

**FINAL REPORT**

**UST INVESTIGATION  
FORMER IBC FACILITY  
1010 - 46<sup>TH</sup> STREET  
EMERYVILLE, CALIFORNIA**

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*Prepared for*  
Interstate Brands Corporation  
1324 Arden Way  
Sacramento, CA 95815

August 1999

**URS Greiner Woodward Clyde**

500 12th Street, Suite 200  
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**URS Greiner Woodward Clyde**

A Division of URS Corporation

ENVIRONMENTAL  
PROTECTION

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August 31, 1999  
41-07099010.00

Interstate Brands Corporation  
Attn: Mr. Larry Brown  
1324 Arden Way  
Sacramento, CA 95815

Subject: UST Investigation; Former IBC Facility  
1010 - 46th Street, Emeryville, California

Dear Mr. Brown,

We are pleased to present the attached report which describes the results of the UST Investigation at the subject site.

Please call if you have any questions.

Sincerely,



Richard Ely, R.G.  
Project Geologist



Albert Ridley, C.E.G.  
Senior Project Manager

8743125

cc: Ms. Susan Hugo, Alameda County Health Care Services

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## 1.1 INTRODUCTION

This report presents the results of a site investigation for soil and shallow groundwater performed by URS Greiner Woodward Clyde (URSGWC) at the former Interstate Brands Corporation (IBC) facility (the Site), located at 1010 46<sup>th</sup> Street in Emeryville (Figure 1), California, on behalf of IBC.

The purpose of the investigation was to collect soil and groundwater samples for analysis for Total Petroleum Hydrocarbons as diesel (TPH-diesel), TPH-kerosene, methyl-tertiary-butyl-ether (MTBE), benzene, toluene, ethylbenzene, and xylenes (BTEX). In a letter dated May 18, 1999, Susan Hugo of the Alameda County Environmental Health Services Agency requested that the absence of MTBE in soil and groundwater be verified as a requirement for case closure evaluation. In response to Ms. Hugo's request, URSGWC submitted a Workplan on July 7, 1999. In a letter dated July 15, 1999, Ms. Hugo approved the Workplan with the added proviso that three soil samples be collected from near the top of groundwater and submitted for laboratory analysis.

The site characterization activities described in this report involved:

- 1) Field exploration to collect soil and shallow groundwater samples,
- 2) Laboratory analysis of the samples collected and QA/QC of the results, and
- 3) *Data interpretation and reporting.*

The field exploration sampling activities were conducted on August 10, 1999. Figure 2 shows the sampling locations. A total of four borings were drilled using an Envirocore direct-push sampling device mounted on a tracked rig. Soil samples were collected from a depth of 1 foot to 25- to 28-feet below grade. The boring logs are presented in Appendix A. Soil samples from near the top of groundwater in three of the borings were submitted for laboratory analysis. A grab groundwater sample was collected from each of the borings. Section 2.1 describes the field exploration activities.

The results of the laboratory analyses performed on the samples are presented in Section 2.2. The samples were analyzed for TPH-diesel, TPH-kerosene, MTBE and BTEX.

Section 3.0 presents the results of the data evaluation. Conclusions and recommendations are in Section 4.0.

As mentioned above, Appendix A contains the boring logs. Analytical laboratory reports are in Appendix B.

## 1.2 SITE HISTORY AND ENVIRONMENTAL SETTING

The site is located in Emeryville, California in an area of mixed light-industrial and residential buildings. The site comprises an asphalt-paved parking lot of approximately 1/4 acre that is 45 feet wide (east to west) and about 200 feet long (north south) (see Figure 2).

The site is bounded by 46<sup>th</sup> Street on the southern side of the site. On the north are a parking lot and a maintenance garage. On the east is a large vacant lot. The western boundary is a large unoccupied building, the former Continental Brands Company (CBC) bakery. Subsequently, this building was occupied by a tea company (the San Francisco Herb and Natural Food Company).

