

October 30, 2004

Mr. Robert Schultz  
Alameda County Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

**Re: Third Quarter 2004 Status Report  
Former BP Service Station #11124  
3315 High Street  
Oakland, California  
URS Project #38486986**

ALAMEDA COUNTY  
NOV 0 4 2004

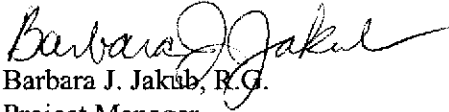
Dear Mr. Schultz:

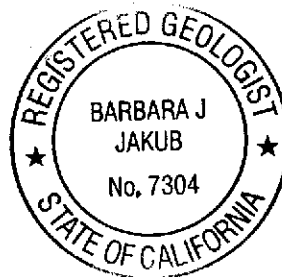
On behalf of Atlantic Richfield Company (ARC - a BP affiliated company) URS Corporation (URS) is submitting the *Third Quarter 2004 Status Report* for the Former BP Service Station #11124, located at 3315 High Street, Oakland, California.

If you have any questions regarding this submission, please call at (510) 874-3296.

Sincerely,

**URS CORPORATION**

  
Barbara J. Jakub, R.G.  
Project Manager



Enclosure: Third Quarter 2004 Status Report

cc: Mr. Kyle Christie, ARC, (electronic copy uploaded to ENFOS)  
Ms. Liz Sewell, ConocoPhillips (electronic copy uploaded to URS FTP server)



Date: October 30, 2004  
Quarter: 3Q 04

**ATLANTIC RICHFIELD COMPANY QUARTERLY STATUS REPORT**

Facility No.: 11124 Address: 3315 High St., Oakland, CA  
ARC Environmental Business Manager: Kyle Christie  
Consulting Co./Contact Person: URS Corporation / Barbara Jakub  
Consultant Project No.: 38486986  
Primary Agency/Regulatory ID No.: Alameda County Environmental Health (ACEH)/ RO0000239

**WORK PERFORMED THIS QUARTER (Third – 2004):**

1. No environmental work was performed during the third quarter 2004.
2. URS received the October 22, 2003 ACEH letter requesting a work plan. URS has scheduled sampling for this site to determine baseline levels of hydrocarbons, oxygenates and lead scavengers in the existing wells.

**WORK PROPOSED FOR NEXT QUARTER (Fourth– 2004):**

1. Perform fourth quarter 2004 groundwater monitoring event of the three existing on-site wells.
2. Prepare and submit third quarter 2003 status report.
3. Once the groundwater monitoring data is received, URS will prepare and submit a work plan to define the extent of hydrocarbons, fuel oxygenates and lead scavengers, in soil and groundwater, if hydrocarbons are present in existing wells. URS requests an extension for the work plan to allow us to receive and review the groundwater monitoring data before we prepare the investigation work plan. We expect to receive the groundwater monitoring data in mid-November and will submit the work plan by December 3, 2004.

NOV 04 2004  
ALAMEDA COUNTY



**BP OIL**

BP Oil Company  
Aetna Bldg., Suite 360  
2868 Prospect Park Drive  
Rancho Cordova, California 95670-6020  
(916) 631-0733

92 FEB -7 11:12

February 3, 1992

Mr. Paul Smith  
Alameda County Department of Environmental Health  
Hazardous Materials Division  
80 Swan Way, Suite 200  
Oakland, CA 94612

RE: BP FACILITY #11124  
3315 HIGH STREET  
OAKLAND, CALIFORNIA

94619

Dear Mr. Smith,

Attached please find results of the third quarter ground water monitoring performed at the above referenced site.

Please call me at (916) 631-6919 with any questions regarding this submission.

Respectfully,

*Peter J. DeSantis* sml

Peter J. DeSantis  
Environmental Resource Management

PJD/sml

cc: Mr. Keith Romstad, RESNA  
site file



A RESNA Company

3164 Gold Camp Drive, Suite 200  
Rancho Cordova, CA 95670  
Phone (916) 852-6690  
FAX (916) 852-6688

**RESNA**

*Environmental Solutions  
Through Applied Science,  
Engineering & Construction*

STATUS REPORT  
THIRD QUARTER 1991

at

BP Facility No. 11124  
3315 High Street  
Oakland, California

Job No. 30061-2



A RESNA Company

3164 Gold Camp Drive, Suite 200  
Rancho Cordova, CA 95670  
Phone (916) 852-6690  
FAX (916) 852-6688

**RESNA**

Environmental Solutions  
Through Applied Science,  
Engineering & Construction

January 30, 1992

Mr. Peter DeSantis  
BP Oil Company  
2868 Prospect Park Drive  
Suite 360  
Rancho Cordova, California 95670

Subject: Status Report, Third Quarter 1991, at BP Facility No. 11124, 3315 High Street, Oakland, California.

Mr. DeSantis:

At the request of BP Oil Company (BP), RESNA Industries (RESNA) performed the third quarter 1991 ground-water monitoring event at the subject site. This report presents the results of ground-water monitoring and includes information regarding three soil borings drilled near the waste-oil tank and the installation of a 2-inch-diameter monitoring well in one boring. This well was installed because another well at the site contained an obstruction and was unusable for sampling.

The site is on the northwest corner of High Street and Porter Street in Oakland, California, as shown on the Site Vicinity Map (Plate 1). The work for the ground-water monitoring event included measuring depths to ground water and subjectively analyzing ground water, purging and sampling ground water from monitoring wells MW-1, MW-2, and MW-4, analyzing ground water from the three monitoring wells, and evaluating the ground-water flow direction and gradient beneath the site.

## BACKGROUND

It is our understanding, based on conversations with personnel of BP, that two 10,000-gallon underground storage tanks, one 12,000-gallon underground storage tank, and one waste-oil tank are currently at the site. We do not know the capacity of the waste-oil tank. We understand the 10,000- and 12,000-gallon tanks are used to store regular and unleaded gasoline, respectively. The locations of the monitoring wells and site features are shown on the Generalized Site Plan (Plate 2).

1105pdes  
30061-2

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BP Facility No. 11124, Oakland, California

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In July 1986, Kaprealian Engineering, Inc. (Kaprealian) of Martinez, California, installed three ground-water monitoring wells (MW-1 through MW-3) at the site for Mobil Oil Corporation (the previous property owner). Samples of ground water collected from each well did not contain detectable concentrations of gasoline hydrocarbons (Kaprealian Engineering, Inc., September 6, 1986, Report No. KEI-J86-042). In addition, in the referenced Kaprealian report, the conclusions stated that a sufficient volume of soil had been removed from the site to significantly reduce adverse environmental impact to the ground water; therefore, Kaprealian recommended no further monitoring at the site.

On November 12, 1990, at the request of BP (the current property owner), a geologist from RESNA collected a ground-water sample from wells MW-1 and MW-2. A sample was not obtained from well MW-3 due to an obstruction in the well. Analytical results for water samples collected from wells MW-1 and MW-2 indicated hydrocarbon concentrations were below the laboratory's limits of detection (Applied GeoSystems, February 13, 1991, Letter Report No. 30061-1).

## FIELD WORK

Details of the drilling operations, soil sampling, well construction and development, well abandonment, and water sampling are presented below. Our field methods are described in an attachment to this report. Copies of the Chain of Custody Records and laboratory reports for soil and water samples are included in the attachments.

### Drilling and Soil Sampling

On May 13 and 14, 1991, a geologist from RESNA observed Kvilhaug Well Drilling and Pump Company of Concord, California, drill three soil borings (B-1, B-2B, and B-3) and install ground-water monitoring well (MW-4) in soil boring B-1 on the west side of the waste-oil tank. The boring/well locations are shown on Plate 2. Due to the presence of an underground pipe approximately 4 feet below grade, boring B-2 was attempted at the location marked B-2A on Plate 2 but moved to the location marked B-2B.

On May 13, 1991, boring B-1 was drilled to 30-1/2 feet below grade, boring B-2B was drilled to 18-1/2 feet below grade, and boring B-3 was drilled to 17-1/2 feet below grade. Soil samples were collected at approximately 5-foot intervals during drilling and were identified using visual and manual methods and classified according to the Unified Soil Classification System (Plate 3). The soil samples were also screened in the field using a photoionization detector. One positive reading of 1 part per million by volume was recorded from the sample collected at 15 feet in boring B-1. No positive readings were recorded from the

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samples collected from borings B-2B and B-3. Soil samples consisted predominantly of silt, clay, silty sand, and sand. Descriptions of the materials encountered and well construction details are presented in the Logs of Borings (Plates 4, 5, 6, and 7). Soil samples consisted predominantly of silt, clay, and silty sand. Ground water was encountered at approximately 20 feet below grade in boring B-1.

Four soil samples were also collected from the drill cuttings and composited into one sample by the laboratory for analyses. The results of analyses of the composited soil sample were used to evaluate disposal options of the drill cuttings. The disposal of the drill cuttings is discussed under Field Procedures attached to this letter report.

Boring B-1 was converted into ground-water monitoring well MW-4. Well construction details are illustrated on the Log of Boring. On May 14, 1991, the well was developed by surge blocking and pumping approximately 30 gallons of water from the well. A copy of the well permit is attached to this report.

#### Well Abandonment

On May 13, 1991, monitoring well MW-3 was abandoned because either a foreign object in the well or a bend or break in the casing precluded a bailer or pump from reaching the ground water. The well was abandoned by Kvilhaug Well Drilling and Pump Company, Inc. (License No. 482390) by over-drilling the well using a 10-inch-diameter auger and removing the well casing and surrounding filter pack. After the well was drilled out, the boring was backfilled with a cement/bentonite grout using a tremie pipe. Wyman Hong of the Alameda County Flood Control and Water Conservation District was notified of the grouting and gave verbal authorization to grout the boring. A copy of the well abandonment permit is attached to this letter report.

#### Present Ground-Water Sampling

A technician from RESNA visited the site on October 15, 1991, to measure the depth to ground water and collect ground water samples from the three monitoring wells. Our technician performed this work following the methods outlined in an attachment to this report.

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### Evaluation of Ground-Water Flow Direction and Gradient

The depth-to-water in each monitoring well was measured to the nearest 0.01 foot with a Solinst water-level indicator. This information was then used in conjunction with the surveyed wellhead data to prepare a Potentiometric Map showing the direction of ground-water flow and gradient (Plate 8). Ground water beneath the site is flowing to the southwest with a gradient of 0.0182.

Samples of ground water were collected from each monitoring well for subjective analysis of hydrocarbons using the methods summarized in an attachment to this report. No obvious product sheen was noted in the ground-water samples. The results of the subjective analyses are presented in Table 1.

Following the subjective analyses, monitoring wells MW-1, MW-2, and MW-4 were purged and ground-water samples were collected for laboratory analyses. During purging, the temperature, pH, and conductivity were monitored to assure that a representative sample from the aquifer was collected. These parameters are presented in Table 2. The purged water was left in drums at the site pending analytical results. Because the analyte concentrations are below the maximum contaminant levels, the water will be disposed of onsite.

## LABORATORY ANALYSES AND RESULTS

### Soil Samples

Soil samples selected for laboratory analyses were submitted to Applied Analytical Environmental Laboratories in Sacramento, California (Hazardous Waste Testing Laboratory Certification No. E773), and Chemtech Analytical Laboratories in Rancho Cordova, California (Hazardous Waste Testing Laboratory Certification No. 359). The soil samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) using Environmental Protection Agency (EPA) Method modified 8015, total petroleum hydrocarbons as diesel (TPHd) using EPA extraction method 3550 and EPA method 8015, benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) using EPA Method 8020, total oil and grease using Standard Method 5520 E/F, purgeable organic compounds using EPA Method 8240, semi-volatile organic compounds using EPA Method 8270, and cadmium, chromium, lead, nickel, and zinc as outlined in the California Assessment Manual.



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Results of analyses of the soil samples collected from the borings indicated concentrations of TPHg, TPHd, benzene, ethylbenzene, and semi-volatile organic compounds were below the laboratory's limits of detection. Low levels of toluene, total xylene isomers, and metals were reported in some of the samples. A concentration of 120 parts per million (ppm) total oil and grease was reported from the soil sample collected 10 feet below grade from soil boring B-2; however, total oil and grease was not detected in the sample collected at 18 feet. The results of the analyses are presented in Table 3. Copies of the analytical reports are attached.

### Ground-Water Samples

The ground-water samples were analyzed for TPHg using Environmental Protection Agency (EPA) Method 8015 (modified), BTEX using EPA Method 602, and total oil and grease using Standard Method 503 A/E at Applied Analytical Environmental Laboratories in Rancho Cordova, California (Hazardous Waste Testing Laboratory Certificate No. E773). TPHg, total oil and grease, and benzene were not detected in water samples collected from the three monitoring wells. Toluene and total xylene isomers were detected in all three wells at concentrations ranging from 0.7 to 1.6 parts per billion (ppb). Ethylbenzene was reported in both monitoring wells MW-1 and MW-2 at 0.9 ppb. The results of these and previous ground-water analyses are summarized in Table 3. Copies of the analytical reports are attached.

