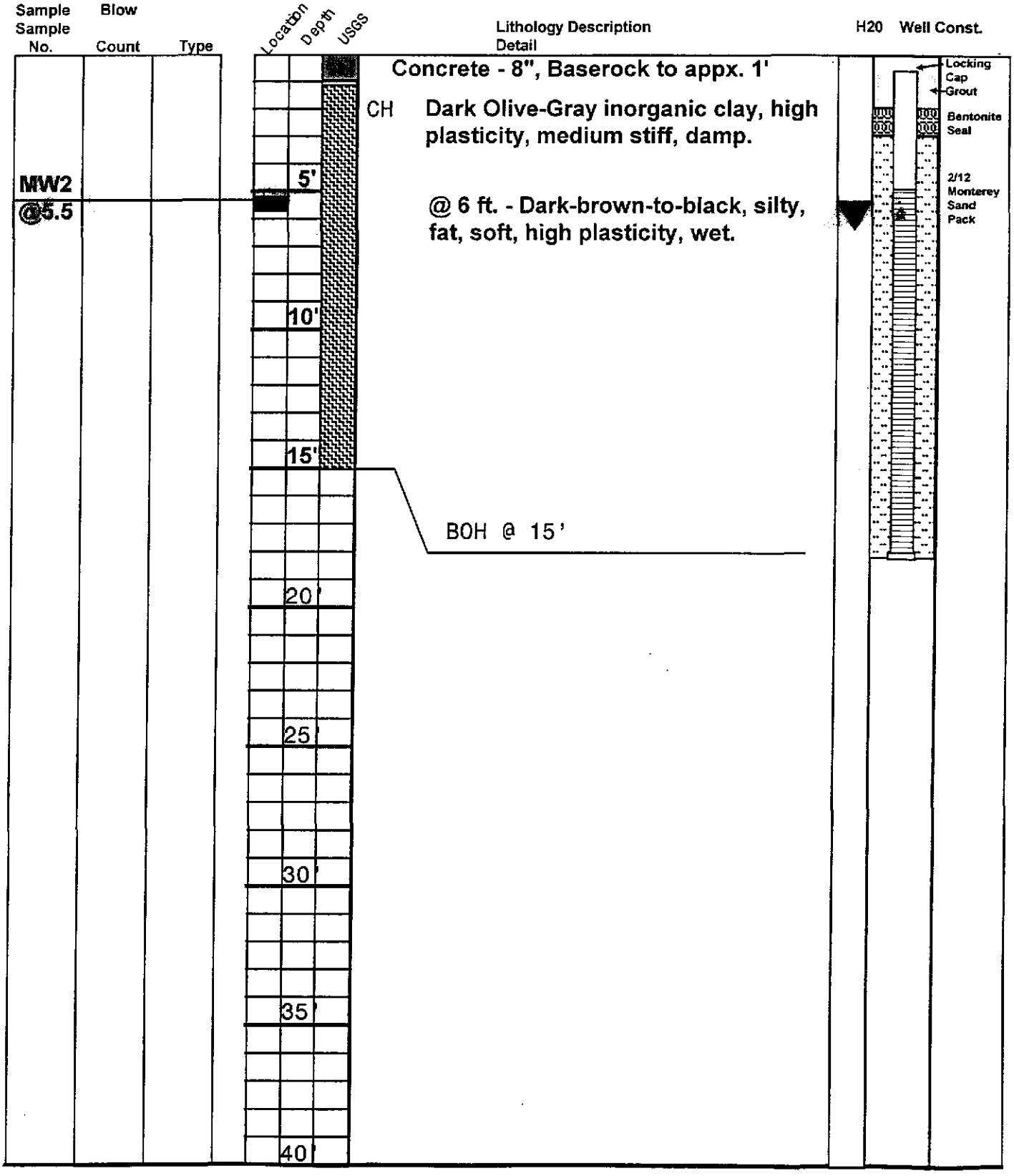
PIERS Environmental Services *Exploratory Boring Log*

Project No. 95253 **Client: Riverbend Properties** **Boring # MW-1** **Date: 11-4-96**
Location: 3744 Depot Rd., Hayward, CA **Logged By: B. Halsted**
Drilling Method: 8 inch Hollow Stem Auger **Permit: Zone 7** **Page 1 of 1**



PIERS Environmental Services *Exploratory Boring Log*

Project No. 95253 **Client: Riverbend Properties** **Boring # MW-2** **Date: 11-4-96**
Location: 3744 Depot Rd., Hayward, CA **Logged By: B. Halsted**
Drilling Method: 8 inch Hollow Stem Auger **Permit: Zone 7** **Page 1 of 1**



APPENDIX C

Copies of Chains-of Custody Form and Laboratory Chemical Analyses Reports

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • Telephone: (408) 735-1550 (800) 287-1799 • Fax: (408) 735-1554

Chain of Custody/Analysis Work Order

Client: PIERS
Address:
Contact: Stu Solomon
Telephone #:
Date Received: 11/4/96
Turn Around: Four Day

Project ID: Depot
Purchase Order #:
Sampler/Company: ERS Telephone #: 415 325-3216
B. Halsted
Special Instructions/Comments

LAB USE ONLY

Samples arrived chilled and intact:
Yes No
Notes:

Sample Information								Requested Analysis							
Lab #	Sample ID	Grab/ Composite	Matrix	Date Collected	Time Collected	Pres.	Sample Container	TPH/G BTEX	418.1	8240	8270				
C15406	MW1ES.5		Soil	10/28/96	9 05		2x6 Brass	X							
C15406	MW2ES.5		"	"	11 36		"	X	X	X	X				

Relinq. By:	Received By:	Date 11/4/96	Time 4:50
Relinq. By:	Received By:	Date	Time
Relinq/ By:	Received By:	Date	Time

Entech Analytical Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Piers Environmental Services
100 N. Winchester Blvd., Ste 230
Santa Clara, CA 95050
Attn: Stu Solomon

Date:	11/8/96
Date Received:	11/4/96
Date Analyzed:	11/5/96
Project:	Depot
Sampled By:	ERS

Certified Analytical Report

Soil Sample Analysis:

Sample ID	Sample Date	Sample Time	Lab #	DF	TPH-Gas	Benzene	Toluene	Ethyl Benzene	Xylene
MW1@5.5	10/28/96	9:05	C15405	1	ND	ND	ND	ND	ND
MW2@5.5	10/28/96	11:36	C15406	1	ND	ND	ND	ND	ND

1. DLR=PQL x DF
2. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #1369)

Summary of Methods and Detection Limits:

	TPH-Gas	Benzene	Toluene	Ethylbenzene	Xylenes
EPA Method #	8015M	8020	8020	8020	8020
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PQL	1.0 mg/kg	0.005 mg/kg	0.005 mg/kg	0.005 mg/kg	0.005 mg/kg

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

Entech Analytical Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Piers Environmental Services
100 N. Winchester Blvd., Ste 230
Santa Clara, CA 95050
Attn: Stu Solomon

Date:	11/8/96
Date Received:	11/4/96
Date Analyzed:	11/5-11/6/96
Project:	Depot
Sampled By:	ERS

Certified Analytical Report

Soil Sample Analysis:

Sample ID	*Sample Date*	*Sample Time*	*Lab #*	**TRPH**	**Volatile Organics**	**Semivolatile Organics**
MW2@5.5	10/28/96	11:36	C15406	**52**	**ND**	**ND**

1. DLR=DF x PQL
2. EPA 8270 analysis performed by Advanced Technology Laboratories (CAELAP #1838); see ATL report for individual compounds, detection limits, and analysis dates
3. EPA 8240 analysis performed by Entech Analytical Labs, Inc. (CAELAP #2161); see report for individual compounds, detection limits, and analysis date
4. Remaining analysis performed by Entech Analytical Labs (CAELAP #1369)

Test Methods:

Test	*EPA Method #*	*Units*	*PQL*
TRPH	SM5520F	mg/kg	50 mg/kg
Volatile Organics	8240	mg/kg	See Report
Semivolatile Organics	8270	µg/kg	See Report

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

Entech Analytical Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Certified Analytical Report: EPA Method 8240

Client:	Piers Environmental Services
Sample Matrix:	Soil
Lab #:	C15406
Sample ID:	MW2@5.5