The site was formerly the location of a 10,000-gallon single walled steel underground storage tank (UST) that was used to store standby diesel fuel for the bakery. The tank was installed prior to 1969, the year when CBC acquired the property.

The UST was removed on December 22, 1992. Woodward-Clyde Consultants (WCC) observed tank removal activities and collected soil samples from below the tank ends. No holes were noted in the tank. The analytical results of the two soil samples were reported, by WCC in 1993 to the Alameda County Environmental Health Care Services Agency. The soil samples (labeled FTP-1 and FTP-2) were collected from depths of 14-feet below grade and analyzed for TPH-diesel, TPH-oil, TPH-kerosene, and BTEX. No analytes were detected by the laboratory at concentrations above their respective reporting limits.

According to the US Geological Survey (USGS, 1980) Oakland West 7.5 minute Quadrangle, the site is located on gently west-sloping land at an elevation of about 65 feet above mean sea level. The nearest body of water is Temescal Creek, located one block to the north. Temescal Creek drains to San Francisco Bay, which is about 1 mile to the west. The site area is underlain by alluvial fan deposits of the Temescal Formation, which were brought down from the Berkeley Hills by Temescal Creek.

Groundwater monitoring over a period of five years at the IBC facility to the north of the site shows the water table gradient to be consistently to the southwest.

## 2.1 SUMMARY OF FIELD INVESTIGATION ACTIVITIES

On-site drilling activities were performed on August 10, 1999, supervised by Mr. Richard Ely, Project Geologist of URSGWC. A total of four "direct push" soil borings were drilled at the site in the vicinity of the former underground storage tank. The locations of borings are shown on Figure 2.

At each boring location, a direct 2 1/4-inch push sampler was advanced into the ground using a track-mounted drill rig. At each boring location, nearly continuous soil samples were collected from 1-foot below the surface to 28 feet below grade in borings B-1, B-2 and B-3, and 25 feet below grade in Boring B-4 (see boring logs provided in Appendix A). The soil samples were collected from within the sampler by removing the polycarbonate sample liner and capping each end with aluminum foil and plastic endcaps. Sampling equipment was cleaned by pressure washing between sampling events.

Groundwater samples were collected from each boring following the installation of a temporary PVC well of 3/4 -inch diameter. Groundwater samples were collected using a clean stainless steel bailer.

Soil and groundwater samples were sealed, individually labeled and stored on -ice in an ice chest prior to transportation to Chromalab Analytical Laboratory, Pleasanton. Chain-of-custody procedures were used during sampling and transport of these samples.

Drill cuttings from the soil borings were collected and stored on-site in a 55-gallon drum. The drum was appropriately labeled and sealed for later disposal.

### ***Observations of Subsurface Conditions***

Boring B-1 was located to the north (upgradient) of the former UST location. Boring B-2 was drilled through the backfill at the former UST location. Borings B-3 and B-4 were located to the south (downgradient) of the former UST location.

Subsurface materials were predominantly clay with subordinate admixtures of sand and gravel, as shown on the boring logs in Appendix A. The soils generally had very low permeability, as evidenced by the fact that sufficient water for sampling was not present in the borings until they reached depths of 15-feet or more below the groundwater potentiometric surface. Moderately permeable deposits were penetrated below 23.5 feet depth in Boring B-1, from 22 feet to 23 feet in Boring B-2, and from 17 to 18 feet in Boring B-3.

Based upon observations over the last five years in monitoring wells on the IBC parcel immediately north of the site, the depth to the groundwater potentiometric surface ranges from about 9 to 11 feet below the ground surface, and the gradient is to the southwest.

## 2.2 ANALYTICAL RESULTS

Soil and groundwater samples were analyzed by Chromalab, Inc. of Pleasanton, California for BTEX, MTBE, TPH-kerosene, and TPH-diesel by EPA Methods 8020 and 8015M.

***Soil Analytical Results***

Table 2-1 presents the results of the laboratory analyses performed on the soil samples from the site. Results above the detection limit are bolded.