### RECOMMENDATIONS

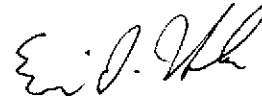
Based on the reported low concentrations of toluene, ethylbenzene, and total xylene isomers, RESNA recommends continued quarterly monitoring of the ground water for two more quarters for TPHg, BTEX, and total oil and grease. If no increase in compounds is reported in the ground-water samples, RESNA would recommend closure of the site to further environmental work.

The presence of 120 ppm total oil and grease reported in the soil sample collected at 10 feet from boring B-2 should be noted; however, the absence of oil and grease in the the sample collected at 18 feet indicates that the contamination may be limited to a small area. The proximity of this boring to the waste-oil tank and the station building do not allow this soil to be easily excavated at this time; however, RESNA recommends that this area be investigated when the waste-oil tank is removed or replaced.

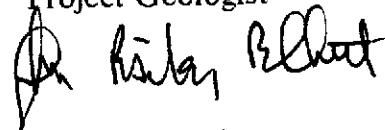
January 30, 1992  
 BP Facility No. 11124, Oakland, California

We also recommend signed copies of this report be forwarded to Mr. Tom Callaghan of the California Regional Water Quality Control Board, San Francisco Bay Region, 1800 Harrison Street, Suite 700, Oakland, California 94612, Mr. Paul Smith of the Alameda County Department of Environmental Health, Hazardous Materials Division, 80 Swan Way, Suite 200, Oakland, California 94621, and Mr. Jerry Blueford of the City of Oakland Fire Department, 1605 Martin Luther King Way, Oakland, California 94612. Please call if you have questions regarding the information in this report.

Sincerely,  
 RESNA Industries

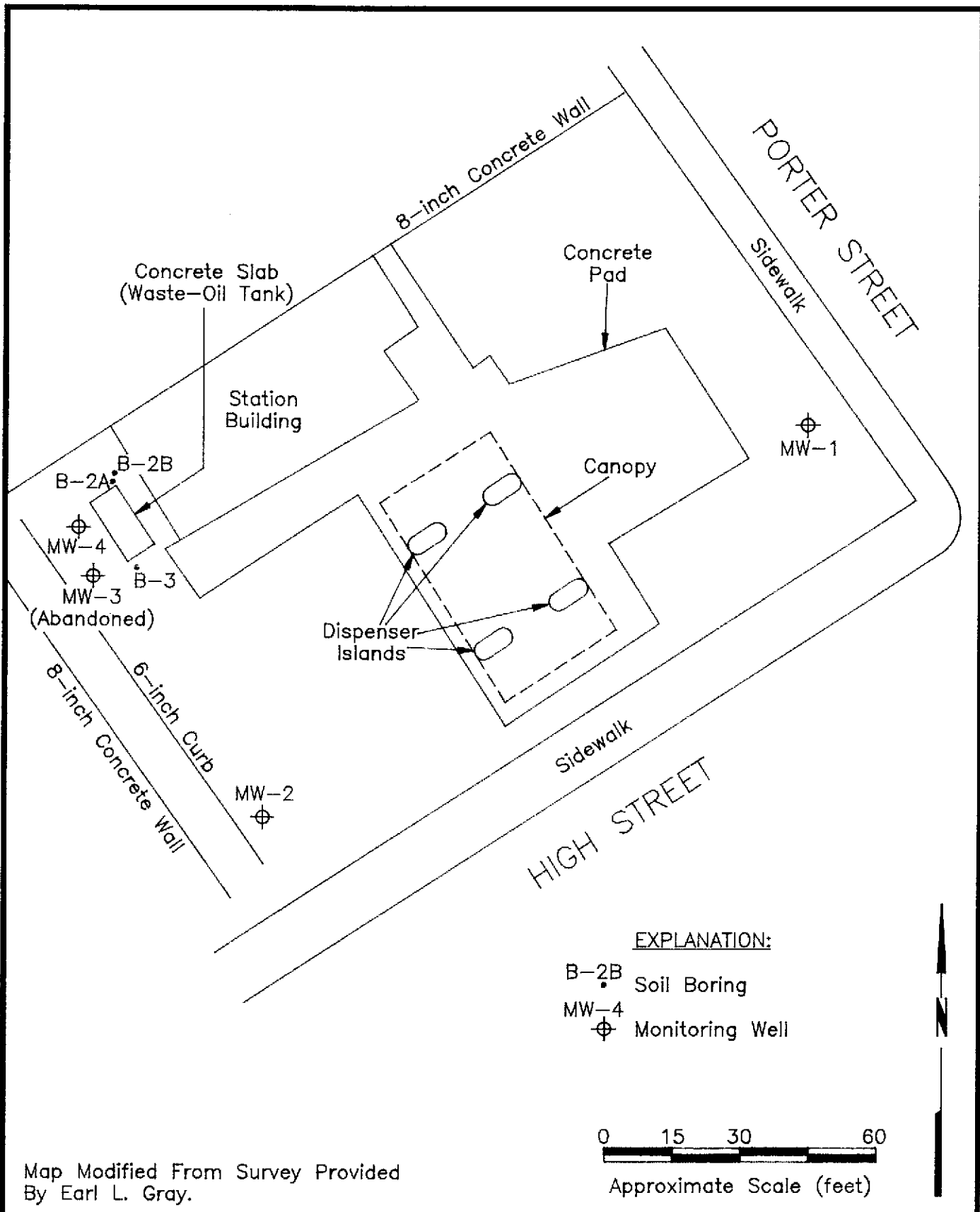


Eric J. Holm  
 Project Geologist



John B. Bobbitt  
 R.G. 4313

Attachments:	Plate 1:	Site Vicinity Map
	Plate 2:	Generalized Site Plan
	Plate 3:	Unified Soil Classification System
	Plate 4	
	through	
	Plate 7:	Logs of Borings
	Plate 8:	Potentiometric Map
	Table 1:	Depth to Water and Results of Subjective Analyses
	Table 2:	Temperature, pH and Conductivity Results
		During Purging
	Table 3:	Cumulative Results of Analyses of Soil Samples
	Table 4:	Cumulative Results of Analyses of Water Samples
		Field Methods
		Chain of Custody Records
		Laboratory Analyses Reports



Map Modified From Survey Provided  
By Earl L. Gray.

	<b>GENERALIZED SITE PLAN</b> <b>BP Facility No. 1124</b> <b>3315 High Street</b> <b>Oakland, California</b>	<b>PLATE</b>  <b>2</b>
	<b>PROJECT NO. 30061-2</b>	<small>FILE NO.</small> <b>0061B2A</b>

# UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		LTR	DESCRIPTION	MAJOR DIVISIONS	LTR	DESCRIPTION	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well-graded gravels or gravel and sand mixtures, little or no fines.	FINE GRAINED SOILS	SILTS AND CLAYS LL <50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
		GP	Poorly-graded gravels or gravel sand mixture, little or no fines.			CL	Inorganic clays or low to medium plasticity, gravelly clays, sandy clays, lean clays.
		GM	Silty gravels, gravel-sand-silt mixtures.			OL	Organic silts and organic silt-clays of low plasticity.
		GC	Clayey gravels, gravel-sand-clay mixtures.			SILTS AND CLAYS LL >50	MH
	SAND AND SANDY SOILS	SW	Well-graded sands or gravelly sands, little or no fines.		CH		Inorganic clays of high plasticity, fat clays.
		SP	Poorly-graded sands or gravelly sand mixture, little or no fines.		OH		Organic clays of medium to high plasticity.
		SM	Silty sands, sand-silt mixtures.		HIGHLY ORGANIC SOILS		PT
		SC	Clayey sands, sand-silt mixtures.				

- |      |  |  |                          |
|------|--|--|--------------------------|
|      | Depth through which sampler is driven. |  | Sand pack                |
|      | Relatively undisturbed sample          |  | Bentonite annular seal   |
|      | Missed sample                          |  | Neat cement annular seal |
|      | Ground water level observed in boring  |  | Blank PVC                |
| S-10 | Sample number                          |  | Machine-slotted PVC      |
| PID  | Photoionization detector reading       |  | PVC Centralizer          |

BLOW/FT REPRESENTS THE NUMBER OF BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES TO DRIVE THE SAMPLER THROUGH THE LAST 12 INCHES OF AN 18 INCH PENETRATION.

DASHED LINES SEPARATING UNITS OF THE LOG REPRESENT APPROXIMATE BOUNDARIES ONLY. ACTUAL BOUNDARIES MAY BE GRADUAL. LOGS REPRESENT SUBSURFACE CONDITIONS IN THE BORING AT THE TIME OF DRILLING ONLY.


	<b>UNIFIED SOIL CLASSIFICATION SYSTEM AND SYMBOL KEY</b> BP Facility No. 11124 3315 High Street Oakland, California	<b>PLATE</b>  <b>3</b>
<b>PROJECT NO. 30061-2</b>	FILE NO. 0061B7A	

**Total depth of boring:** 30-1/2 ft.    **Diameter of boring:** 8 in.    **Date drilled:** 5/13/91  
**Casing diameter:** 2 in.    **Length:** 15 ft.    **Slot size:** 0.020 in.  
**Screen diameter:** 2 in.    **Length:** 15 ft.    **Material type:** PVC  
**Drilling Company:** Kvilhaug    **Driller:** Mike and Cliff  
**Method Used:** Hollow-stem Auger    **Field Geologist:** C. Avila

**Signature of Registered Professional:** 

**Registration No.:** 4313

**State:** Calif.

DEPTH	SAMPLE NO.	BLOWS	P.I.D.	USCS CODE	DESCRIPTION	WELL CONST.
0					Asphalt.	
2						
4	S-5	40		SM	Silty sand with some gravel, medium- to coarse-grained sand and coarse gravel, light brown, damp, dense.	
6						
8						
10	S-10	23		CL	Clay with some silt, light brown, damp, medium plasticity, very stiff.	
12						
14	S-15	24		ML	Silt with some clay and trace gravel, light brown, damp, slight plasticity, very stiff.	
16						
18						
20	S-20	38			Silt with some fine- to coarse-grained sand and coarse gravel, wet, hard.	
(section continues downward)						

**RESNA**

PROJECT NO. 30061-2

FILE NO.  
0061B4A

**LOG OF BORING: B-1/MW-4**  
**BP Facility No. 1124**  
**3315 High Street**  
**Oakland, California**

PLATE

4

DEPTH	SAMPLE NO.	BL/OTB	P.I.D.	USCS CODE	DESCRIPTION	WELL CONST.
20	S-20	38		▼ ML	Silt with some fine- to coarse-grained sand and coarse gravel, wet, hard.	
22						
24	S-25	20			Silt with some fine- to medium-grained sand, trace coarse gravel and clay, light brown, wet, very stiff.	
26						
28	S-28	37				
30	S-30	37				
32					Total depth = 30-1/2 feet. Ground water encountered at 19-1/2 feet. Boring terminated to construct monitoring well.	
34						
36						
38						
40						
42						
44						
46						
48						
50						



**LOG OF BORING: B-1/MW-4**  
**BP Facility No. 11124**  
**3315 High Street**  
**Oakland, California**

**PLATE**  
**5**

**PROJECT NO. 30061-2**


FILE NO.  
0061B4B

**Total depth of boring:** 18-1/2 ft    **Diameter of boring:** 8 in.    **Date drilled:** 5/14/91  
**Casing diameter:** N/A    **Length:** N/A    **Slot size:** N/A  
**Screen diameter:** N/A    **Length:** N/A    **Material type:** N/A  
**Drilling Company:** Kvilhaug    **Driller:** Mike & Cliff  
**Method Used:** Hollow-stem Auger    **Field Geologist:** Claudio

**Signature of Registered Professional:** 

**Registration No.:** 4313

**State:** Calif.

DEPTH	SAMPLE NO.	BLOWS	P.I.D.	USCS CODE	DESCRIPTION	WELL CONST.
0					Asphalt	
4	S-5	33	0 ppmv	SM	Sandy silt with some gravel, medium- to coarse-grained sand and coarse gravel, light brown, damp, hard.	
10	S-10	26	0 ppmv		Clayey silt with trace of sand, fine- to medium-grained sand, light brown, damp, slight plasticity, very stiff.	
16	S-15	30	0 ppmv	ML	Silt with some clay and a trace of fine-grained sand, light brown, damp, slight plasticity, very stiff.	
18	S-18	24	0 ppmv		Silt with some gravel and a trace of clay, coarse gravel, light brown, very moist, very stiff.	
20					Total depth = 18-1/2 feet. Boring backfilled with cement/bentonite slurry.	