Date:	11/8/96
Date Received:	11/4/96
Date Analyzed	11/6/96
Dilution Factor	1

Constituent	Concentration	Units	PQL	Constituent	Concentration	Units	PQL
Chloromethane	ND	mg/kg	0.060	Trichloroethene	ND	mg/kg	0.060
Bromomethane	ND	mg/kg	0.060	Benzene	ND	mg/kg	0.060
Dichlorodifluoromethane	ND	mg/kg	0.060	Chlorodibromomethane	ND	mg/kg	0.060
Vinyl Chloride	ND	mg/kg	0.12	1,1,2-Trichloroethane	ND	mg/kg	0.060
Chloroethane	ND	mg/kg	0.12	Trans-1,3-Dichloropropene	ND	mg/kg	0.060
Iodomethane	ND	mg/kg	1.2	1,2-Dibromoethane (EDB)	ND	mg/kg	0.060
Methylene Chloride	ND	mg/kg	1.2	2-Chloroethylvinyl Ether	ND	mg/kg	0.12
Acetone	ND	mg/kg	1.2	Bromoform	ND	mg/kg	0.060
Carbon Disulfide	ND	mg/kg	1.2	Acrolein	ND	mg/kg	1.2
Trichlorofluoromethane	ND	mg/kg	0.12	1,1,1,2-Tetrachloroethane	ND	mg/kg	0.060
1,1-Dichloroethene	ND	mg/kg	0.060	4-Methyl-2-Pentanone (MIBK)	ND	mg/kg	0.60
Allyl Chloride	ND	mg/kg	0.060	2-Hexanone	ND	mg/kg	0.60
1,1-Dichloroethane	ND	mg/kg	0.060	1,2,3-Trichloropropane	ND	mg/kg	0.060
Trans-1,2-Dichloroethene	ND	mg/kg	0.060	1,1,2,2-Tetrachloroethane	ND	mg/kg	0.060
Chloroform	ND	mg/kg	0.060	Tetrachloroethene	ND	mg/kg	0.060
2-Butanone (MEK)	ND	mg/kg	1.2	Toluene	ND	mg/kg	0.060
1,2-Dichloroethane	ND	mg/kg	0.060	Chlorobenzene	ND	mg/kg	0.060
Dibromomethane	ND	mg/kg	0.060	Ethylbenzene	ND	mg/kg	0.060
1,1,1-Trichloroethane	ND	mg/kg	0.060	1,2-Dibromo 3-Chloropropane	ND	mg/kg	1.2
Carbon Tetrachloride	ND	mg/kg	0.060	Benzyl Chloride	ND	mg/kg	1.2
Vinyl Acetate	ND	mg/kg	0.60	Styrene	ND	mg/kg	0.060
Bromodichloromethane	ND	mg/kg	0.060	Xylenes	ND	mg/kg	0.18
1,2-Dichloropropane	ND	mg/kg	0.060	1,3-Dichlorobenzene	ND	mg/kg	0.060
Cis-1,3-Dichloropropene	ND	mg/kg	0.060	1,2-Dichlorobenzene	ND	mg/kg	0.060
Bromoacetone	ND	mg/kg	1.2	1,4-Dichlorobenzene	ND	mg/kg	0.060

Surrogate	Recovery (%)
1,2-Dichloroethane-d4	119
Toluene-d8	102
4-Bromofluorobenzene	96

1. DLR=PQL x DF
2. Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2161)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #C15406 and should not be reproduced except in full without the written consent of Entech Analytical Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography

QC Batch #: GBG2961105
Matrix: Soil
Units: mg/kg

Date Analyzed: 11/05/96
Quality Control Sample: C15354

PARAMETER	Method #	MB mg/kg	SA mg/kg	SR mg/kg	SP mg/kg	**SP % R**	SPD mg/kg	**SPD %R**	RPD	QC LIMITS (ADVISORY) RPD	QC LIMITS (ADVISORY) %R
Benzene	8020	<0.005	0.08	ND	0.10	**130**	0.11	**139**	6.5	25	50-150
Toluene	8020	<0.005	0.08	ND	0.10	**130**	0.11	**135**	3.8	25	50-150
Ethyl Benzene	8020	<0.005	0.08	ND	0.10	**130**	0.11	**139**	6.5	25	50-150
Xylenes	8020	<0.005	0.24	ND	0.31	**128**	0.33	**135**	5.4	25	50-150

Definition of Terms:

- na: Not Analyzed in QC batch
- MB: Method Blank
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R): Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R): Spike % Recovery
- NC: Not Calculated

ntech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

QC Batch : STRP961101
Matrix: Soil
Units: mg/Kg

Date Analyzed: 11/04/96

ARAMETER	MB mg/Kg	SA mg/Kg	SR mg/Kg	SP mg/Kg	SP PR	SPD mg/Kg	SPD PR	RPD	QC LIMITS RPD	QC LIMITS PR
RPH	<50	200	0.0	150.	75	174.	87	14.8	25	50-150

efinition of Terms:

MB: Method Blank
SA: Spike Added
SR: Sample Result
SP: Matrix Spike Result
SP (PR): Matrix Spike % Recovery
SPD: Matrix Spike Duplicate Result
SPD (PR): Matrix Spike Duplicate % Recovery
RPD: Matrix Spike Recovery % Variance

Entech Analytical Labs, Inc.

3423 Investment Blvd., #8
Hayward, CA 94545

QUALITY CONTROL RESULTS SUMMARY

Volatile Organic Compounds

QC Batch #: 8240S961106
Matrix: Soil
Units: µg/Kg

Date analyzed: 11/06/96
Quality Control Sample: C14450

PARAMETER	Method #	SA µg/Kg	SR µg/Kg	SP µg/Kg	SP %R	SPD µg/Kg	SPD %R	RPD	QC LIMITS RPD	QC LIMITS %R
1,1-Dichloroethene	8240	300.	ND	332.	111%	330.	110%	0.6	22	D-154
Chloroform	8240	300.	ND	305.	102%	335.	112%	9.4	43	42-146
1,2-Dichloropropane	8240	300.	ND	325.	108%	359.	120%	9.9	24	32-183
Toluene	8240	300.	ND	322.	107%	348.	116%	7.8	20	43-160
Ethylbenzene	8240	300.	ND	307.	102%	357.	119%	15.1	22	55-159

Definition of Terms:

- na: Not Analyzed in QC batch
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R): Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R): Spike Duplicate % Recovery
- NC: Not Calculated

Entech Analytical Labs, Inc.

3423 Investment Blvd., #8
Hayward, CA 94545

Method Blank Report: EPA Method 8240

Date: 11/06/96
Sample Matrix: Soil
QC Batch #: 8240S961106
Sample ID: 8240S961106MB

Constituent	Concentration	Units	DLR	Constituent	Concentration	Units	DLR
Chloromethane	ND	mg/kg	0.06	Trichloroethene	ND	mg/kg	0.06
Bromomethane	ND	mg/kg	0.06	Benzene	ND	mg/kg	0.06
Dichlorodifluoromethane	ND	mg/kg	0.06	Chlorodibromomethane	ND	mg/kg	0.06
Vinyl Chloride	ND	mg/kg	0.12	1,1,2-Trichloroethane	ND	mg/kg	0.06
Chloroethane	ND	mg/kg	0.12	Trans-1,3-Dichloropropene	ND	mg/kg	0.06
Iodomethane	ND	mg/kg	1.2	1,2-Dibromoethane (EDB)	ND	mg/kg	0.06
Methylene Chloride	ND	mg/kg	1.2	2-Chloroethylvinyl Ether	ND	mg/kg	0.12
Acetone	ND	mg/kg	1.2	Bromoform	ND	mg/kg	0.06
Carbon Disulfide	ND	mg/kg	1.2	1,1,1,2-Tetrachloroethane	ND	mg/kg	0.06
Trichlorofluoromethane	ND	mg/kg	0.12	4-Methyl-2-Pentanone (MIBK)	ND	mg/kg	0.60
1,1-Dichloroethene	ND	mg/kg	0.06	2-Hexanone	ND	mg/kg	0.60
Allyl Chloride	ND	mg/kg	0.06	1,2,3-Trichloropropane	ND	mg/kg	0.06
1,1-Dichloroethane	ND	mg/kg	0.06	1,1,2,2-Tetrachloroethane	ND	mg/kg	0.06
Trans-1,2-Dichloroethene	ND	mg/kg	0.06	Tetrachloroethene	ND	mg/kg	0.06
Chloroform	ND	mg/kg	0.06	Toluene	ND	mg/kg	0.06
2-Butanone (MEK)	ND	mg/kg	1.2	Chlorobenzene	ND	mg/kg	0.06
1,2-Dichloroethane	ND	mg/kg	0.06	Ethylbenzene	ND	mg/kg	0.06
Dibromomethane	ND	mg/kg	0.06	1,2-Dibromo 3-Chloropropane	ND	mg/kg	1.20
1,1,1-Trichloroethane	ND	mg/kg	0.06	Benzyl Chloride	ND	mg/kg	1.20
Carbon Tetrachloride	ND	mg/kg	0.06	Styrene	ND	mg/kg	0.06
Vinyl Acetate	ND	mg/kg	0.06	Xylenes	ND	mg/kg	0.18
Bromodichloromethane	ND	mg/kg	0.06	1,3-Dichlorobenzene	ND	mg/kg	0.06
1,2-Dichloropropane	ND	mg/kg	0.06	1,2-Dichlorobenzene	ND	mg/kg	0.06
Cis-1,3-Dichloropropene	ND	mg/kg	0.06	1,4-Dichlorobenzene	ND	mg/kg	0.06
Bromoacetone	ND	mg/kg	1.2				

Surrogate	Recovery (%)
1,2-Dichloroethane-d4	113
Toluene-d8	104
4-Bromofluorobenzene	90

DLR=Detection Reporting Limit

ND=None Detected at or above DLR

Advanced Technology
Laboratories

November 8, 1996

ELAP No.: 1838

Entech Analytical Labs, Inc.
525 Del Rey Avenue Suite E
Sunnyvale, CA 94086

ATTN: Mr. Mike Golden

Client's Project: Piers
Lab No.: 14012-001

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Edgar P. Caballero
Laboratory Director
EPC/ms

Enclosures

This cover letter is an integral part of this analytical report.