TPH-diesel was detected in 2 of the 3 soil samples. The reported concentrations were 7.5 mg/kg in sample B-2-10.7'-11.2' and 3.4 mg/kg in sample B-3-11.8'-12.4'. TPH-kerosene, MTBE, and BTEX were not detected in any of the soil samples.

***Shallow Groundwater Analytical Results***

Table 2-2 presents the laboratory analyses results for the water samples from the site. Results above the detection limit are bolded.

TPH-diesel was detected in 2 of the 4 water samples. Reported concentrations were **66 µg/l** in B2-W and 89 µg/l in B3-W. Xylenes were the only BTEX constituents detected in the groundwater samples. Sample B2-W reported 0.81 µg/l total xylenes. TPH-kerosene and MTBE and were not detected in any of the samples.

**2.3 DATA VALIDATION**

A quality assurance evaluation of the analytical data provided by Chromalab Analytical Laboratory from soil and groundwater samples collected at 1010 46th Street on August 10, 1999 was undertaken to confirm the accuracy and precision of the laboratory results for use in this report. A total of 3 soil samples and 4 groundwater samples were collected.

Upon receipt of the final laboratory reports, the following steps were taken in accordance with the EPA guidance for data validation. Sample custody documents were cross-checked with laboratory reports for sampling dates and required analyses. Holding times were calculated using analysis date, preparation date, and/or test date in relation to sampling date. The results were reviewed for QA/QC elements of precision, accuracy, reporting limits, and contamination. The following QA/QC parameters were reviewed during data evaluation.

- Chain of Custody - Verify that requested analyses were performed and that sampling dates are accurately noted in lab reports.
- Holding Times - Check for holding times in excess of EPA guidelines.
- Method Blanks - Review blank analyses for evidence of potential contamination.
- Matrix Spikes - Review spike and spike duplicate recoveries and relative percent differences (RPDs) as a check for analytical precision and accuracy.
- Laboratory Control Samples - Review control and control duplicate recoveries and relative percent differences (RPDs) as a check for analytical accuracy and precision.
- Surrogates - Review surrogate recoveries as a check for sample specific accuracy.

***Chain of Custody***

All analyses were performed as requested and samples were adequately accounted for throughout the transfer from field to lab.

***Holding Times***

Holding time, (the time between sampling and sample preparation/analysis) was not exceeded in any case.

***Method Blanks***

Blank samples are analyzed in the same manner as field samples. Laboratory method blanks consist of reagents specific to each individual analytical method that were prepared and analyzed by the laboratory to assess potential sample contamination within the laboratory.

Method blanks did not reveal any laboratory contamination.

***Matrix Spike***

Matrix spike and matrix spike duplicate samples are prepared at the laboratory by dividing a control sample into two aliquots, then spiking each with identical concentrations of specific analytes. The spike samples are then analyzed separately and the results are compared to evaluate the effects of the sample matrix on the analytical accuracy and precision. Accuracy is assessed by calculating the relative percent recovery (RPR) and precision is assessed by calculating the relative percent difference (RPD). US EPA considers an RPR between 25% to 130%, and an RPD value less than 20% to be acceptable (USEPA, 1994).

The analyte MS/MSD recoveries for one sample (S31) were out of the laboratory's QC limits due to matrix interference.

***Laboratory Control Samples***

Laboratory control sample (LCS) recoveries and duplicate (LCSD) relative percent differences (RPDs) were reviewed as a check for analytical accuracy and precision. The LCS is a known sample made by the laboratory for a specific analyte that is analyzed by the laboratory, and the percent recovery is compared to the original added amount of the analyte. The LCS is created by the laboratory by taking a control sample of soil/water and adding a specific analyte, analyzing it, and then comparing the percent recovery to the original analysis of the soil/water sample.

The LCS/LCSD results verified the precision and accuracy of all the analyses, including sample S31 (see above).