**PROJECT NO. 30061-2**

FILE NO.  
0061B5A

**LOG OF BORING: B-2B**  
**BP Facility No. 1124**  
**3315 High Street**  
**Oakland, California**

**PLATE**

**6**

Total depth of boring, 17-1/2 ft Diameter of boring, 8 in. Date drilled, 5/14/91

Casing diameter, N/A Length, N/A Slot size, N/A

Screen diameter, N/A Length, N/A Material type, N/A

Drilling Company, Kvilhaug Driller, Mike & Cliff

Method Used, Hollow-stem Auger Field Geologist, Claudio

Signature of Registered Professional: *[Signature]*

Registration No., 4313 State, Calif.

DEPTH	SAMPLE NO.	BLOWS	P.I.D.	USCS CODE	DESCRIPTION	WELL CONST.
0					Asphalt	
4	S-5	28	0 ppmv	ML	Silt with trace sand and gravel, medium-to coarse-grained sand and coarse gravel, light brown, damp, very stiff.	
10	S-10	26	0 ppmv		(trace of clay)	
14	S-15	43	0 ppmv	SW	Sand with some gravel and trace silt, medium-to coarse-grained sand and coarse gravel, light brown, damp, dense.	
16	S-20	26	0 ppmv	ML	Silt with some sand and trace fine-grained sand and coarse gravel, light brown, damp, very stiff.	
18					Total depth = 17-1/2 feet. Boring backfilled with cement/bentonite slurry.	
20						



**LOG OF BORING: B-3**  
**BP Facility No. 1124**  
**3315 High Street**  
**Oakland, California**

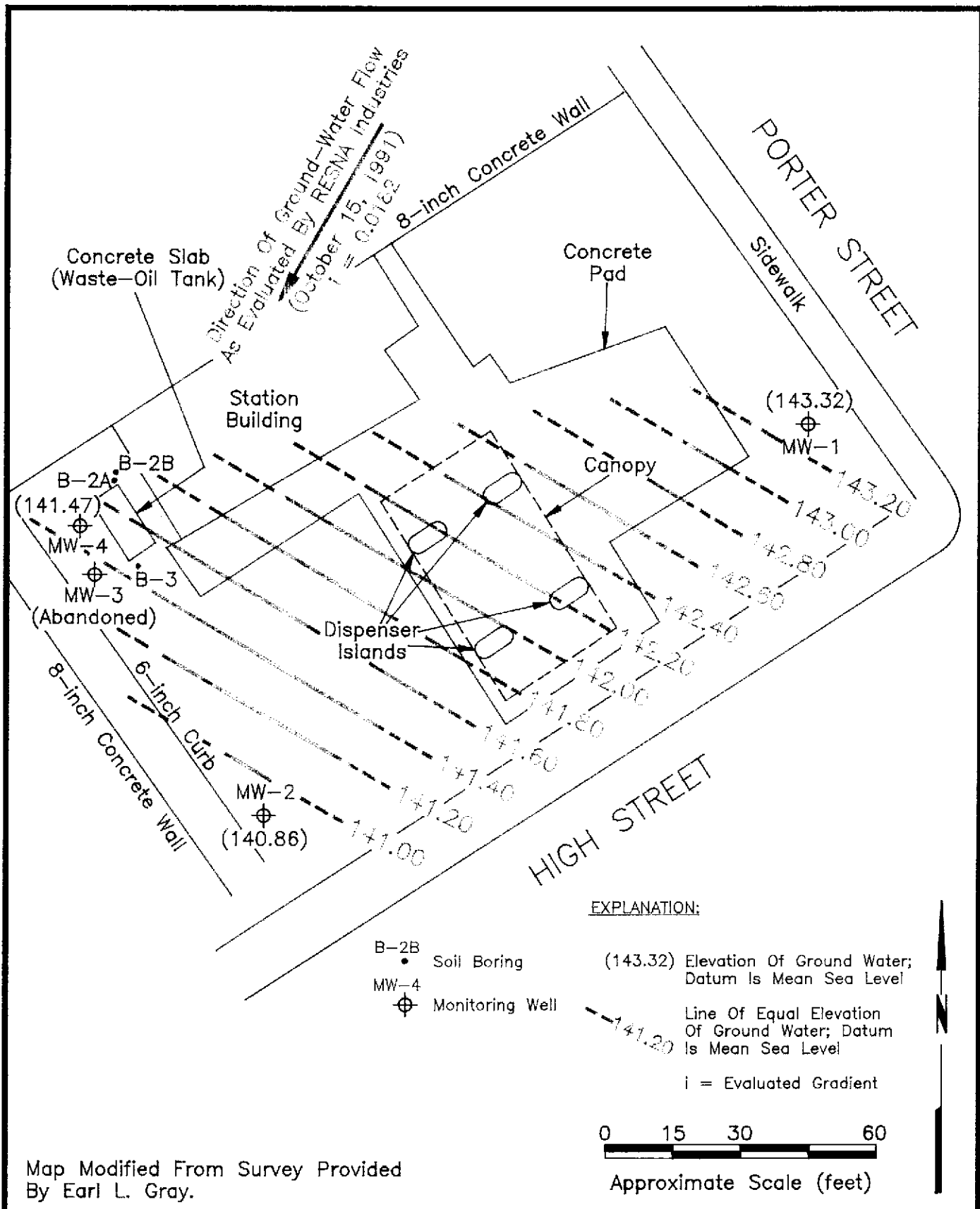
**PLATE**

**7**

**PROJECT NO. 30081-2**

FILE NO.  
0061B6A





**RESNA**

PROJECT NO. 30061-2

FILE NO. 0061B3A

**POTENTIOMETRIC MAP (October 15, 1991)**  
**BP Facility No. 1124**  
**3315 High Street**  
**Oakland, California**

**PLATE**  
**8**

January 30, 1992  
 BP Facility No. 11124, Oakland, California

TABLE 1  
 DEPTH TO WATER AND  
 RESULTS OF SUBJECTIVE ANALYSES  
 BP Facility No. 11124  
 3315 High Street  
 Oakland, California

Well Number	Sample Date	Depth to Water	TOC (MSL)	Water Elevation (MSL)	Floating Product	Sheen	Emulsion
MW-1	*08/18/86	10.10	154.99	144.89	None	None	None
	11/12/90	11.42	154.99	143.57	None	None	None
	07/15/91	10.66	154.99	144.33	None	None	None
	10/15/91	11.67	154.99	143.32	None	None	None
MW-2	*08/18/86	10.00	152.02	142.02	None	None	None
	11/12/90	10.94	152.02	141.08	None	None	None
	07/15/91	9.87	152.02	142.15	None	None	None
	10/15/91	11.16	152.02	140.86	None	None	None
MW-3	*08/18/86	9.60	NM	---	None	None	None
	11/12/90	NM	NM	---	NM	NM	NM
	07/15/91	WA	NM	WA	WA	WA	WA
	10/15/91	WA	NM	WA	WA	WA	WA
MW-4	07/15/91	9.92	152.77	142.85	None	None	None
	10/15/91	11.30	152.77	141.47	None	None	None

TOC = Top of well casing  
 \* = Measurement collected by Kaprealian Engineering, Inc.  
 MSL = Mean Sea Level  
 NM = Not Measured  
 WA = Well Abandoned

January 30, 1992  
BP Facility No. 11124, Oakland, California

TABLE 2  
TEMPERATURE, pH, AND CONDUCTIVITY  
RESULTS DURING PURGING  
BP Facility No. 11124  
3315 High Street  
Oakland, California  
(October 15, 1991)

Well Number	Time	Gallons Purged	Temp. (C )	pH	Conductivity (mmhos)
MW-1	09:49	0	20	6.1	442
	09:59	10	20	6.4	432
	10:29	20	20	6.4	475
	10:36	30	20	6.4	479
	10:41	40	20	6.4	479
	10:49	50	20	6.4	479
MW-2	11:18	0	20	6.6	591
	11:24	7	20	6.8	584
	11:32	14	20	6.8	549
	11:41	21	20	6.7	544
	11:46	28	20	6.7	545
	11:55	35	20	6.7	552
MW-4	12:20	0	20	6.8	506
	12:29	9	20	6.8	492
	12:42	18	20	6.8	491
	12:49	27	20	6.7	490
	12:55	36	20	6.7	489
	13:01	45	20	6.7	489

January 30, 1992  
BP Facility No. 11124, Oakland, California

TABLE 3  
CUMULATIVE RESULTS OF ANALYSES OF SOIL SAMPLES  
BP Facility No. 11124  
3315 High Street  
Oakland, California  
(page 1 of 3)

Sample ID	Sample Date	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes
S-5-B1	05/13/91	<1	<10	<0.005	<0.005	<0.005	<0.005
S-15-B1	05/13/91	<1	<10	<0.005	<0.005	<0.005	<0.005
S-10-B2	05/14/91	<1	<10	<0.005	0.011*	<0.005	<0.005
S-18-B2	05/14/91	<1	<10	<0.005	0.006*	<0.005	<0.005
S-10-B3	05/14/91	<1	<10	<0.005	0.010*	<0.005	<0.005
S-17-B3	05/14/91	<1	<10	<0.005	0.007*	<0.005	<0.005
S-0514-1ABCD	05/14/91	<1	<10	<0.005	0.040*	0.030*	0.140*

See notes on page 3 of 3

January 30, 1992  
BP Facility No. 11124, Oakland, California

TABLE 3  
CUMULATIVE RESULTS OF ANALYSES OF SOIL SAMPLES  
BP Facility No. 11124  
3315 High Street  
Oakland, California  
(page 2 of 3)

Sample ID	Sample Date	Cadmium	Chromium	Lead	Nickel	Zinc
S-5-B1	05/13/91	NR	NR	NR	NR	NR
S-15-B1	05/13/91	NR	NR	NR	NR	NR
S-10-B2	05/14/91	16	23	16	65	55
S-18-B2	05/14/91	15	27	16	57	51
S-10-B3	05/14/91	11	24	10	41	48
S-17-B3	05/14/91	11	22	11	52	43
S-0514- 1ABCD	05/14/91	11	27	14	42	53

See notes on page 3 of 3

TABLE 3  
 CUMULATIVE RESULTS OF ANALYSES OF SOIL SAMPLES  
 BP Facility No. 11124  
 3315 High Street  
 Oakland, California  
 (page 3 of 3)

Sample ID	Sample Date	O&G	Purgeable Organic Compounds	PCB's	Semi-VOC	Phenan.
S-5-B1	05/13/91	<50	ND	ND	ND	ND
S-15-B1	05/13/91	<50	ND	ND	ND	ND
S-10-B2	05/14/91	120*	ND	ND	ND	ND
S-18-B2	05/14/91	<50	ND	ND	ND	ND
S-10-B3	05/14/91	<50	ND	ND	ND	ND
S-17-B3	05/14/91	<50	ND	ND	ND	ND
S-0514-1ABCD	05/14/91	120	ND	ND	ND	2

Results in parts per million (ppm)  
 TPHg = Total petroleum hydrocarbons as gasoline  
 TPHd = Total petroleum hydrocarbons as diesel  
 PCB's = Polychlorobiphenyls  
 O&G = Oil and Grease  
 Semi-VOC = Semi-volatile organic compounds  
 Phenan. = Phenanthrene  
 NR = Not Requested  
 ND = No compounds detected above the laboratory detection limits  
 < = Below detection limit of method of analysis used  
 \* = Sample results reported from purgeable organic analyses

Sample designation:

S-18-B3  
 └───┬───┬───  
 │   └───┬─── Boring number  
 │       └─── Sample depth in feet below ground surface  
 └───┬───┬─── Soil sample

January 30, 1992  
BP Facility No. 11124, Oakland, California

TABLE 4  
CUMULATIVE RESULTS OF ANALYSES OF WATER SAMPLES  
BP Facility No. 11124  
3315 High Street  
Oakland, California

Sample ID	Sample Date	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total O&G
MW1*	08/18/86	<50	<1.0	<1.0	<1.0	<1.0	NA
W-11-MW1	11/12/90	<50	<0.5	<0.5	<0.5	<0.5	NA
W-10-MW1	07/15/91	<50	<0.5	<0.5	<0.5	<0.5	NA
W-20-MW1	10/15/91	<50	<0.5	0.8	0.6	0.8	
MW2*	08/18/86	<50	<1.0	<1.0	<1.0	<1.0	NA
W-11-MW2	11/12/90	<50	<0.5	<0.5	<0.5	<0.5	NA
W-10-MW2	07/15/91	<50	<0.5	<0.5	<0.5	<0.5	NA
W-20-MW2	10/15/91	<50	<0.5	0.7	<0.5	1.5	<50
MW3*	08/18/86	<50	<1.0	<1.0	<1.0	<1.0	NA
MW3	11/12/90	NS	NS	NS	NS	NS	NA
MW3	07/15/91	WA	WA	WA	WA	WA	WA
MW3	10/15/91	WA	WA	WA	WA	WA	WA
W-10-MW4	07/15/91	<50	<0.5	0.5	<0.5	0.8	NA
W-20-MW4	10/15/91	<50	<0.5	0.7	0.6	1.1	<50

TPHg and BTEX results in parts per billion (ppb)

O&G results in parts per million (ppm)

TPHg = Total petroleum hydrocarbons as gasoline

O&G = Oil and Grease

< = Below detection limit of method of analysis used

\* = Sample collected by Kaprealian Engineering, Inc.