Client: Entech Analytical Labs, Inc.
Attn: Mr. Mike Golden

Client's Project: Piers
Date Sampled: ---
Date Received: ---
Matrix: ---
Units: ug/kg
Analyst Initials: DC

Lab No.: Method Blank √
Sample ID: ---
QC Batch No.: 968270S205
Extraction Date: 11/05/96
Date Analyzed: 11/06/96
Extraction Method: DC
Dilution Factor: 1

EPA 8270

Analyte	DLR	Results	Analyte	DLR	Results
Acenaphthene	330	ND	4,6-Dinitro-2-methylphenol	1650	ND
Acenaphthylene	330	ND	2,4-Dinitrophenol	330	ND
Anthracene	330	ND	2,4-Dinitrotoluene	330	ND
Benzoic Acid	1650	ND	2,6-Dinitrotoluene	330	ND
Benzo[a]anthracene	330	ND	Di-n-octylphthalate	330	ND
Benzo[a]pyrene	330	ND	Fluoranthene	330	ND
Benzo[b]fluoranthene	330	ND	Fluorene	330	ND
Benzo[g,h,i]perylene	330	ND	Hexachlorobenzene	330	ND
Benzo[k]fluoranthene	330	ND	Hexachlorobutadiene	330	ND
Benzyl Alcohol	660	ND	Hexachlorocyclopentadiene	660	ND
bis (2-Chloroethyl)ether	330	ND	Hexachloroethane	330	ND
bis(2-Chloroethoxy)methane	330	ND	Indeno[1,2,3-cd]pyrene	330	ND
bis(2-chloroisopropyl)ether	330	ND	Isophorone	330	ND
bis(2-Ethylhexyl)phthalate	330	ND	2-Methylnaphthalene	330	ND
4-Bromophenyl-phenyl ether	330	ND	2-Methylphenol	330	ND
Butylbenzylphthalate	330	ND	4-Methylphenol	330	ND
4-Chloro-3-methylphenol	660	ND	Naphthalene	330	ND
4-Chloroaniline	660	ND	2-Nitroaniline	1650	ND
2-Chloronaphthalene	330	ND	3-Nitroaniline	1650	ND
2-Chlorophenol	330	ND	4-Nitroaniline	1650	ND
4-Chlorophenyl-phenyl ether	330	ND	Nitrobenzene	330	ND
Chrysene	330	ND	2-Nitrophenol	330	ND
Dibenzofuran	330	ND	4-Nitrophenol	1650	ND
Dibenz[a,h,]anthracene	330	ND	n-Nitroso-di-n-propylamine	330	ND
1,2-Dichlorobenzene	330	ND	n-Nitrosodiphenylamine	330	ND
1,3-Dichlorobenzene	330	ND	Pentachlorophenol	1650	ND
1,4-Dichlorobenzene	330	ND	Phenanthrene	330	ND
2,4- Dichlorophenol	1650	ND	Phenol	330	ND
3,3'-Dichlorobenzidine	660	ND	Pyrene	660	ND
Diethylphthalate	330	ND	1,2,4-Trichlorobenzene	330	ND
2,4-Dimethylphenol	330	ND	2,4,5-Trichlorophenol	330	ND
Dimethylphthalate	330	ND	2,4,6-Trichlorophenol	330	ND
Di-n-butylphthalate	330	ND			

ND = Not Detected (Below DLR)
DLR = Detection Limit Reporting

Reviewed/Approved By: _____ Date: 11/8/96
Yun Pan
Department Supervisor

The cover letter is an integral part of this analytical report.

Client: Entech Analytical Labs, Inc.
Attn: Mr. Mike Golden

Client's Project: Piers
Date Sampled: 10/28/96
Date Received: 11/05/96
Matrix: Soil
Units: ug/kg
Analyst Initials: DC

Lab No.: 14012-001
Sample ID: C15406 (MW 2 @ 5.5)
QC Batch No.: 968270S205
Extraction Date: 11/05/96
Date Analyzed: 11/06/96
Extraction Method: DC
Dilution Factor: 1

EPA 8270

Analyte	DLR	Results	Analyte	DLR	Results
Acenaphthene	330	ND	4,6-Dinitro-2-methylphenol	1650	ND
Acenaphthylene	330	ND	2,4-Dinitrophenol	330	ND
Anthracene	330	ND	2,4-Dinitrotoluene	330	ND
Benzoic Acid	1650	ND	2,6-Dinitrotoluene	330	ND
Benzo[a]anthracene	330	ND	Di-n-octylphthalate	330	ND
Benzo[a]pyrene	330	ND	Fluoranthene	330	ND
Benzo[b]fluoranthene	330	ND	Fluorene	330	ND
Benzo[g,h,i]perylene	330	ND	Hexachlorobenzene	330	ND
Benzo[k]fluoranthene	330	ND	Hexachlorobutadiene	330	ND
Benzyl Alcohol	660	ND	Hexachlorocyclopentadiene	660	ND
bis (2-Chloroethyl)ether	330	ND	Hexachloroethane	330	ND
bis(2-Chloroethoxy)methane	330	ND	Indeno[1,2,3-cd]pyrene	330	ND
bis(2-chloroisopropyl)ether	330	ND	Isophorone	330	ND
bis(2-Ethylhexyl)phthalate	330	ND	2-Methylnaphthalene	330	ND
4-Bromophenyl-phenyl ether	330	ND	2-Methylphenol	330	ND
Butylbenzylphthalate	330	ND	4-Methylphenol	330	ND
4-Chloro-3-methylphenol	660	ND	Naphthalene	330	ND
4-Chloroaniline	660	ND	2-Nitroaniline	1650	ND
2-Chloronaphthalene	330	ND	3-Nitroaniline	1650	ND
2-Chlorophenol	330	ND	4-Nitroaniline	1650	ND
4-Chlorophenyl-phenyl ether	330	ND	Nitrobenzene	330	ND
Chrysene	330	ND	2-Nitrophenol	330	ND
Dibenzofuran	330	ND	4-Nitrophenol	1650	ND
Dibenz[a,h,]anthracene	330	ND	n-Nitroso-di-n-propylamine	330	ND
1,2-Dichlorobenzene	330	ND	n-Nitrosodiphenylamine	330	ND
1,3-Dichlorobenzene	330	ND	Pentachlorophenol	1650	ND
1,4-Dichlorobenzene	330	ND	Phenanthrene	330	ND
2,4- Dichlorophenol	1650	ND	Phenol	330	ND
3,3'-Dichlorobenzidine	660	ND	Pyrene	660	ND
Diethylphthalate	330	ND	1,2,4-Trichlorobenzene	330	ND
2,4-Dimethylphenol	330	ND	2,4,5-Trichlorophenol	330	ND
Dimethylphthalate	330	ND	2,4,6-Trichlorophenol	330	ND
Di-n-butylphthalate	330	ND			

ND = Not Detected (Below DLR)
DLR = Detection Limit Reporting

Reviewed/Approved By: _____ Date: 11/8/96
Yun Pan
Department Supervisor

The cover letter is an integral part of this analytical report.

Spike Recovery and RPD Summary Report - SOIL(UG/KG)

Method : C:\HPCHEM\1\METHODS\8270-3.M
Title : 8270 TCL
Last Update : Wed Nov 06 13:18:33 1996
Response via : Initial Calibration

Non-Spiked Sample: S04694.D

	Spike Sample	Spike Duplicate Sample
File ID :	SS4695.D	SS4696.D
Sample :	14012-1 MS 30G-1ML E-11/05/96	14012-1 MSD 30G-1ML E-11/05/96
Acq Time:	6 Nov 96 2:26 pm	6 Nov 96 3:21 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
Phenol	0.0	200	139	130	69	65	7	35	26- 90
2-Chlorophenol	0.0	200	142	132	71	66	7	50	25-102
1,4-Dichlorobenzene	0.0	100	55	50	55	50	8	27	28-104
N-Nitroso-di-n-propy	0.0	100	75	69	74	69	8	38	41-126
1,2,4-Trichlorobenze	0.0	100	66	62	66	62	7	23	38-107
4-Chloro-3-methylphe	0.0	200	143	138	72	69	4	33	26-103
Acenaphthene	0.0	100	64	60	64	60	7	19	31-137
4-Nitrophenol	0.0	200	123	113	61	56	8	50	11-114
2,4-Dinitrotoluene	0.0	100	70	66	70	66	5	47	28- 89
Pentachlorophenol	0.0	200	118	111	59	56	6	47	17-109
Pyrene	0.0	100	92	87	92	87	6	36	35-142

QC BATCH # :968270S205

Reviewed and Approved by: _____ Date: 11/8/96

Yun Pan
Organics Supervisor

Advanced Technology Laboratories
1510 E. 33rd Street Signal Hill, CA 90807 Tel: 310 989-4045 Fax: 310 989-4040

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Subcontract Chain of Custody

4 DAYS TAT

Subcontract Lab: ATL		Date Sent: 11/04/96	Project Name: Piers		Due Date: 11/08/96	
Sample ID and Source	Matrix	Required Analysis	Date Taken	Time Taken	Containers	Pres?
C/5406 (MW2@5.5)	Soil	8270	10/28/96	11:36	4oz jar	

Relinquished By:	Received By:	Date:	Time:
NTKAZO VIA CAL OVERNIGHT		11/04/96	5:NT96
Relinquished By:	Received By: Diane Galvan	Date: 11-5-96	Time: 1530
Relinquished By:	Received By:	Date:	Time:

Notes: _____

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • Telephone: (408) 735-1550 (800) 287-1799 • Fax: (408) 735-1554

Chain of Custody/Analysis Work Order

Client: Piers Environmental
Address: 1111 N. Winchester

Contact: Stuart Solomon
Telephone #: 559-1248
Date Received: 11-26-96
Turn Around: Standard

Project ID: Depot Rd.
Purchase Order #:

Sampler/Company:	Telephone #:
Piers	559-1248

Special Instructions/Comments

LAB USE ONLY

Samples arrived chilled and intact:
Yes No
Notes:

Sample Information								Requested Analysis							
Lab #	Sample ID	Grab/ Composite	Matrix	Date Collected	Time Collected	Pres.	Sample Container	EPA-G BTEX	H18.1	8270	8240				
C16580	MW#1		water	11-26-96			2-40ml	X							
C16581	MW#2		"	"			2-40ml, 2L	X	X	X	X				
C16582	MW#3		"	"			2-1L Amber		X						

Relinq. By:	Received By:	Date 11-26-96	Time 1:25 pm
Relinq By:	Received By:	Date	Time
Relinq By:	Received By:	Date	Time

Entech Analytical Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Piers Environmental Services
100 N. Winchester Blvd., Ste 230
Santa Clara, CA 95050
Attn: Stu Solomon

Date:	12/5/96
Date Received:	11/26/96
Date Analyzed:	11/27-12/2/96
Project:	Depot Rd.
Sampled By:	Client

Certified Analytical Report

Water Sample Analysis:

Sample ID	Sample Date	Sample Time	Lab#	DF	TPH-Gas	Benzene	Toluene	Ethyl Benzene	Xylene
MW #1	11/26/96		C16580	1	ND	ND	ND	ND	ND
MW #2	11/26/96		C16581	1	ND	ND	ND	ND	ND

1. DLR=DF x PQL
2. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #1369)

Summary of Methods and Detection Limits:

	TPH-Gas	Benzene	Toluene	Ethylbenzene	Xylenes
EPA Method #	8015M	8020	8020	8020	8020
Units	µg/liter	µg/liter	µg/liter	µg/liter	µg/liter
PQL	50.0 µg/liter	0.5 µg/liter	0.5 µg/liter	0.5 µg/liter	0.5 µg/liter

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

Entech Analytical Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Piers Environmental Services
100 N. Winchester Blvd., Ste 230
Santa Clara, CA 95050
Attn: Stu Solomon

Date:	12/5/96..
Date Received:	11/26/96
Date Analyzed:	11/27-12/5/96
Project:	Depot Rd.
Sampled By:	Client

Certified Analytical Report

Water Sample Analysis:

Sample ID	*Sample Date*	*Sample Time*	*Lab #*	**Volatile Organics**	**Semivolatile Organics**	**TRPH**
MW #2	11/26/96		C16581	**ND**	**32**	**ND**
MW #3	11/26/96		C16582	**na**	**na**	**ND**

1. DLR=DF x PQL
2. na: not analyzed
3. EPA 8240 analysis performed by Entech Analytical Labs, Inc.(CAELAP #2161); see EPA 8240 Analysis Worksheet for individual compounds, detection limits, and analysis date
4. EPA 8270 analysis performed by Advanced Technology Laboratories (CAELAP #1838); see ATL report for individual compounds, detection limits, and analysis dates
5. EPA 418.1 analysis performed by Entech Analytical Labs, Inc. (CAELAP #1369)

Test Methods:

Test	*EPA Method #*	*Units*	*PQL*
Volatile Organics	8240	µg/liter	See Worksheet
Semivolatile Organics	8270	µg/liter	See Report
TRPH	418.1	mg/liter	5.0 mg/l

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

Entech Analytical Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Certified Analytical Report: EPA Method 8240

Client:	Piers Environmental Services
Sample Matrix:	Water
Lab #:	C16581
Sample ID:	MW #2

Date:	12/5/96
Date Received:	11/26/96
Date Analyzed	11/27/96
Dilution Factor	1

Constituent	Concentration	Units	PQL	Constituent	Concentration	Units	PQL
Chloromethane	ND	µg/liter	5.0	Trichloroethene	ND	µg/liter	5.0
Bromomethane	ND	µg/liter	5.0	Benzene	ND	µg/liter	5.0
Dichlorodifluoromethane	ND	µg/liter	5.0	Chlorodibromomethane	ND	µg/liter	5.0
Vinyl Chloride	ND	µg/liter	10	1,1,2-Trichloroethane	ND	µg/liter	5.0
Chloroethane	ND	µg/liter	10	Trans-1,3-Dichloropropene	ND	µg/liter	5.0
Iodomethane	ND	µg/liter	100	1,2-Dibromoethane (EDB)	ND	µg/liter	5.0
Methylene Chloride	ND	µg/liter	20	2-Chloroethylvinyl Ether	ND	µg/liter	10
Acetone	ND	µg/liter	100	Bromoform	ND	µg/liter	5.0
Carbon Disulfide	ND	µg/liter	100	1,1,1,2-Tetrachloroethane	ND	µg/liter	5.0
Trichlorofluoromethane	ND	µg/liter	10	4-Methyl-2-Pentanone (MIBK)	ND	µg/liter	50
1,1-Dichloroethene	ND	µg/liter	5.0	2-Hexanone	ND	µg/liter	50
Allyl Chloride	ND	µg/liter	5.0	1,2,3-Trichloropropane	ND	µg/liter	5.0
1,1-Dichloroethane	ND	µg/liter	5.0	1,1,2,2-Tetrachloroethane	ND	µg/liter	5.0
Trans-1,2-Dichloroethene	ND	µg/liter	5.0	Tetrachloroethene	ND	µg/liter	5.0
Chloroform	ND	µg/liter	5.0	Toluene	ND	µg/liter	5.0
2-Butanone (MEK)	ND	µg/liter	100	Chlorobenzene	ND	µg/liter	5.0
1,2-Dichloroethane	ND	µg/liter	5.0	Ethylbenzene	ND	µg/liter	5.0
Dibromomethane	ND	µg/liter	5.0	1,2-Dibromo 3-Chloropropane	ND	µg/liter	100
1,1,1-Trichloroethane	ND	µg/liter	5.0	Benzyl Chloride	ND	µg/liter	100
Carbon Tetrachloride	ND	µg/liter	5.0	Styrene	ND	µg/liter	5.0
Vinyl Acetate	ND	µg/liter	50	Xylenes	ND	µg/liter	15
Bromodichloromethane	ND	µg/liter	5.0	1,3-Dichlorobenzene	ND	µg/liter	5.0
1,2-Dichloropropane	ND	µg/liter	5.0	1,2-Dichlorobenzene	ND	µg/liter	5.0
Cis-1,3-Dichloropropene	ND	µg/liter	5.0	1,4-Dichlorobenzene	ND	µg/liter	5.0
Bromoacetone	ND	µg/liter	100				

Surrogate	Recovery (%)
1,2-Dichloroethane-d4	99
Toluene-d8	99
4-Bromofluorobenzene	100

1. DLR=PQL x DF
2. Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2161)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #C16581 and should not be reproduced except in full without the written consent of Entech Analytical Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography

QC Batch #: *GBG5961202*
Matrix: Water
Units: µg/L

Date Analyzed: 12/02/96
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB µg/L	SA µg/L	SR µg/L	SP µg/L	SP % R	SPD µg/L	SPD %R	RPD	QC LIMITS (ADVISORY) RPD	QC LIMITS (ADVISORY) %R
Benzene	8020	<0.5	25	ND	26.5	106	26.2	105	1.2	25	50-150
Toluene	8020	<0.5	25	ND	24.8	99	24.7	99	0.4	25	50-150
Ethyl Benzene	8020	<0.5	25	ND	25.7	103	25.6	102	0.4	25	50-150
Xylenes	8020	<0.5	75	ND	75.0	100	74.0	99	1.3	25	50-150

Definition of Terms:

na: Not Analyzed in QC batch
MB: Method Blank
SA: Spike Added
SR: Sample Result
RPD(%): Duplicate Analysis - Relative Percent Difference
SP: Spike Result
SP (%R): Spike % Recovery
SPD: Spike Duplicate Result
SPD (%R): Spike % Recovery
NC: Not Calculated

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

QC Batch ID: WTRP961204
Matrix: Water
Units: mg/L

Date Analyzed: 12/04/96

PARAMETER	SA mg/L	SR mg/L	SP mg/L	SP PR	SPD mg/L	SPD PR	RPD	QC LIMITS RPD	QC LIMITS PR
TRPH	20	0	16.3	82	17.9	90	9.4	25	70-130

Definition of Terms:

RPD: Relative Percent Difference (Duplicate Analyses)
SA: Spike Added
SR: Sample Result
SP: Spike Result
SP (PR): Spike % Recovery
SPD: Spike Duplicate Result
SPD (PR): Spike Duplicate % Recovery

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography

QC Batch #: GBG5961127
Matrix: Water
Units: µg/L

Date Analyzed: 11/27/96
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB µg/L	SA µg/L	SR µg/L	SP µg/L	SP % R	SPD µg/L	SPD %R	RPD	QC LIMITS (ADVISORY) RPD	QC LIMITS (ADVISORY) %R
Benzene	8020	<0.5	25	ND	23.6	94	24.2	97	2.3	25	50-150
Toluene	8020	<0.5	25	ND	22.9	91	24.2	97	5.7	25	50-150
Ethyl Benzene	8020	<0.5	25	ND	23.8	95	24.9	99	4.4	25	50-150
Xylenes	8020	<0.5	75	ND	78.0	104	81.0	108	3.8	25	50-150

Definition of Terms:

- na: Not Analyzed in QC batch
- MB: Method Blank
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R): Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R): Spike % Recovery
- NC: Not Calculated

Advanced Technology Laboratories

December 3, 1996

ELAP No.: 1838

Entech Analytical Labs, Inc.
525 Del Rey Avenue Suite E
Sunnyvale, CA 94086

ATTN: Mr. Mike Golden

Client's Project: Piers
Lab No.: 14379-001

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Edgar P. Caballero
Laboratory Director
EPC/ms

Enclosures

This cover letter is an integral part of this analytical report.