***Surrogates***

Surrogate spike recoveries were reviewed to determine the efficiency of the sample preparation and the analytical process. Surrogate spike samples are samples containing organic constituents not expected to be detected in environmental media and are added to every sample and QC at a known concentration.

Surrogate recoveries were all within the laboratory's QC limits.



*Summary*

The data reviewed are of acceptable precision and accuracy for use in this soil and groundwater assessment report.

This section describes the evaluation of the results of the sampling and analysis activities.

The very low concentrations of TPH-diesel in soil and groundwater indicate that some spillage occurred in the past. Grayish-green discolored soil was observed from 7.5 feet to 12.5 feet below ground surface in Boring B-3, which is located directly south of the former UST location. This discoloration may be due to the past presence of diesel fuel floating on the water table. The 5-foot vertical range of the discoloration perhaps reflects the range of water-table fluctuation. The low concentration of TPH-diesel in sample B-3-11.8'-12.4' (3.4 mg/kg), which was collected from within the discolored zone, indicates that if diesel fuel once was present, it has been almost entirely degraded.

The area effected by the fuel appears to have been restricted due to the relative impermeability of the clayey site soils. No fuel hydrocarbons detected were in soil and groundwater at downgradient Boring B-4, which was located 30 feet west of Boring B-3 (Figure 2). No soil discoloration was observed in this boring (Appendix A).

#### 4.1 CONCLUSIONS

Based upon our review of field exploration and laboratory analysis of soil and groundwater samples collected at the 1010 46<sup>th</sup> Street site during this investigation, we conclude the following:

##### *Evaluation of Soil Conditions*

- The reported concentrations of 7.5 mg/kg and 3.4 mg/kg for Total Petroleum Hydrocarbons as diesel, respectively, in soil at borings B-2 and B-3 are far below the Alameda County guidance of a maximum of 1,000 mg/kg TPH diesel in soil. No further action should be required.

##### *Evaluation of Groundwater Conditions*

- The laboratory reported detections of TPH diesel at 66 and 89 µg/l in groundwater from the site. While there is no regulatory guidance (MCL, Action Level, or tap water PRG) for TPH-diesel in groundwater, these trace-level detections (i.e. just above the laboratory's Reporting Limit of 50 µg/l) probably will require no further action following review by the Alameda County Environmental Health Services Agency.
- The laboratory reported detection of 0.81 µg/l total-xylenes in groundwater from below the tank excavation. Because this concentration is well below the California State MCL for drinking water of 1,750 µg/l, no further action should be required.

#### 4.2 RECOMMENDATIONS

##### *Recommended Actions for Site Soils*

No further assessment or remediation of site soils is needed. Natural bioremediation will continue to destroy the low concentrations of residual diesel fuel.

##### *Recommended Actions for Site Groundwater*

No further assessment of site groundwater is needed. TPH-diesel concentrations are very low and the MCL for xylenes has not been exceeded. Because it is unlikely that groundwater at the site will be used for drinking water, no active remediation of impacted groundwater is recommended. We recommend that this case be closed by the Alameda County Health Care Services Agency.

URSGWC has performed the services for this project in accordance with the Scope of Work, date July 7, 1999 and standard engineering practice.

There is no investigation sufficient to sample and analyze all potential locations for all potential contaminants of concern. And, it would be cost prohibitive to sample all locations at all depths and conduct analyses for all chemical compounds currently considered hazardous or that may be considered hazardous in the future. Therefore, the conclusions provided in this report are based in those limited sample locations and chemical analyses. No guarantee or warranty is implied or provided.

Opinions and judgments expressed herein are based on our understanding and interpretation of current regulatory standards, and should not be construed as legal opinions. This document and the information contained herein have been prepared solely for the use of Interstate Brands Corporation, which requested these services. Any reliance on this report by third parties shall be at such party's sole risk.