WA = Well Abandoned

NS = Not Sampled

NA = Not Analyzed

Sample designation:

W-20-MW4

┌──┐ Well number  
├──┤ Sample depth in feet below ground surface  
└──┘ Water sample

### Site Safety Plan

This plan describes the safety requirements for drilling, purging, and sampling ground-water monitoring wells. The site safety plan was applicable to personnel of RESNA Industries who performed work at the site. A copy of the site safety plan was available for reference by appropriate parties during the work. The onsite Staff Geologist or Technician of RESNA acted as the Site Safety Officer. RESNA performed work at the site following our Site Safety Plan No. 30061-1S, dated October 15, 1990.

### Drilling and Soil Sampling

RESNA contacted Underground Service Alert to delineate public utility lines at the site before initiating drilling. Before drilling, the borehole location was hand-augered 3 to 5 feet below grade.

The soil borings were drilled using a truck-mounted rig using 8 and 10-inch-diameter hollow-stem augers. The drilling was performed under the guidance of a field geologist, and the earth materials were logged as drilled using the Unified Soil Classification System.

During drilling, soil samples were collected ~~at 5-foot or other~~ appropriate intervals using a California-modified, split-spoon sampler equipped with clean brass sleeves. Samples were collected by driving the sampler into the soil through the hollow center of the auger. The sampler was driven 18 inches with a standard 140-pound hammer dropped 30 inches. The number of blows required to drive the sampler each successive 6-inch interval was counted and recorded on the field boring log to give an indication of soil consistency.

Soil samples were collected, identified, and evaluated for relative levels of hydrocarbons using a field photoionization detector (PID). Field instruments such as the PID are useful for indicating relative levels of hydrocarbon vapors but do not detect the concentration of hydrocarbons present with the same precision as laboratory analyses. Any additional subjective evidence such as soil discoloration or obvious product order was noted.

Soil cuttings generated during drilling were stored at the BP Facility in 55 gallon DOT approved drums. Four soil samples were collected from drill cuttings and composited into one sample at the laboratory to evaluate disposal options for the soil. The soil was removed from the site by Erickson of Richmond, California, and disposed of at a proper disposal facility.



January 30, 1992  
BP Facility No. 11124, Oakland, California

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### Sample Handling Protocol

Soil and water samples collected for laboratory analyses were accompanied by a Chain of Custody Record that was initiated by the geologist at the site and completed as the samples were collected. Soil samples collected for possible chemical analyses were promptly sealed with aluminum foil, plastic caps, and tape. They were then labeled and placed in iced storage for transport to the analytical laboratory. A Chain of Custody Record was initiated by the field geologist and accompanied the selected soil samples to the laboratory.

### Sampling of Drill Cuttings

Drill cuttings were sampled by scraping 6 to 12 inches of soil off the stockpile surface. A sample was then collected by driving a hand-operated percussion sampler, equipped with a clean brass sleeve, into the stockpiled soil. Four soil samples were collected from the drill cuttings and composited into one sample for laboratory analyses. The soil samples selected for possible laboratory analyses were removed from the sampler and quickly sealed in their brass sleeves with aluminum foil, plastic caps, and aluminized duct tape. The respective sample containers were labeled in the field with the job number, sample location and depth, and date, and promptly placed in iced storage for transport to the laboratory. Chain of Custody Records were initiated in the field by the geologist and accompanied the samples to a laboratory certified by the State of California to perform the analyses requested.

### Subjective Observations

The depth to ground water in the monitoring wells was measured to the nearest 0.01-foot with an electronic water-level indicator. Samples of ground water were collected for subjective analysis from the air-fluid interface in each well by lowering approximately half the length of a clear Teflon bailer through the interface. The bailer was retrieved and the water sample examined for free product, sheen, or other subjective evidence of hydrocarbons.

### Purging

A minimum of three well volumes of ground water, corresponding to approximately 40 to 50 gallons, were purged from wells MW-1, MW-2, and MW-4 using an electric submersible pump. The ground-water temperature, pH, and conductivity were monitored to assure that a representative sample was obtained from the aquifer. The purged water was placed into labeled 55-gallon 17-E drums approved for this use by the California Department of Transportation and stored temporarily onsite pending the results of laboratory analyses.

January 30, 1992  
BP Facility No. 11124, Oakland, California

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### Ground-Water Sampling

Ground-water samples were collected after water in each well recovered to near its original level. The ground-water samples were collected by lowering a clean Teflon bailer gently through the air-water interface to a depth approximately 3 feet below the ground-water surface. The bailer was retrieved and the samples were transferred slowly to laboratory-cleaned, 40-milliliter glass vials or other appropriate containers as required by the laboratory. The vials and bottles contained hydrochloric acid and were filled so that no headspace was left in the containers. The field technician initiated a Chain of Custody Record and it accompanied the samples to the analytical laboratory. A copy of that record is attached to this letter report.



# CHEMTECH

ANALYTICAL LABORATORIES

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5/24/91

Applied Analytical  
4191 Power Inn Road  
Suite D&E  
Sacramento, Ca 95826

Attn: Eric Holm

Re Project: Applied Analytical/30061-1

Lab Reference No: 1905

Date Samples Received: 5/20/91

o of Samples Received: 10

The samples were received by Chemtech Analytical Laboratories intact and in good condition. Samples conformed to required sampling protocols for the requested analyses and were accompanied by required documentation.

Please call if we can be of further assistance.

Sincerely,

C.R. Todd  
Laboratory Director

# CHAIN-OF-CUSTODY RECORD

PROJECT NO. 061-1 PROJECT NAME B.P. Oakland "High Street"  
 SAMPLES (Signature) Claudio Avila

DATE / TIME	SAMPLE I.D.	No. of Containers	ANALYSIS						LABORATORY I.D. NUMBER
			TPHg	BTEX	TPHd	8240	26 Compds	Preserved?	
3-91	S-5-B1	1							8240 26 Compds
	S-15-B1	1							"
4-91	S-10-B2	1							"
	S-18-B2	1							"
	S-10-B3	1							"
	S-17-B3	1							"
4-91	S-0514-1A	1							"
	S-0514-1B	1							"
	S-0514-1C	1							"
	S-0514-1d	1							"

IF an analyzed sample reports a compound above detection limits - run the sample for Cd, Cr, Pb, & Zn using AA & 8270 for 40 compounds.

PREPARED BY (Signature): [Signature]  
 DATE / TIME: 5/24/91  
 RECEIVED BY (Signature): [Signature]  
 DATE / TIME: 5/24/91 1700

RECEIVED BY (Signature): [Signature]  
 RECEIVED FOR LABORATORY BY (Signature): [Signature]

IN MATTERS: Chemtech Standard TAT

SEND RESULTS TO:  
**Applied GeoSystems**  
 4191 Power Inn Road  
 Suite D & E  
 Sacramento, California 95826  
 (916) 452-2901  
 Proj. Mgr.: E. Holm

*per E. Holm telephone 11:10 5-24-91*

NO. 1905

CHEMTECH ANALYTICAL LABORATORIES (916) 635-3962

CHAIN OF CUSTODY - LOG-IN

PROJECT NAME <i>Applied Analytical 30061-1</i>		CLIENT CHAIN OF CUSTODY #			NO OF CONTAINERS	ANALYSIS										DISPOSAL		RESULTS VERBAL:			
PAGE OF						<i>8240 Mod 8270 Mod CARRY TILL</i>										FEE DISPOSAL	NO FEE	RETURNED TO CLIENT	VERBALS	Yes <input type="checkbox"/>	No <input type="checkbox"/>
CHEM TECH I.D. #	SAMPLE I.D.	DATE SAMPLED	TIME SAMPLED	MATRIX																	
91-1552	S-5-B1	5-13-91		Soil	1	X															
91-1553	S-15-B1	↓		↓		X															
91-1554	S-10-B2	5-14-91		↓		X	X	X													
91-1555	S-18-B2	↓		↓		X	X	X													
91-1556	S-10-B3	↓		↓		X	X	X													
91-1557	S-17-B3	↓		↓		X	X	X													
91-1558	S-0514-1A	5-14-91		↓																	
91-1559	S-0514-1B	↓		↓																	
91-1560	S-0514-1C	↓		↓		X	X	X													
91-1561	S-0514-1D	↓		↓																	

COMMENTS:  
*TAT STD*  
*if any samples*  
*not run*  
*Cd, Cr, Pb, & Zn*  
*& 8270 Mod*  
*Total Metals*  
*per C. Hoban*  
*telephoned 5-24-91*  
*11:10*  
*Lam*

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
<i>[Signature]</i>		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
<i>[Signature]</i>		
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)
<i>Gary M. [Signature]</i>	5-24-91 1300	<i>Larry M. [Signature]</i>

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: N/A  
Date of Analysis: 05/23/91  
Sample ID: METHOD BLANK  
Lab ID: N/A  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2302.D

ANALYTES	CONCENTRATION ug/Kg(ppb)	REPORTING LIMIT(ppb)
chloromethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
bromomethane	ND	10
trichlorofluoromethane	ND	10
1,1-dichloroethene	ND	5
trans-1,2-dichloroethene	ND	5
1,1-dichloroethane	ND	5
chloroform	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
1,2-dichloroethane	ND	5
benzene	ND	5
trichloroethene	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
toluene	ND	5
trans-1,3-dichloropropene	ND	5
bromodichloromethane	ND	5
1,1,2-trichloroethane	ND	5
tetrachloroethene	ND	10
dibromochloromethane	ND	5
chlorobenzene	ND	5
ethylbenzene	ND	5
total xylenes	ND	15
2-chloroethylvinyl ether	ND	5
1,1,2,2-tetrachloroethane	ND	5
1,3-dichlorobenzene	ND	5
1,4-dichlorobenzene	ND	5
1,2-dichlorobenzene	ND	5

ND = Not Detected at, or Above the Report Limit

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: N/A  
Date of Analysis: 05/23/91  
Sample ID: METHOD BLANK  
Lab ID: N/A  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2302.D

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SURROGATE RECOVERY

Surrogate	Amount	Spike	%Recov
1,2-dichloroethane-d-4	47	50	93.28
toluene-d8	49	50	98.01
4-bromofluorobenzene	50	50	100.00

Surrogate Recovery Range = 50 - 150

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: N/A  
Date of Analysis: 05/24/91  
Sample ID: METHOD BLANK  
Lab ID: N/A  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: 0101002.

ANALYTES	CONCENTRATION ug/Kg(ppb)	REPORTING LIMIT(ppb)
chloromethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
bromomethane	ND	10
trichlorofluoromethane	ND	10
1,1-dichloroethene	ND	5
trans-1,2-dichloroethene	ND	5
1,1-dichloroethane	ND	5
chloroform	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
1,2-dichloroethane	ND	5
benzene	ND	5
trichloroethene	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
toluene	ND	5
trans-1,3-dichloropropene	ND	5
bromodichloromethane	ND	5
1,1,2-trichloroethane	ND	5
tetrachloroethene	ND	10
dibromochloromethane	ND	5
chlorobenzene	ND	5
ethylbenzene	ND	5
total xylenes	ND	15
2-chloroethylvinyl ether	ND	5
1,1,2,2-tetrachloroethane	ND	5
1,3-dichlorobenzene	ND	5
1,4-dichlorobenzene	ND	5
1,2-dichlorobenzene	ND	5

ND = Not Detected at, or Above the Report Limit



CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: N/A  
Date of Analysis: 05/24/91  
Sample ID: METHOD BLANK  
Lab ID: N/A  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: 0101002.