Mailing Address: P.O. Box 9108 Newport Beach, CA 92658
1510 E. 33rd Street Signal Hill, CA 90807 Tel: 310 989-4045 Fax: 310 989-4040

Client: Entech Analytical Labs, Inc.
Attn: Mr. Mike Golden

'ient's Project: Piers
ate Received: ——
Date Sampled: ——
Matrix: ——
Units: ug/L
Analyst Initials: DC

Lab No.: Method Blank
Sample ID:
QC Batch No.: 968270W219
Extraction Date: 11/27/96
Date Analyzed: 11/27/96
Extraction Method: 3510
Dilution Factor: 1.0

EPA 8270

Analyte	DLR	Results	Analyte	DLR	Results
Acenaphthene	10	ND	4,6-Dinitro-2-methylphenol	10	ND
Acenaphthylene	10	ND	2,4-Dinitrophenol	10	ND
Anthracene	10	ND	2,4-Dinitrotoluene	10	ND
Benzoic Acid	10	ND	2,6-Dinitrotoluene	10	ND
Benzo[a]anthracene	10	ND	Di-n-octylphthalate	10	ND
Benzo[a]pyrene	10	ND	Fluoranthene	10	ND
Benzo[b]fluoranthene	10	ND	Fluorene	10	ND
Benzo[g,h,i]perylene	10	ND	Hexachlorobenzene	10	ND
Benzo[k]fluoranthene	10	ND	Hexachlorobutadiene	10	ND
Benzyl Alcohol	10	ND	Hexachlorocyclopentadiene	20	ND
bis (2-Chloroethyl)ether	10	ND	Hexachloroethane	10	ND
bis(2-Chloroethoxy)methane	10	ND	Indeno[1,2,3-cd]pyrene	10	ND
bis(2-chloroisopropyl)ether	10	ND	Isophorone	10	ND
bis(2-Ethylhexyl)phthalate	10	ND	2-Methylnaphthalene	10	ND
4-Bromophenyl-phenyl ether	10	ND	2-Methylphenol	10	ND
Butylbenzylphthalate	10	ND	4-Methylphenol	10	ND
4-Chloro-3-methylphenol	10	ND	Naphthalene	10	ND
4-Chloroaniline	10	ND	2-Nitroaniline	10	ND
2-Chloronaphthalene	10	ND	3-Nitroaniline	10	ND
2-Chlorophenol	10	ND	4-Nitroaniline	10	ND
4-Chlorophenyl-phenyl ether	10	ND	Nitrobenzene	10	ND
ırysene	10	ND	2-Nitrophenol	10	ND
ibenzofuran	10	ND	4-Nitrophenol	10	ND
Dibenz[a,h,]anthracene	10	ND	n-Nitroso-di-n-propylamine	10	ND
1,2-Dichlorobenzene	10	ND	n-Nitrosodiphenylamine	10	ND
1,3-Dichlorobenzene	10	ND	Pentachlorophenol	10	ND
1,4-Dichlorobenzene	10	ND	Phenanthrene	10	ND
2,4- Dichlorophenol	10	ND	Phenol	10	ND
3,3'-Dichlorobenzidine	10	ND	Pyrene	10	ND
Diethylphthalate	10	ND	1,2,4-Trichlorobenzene	10	ND
2,4-Dimethylphenol	10	ND	2,4,5-Trichlorophenol	10	ND
Dimethylphthalate	10	ND	2,4,6-Trichlorophenol	10	ND
Di-n-butylphthalate	10	ND			

ND = Not Detected (Below DLR)
DLR = Detection Limit Report

Reviewed/Approved By: _____ Date: 12/3/96
Yun Pan
Department Supervisor

The cover letter is an integral part of this analytical report.

Client:	**Entech Analytical Labs, Inc.**
Attn:	**Mr. Mike Golden**

Client's Project:	**Piers**	**Lab No.:**	**14379-001**
Date Received:	**11/27/96**	**Sample ID:**	**C16581 (MW #2)**
Date Sampled:	**11/26/96**	**QC Batch No.:**	**968270W219**
Matrix:	**Water**	**Extraction Date:**	**11/27/96**
Units:	**ug/L**	**Date Analyzed:**	**12/02/96**
Analyst Initials:	**DC**	**Extraction Method:**	**3510**
		Dilution Factor:	**1.0**

EPA 8270

Analyte	DLR	Results	Analyte	DLR	Results
Acenaphthene	10	ND	4,6-Dinitro-2-methylphenol	10	ND
Acenaphthylene	10	ND	2,4-Dinitrophenol	10	ND
Anthracene	10	ND	2,4-Dinitrotoluene	10	ND
Benzoic Acid	10	ND	2,6-Dinitrotoluene	10	ND
Benzo[a]anthracene	10	ND	Di-n-octylphthalate	10	ND
Benzo[a]pyrene	10	ND	Fluoranthene	10	ND
Benzo[b]fluoranthene	10	ND	Fluorene	10	ND
Benzo[g,h,i]perylene	10	ND	Hexachlorobenzene	10	ND
Benzo[k]fluoranthene	10	ND	Hexachlorobutadiene	10	ND
Benzyl Alcohol	10	ND	Hexachlorocyclopentadiene	20	ND
bis (2-Chloroethyl)ether	10	ND	Hexachloroethane	10	ND
bis(2-Chloroethoxy)methane	10	ND	Indeno[1,2,3-cd]pyrene	10	ND
bis(2-chloroisopropyl)ether	10	ND	Isophorone	10	ND
bis(2-Ethylhexyl)phthalate	10	ND	2-Methylnaphthalene	10	ND
4-Bromophenyl-phenyl ether	10	ND	2-Methylphenol	10	ND
Butylbenzylphthalate	10	ND	4-Methylphenol	10	ND
4-Chloro-3-methylphenol	10	ND	Naphthalene	10	ND
4-Chloroaniline	10	ND	2-Nitroaniline	10	ND
2-Chloronaphthalene	10	ND	3-Nitroaniline	10	ND
2-Chlorophenol	10	ND	4-Nitroaniline	10	ND
4-Chlorophenyl-phenyl ether	10	ND	Nitrobenzene	10	ND
Chrysene	10	ND	2-Nitrophenol	10	ND
Dibenzofuran	10	ND	4-Nitrophenol	10	ND
Dibenz[a,h,]anthracene	10	ND	n-Nitroso-di-n-propylamine	10	ND
1,2-Dichlorobenzene	10	ND	n-Nitrosodiphenylamine	10	ND
1,3-Dichlorobenzene	10	ND	Pentachlorophenol	10	ND
1,4-Dichlorobenzene	10	ND	Phenanthrene	10	ND
2,4- Dichlorophenol	10	ND	Phenol	10	ND
3,3'-Dichlorobenzidine	10	ND	Pyrene	10	ND
Diethylphthalate	10	ND	1,2,4-Trichlorobenzene	10	ND
2,4-Dimethylphenol	10	ND	2,4,5-Trichlorophenol	10	ND
Dimethylphthalate	10	ND	2,4,6-Trichlorophenol	10	ND
Di-n-butylphthalate	10	32			

ND = Not Detected (Below DLR)
DLR = Detection Limit Report

Reviewed/Approved By: _____ **Date:** 12/3/96

Yun Pan
Department Supervisor

The cover letter is an integral part of this analytical report.