**TABLES**

**Table 1**  
**Analytical Results for Soil (mg/kg)**  
**EPA 8020/5030**

Sample No.	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
B2@10.7' - 11.2'	<0.005	<0.005	<0.005	<0.005	<0.005
B3@11.8' - 12.4'	<0.005	<0.005	<0.005	<0.005	<0.005
B4@9.0' - 9.5'	<0.005	<0.005	<0.005	<0.005	<0.005

**EPA 8015M (TEPH) Total Extractable Petroleum Hydrocarbons**

Sample No.	Diesel	Kerosene
B2@10.7' - 11.2'	7.5	<1.0
B3@11.8' - 12.4'	3.4	<1.0
B4@9.0' - 9.5'	<1.0	<1.0

**Table 2**  
**Analytical Results for Groundwater (µg/l)**  
**EPA 8020/5030**

Sample No.	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
B1-W	<0.5	<0.5	<0.5	<0.5	<5.0
B2-W	<0.5	<0.5	<0.5	0.81	<5.0
B3-W	<0.5	<0.5	<0.5	<0.5	<5.0
B4-W	<0.5	<0.5	<0.5	<0.5	<5.0

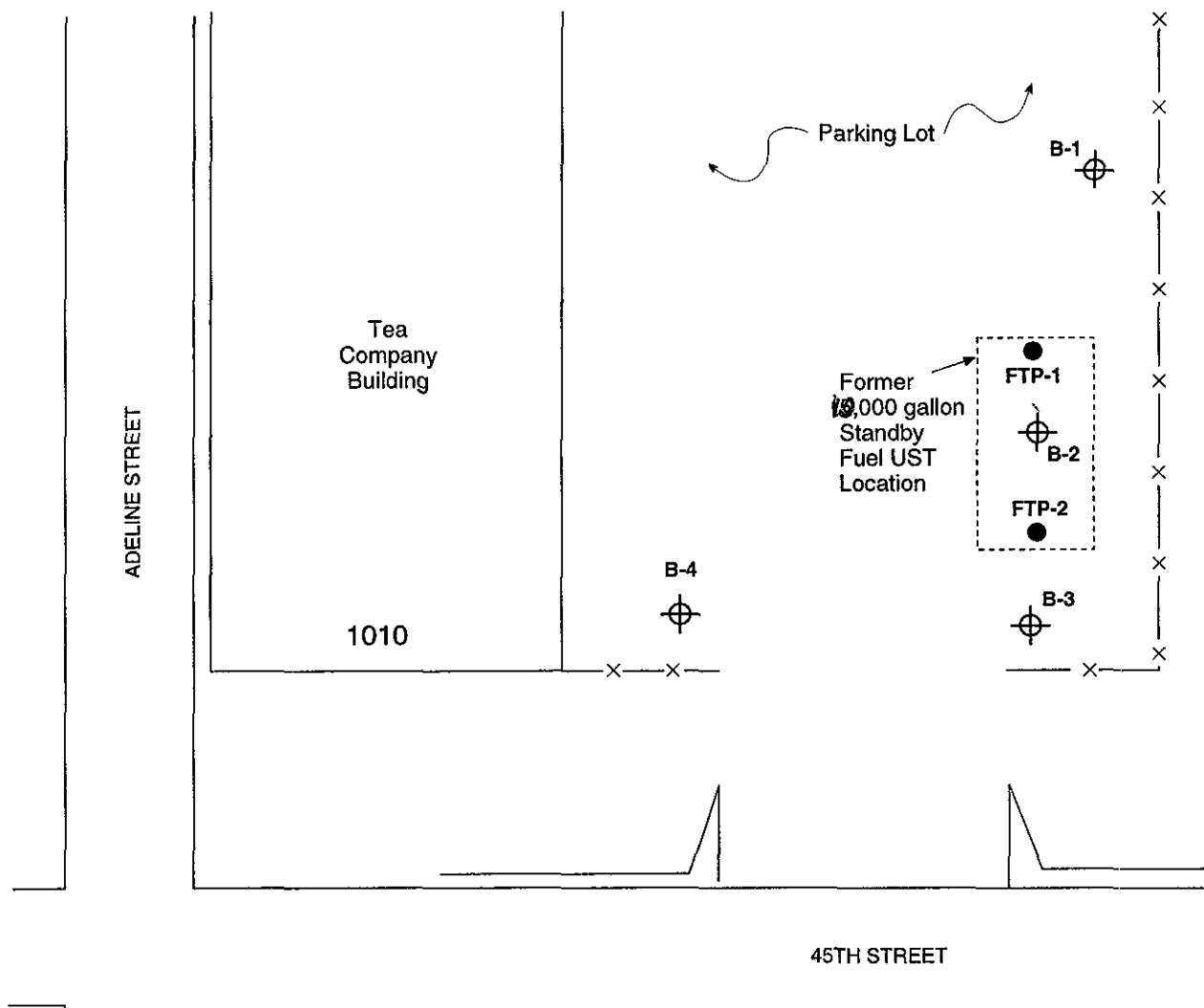
**EPA 8015M (TEPH) Total Extractable Petroleum Hydrocarbons**