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SURROGATE RECOVERY

Surrogate	Amount	Spike	%Recov
1,2-dichloroethane-d-4	47	50	94.61
toluene-d8	54	50	107.52
4-bromofluorobenzene	51	50	102.59

Surrogate Recovery Range = 50 - 150

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/23/91  
Sample ID: S-5-B1  
Lab ID: 91-1552  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2303.D

ANALYTES	CONCENTRATION ug/Kg(ppb)	REPORTING LIMIT(ppb)
chloromethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
bromomethane	ND	10
trichlorofluoromethane	ND	10
1,1-dichloroethene	ND	5
trans-1,2-dichloroethene	ND	5
1,1-dichloroethane	ND	5
chloroform	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
1,2-dichloroethane	ND	5
benzene	ND	5
trichloroethene	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
toluene	ND	5
trans-1,3-dichloropropene	ND	5
bromodichloromethane	ND	5
1,1,2-trichloroethane	ND	5
tetrachloroethene	ND	10
dibromochloromethane	ND	5
chlorobenzene	ND	5
ethylbenzene	ND	5
total xylenes	ND	15
2-chloroethylvinyl ether	ND	5
1,1,2,2-tetrachloroethane	ND	5
1,3-dichlorobenzene	ND	5
1,4-dichlorobenzene	ND	5
1,2-dichlorobenzene	ND	5

ND = Not Detected at, or Above the Report Limit

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/23/91  
Sample ID: S-5-B1  
Lab ID: 91-1552  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2303.D

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SURROGATE RECOVERY

Surrogate	Amount	Spike	%Recov
1,2-dichloroethane-d-4	49	50	98.90
toluene-d8	52	50	103.80
4-bromofluorobenzene	52	50	103.11

Surrogate Recovery Range = 50 - 150

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/23/91  
Sample ID: S-15-B1  
Lab ID: 91-1553  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2306.D

ANALYTES	CONCENTRATION ug/Kg(ppb)	REPORTING LIMIT(ppb)
chloromethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
bromomethane	ND	10
trichlorofluoromethane	ND	10
1,1-dichloroethene	ND	5
trans-1,2-dichloroethene	ND	5
1,1-dichloroethane	ND	5
chloroform	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
1,2-dichloroethane	ND	5
benzene	ND	5
trichloroethene	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
toluene	ND	5
trans-1,3-dichloropropene	ND	5
bromodichloromethane	ND	5
1,1,2-trichloroethane	ND	5
tetrachloroethene	ND	10
dibromochloromethane	ND	5
chlorobenzene	ND	5
ethylbenzene	ND	5
total xylenes	ND	15
2-chloroethylvinyl ether	ND	5
1,1,2,2-tetrachloroethane	ND	5
1,3-dichlorobenzene	ND	5
1,4-dichlorobenzene	ND	5
1,2-dichlorobenzene	ND	5

ND = Not Detected at, or Above the Report Limit

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/23/91  
Sample ID: S-15-B1  
Lab ID: 91-1553  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2306.D

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SURROGATE RECOVERY

Surrogate	Amount	Spike	%Recov
1,2-dichloroethane-d-4	45	50	90.36
toluene-d8	49	50	97.61
4-bromofluorobenzene	50	50	99.98

Surrogate Recovery Range = 50 - 150

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/23/91  
Sample ID: S-10-B2  
Lab ID: 91-1554  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2307.D

ANALYTES	CONCENTRATION ug/Kg(ppb)	REPORTING LIMIT(ppb)
chloromethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
bromomethane	ND	10
trichlorofluoromethane	ND	10
1,1-dichloroethene	ND	5
trans-1,2-dichloroethene	ND	5
1,1-dichloroethane	ND	5
chloroform	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
1,2-dichloroethane	ND	5
benzene	ND	5
trichloroethene	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
toluene	11	5
trans-1,3-dichloropropene	ND	5
bromodichloromethane	ND	5
1,1,2-trichloroethane	ND	5
tetrachloroethene	ND	10
dibromochloromethane	ND	5
chlorobenzene	ND	5
ethylbenzene	ND	5
total xylenes	ND	15
2-chloroethylvinyl ether	ND	5
1,1,2,2-tetrachloroethane	ND	5
1,3-dichlorobenzene	ND	5
1,4-dichlorobenzene	ND	5
1,2-dichlorobenzene	ND	5

ND = Not Detected at, or Above the Report Limit

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/23/91  
Sample ID: S-10-B2  
Lab ID: 91-1554  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2307.D

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SURROGATE RECOVERY

Surrogate	Amount	Spike	%Recov
1,2-dichloroethane-d-4	48	50	96.64
toluene-d8	55	50	110.18
4-bromofluorobenzene	54	50	107.56

Surrogate Recovery Range = 50 - 150

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/23/91  
Sample ID: S-18-B2  
Lab ID: 91-1555  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2308.D

ANALYTES	CONCENTRATION ug/Kg(ppb)	REPORTING LIMIT(ppb)
chloromethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
bromomethane	ND	10
trichlorofluoromethane	ND	10
1,1-dichloroethene	ND	5
trans-1,2-dichloroethene	ND	5
1,1-dichloroethane	ND	5
chloroform	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
1,2-dichloroethane	ND	5
benzene	ND	5
trichloroethene	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
toluene	6	5
trans-1,3-dichloropropene	ND	5
bromodichloromethane	ND	5
1,1,2-trichloroethane	ND	5
tetrachloroethene	ND	10
dibromochloromethane	ND	5
chlorobenzene	ND	5
ethylbenzene	ND	5
total xylenes	ND	15
2-chloroethylvinyl ether	ND	5
1,1,2,2-tetrachloroethane	ND	5
1,3-dichlorobenzene	ND	5
1,4-dichlorobenzene	ND	5
1,2-dichlorobenzene	ND	5

ND = Not Detected at, or Above the Report Limit



CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/23/91  
Sample ID: S-18-B2  
Lab ID: 91-1555  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2308.D

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SURROGATE RECOVERY

Surrogate	Amount	Spike	%Recov
1,2-dichloroethane-d-4	49	50	98.82
toluene-d8	55	50	110.63
4-bromofluorobenzene	53	50	106.71

Surrogate Recovery Range = 50 - 150

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/23/91  
Sample ID: S-10-B3  
Lab ID: 91-1556  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2309.D

ANALYTES	CONCENTRATION ug/Kg(ppb)	REPORTING LIMIT(ppb)
chloromethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
bromomethane	ND	10
trichlorofluoromethane	ND	10
1,1-dichloroethene	ND	5
trans-1,2-dichloroethene	ND	5
1,1-dichloroethane	ND	5
chloroform	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
1,2-dichloroethane	ND	5
benzene	ND	5
trichloroethene	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
toluene	10	5
trans-1,3-dichloropropene	ND	5
bromodichloromethane	ND	5
1,1,2-trichloroethane	ND	5
tetrachloroethene	ND	10
dibromochloromethane	ND	5
chlorobenzene	ND	5
ethylbenzene	ND	5
total xylenes	ND	15
2-chloroethylvinyl ether	ND	5
1,1,2,2-tetrachloroethane	ND	5
1,3-dichlorobenzene	ND	5
1,4-dichlorobenzene	ND	5
1,2-dichlorobenzene	ND	5

ND = Not Detected at, or Above the Report Limit

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/23/91  
Sample ID: S-10-B3  
Lab ID: 91-1556  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2309.D

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SURROGATE RECOVERY

Surrogate	Amount	Spike	%Recov
1,2-dichloroethane-d-4	47	50	94.10
toluene-d8	53	50	105.04
4-bromofluorobenzene	51	50	101.95

Surrogate Recovery Range = 50 - 150

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/23/91  
Sample ID: S-17-B3  
Lab ID: 91-1557  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2310.D

ANALYTES	CONCENTRATION ug/Kg(ppb)	REPORTING LIMIT(ppb)
chloromethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
bromomethane	ND	10
trichlorofluoromethane	ND	10
1,1-dichloroethene	ND	5
trans-1,2-dichloroethene	ND	5
1,1-dichloroethane	ND	5
chloroform	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
1,2-dichloroethane	ND	5
benzene	ND	5
trichloroethene	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
toluene	7	5
trans-1,3-dichloropropene	ND	5
bromodichloromethane	ND	5
1,1,2-trichloroethane	ND	5
tetrachloroethene	ND	10
dibromochloromethane	ND	5
chlorobenzene	ND	5
ethylbenzene	ND	5
total xylenes	ND	15
2-chloroethylvinyl ether	ND	5
1,1,2,2-tetrachloroethane	ND	5
1,3-dichlorobenzene	ND	5
1,4-dichlorobenzene	ND	5
1,2-dichlorobenzene	ND	5

ND = Not Detected at, or Above the Report Limit

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/23/91  
Sample ID: S-17-B3  
Lab ID: 91-1557  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2310.D

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SURROGATE RECOVERY

Surrogate	Amount	Spike	%Recov
1,2-dichloroethane-d-4	49	50	97.76
toluene-d8	53	50	105.98
4-bromofluorobenzene	51	50	101.68

Surrogate Recovery Range = 50 - 150

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL CONTACT: E HOLM  
Date Samples Received: 5/20/91 P.O. No:  
Date of Analysis: 05/24/91 CT ID: 1905  
Sample ID: Composite S-0514-1A,B,C,D  
Lab ID: 91-1558,59,60,61  
Matrix: SOIL

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2409.D

ANALYTES	CONCENTRATION ug/Kg(ppb)	REPORTING LIMIT(ppb)
chloromethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
bromomethane	ND	10
trichlorofluoromethane	ND	10
1,1-dichloroethene	ND	5
trans-1,2-dichloroethene	ND	5
1,1-dichloroethane	ND	5
chloroform	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
1,2-dichloroethane	ND	5
benzene	ND	5
trichloroethene	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
toluene	40	5
trans-1,3-dichloropropene	ND	5
bromodichloromethane	ND	5
1,1,2-trichloroethane	ND	5
tetrachloroethene	ND	10
dibromochloromethane	ND	5
chlorobenzene	ND	5
ethylbenzene	30	5
total xylenes	140	15
2-chloroethylvinyl ether	ND	5
1,1,2,2-tetrachloroethane	ND	5
1,3-dichlorobenzene	ND	5
1,4-dichlorobenzene	ND	5
1,2-dichlorobenzene	ND	5

ND = Not Detected at, or Above the Report Limit

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL CONTACT: E HOLM  
Date Samples Received: 5/20/91 P.O. No:  
Date of Analysis: 05/24/91 CT ID: 1905  
Sample ID: Composite S-0514-1A,B,C,D  
Lab ID: 91-1558,59,60,61  
Matrix: SOIL

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2409.D

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SURROGATE RECOVERY

Surrogate	Amount	Spike	%Recov
1,2-dichloroethane-d-4	52	50	104.55
toluene-d8	51	50	102.73
4-bromofluorobenzene	48	50	96.25

Surrogate Recovery Range = 50 - 150

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

Date Samples Received: 5/20/91  
Date of Analysis: 05/23/91  
Sample ID: MS/MSD  
Lab ID: 91-1552MSD  
Matrix: SOIL

P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2305.D

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MATRIX SPIKE

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COMPOUND	LEVEL	MS AMOUNT	% RECOVERY	MSD AMOUNT	% RECOVERY	RPD
1,1 Dichloroethene	50	48.20	96.40	48.40	96.80	0.41
Benzene	50	54.60	109.20	54.23	108.46	0.68
Trichloroethene	50	47.34	94.68	46.73	93.46	1.30
Toluene	50	57.27	114.54	54.67	109.34	4.65
Chlorobenzene	50	49.86	99.72	50.10	100.20	0.48

% RECOVERY RANGE = 50-150  
RPD RANGE = 0- 25

MS = MATRIX SPIKE  
MSD = MATRIX SPIKE DUPLICATE  
RPD = RELATIVE PERCENT DEVIATION



CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

Date Samples Received: N/A  
Date of Analysis: 05/24/91  
Sample ID: LCS/D  
Lab ID: LCSD  
Matrix: SOIL

P.O. No:  
CT ID: 1905

ANALYSIS: Purgeable Organics Modified Method8240LL File: E2404.D

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LABORATORY CONTROL SPIKE

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COMPOUND	LEVEL	LCS AMOUNT	% RECOVERY	LCSD AMOUNT	% RECOVERY	RPD
1,1 Dichloroethene	50	50.20	100.40	48.80	97.60	2.83
Benzene	50	57.00	114.00	56.60	113.20	0.70
Trichloroethene	50	48.10	96.20	47.80	95.60	0.63
Toluene	50	52.90	105.80	52.90	105.80	0.00
Chlorobenzene	50	52.10	104.20	52.40	104.80	0.57

% RECOVERY RANGE = 50-150

RPD RANGE = 0- 25

LCS = LABORATORY CONTROL SPIKE

LCSD = LABORATORY CONTROL SPIKE DUPLICATE

RPD = RELATIVE PERCENT DEVIATION

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/29/91  
Date of Extraction: 05/27/91  
Sample ID: N/A  
Lab ID: METHOD BLANK  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: SemiVolatile Organics Modified Method8270 File: E2902.D