Spike Recovery and RPD Summary Report - WATER (ug/L)

Method : C:\HPCHEM\1\METHODS\8270-3.M
Title : 8270 TCL
Last Update : Fri Nov 15 14:33:16 1996
Response via : Initial Calibration

Non-Spiked Sample: SB4829.D

	Spike Sample	Spike Duplicate Sample
File ID :	SS4835.D	SS4836.D
Sample :	BLK MS 1L-1ML E-11/27/96	BLK MSD 1L-1ML E-11/27/96
Acq Time:	2 Dec 96 1:27 pm	2 Dec 96 2:26 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
Phenol	0.0	200	53	53	27	26	1	42	12-110
2-Chlorophenol	0.0	200	99	98	50	49	1	40	27-123
1,4-Dichlorobenzene	0.0	100	50	50	50	50	1	28	36- 97
N-Nitroso-di-n-propy	0.0	100	63	61	63	61	3	38	41-116
1,2,4-Trichlorobenze	0.0	100	60	59	60	59	1	28	39- 98
4-Chloro-3-methylphe	0.0	200	124	124	62	62	0	42	23- 97
Acenaphthene	0.0	100	70	70	70	70	0	31	46-118
4-Nitrophenol	0.0	200	61	62	31	31	1	50	10- 80
2,4-Dinitrotoluene	0.0	100	74	73	74	73	1	38	24- 94
Pentachlorophenol	0.0	200	138	138	69	69	1	50	9-103
Pyrene	0.0	100	75	75	75	75	0	31	26-127

QC BATCH # :968270W219

Reviewed and Approved by: _____ Date: 12/3/96
Yun Pan
Organics Supervisor

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Subcontract Chain of Custody

Subcontract Lab: ATL		Date Sent: 11/26/95	Project Name: Piers		Due Date: 12/04/96	
Sample ID and Source	Matrix	Required Analysis	Date Taken	Time Taken	Containers	Pres?
C1681 (MW#2)	Water	8270	11/26/96		1-Lit Amb	

Relinquished By:	Received By:	Date:	Time:
VTSAMO VIA CAL OVERNIGHT		11/26/96	5:05pm
Relinquished By:	Received By: Diane Gaiwan	Date: 11-27-96	Time: 09:15
Relinquished By:	Received By:	Date:	Time:

Notes: _____

APPENDIX D

Well Development and Groundwater Sampling Information Sheets

PIERS Environmental Services
100 N. Winchester
Campbell, CA 95126
(408) 559-1246
(408) 559-1228 - Fax

Water-Quality Sampling Information

Date 11/25/96
Project No.
Sample No. MWFF1

Project Name Depot Rd.
Address
Samplers Name Chris Solomon
Sampling Method Developing Well
Analyses Request

Number/Types of
Sample Bottels

Method of Shipment

Well Location Map

Well Number MWFF1
Well Diameter 2"
Depth to Water (ft.) 5.93
Total Well Depth (ft.) 15.04
Height of Water (ft) 9.11
Water Volume in Well (gal) 1.45

2 - inch casing = 0.16 gal/ft
4 - inch casing = 0.65 gal/ft
5 - inch casing = 1.02 gal/ft
6 - inch casing = 1.47 gal/ft

TIME	DEPTH TO WATER	VOLUME WITH-DRAWN	TEMP. (F)	pH (S.U)	COND. (mhos/cm)	PURGE VOLUMES		REMARKS
10:11	5.93	1.5	67.1	8.31	9.30	X	1	
10:15	—	3.0	66.2	7.13	10.74	X	2	
10:20	—	4.5	66.1	7.44	9.72	X	3	
10:28	—	6.0	66.1	7.19	9.68	X	4	
10:32	—	7.5	66.3	7.68	9.84	X	5	
10:34	—	9.0	65.7	7.14	10.21	X	6	
10:39	7.12	10.5	65.4	7.34	9.74	X	7	
10:43	—	12.0	66.1	7.38	9.34	X	8	
10:44	—	13.5	66.2	7.12	9.12	X	9	
10:52	6.94	15.0	65.1	7.72	9.97	X	10	stabil

PIERS Environmental Services
100 N. Winchester
Campbell, CA 95126
(408) 558-1248
(408) 559-1228 : Fax

Water-Quality Sampling Information

Date 11-25-96
Project No.
Sample No. MW#2

Project Name Depot Rd
Address
Samplers Name Chris Solomon
Sampling Method Developing Well
Analyses Request

Number/Types of
Sample Bottels

Method of Shipment

Well Location Map

Well Number MW#2 ✓
Well Diameter 2"
Depth to Water (ft.) 6.94
Total Well Depth (ft.) 15.01
Height of Water (ft) 8.07
Water Volume in Well (gal) 1.29 gal

2 - inch casing = 0.16 gal/ft
4 - inch casing = 0.65 gal/ft
5 - inch casing = 1.02 gal/ft
6 - inch casing = 1.47 gal/ft

TIME	DEPTH TO WATER	VOLUME WITH-DRAWN	TEMP. (F)	pH (S.U)	COND. (mhos/cm)	PURGE VOLUMES		REMARKS
11:15	6.94	1.5	66.4	9.12	10.81	X	1	
11:21	—	3.0	70.12	9.34	11.34	X	2	
11:24	—	4.5	68.4	9.84	11.12	X	3	
11:28	—	6.0	67.2	9.87	11.38	X	4	
11:31	—	7.5	66.1	9.72	11.39	X	5	
11:33	—	9.0	66.3	9.78	10.12	X	6	
11:37	7.32	10.5	66.4	9.82	10.13	X	7	
11:41	—	12.0	66.3	9.81	10.32	X	8	
11:46	—	13.5	66.6	9.81	10.12	X	9	
11:59	7.11	15.0	66.9	9.[illegible]	10.[illegible]	X	10	Stabel

PIERS Environmental Services
100 N. Winchester
Campbell, CA 95125
(408) 559-1248
(408) 559-1228 - Fax

Water-Quality Sampling Information

Date 11-26-96
Project No.
Sample No. MW#1

Project Name Depot Rd.
Address
Samplers Name Chris Solomon
Sampling Method Disp Bailer
Analyses Request

Number/Types of
Sample Bottels

Method of Shipment Packed on Ice

Well Location Map

Well Number MW#1 ✓
Well Diameter 2"
Depth to Water (ft.) 5.96'
Total Well Depth (ft.) 15.07'
Height of Water (ft) 9.11'
Water Volume in Well (gal) 1.45 Gal

2 - inch casing = 0.16 gal/ft
4 - inch casing = 0.65 gal/ft
5 - inch casing = 1.02 gal/ft
6 - inch casing = 1.47 gal/ft

TIME	DEPTH TO WATER	VOLUME WITH-DRAWN	TEMP. (F)	pH (S.U)	COND. (mhos/cm)	PURGE VOLUMES		REMARKS
	5.96	0	61.2	8.41	9.12	X	0	No Odor
	↓	1.5	58.4	7.91	10.34	X	1	
	↓	3.0	57.3	7.34	9.91	X	2	turbid
	↓	4.5	58.4	7.11	9.84	X	3	
	6.40	6.0	58.4	7.34	9.80	X	4	stable

PIERS Environmental Services
1763 N. Winchester
Campbell, CA 95126
(408) 558-1248
(408) 558-1228 - Fax

Water-Quality Sampling Information

Date 11-26-96
Project No.
Sample No. MW#2

Project Name Depot Rd
Address
Samplers Name Chris Soliman
Sampling Method Disp. Bailer
Analyses Request

Number/Types of
Sample Bottels

Method of Shipment Packed on Ice

Well Location Map

Well Number MW#2
Well Diameter 2"
Depth to Water (ft.) 7.11'
Total Well Depth (ft.) 15.26'
Height of Water (ft) 8.15
Water Volume in Well (gal) 1.29 gal

2 - inch casing = 0.16 gal/ft
4 - inch casing = 0.65 gal/ft
5 - inch casing = 1.02 gal/ft
6 - inch casing = 1.47 gal/ft

TIME	DEPTH TO WATER	VOLUME WITH - DRAWN	TEMP. (F)	pH (S.U)	COND. (mhos/cm)	PURGE VOLUMES		REMARKS
	7.11'	0	68.4	8.41	9.34	x	0	No Odor
	/	1.5	69.1	7.34	9.11	x	1	
	/	3.0	67.3	8.12	9.34	x	2	
	/	4.5	61.1	8.02	9.11	x	3	
	8.00'	6.0	60.2	7.01	9.11	x	4	Stable

PIERS ENVIRONMENTAL SERVICES *100 N. Winchester Blvd., Suite 230, Santa Clara, CA 9505* **408-550-1248**

WATER-QUALITY SAMPLING INFORMATION

Project Name: DEPOT ROAD
Address: 3744
Samplers Name: S. SOLOMON
Sampling Location:
Sampling Method:
Analyses Requstd:
Number/Types of Sample Bottles:
Method of Shipment:

Date: 11-26-96
Project No.:
Sample No: MW#3

Well Location Map

Groundwater Well Data

Well No.: MW-3
Well Diameter (in.): 6
Well Head Elevation: 10.06
Depth to Water (Static - ft.): 6.62
Total Well Depth (ft.): 30.51'
Height of Water Column (in ft.): 23.86
Water Volume in Well (gal): 35.07
Water in Well Box ?: No
Silt Removal Necessary?: No
Well Depth After Silt Removal:

2-inch casing = 0.16 gal/ft
4-inch casing = 0.65 gal/ft
5-inch casing = 1.02 gal/ft
6-inch casing = 1.47 gal/ft

TIME	DEPTH TO WATER (feet)	VOLUME WITHDRAWN	TEMP. (F)	pH (s.u.)	Cond. (mhos/cm)	OTHER X	OTHER Vol.	REMARKS
	6.62	0	67.4	8.33	9.61	X	0	
	/	35	68.1	7.91	9.43	X	1	
	/	71	68.0	7.99	9.21	X	2	
	/	105	66.9	8.10	9.20	X	3	
	8.25	140	62.2	8.02	9.21	X	4	

COMMENTS:

APPENDIX E

Well Survey Data and Groundwater Gradient Map

JAMES RASP P.E.
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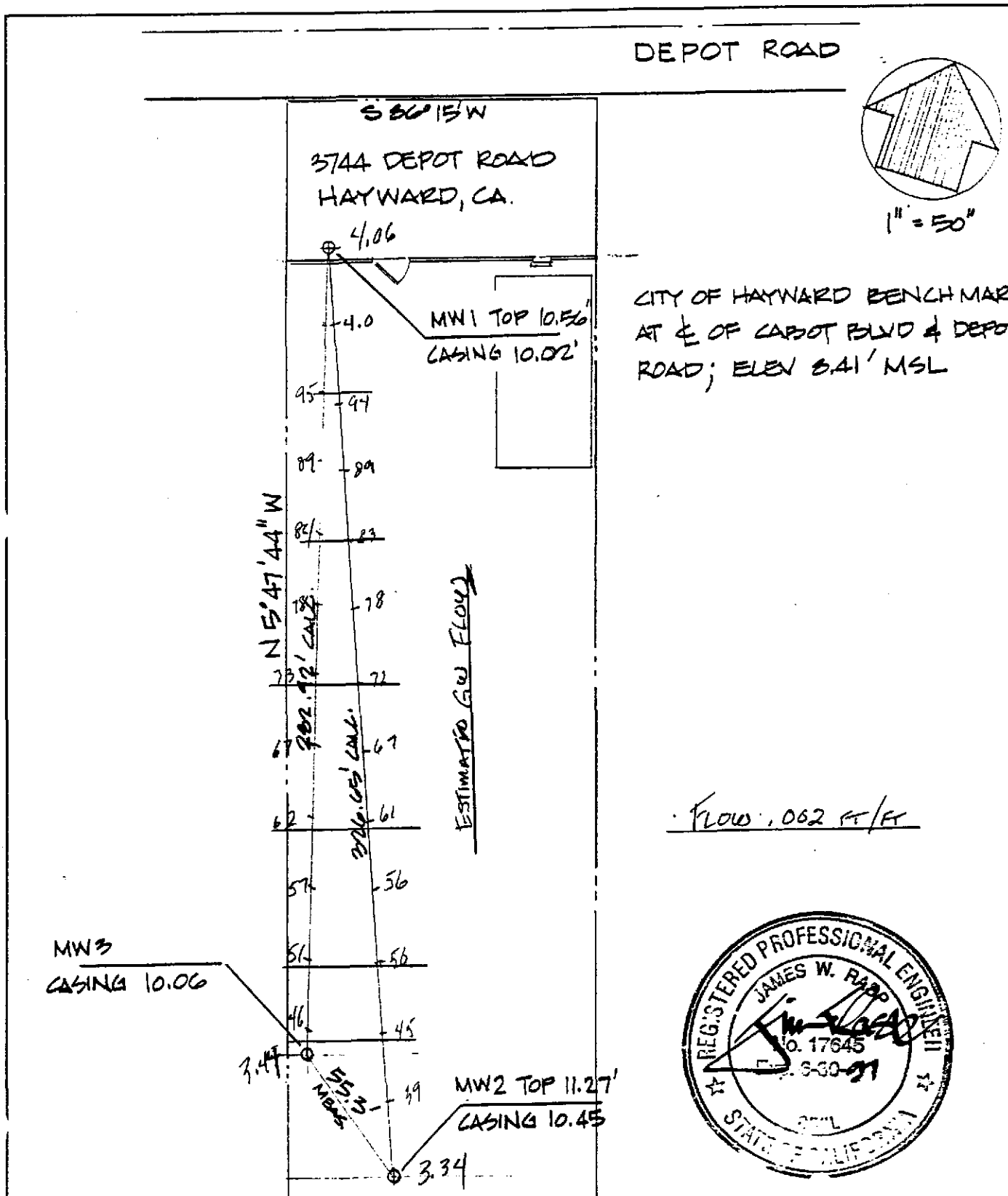
5134 Elrose Avenue
San Jose, California 95124
(408) 448-6768

JOB 96121 / PIERS ENVIRONMENTAL
SHEET NO. 1 OF 1
CALCULATED BY JRASP DATE 12/96
CHECKED BY _____ DATE _____
SCALE 1" = 50'



JAMES WILLIAM RASP P.E.
5134 Elrose Avenue
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(408) 448-6768

December 30, 1996
Project No. 96121

Mr. Stuart G. Solomon
Piers Environmental Services
100 N. Winchester Blvd., Ste. 230
Santa Clara, California 95050

Subject: Monitoring Wells at
3744 Depot Road, Hayward, California

Dear Mr. Solomon,

At your direction, on December 26, 1996, we determined the elevations and locations on the 3 monitoring wells located on the subject property. Elevations were based on the City of Hayward benchmark located at the intersection of Depot Road and Cabot Boulevard at an elevation of 8.41 feet MSL. The elevations and distances between the wells are listed below and are shown on the attached sketch.

MW-1	10.56 ft.	Top of cover
	10.02 ft.	PVC casing
MW-2	11.27 ft.	Top of cover
	10.45 ft.	PVC Casing
MW-3	-	No cover
	10.06 ft.	Steel casing

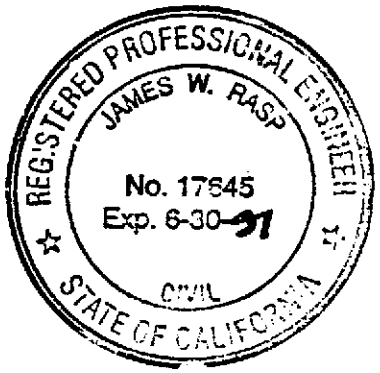
MW-1 to MW-2	326.65 ft.
MW-1 to MW-3	282.92 ft.
MW-2 to MW-3	55.30 ft.

The elevations of the casings were taken on the north side of the casings. These locations were marked in black on the casings but we are not sure the mark can be seen on the steel casing for MW-3. The caps on the casings were not locked and there was no cap on the casing for MW-3. As you indicated, MW-3 was not contained in a standard monitoring well cover. The hole in the concrete paving for the casing was covered by a circular plywood cover and casing itself was covered by a plastic, 5 gallon bucket lid.

We thank you for this opportunity to continue to be of service to you. Should you have any questions concerning our work please do not hesitate to contact us.

Very truly yours,

James W. Rasp P.E.



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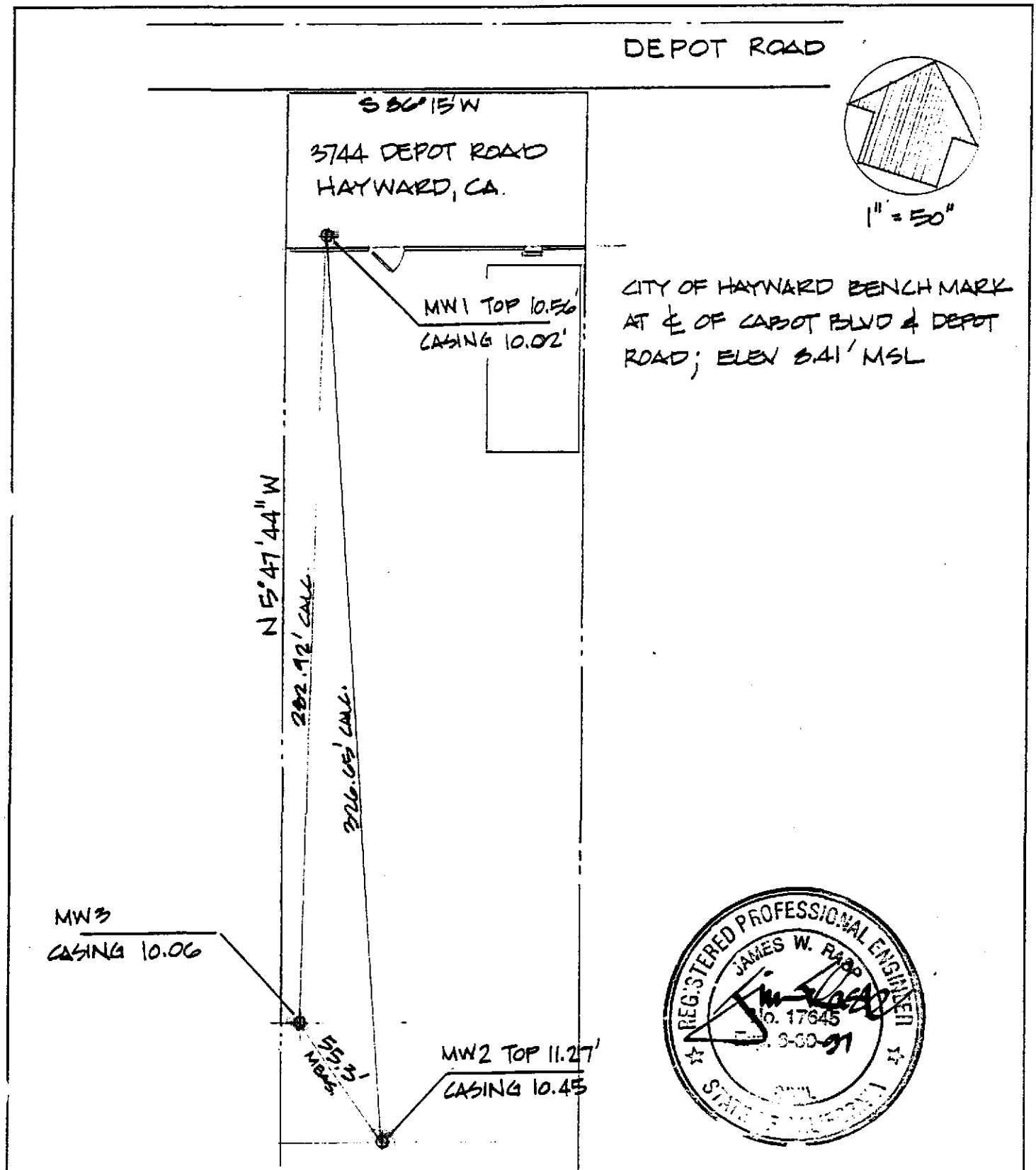
JOB 96121 / PIERS ENVIRONMENTAL
SHEET NO. 1 OF 1
CALCULATED BY J RASP DATE 12/96
CHECKED BY _____ DATE _____
SCALE 1" = 50'



APPENDIX F

PIERS Sampling Protocol

PIERS ENVIRONMENTAL SERVICES, INC.