ANALYTES	CONCENTRATION mg/Kg(ppm)	REPORTING LIMIT(ppm)
<b>POLYNUCLEAR AROMATICS(PNA)</b>		
Acenaphthene	ND	1
Acenaphthylene	ND	1
Anthracene	ND	1
Benzo[a]anthracene	ND	1
Benzo[a]pyrene	ND	1
Benzo[b]fluoranthene	ND	1
Benzo[k]fluoranthene	ND	1
Benzo[g,h,k]perylene	ND	1
Chrysene	ND	1
Dibenzo[a,h]anthracene	ND	1
Fluoranthene	ND	1
Fluorene	ND	1
Indeno(1,2,3-c,d)pyrene	ND	1
Naphthalene	ND	1
Phenanthrene	ND	1
Pyrene	ND	1
<b>POLYCHLOROBIPHENYLS(PCB)</b>		
AROCLOR 1016	ND	2
AROCLOR 1221	ND	2
AROCLOR 1232	ND	2
AROCLOR 1242	ND	2
AROCLOR 1248	ND	2
AROCLOR 1254	ND	2
AROCLOR 1260	ND	2
<b>ANILINES</b>		
Aniline	ND	1
4-Chloroaniline	ND	2
2-Nitroaniline	ND	5
3-Nitroaniline	ND	5
4-Nitroaniline	ND	5

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/29/91  
Date of Extraction: 05/27/91

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

Sample ID: N/A  
Lab ID: METHOD BLANK  
Matrix: SOIL

ANALYSIS: SemiVolatile Organics Modified Method8270 File: E2902.D

ANALYTES	CONCENTRATION mg/Kg(ppm)	REPORTING LIMIT(ppm)
PHENOLS		
Pentachlorophenol	ND	1
Phenol	ND	1
2-Chlorophenol	ND	1
2-Methylphenol	ND	1
4-Methylphenol	ND	1
2-Nitrophenol	ND	1
2,4-Dichlorophenol	ND	1
4-Chloro-3-methylphenol	ND	1
2,4,6-Trichlorophenol	ND	1
2,4,5-Trichlorophenol	ND	1
4-Nitrophenol	ND	1
2-Methyl-4,6-dinitrophenol	ND	1

SURROGATE RECOVERY

Surrogate	Amount	Spike	%Recov	Range
2-Fluorophenol	157.02	200	78.51	20-100
Phenol-D6	77.99	200	38.99	10-94
Nitrobenzene-D5	59.80	100	59.80	35-114
2-Fluorobiphenyl	43.21	100	43.21	43-116
Tribromophenol	102.03	200	51.02	10-123
4-Terphenyl-D14	86.98	100	86.98	33-141

ND = Not Detected at, or Above the Report Limit

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/29/91  
Date of Extraction: 05/27/91  
Sample ID: S-10-B2  
Lab ID: 91-1554  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: SemiVolatile Organics Modified Method8270 File: E2905.D

ANALYTES	CONCENTRATION mg/Kg (ppm)	REPORTING LIMIT (ppm)
<b>POLYNUCLEAR AROMATICS (PNA)</b>		
Acenaphthene	ND	1
Acenaphthylene	ND	1
Anthracene	ND	1
Benzo[a]anthracene	ND	1
Benzo[a]pyrene	ND	1
Benzo[b]fluoranthene	ND	1
Benzo[k]fluoranthene	ND	1
Benzo[g,h,k]perylene	ND	1
Chrysene	ND	1
Dibenzo[a,h]anthracene	ND	1
Fluoranthene	ND	1
Fluorene	ND	1
Indeno(1,2,3-c,d)pyrene	ND	1
Naphthalene	ND	1
Phenanthrene	ND	1
Pyrene	ND	1
<b>POLYCHLOROBIPHENYLS (PCB)</b>		
AROCLOR 1016	ND	2
AROCLOR 1221	ND	2
AROCLOR 1232	ND	2
AROCLOR 1242	ND	2
AROCLOR 1248	ND	2
AROCLOR 1254	ND	2
AROCLOR 1260	ND	2
<b>ANILINES</b>		
Aniline	ND	1
4-Chloroaniline	ND	2
2-Nitroaniline	ND	5
3-Nitroaniline	ND	5
4-Nitroaniline	ND	5

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/29/91  
Date of Extraction: 05/27/91  
Sample ID: S-10-B2  
Lab ID: 91-1554  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: SemiVolatile Organics Modified Method8270 File: E2905.D

ANALYTES	CONCENTRATION mg/Kg(ppm)	REPORTING LIMIT(ppm)
PHENOLS		
Pentachlorophenol	ND	1
Phenol	ND	1
2-Chlorophenol	ND	1
2-Methylphenol	ND	1
4-Methylphenol	ND	1
2-Nitrophenol	ND	1
2,4-Dichlorophenol	ND	1
4-Chloro-3-methylphenol	ND	1
2,4,6-Trichlorophenol	ND	1
2,4,5-Trichlorophenol	ND	1
4-Nitrophenol	ND	1
2-Methyl-4,6-dinitrophenol	ND	1

SURROGATE RECOVERY

Surrogate	Amount	Spike	%Recov	Range
2-Fluorophenol	129.70	200	64.85	20-100
Phenol-D6	85.64	200	42.82	10-94
Nitrobenzene-D5	60.71	100	60.71	35-114
2-Fluorobiphenyl	53.92	100	53.92	43-116
Tribromophenol	93.60	200	46.80	10-123
4-Terphenyl-D14	80.72	100	80.72	33-141

ND = Not Detected at, or Above the Report Limit

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/29/91  
Date of Extraction: 05/27/91  
Sample ID: S-18-B2  
Lab ID: 91-1555  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: SemiVolatile Organics Modified Method8270 File: E2906.D

ANALYTES	CONCENTRATION mg/Kg(ppm)	REPORTING LIMIT(ppm)
POLYNUCLEAR AROMATICS(PNA)		
Acenaphthene	ND	1
Acenaphthylene	ND	1
Anthracene	ND	1
Benzo[a]anthracene	ND	1
Benzo[a]pyrene	ND	1
Benzo[b]fluoranthene	ND	1
Benzo[k]fluoranthene	ND	1
Benzo[g,h,k]perylene	ND	1
Chrysene	ND	1
Dibenzo[a,h]anthracene	ND	1
Fluoranthene	ND	1
Fluorene	ND	1
Indeno(1,2,3-c,d)pyrene	ND	1
Naphthalene	ND	1
Phenanthrene	ND	1
Pyrene	ND	1
POLYCHLOROBIPHENYLS(PCB)		
AROCLOR 1016	ND	2
AROCLOR 1221	ND	2
AROCLOR 1232	ND	2
AROCLOR 1242	ND	2
AROCLOR 1248	ND	2
AROCLOR 1254	ND	2
AROCLOR 1260	ND	2
ANILINES		
Aniline	ND	1
4-Chloroaniline	ND	2
2-Nitroaniline	ND	5
3-Nitroaniline	ND	5
4-Nitroaniline	ND	5

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/29/91  
Date of Extraction: 05/27/91  
Sample ID: S-18-B2  
Lab ID: 91-1555  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: SemiVolatile Organics Modified Method8270 File: E2906.D

ANALYTES	CONCENTRATION mg/Kg(ppm)	REPORTING LIMIT(ppm)
PHENOLS		
Pentachlorophenol	ND	1
Phenol	ND	1
2-Chlorophenol	ND	1
2-Methylphenol	ND	1
4-Methylphenol	ND	1
2-Nitrophenol	ND	1
2,4-Dichlorophenol	ND	1
4-Chloro-3-methylphenol	ND	1
2,4,6-Trichlorophenol	ND	1
2,4,5-Trichlorophenol	ND	1
4-Nitrophenol	ND	1
2-Methyl-4,6-dinitrophenol	ND	1

SURROGATE RECOVERY

Surrogate	Amount	Spike	%Recov	Range
2-Fluorophenol	135.90	200	67.95	20-100
Phenol-D6	84.57	200	42.28	10-94
Nitrobenzene-D5	59.08	100	59.08	35-114
2-Fluorobiphenyl	50.43	100	50.43	43-116
Tribromophenol	93.95	200	46.97	10-123
4-Terphenyl-D14	77.23	100	77.23	33-141

ND = Not Detected at, or Above the Report Limit

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/29/91  
Date of Extraction: 05/27/91  
Sample ID: S-10-B3  
Lab ID: 91-1556  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: SemiVolatile Organics Modified Method8270 File: E2907.D

ANALYTES	CONCENTRATION mg/Kg(ppm)	REPORTING LIMIT(ppm)
<b>POLYNUCLEAR AROMATICS(PNA)</b>		
Acenaphthene	ND	1
Acenaphthylene	ND	1
Anthracene	ND	1
Benzo[a]anthracene	ND	1
Benzo[a]pyrene	ND	1
Benzo[b]fluoranthene	ND	1
Benzo[k]fluoranthene	ND	1
Benzo[g,h,k]perylene	ND	1
Chrysene	ND	1
Dibenzo[a,h]anthracene	ND	1
Fluoranthene	ND	1
Fluorene	ND	1
Indeno(1,2,3-c,d)pyrene	ND	1
Naphthalene	ND	1
Phenanthrene	ND	1
Pyrene	ND	1
<b>POLYCHLOROBIPHENYLS(PCB)</b>		
AROCLOR 1016	ND	2
AROCLOR 1221	ND	2
AROCLOR 1232	ND	2
AROCLOR 1242	ND	2
AROCLOR 1248	ND	2
AROCLOR 1254	ND	2
AROCLOR 1260	ND	2
<b>ANILINES</b>		
Aniline	ND	1
4-Chloroaniline	ND	2
2-Nitroaniline	ND	5
3-Nitroaniline	ND	5
4-Nitroaniline	ND	5



CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/29/91  
Date of Extraction: 05/27/91  
Sample ID: S-10-B3  
Lab ID: 91-1556  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: SemiVolatile Organics Modified Method8270 File: E2907.D

ANALYTES	CONCENTRATION mg/Kg (ppm)	REPORTING LIMIT (ppm)
PHENOLS		
Pentachlorophenol	ND	1
Phenol	ND	1
2-Chlorophenol	ND	1
2-Methylphenol	ND	1
4-Methylphenol	ND	1
2-Nitrophenol	ND	1
2,4-Dichlorophenol	ND	1
4-Chloro-3-methylphenol	ND	1
2,4,6-Trichlorophenol	ND	1
2,4,5-Trichlorophenol	ND	1
4-Nitrophenol	ND	1
2-Methyl-4,6-dinitrophenol	ND	1

SURROGATE RECOVERY

Surrogate	Amount	Spike	%Recov	Range
2-Fluorophenol	115.62	200	57.81	20-100
Phenol-D6	80.33	200	40.17	10-94
Nitrobenzene-D5	56.22	100	56.22	35-114
2-Fluorobiphenyl	49.03	100	49.03	43-116
Tribromophenol	89.23	200	44.61	10-123
4-Terphenyl-D14	77.53	100	77.53	33-141

ND = Not Detected at, or Above the Report Limit

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/29/91  
Date of Extraction: 05/27/91  
Sample ID: S-17-B3  
Lab ID: 91-1557  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: SemiVolatile Organics Modified Method8270 File: E2908.D

ANALYTES	CONCENTRATION mg/Kg(ppm)	REPORTING LIMIT(ppm)
POLYNUCLEAR AROMATICS(PNA)		
Acenaphthene	ND	1
Acenaphthylene	ND	1
Anthracene	ND	1
Benzo[a]anthracene	ND	1
Benzo[a]pyrene	ND	1
Benzo[b]fluoranthene	ND	1
Benzo[k]fluoranthene	ND	1
Benzo[g,h,k]perylene	ND	1
Chrysene	ND	1
Dibenzo[a,h]anthracene	ND	1
Fluoranthene	ND	1
Fluorene	ND	1
Indeno(1,2,3-c,d)pyrene	ND	1
Naphthalene	ND	1
Phenanthrene	ND	1
Pyrene	ND	1
POLYCHLOROBIPHENYLS(PCB)		
AROCLOR 1016	ND	2
AROCLOR 1221	ND	2
AROCLOR 1232	ND	2
AROCLOR 1242	ND	2
AROCLOR 1248	ND	2
AROCLOR 1254	ND	2
AROCLOR 1260	ND	2
ANILINES		
Aniline	ND	1
4-Chloroaniline	ND	2
2-Nitroaniline	ND	5
3-Nitroaniline	ND	5
4-Nitroaniline	ND	5

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/29/91  
Date of Extraction: 05/27/91  
Sample ID: S-17-B3  
Lab ID: 91-1557  
Matrix: SOIL

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

ANALYSIS: SemiVolatile Organics Modified Method8270 File: E2908.D

ANALYTES	CONCENTRATION mg/Kg(ppm)	REPORTING LIMIT(ppm)
PHENOLS		
Pentachlorophenol	ND	1
Phenol	ND	1
2-Chlorophenol	ND	1
2-Methylphenol	ND	1
4-Methylphenol	ND	1
2-Nitrophenol	ND	1
2,4-Dichlorophenol	ND	1
4-Chloro-3-methylphenol	ND	1
2,4,6-Trichlorophenol	ND	1
2,4,5-Trichlorophenol	ND	1
4-Nitrophenol	ND	1
2-Methyl-4,6-dinitrophenol	ND	1

SURROGATE RECOVERY

Surrogate	Amount	Spike	%Recov	Range
2-Fluorophenol	133.02	200	66.51	20-100
Phenol-D6	87.12	200	43.56	10-94
Nitrobenzene-D5	55.36	100	55.36	35-114
2-Fluorobiphenyl	51.22	100	51.22	43-116
Tribromophenol	95.56	200	47.78	10-123
4-Terphenyl-D14	83.20	100	83.20	33-141

ND = Not Detected at, or Above the Report Limit

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/29/91  
Date of Extraction: 05/27/91

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

Sample ID: S-0514-1A,B,C,D  
Lab ID: 91-1558 TH 61  
Matrix: SOIL

ANALYSIS: SemiVolatile Organics Modified Method8270 File: E2909.D

ANALYTES	CONCENTRATION mg/Kg (ppm)	REPORTING LIMIT(ppm)
POLYNUCLEAR AROMATICS(PNA)		
Acenaphthene	ND	1
Acenaphthylene	ND	1
Anthracene	ND	1
Benzo[a]anthracene	ND	1
Benzo[a]pyrene	ND	1
Benzo[b]fluoranthene	ND	1
Benzo[k]fluoranthene	ND	1
Benzo[g,h,k]perylene	ND	1
Chrysene	ND	1
Dibenzo[a,h]anthracene	ND	1
Fluoranthene	ND	1
Fluorene	ND	1
Indeno(1,2,3-c,d)pyrene	ND	1
Naphthalene	ND	1
Phenanthrene	2	1
Pyrene	ND	1
POLYCHLOROBIPHENYLS(PCB)		
AROCLOR 1016	ND	2
AROCLOR 1221	ND	2
AROCLOR 1232	ND	2
AROCLOR 1242	ND	2
AROCLOR 1248	ND	2
AROCLOR 1254	ND	2
AROCLOR 1260	ND	2
ANILINES		
Aniline	ND	1
4-Chloroaniline	ND	2
2-Nitroaniline	ND	5
3-Nitroaniline	ND	5
4-Nitroaniline	ND	5

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: APPLIED ANALYTICAL  
Date Samples Received: 5/20/91  
Date of Analysis: 05/29/91  
Date of Extraction: 05/27/91

CONTACT: E HOLM  
P.O. No:  
CT ID: 1905

Sample ID: S-0514-1A,B,C,D  
Lab ID: 91-1558 TH 61  
Matrix: SOIL

ANALYSIS: SemiVolatile Organics Modified Method8270 File: E2909.D

ANALYTES	CONCENTRATION mg/Kg(ppm)	REPORTING LIMIT(ppm)
PHENOLS		
Pentachlorophenol	ND	1
Phenol	ND	1
2-Chlorophenol	ND	1
2-Methylphenol	ND	1
4-Methylphenol	ND	1
2-Nitrophenol	ND	1
2,4-Dichlorophenol	ND	1
4-Chloro-3-methylphenol	ND	1
2,4,6-Trichlorophenol	ND	1
2,4,5-Trichlorophenol	ND	1
4-Nitrophenol	ND	1
2-Methyl-4,6-dinitrophenol	ND	1

SURROGATE RECOVERY

Surrogate	Amount	Spike	%Recov	Range
2-Fluorophenol	157.53	200	78.76	20-100
Phenol-D6	89.68	200	44.84	10-94
Nitrobenzene-D5	61.77	100	61.77	35-114
2-Fluorobiphenyl	45.40	100	45.40	43-116
Tribromophenol	113.33	200	56.66	10-123
4-Terphenyl-D14	78.08	100	78.08	33-141

ND = Not Detected at, or Above the Report Limit

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

Date Samples received: N/A  
Date of Analysis: 05/29/91  
Sample ID: LCS/D  
Lab ID: LCSD  
Matrix: SOIL

P.O. No:  
CT ID: 1905.0

ANALYSIS: Purgeable Organic Analytes Method 8270

File: E2904.D

LABORATORY CONTROL SPIKE

COMPOUND	LEVEL	LCS AMNT	% RECVRY	LCSD AMNT	% RECVRY	RECVRY RANGE	RPD
Phenol	200	83.6	41.8	83.3	41.7	5-112	0.4
2-Chlorophenol	200	117.4	58.7	119.1	59.6	23-134	1.4
1,4-dichlorobenzene	100	48.0	48.0	50.2	50.2	20-124	4.5
N-Nitrosodi-n-propyl amine	100	51.7	51.7	53.2	53.2	1-230	2.9
1,2,4-Trichlorobenzene	100	58.8	58.8	60.5	60.5	32-142	2.8
4-Chloro-3-methylphenol	200	96.4	48.2	97.1	48.6	22-147	0.7
Acenaphthene	100	57.9	57.9	59.0	59.0	30-145	1.9
4-Nitrophenol	200	40.0	20.0	40.2	20.1	1-132	0.5
2,4-Dinitrotoluene	100	45.2	45.2	47.5	47.5	32-139	5.0
Pentachlorophenol	200	81.8	40.9	79.3	39.7	14-176	3.1
Pyrene	100	122.4	122.4	113.2	113.2	32-115	7.8

RPD RANGE = 0- 25

LCS = LABORATORY CONTROL SPIKE  
LCSD = LABORATORY CONTROL SPIKE DUPLICATE  
RPD = RELATIVE PERCENT DEVIATION

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: Applied Analytical

Date Samples Received: 5/20/91

Date of Analysis: 6/14/91

Sample ID: N/A

Lab ID: Method Blank

Matrix: Soil

CONTACT: E. Holm

P.O. #: 30061-1

CT ID: 1905

METALS - TTLC

Element	Results (mg/Kg) (ppm)	Reporting Limit (mg/Kg) (ppm)	Method
Cadmium	ND	0.1	7130
Chromium	ND	0.2	7190
Lead	ND	1.	7420
Nickel	ND	2.	7520
Zinc	ND	0.8	7920

ND= Not Detected at or above indicated reporting limits.

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: Applied Analytical  
Date Samples Received: 5/20/91  
Date of Analysis: 6/14/91  
Sample ID: S-10-B2  
Lab ID: 91-1554  
Matrix: Soil

CONTACT: E. Holm  
P.O. #: 30061-1  
CT ID: 1905

METALS - TTLC

Element	Results (mg/Kg) (ppm)	Reporting Limit (mg/Kg) (ppm)	Method
Cadmium	16.	0.1	7130
Chromium	23.	0.2	7190
Lead	16.	1.	7420
Nickel	65.	2.	7520
Zinc	55.	0.8	7920

ND= Not Detected at or above indicated reporting limits.



CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: Applied Analytical  
Date Samples Received: 5/20/91  
Date of Analysis: 6/14/91  
Sample ID: S-18-B2  
Lab ID: 91-1555  
Matrix: Soil

CONTACT: E. Holm  
P.O. #: 30061-1  
CT ID: 1905

METALS - TTLC

Element	Results (mg/Kg) (ppm)	Reporting Limit (mg/Kg) (ppm)	Method
Cadmium	15.	0.1	7130
Chromium	27.	0.2	7190
Lead	16.	1.	7420
Nickel	57.	2.	7520
Zinc	51.	0.8	7920

ND= Not Detected at or above indicated reporting limits.

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: Applied Analytical  
Date Samples Received: 5/20/91  
Date of Analysis: 6/14/91  
Sample ID: S-10-B3  
Lab ID: 91-1556  
Matrix: Soil

CONTACT: E. Holm  
P.O. #: 30061-1  
CT ID: 1905

METALS - TTLC

Element	Results (mg/Kg) (ppm)	Reporting Limit (mg/Kg) (ppm)	Method
Cadmium	11.	0.1	7130
Chromium	24.	0.2	7190
Lead	10.	1.	7420
Nickel	41.	2.	7520
Zinc	48.	0.8	7920

ND= Not Detected at or above indicated reporting limits.

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: Applied Analytical

Date Samples Received: 5/20/91

Date of Analysis: 6/14/91

Sample ID: S-17-B3

Lab ID: 91-1557

Matrix: Soil

CONTACT: E. Holm

P.O. #: 30061-1

CT ID: 1905

METALS - TTLC

Element	Results (mg/Kg) (ppm)	Reporting Limit (mg/Kg) (ppm)	Method
Cadmium	11.	0.1	7130
Chromium	22.	0.2	7190
Lead	11.	1.	7420
Nickel	52.	2.	7520
Zinc	43.	0.8	7920

ND= Not Detected at or above indicated reporting limits.

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: Applied Analytical

Date Samples Received: 5/20/91

Date of Analysis: 6/14/91

Sample ID: S-0514-1A,B,C,D

Lab ID: 91-1558 th 61

Matrix: Soil

CONTACT: E. Holm

P.O. #: 30061-1

CT ID: 1905

METALS - TTLC

Element	Results (mg/Kg) (ppm)	Reporting Limit (mg/Kg) (ppm)	Method
Cadmium	11.	0.1	7130
Chromium	27.	0.2	7190
Lead	14.	1.	7420
Nickel	42.	2.	7520
Zinc	53.	0.8	7920

ND= Not Detected at or above indicated reporting limits.

CHEMTECH ANALYTICAL LABORATORIES  
ANALYSIS REPORT

CLIENT: Applied Analytical

Date Samples Received: 5/20/91

Date of Analysis: 6/14/91

Sample ID: N/A

Lab ID: LCS/LCSD

Matrix: Soil

CONTACT: E. Holm

P.O. #: 30061-1

CT ID: 1905

METALS - TTLC

MATRIX SPIKE SUMMARY

Element	CONC SPIKED mg/Kg	CONC MEASURED		PERCENT RECOVERY		PERCENT RPD
		LCS	LCSD	LCS	LCSD	
Cadmium	3.6	3.50	3.49	97%	97%	0%
Chromium	3.6	3.61	3.57	100%	99%	1%
Lead	3.6	3.68	3.59	102%	100%	2%
Nickel	3.6	3.54	3.54	98%	98%	0%
Zinc	1.8	1.81	1.77	101%	98%	2%

LCS = Laboratory Control Spike

LCSD = Laboratory Control Spike Duplicate

RPD = Relative Percent Difference

CONC = Concentration

# APPLIED ANALYTICAL

## Environmental Laboratories

4191-E Power Inn Road  
Sacramento, CA 95826  
Bus: (916) 452-7136  
Fax: (916) 452-0534

### ANALYSIS REPORT

1020lab.frm

Attention: Mr. Eric Holm  
Applied GeoSystems  
4191-E Power Inn Road  
Sacramento, CA 95826  
Project: AGS 30061-1

Date Sampled: 05-13,14-91  
Date Received: 05-16-91  
BTEX Analyzed: 05-28-91  
TPHg Analyzed: 05-28-91  
TPHd Analyzed: 05-29-91  
Matrix: Soil

	<u>Benzene</u> <u>ppm</u>	<u>Toluene</u> <u>ppm</u>	<u>Ethyl-</u> <u>benzene</u> <u>ppm</u>	<u>Total</u> <u>Xylenes</u> <u>ppm</u>	<u>TPHg</u> <u>ppm</u>	<u>TPHd</u> <u>ppm</u>
Detection Limit:	0.005	0.005	0.005	0.005	1	10

#### SAMPLE

#### Laboratory Identification

S-18-B2 S3106197	ND	ND	ND	ND	ND	ND
S-15-B1 S3106195	ND	ND	ND	ND	ND	ND
S-0514-1abcd S3106200	ND	ND	ND	0.018	ND	ND
S-10-B3 S3106198	ND	ND	ND	ND	ND	ND

ppm = parts per million = mg/kg = milligrams per kilogram.

ND = Not detected. Compound(s) may be present at concentrations below the detection limit.

NR = Analysis not requested.

#### ANALYTICAL PROCEDURES

**BTEX**-- Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using modified EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.