DRILLING, SEALING, WELL CONSTRUCTION AND SAMPLING PROTOCOL
Last Rev. 7/95

Exploratory Boring Drilling and Sealing

Exploratory boring and well construction, and borehole sealing procedures follow guidelines recommended by the USEPA, California Regional Water Quality Control Board, and modified as required by City, local or water district agencies. Drilling is performed only under approved permits and boreholes are sealed upon completion. Hand augured bore holes are installed using a 3 ½ inch diameter stainless steel hollow core hand auger which has been steam-cleaned or cleaned in detergent and water, rinsed with clean tap water and finally rinsed with or distilled water, and air-dried prior to use.

Soil Sampling Procedures

1. Driven (or hydraulically pushed) soil sampling will commence at a depth of 5 feet below surface grade. The samples will be taken at 5 foot increments and at intervals of geologic interest or obvious contamination. Additional sampling and/or continuous coring may be done at the discretion of the supervising geologist. All logging will be done using the Unified Soil Classification System, together with pertinent geologic observations.

2. Soil sampling tools (split spoons, cores, etc.) will be disassembled, steam-cleaned or cleaned in detergent and water, rinsed with clean tap water and finally rinsed with distilled water, and air-dried prior to taking each sample. The cleaned tools will then be reassembled with similarly cleaned, dry brass sample liners and carefully lowered into the hollow stem augers for the collection of the next sample. The drill rig will be decontaminated as needed and at the discretion of the field personnel.

3. When sampling stockpile soils or during excavations, the soil sample will be collected by the following procedure; a clean brass liner will be pushed into the stockpile or soil in the excavator bucket. About two inches of soil will be brushed away and the liner pushed into the soil. The liner is then removed, sealed, labeled and logged onto chain-of-custody forms and packed in a chilled ice chest.

4. The soil samples from the bottom portion of the sampling tool (if in good condition) will be retained for chemical testing. The samples will be labeled and sealed in the field in their original liners. Sample liner ends will be sealed with Teflon sheeting, and capped with clean plastic Capplugs.

5. The remaining soil sample will be extruded from the other rings in the field and lithologically logged. Sampler shoe cuttings, drill rig response and bit penetration rate will also be logged, when appropriate. The cuttings and the soils samples not retained for chemical analysis will be placed in 55-gallon drums or covered on plastic sheeting until their chemical disposition is determined, and then properly disposed.

6. All samples retained for chemical analysis will be stored on ice in a clean, covered cooler-box for transport to the Laboratory.

Reconnaissance Groundwater Sampling Procedures

1. Reconnaissance groundwater sample, handling, and storage will follow applicable guidance documents of the Environmental Protection Agency and Regional Water Quality Control Board and local agency guidelines for the investigation.

2. Reconnaissance groundwater samples will be collected in the field in temporarily cased exploratory boreholes using clean Teflon or disposal bailers. The samples will be collected from temporarily cased exploratory boreholes. All sample containers will be properly prepared, sealed, labeled, and identified. Label information will include the date, sampler name, sampling time, and identification number, and the project name and number.

3. The sample will be delivered to a State Certified Laboratory within two days of collection. Samples will be kept on ice and/or refrigerated continuously for shipment to the Laboratory.

4. The sealed sample will only be opened by Laboratory personnel who will perform the chemical analysis.

5. The samples will be analyzed according to the approved EPA Method and storage for the requested analysis.

6. Groundwater sampling will begin 24 hours following well development, following the procedures detailed below for monitoring well sampling. Depth to water measurements are made to the nearest 0.01 foot with respect to a surveyed datum (project or known) and wells are checked for separate phase product. Boreholes are sealed following water sampling.

Well Construction

1. The proper permits will be obtained from the appropriate agency or Water District, using a Well Inspector as required to be present to witness the installation of the annular seal. The soils borings will be drilled with a continuous-flight hollow-stem auger of at least 3 inches Inside Diameter (ID) and 6 to 8 inches Outside Diameter (OD). All augers will be thoroughly steam-cleaned prior to visiting the site. The augers will be steamed cleaned between borings at a location well away from the proposed borings or adequate clean auger will be available to complete all of the wells without reusing auger sections.

2. A geologic drilling log will be made of the materials encountered and sample depth for each boring. The soils/sediment lithology will be logged using the Unified Soil Classification System. The log will include field descriptions of the soil lithologic variations, moisture conditions, geologic data, and any unusual characteristics which may indicate the presence of chemical contamination.

3. The borings will be advanced to a depth of 45 feet if a saturated zone is not encountered (in absence of other depth specifications). If a saturated zone is encountered, the boring will advance no further than 15 feet below first encountered groundwater or 5 feet into the underlying clay aquitard. A seal will be placed in the over drilled portion of the aquitard.

4. During the drilling operations, California DOT approved 55-gallon drums will be on site to contain potentially contaminated soils and rinse water.

5. Where borings are completed as groundwater monitoring wells, 2-inch ID schedule 40 PVC blank pipe will be used. Usual well screen selection will be 2 inch ID Schedule 40 PVC pipe with 0.020 inch machine slot. Sections will be threaded and screwed together; glues will not be used. Screens will extend 3-5 feet above first encountered groundwater. The annulus of the perforated section will be packed with clean #3 or #4 Monterey Sand, or equivalent, to a point about 2-feet above the screen interval. Final well design will be adjusted in the field to site specific subsurface conditions, and will be placed so as not to interconnect two possible aquifers. Screens will extend a nominal length above first encountered groundwater for floating product detection. A 1-2 foot thick bentonite seal will be placed on top of the sandpack. A cement annular seal which extends to the surface will be placed by tremie line from the bottom to top of the remaining annular space above the bentonite.

6. The top of the well casing will be locked to prevent contamination and tampering. Above-grade or at-grade well completion will depend upon the final well location. Above-grade completion will require a 6 inch diameter locking, steel protective casing and a Christy, or equivalent, traffic box and concrete pad.

Well Development

1. Wells will be developed until the water is free of fine-grained sediments and/or until field measurements of pH, and electrical conductivity have stabilized. Approximately 4 to 10 well volumes of water will be removed during development of the well. Duration of development will be specific for each well and continue until the water clears and sand content is minimal or ceases.

2. Equipment inserted into the well during development will be decontaminated by washing or steam cleaning prior to and after its use. Development water will be collected in California DOT approved 55-gallon drums.

Ground Water Monitoring Well Sampling

1. Depth to groundwater will be measured to the nearest 0.01 foot, and the well checked for presence of separate phase product. If present, the apparent thickness of the product will be measured. The well will not be sampled if separate phase product is present.

2. The standing well volume calculated, and 4 to 10 well volumes will be purged from the well prior to sampling. Measurements of conductivity, temperature and the pH of the water will be taken until parameters have stabilized to indicate that aquifer water is entering the well.

3. The groundwater samples will be collected using a new disposable bailer or clean Teflon Bailer. A field log will record sampling measurements and observations.

4. The Teflon Bailer (if selected) will be thoroughly steam-cleaned or cleaned with detergent and water, rinsed with tap water, and finally rinsed with de-ionized or distilled water prior to the collection of each sample. A separate clean bailer will be used to sample each individual well.

5. All water retained for chemical analysis will be placed in clean, borosilicate, 40ml VOA vial with a Teflon septum cap, or clean amber glass one-liter bottles and other sample containers as appropriate for water sampling purposes and test parameters. Each sample vial or bottle is topped-off to avoid air space, and will be inverted to check for air bubbles, and filled to minimum headspace. Samples will be placed on ice, blue ice, or refrigerated at 4 degrees Centigrade at all times.

6. Water samples blanks of distilled water will be poured through the sampling bailer (if a disposable bailer is not used) and placed in clean sample collection bottles or vials. One water sample blank will be taken for each set of water samples collected from each boring or well when using Teflon Bailers..

7. All sampling equipment will be decontaminated following each sampling event, prior to use the next monitoring well.

Sample Records and Chain of Custody

1. Sample records for each sample will contain information on sample type and source; PIERS Environmental Services project number, sampler name, sampling date, location, Laboratory name, sampling method, and any significant conditions that may affect the sampling.

2. A signature Chain-of-custody and transference documentation will be strictly maintained at all times.

3. A copy of the Laboratory sample results and the completed Chain-of-Custody will be provided with the technical report.