**TPHg**--Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.

**TPHd**--Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Laboratory Representative

06-03-91  
Date Reported

# APPLIED ANALYTICAL

## Environmental Laboratories

4191-E Power Inn Road  
Sacramento, CA 95826  
Bus: (916) 452-7136  
Fax: (916) 452-0534

### ANALYSIS REPORT

Attention: Mr. Eric Holm  
Applied GeoSystems  
4191-E Power Inn Road  
Sacramento, CA 95826  
Project: AGS 30061-1

Date Sampled: 05-13,14-91  
Date Received: 05-16-91  
BTEX Analyzed: 05-28-91  
TPHg Analyzed: 05-28-91  
TPHd Analyzed: 05-29-91  
Matrix: Soil

1020lab.frm

	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl- benzene</u>	<u>Total Xylenes</u>	<u>TPHg</u>	<u>TPHd</u>
	<u>ppm</u>	<u>ppm</u>	<u>ppm</u>	<u>ppm</u>	<u>ppm</u>	<u>ppm</u>
Detection Limit:	0.005	0.005	0.005	0.005	1	10

#### SAMPLE

#### Laboratory Identification

S-5-B1 S3106194	ND	ND	ND	ND	ND	ND
S-10-B2 S3106196	ND	ND	ND	ND	ND	ND
S-17-B3 S3106199	ND	ND	ND	ND	ND	ND

ppm = parts per million = mg/kg = milligrams per kilogram.

ND = Not detected. Compound(s) may be present at concentrations below the detection limit.

NR = Analysis not requested.

#### ANALYTICAL PROCEDURES

**BTEX**-- Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using modified EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.

**TPHg**-- Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.

**TPHd**-- Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

  
\_\_\_\_\_  
Laboratory Representative

06-03-91  
\_\_\_\_\_  
Date Reported

# APPLIED ANALYTICAL

## Environmental Laboratories

4191-E Power Inn Road  
Sacramento, CA 95826  
Bus: (916) 452-7136  
Fax: (916) 452-0534

### ANALYSIS REPORT

1020lab.frm

Attention: Mr. Eric Holm  
Applied GeoSystems  
4191 E Power Inn Rd.  
Sacramento, CA 95826  
Project: AGS 30061-1

Date Sampled: 05-13,14-91  
Date Received: 05-16-91  
TOG Analyzed: 05-29-91  
Matrix: Soil

Detection Limit: 50 mg/kg

TOG  
(mg/kg)

---

#### SAMPLE

#### Laboratory Identification

S-0514-1abcd S3106200	120 ppm
S-10-B3 S3106198	ND
S-18-B2 S3106197	ND
S-10-B2 S3106196	120 ppm
S-17-B3 S3106199	ND


---

mg/kg = milligrams per kilogram = ppm = parts per million

ND = Not detected. Compound(s) may be present at concentrations below the detection limit.

#### ANALYTICAL PROCEDURES

**TPH as Oil and Grease** -- Total Oil and Grease (TOG) of mineral or petroleum origin are measured by extraction and gravimetric analysis according to Standard Method 5520 E/F.

  
Laboratory Representative

June 14, 1991  
Date Reported



# APPLIED ANALYTICAL

## Environmental Laboratories

4191-E Power Inn Road  
Sacramento, CA 95826  
Bus: (916) 452-7136  
Fax: (916) 452-0534

## ANALYSIS REPORT

1020lab.frm

Attention: Mr. Eric Holm  
Applied GeoSystems  
4191 E Power Inn Rd.  
Sacramento, CA 95826  
Project: AGS 30061-1

Date Sampled: 05-13,14-91  
Date Received: 05-16-91  
TOG Analyzed: 05-29-91  
Matrix: Soil

Detection Limit: 50 mg/kg

TOG  
(mg/kg)

---

### SAMPLE

#### Laboratory Identification

S-15-B1 S3106195	ND
S-5-B1 S3106194	ND


---

mg/kg = milligrams per kilogram = ppm = parts per million

ND = Not detected. Compound(s) may be present at concentrations below the detection limit.

### ANALYTICAL PROCEDURES

**TPH as Oil and Grease** -- Total Oil and Grease (TOG) of mineral or petroleum origin are measured by extraction and gravimetric analysis according to Standard Method 5520 E/F.

  
\_\_\_\_\_  
Laboratory Representative

June 14, 1991  
\_\_\_\_\_  
Date Reported

# CHAIN-OF-CUSTODY RECORD

PROJECT NO: 30061-1 PROJECT NAME: B.P (Oakland "High Street")

P.O. NO. SAMPLES (Signature): *Claudio Rocha*

DATE TIME SAMPLE ID.

MM/DD/YY

DATE	TIME	SAMPLE ID.
5/13/91	1000	S-5-B1
	1030	S-15-B1
	1045	S-20-B1
	1100	S-25-B1
	1130	S-30-B1
5/14/91	830	S-5-B2
	840	S-10-B2
	890	S-15-B2
	910	S-18-B2
	920	S-5-B3
	930	S-10-B3
	945	S-15-B3
	1000	S-17-B3
5/14/91	1015	S-0514-1A
	1015	S-0514-1B
	1015	S-0514-1C
	1015	S-0514-1D

Composite

No. of Containers

	THG	BTEX	PHH	Oil	Fluore	DIE	B270	26 Compds.	Preserved
S-5-B1	X	X	X	X	X	X			
S-15-B1	X	X	X	X	X	X			
S-20-B1									
S-25-B1									
S-30-B1									
S-5-B2									
S-10-B2	X	X	X	X	X	X			
S-15-B2									
S-18-B2	X	X	X	X	X	X			
S-5-B3									
S-10-B3	X	X	X	X	X	X			
S-15-B3									
S-17-B3	X	X	X	X	X	X			
S-0514-1A	X	X	X	X	X	X			
S-0514-1B	X	X	X	X	X	X			
S-0514-1C	X	X	X	X	X	X			
S-0514-1D	X	X	X	X	X	X			

ANALYSIS

LABORATORY I.D. NUMBER

194 If an analyzed sample  
 195 reports a compound above  
 detection limits - run the  
 sample for Cd, Cr, Pb & Zn  
 using AA and B270 for  
 40 compounds.  
 196  
 197 Please send sub-out  
 analysis to:  
 198 Chemtech  
 3017 Kilgore Rd. #110  
 199 Roshia Cordova, CA 95742  
 635-3962

Composite 200

RELINQUISHED BY (Signature): *Claudio Rocha*

DATE / TIME: 5/14/91 4:30

RECEIVED BY (Signature): *E. J. Hol...*

RELINQUISHED BY (Signature): *E. J. Hol...*

DATE / TIME: 5/14/91 4:45

RECEIVED BY (Signature):

RELINQUISHED BY (Signature):

DATE / TIME:

RECEIVED BY (Signature): *Guy Mc...*

REMARKS: Regular TAT

SEND RESULTS TO:  
**Applied GeoSystems**  
 4191 Power Inn Road  
 Suite D & E  
 Sacramento, California 95826  
 (916) 452 2901

Proj. Mgr.: E. Hol...

RS

## CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PROJECT NO. 30061.02		PROJECT NAME/SITE B-P Oakland						ANALYSIS REQUESTED													P.O. #:		
SAMPLERS <i>Chris Hill</i>		(SIGN) / (PRINT) <i>Chris Hill</i>						NO. CONTAINERS	SAMPLE TYPE	/ /													REMARKS
SAMPLE IDENTIFICATION		DATE	TIME	COMP	GRAB	PRES. USED	ICED			BTEX (602/8020)	TPHg (8015)	TPHd (8015)	TOG 418 (8015)	601/8010	824/8240	825/8270							
W-20-mw 1		10-15-91	1056				X	6	W	X	X	X											
W-20-mw 2		10-15-91	1202				X	6	W	X	X	X											
W-20-mw 4		10-15-91	1308				X	6	W	X	X	X											
RELINQUISHED BY: <i>Chris Hill</i>		DATE 10-15-91	TIME 1630	RECEIVED BY: <i>E. J. Wh</i>		LABORATORY:										PLEASE SEND RESULTS TO:							
RELINQUISHED BY: <i>E. J. Wh</i>		DATE 10/15/91	TIME 16:55	RECEIVED BY:																			
RELINQUISHED BY:		DATE	TIME	RECEIVED BY:		REQUESTED TURNAROUND TIME: <i>Regular</i>										PROJECT MANAGER: <i>Holm</i>							
RELINQUISHED BY:		DATE 10-15-91	TIME 16:55	RECEIVED BY LABORATORY: <i>Jesse Hill</i>		RECEIPT CONDITION:																	

3164 Gold Camp Drive, Suite 200  
Sacramento, CA 95670  
Phone: (916) 852-6699  
Fax: (916) 852-6688

**ANALYSIS REPORT**

Report Prepared for:  
Applied GeoSystems  
3164 Gold Camp Drive #200  
Rancho Cordova, CA 95670  
Attention: Eric Holm

Date Received: 10-15-91  
Laboratory #: W3108067  
Project #: 30061.02  
Sample #: W-20-MW1  
Matrix: Water

---

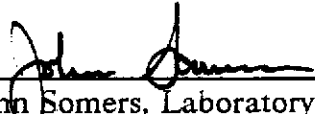
Parameter	Result (mg/Kg)	Detection Limit (mg/Kg)	Date Analyzed
TPH as Oil and Grease	ND	50	10-17-91

---

mg/Kg= Milligrams per Kilograms = ppm  
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.

**PROCEDURES**

**TPH as Oil and Grease:** Total Oil and Grease of mineral or petroleum origin are measured by extraction and gravimetric analysis according to Standard Method 503A/E.

  
John Somers, Laboratory Supervisor

October 31, 1991  
Date Reported

3164 Gold Camp Drive, Suite 200  
Sacramento, CA 95670  
Phone: (916) 852-6699  
Fax: (916) 852-6688

**ANALYSIS REPORT**

Report Prepared for:  
Applied GeoSystems  
3164 Gold Camp Drive #200  
Rancho Cordova, CA 95670  
Attention: Eric Holm

Date Received: 10-15-91  
Laboratory #: W3108068  
Project #: 30061.02  
Sample #: W-20-MW2  
Matrix: Water

---

Parameter	Result (mg/Kg)	Detection Limit (mg/Kg)	Date Analyzed
TPH as Oil and Grease	ND	50	10-17-91


---

mg/Kg = Milligrams per Kilograms = ppm

ND = Not detected. Compound(s) may be present at concentrations below the detection limit.

PROCEDURES

**TPH as Oil and Grease:** Total Oil and Grease of mineral or petroleum origin are measured by extraction and gravimetric analysis according to Standard Method 503A/E.

  
\_\_\_\_\_  
John Somers, Laboratory Supervisor

October 31, 1991  
Date Reported

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Fax: (916) 852-6688

**ANALYSIS REPORT**

Report Prepared for:  
Applied GeoSystems  
3164 Gold Camp Drive #200  
Rancho Cordova, CA 95670  
Attention: Eric Holm

Date Received: 10-15-91  
Laboratory #: W3108069  
Project #: 30061.02  
Sample #: W-20-MW4  
Matrix: Water

---


Parameter	Result (mg/Kg)	Detection Limit (mg/Kg)	Date Analyzed
TPH as Oil and Grease	ND	50	10-17-91

---

mg/Kg = Milligrams per Kilograms = ppm  
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.

PROCEDURES

**TPH as Oil and Grease:** Total Oil and Grease of mineral or petroleum origin are measured by extraction and gravimetric analysis according to Standard Method 503A/E.

  
\_\_\_\_\_  
John Somers, Laboratory Supervisor

\_\_\_\_\_  
October 31, 1991  
Date Reported

3164 Gold Camp Drive, Suite 200  
Sacramento, CA 95670  
Phone: (916) 852-6699  
Fax: (916) 852-6688

**ANALYSIS REPORT**

1020lab.frm

Attention: Mr. Eric Holm  
Applied GeoSystems  
3164 Gold Camp Drive #200  
Rancho Cordova, CA 95670  
Project: AGS 30061.02

Date Sampled: 10-15-91  
Date Received: 10-15-91  
BTEX Analyzed: 10-17-91  
TPHg Analyzed: 10-17-91  
Matrix: Water

	Benzene	Toluene	Ethyl- benzene	Total Xylenes	TPHg
	<u>ppb</u>	<u>ppb</u>	<u>ppb</u>	<u>ppb</u>	<u>ppb</u>
Detection Limit:	0.5	0.5	0.5	0.5	50

**SAMPLE**  
Laboratory Identification

W-20-MW1 W3108067	ND	0.8	0.6	0.8	ND
W-20-MW2 W3108068	ND	0.7	ND	1.5	ND
W-20-MW4 W3108069	ND	0.7	0.6	1.1	ND

ppb = parts per billion =  $\mu\text{g/L}$  = micrograms per liter  
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.  
NR = Analysis not requested.

**ANALYTICAL PROCEDURES**

**BTEX**— Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.  
**TPHg**— Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.

Laboratory Representative

10-31-91  
Date Reported