Sample No.	Diesel	Kerosene
B1-W	<50	<50
B2-W	66	<50
B3-W	89	<50
B4-W	<50	<50

**FIGURES**

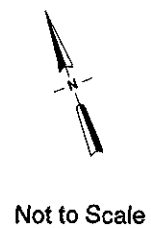






LEGEND

- Closure Soil Sample Location
- ⊕ Boring



Project No. 41-07099010.00	<b>Former IBC Site</b> 1010 46th Street, Emeryville, CA	<b>BORING LOCATIONS</b>	<b>Figure</b> <b>1</b>
<b>URS Greiner Woodward Clyde</b>			

**Appendix A**  
**Boring Logs**



BORING LOCATION 1010 46th Street, Emeryville, California		PROJECT NO. 41-07099010.00	BORING NO. B-1	
DRILLING AGENCY Presision	DRILLER Sergio	DATE STARTED DATE FINISHED	08/10/97 →	
DRILLING EQUIPMENT Envirocore	COMPLETION DEPTH 28'	SAMPLER		
DRILLING METHOD Direct Push	DRILL BIT 2 1/2"	NO. OF SAMPLES DIST	9 UNDIST.	
LOGGED BY R. Ely	WATER LEVEL	FIRST	COMPL.	24 HRS.

DEPTH (feet)	SAMPLES RUN	MATERIAL DESCRIPTION	USCS	OVA (ppm)
	1	Asphalt over base rock		
		Rocky fill -- no recovery		
5	2	Gravelly clay, dark brown (7.5 YR 3/2) and very dark gray (N3). Angular lithic pebbles up to 2 cm long. Fat, very stiff, damp.	CL CH	
	3	CLAYEY SANDY GRAVEL and GRAVELLY SANDY CLAY, brown (7.5 YR 4/2 to 10 YR 4/3), locally a gravelly clay. Clasts to 3 cm long, moisty, mostly sandstone and black chert. Lean, very stiff, moist.	GC CL	
10	4	Abundant medium to very coarse sand	CL	
	5		CL	
15	6	SANDY CLAY, gray (5Y 5/1) with yellowish red (5 YR 4/6) mottling. Sand is fine grained, well sorted. Fat, firm, moist.	CL	
	7	As above with subangular lithic pebbles up to 1 cm long. Wet at 22'.	CL	
	8	CLAYEY GRAVEL, dark yellowish brown (10 YR 4/4). Mostly sandstone. Maximum clasts are up to 2". Hard, damp.		GW
25	9	Cobble plugged the sampler.		
		Bottom of Boring		

BORING LOCATION 1010 46th Street, Emeryville, California		PROJECT NO. 41-07099010.00	BORING NO B-2
DRILLING AGENCY Presision	DRILLER Sergio	DATE STARTED DATE FINISHED 08/10/97 →	
DRILLING EQUIPMENT Envirocore		COMPLETION DEPTH 28'	SAMPLER
DRILLING METHOD Direct Push	DRILL BIT 2 1/2"	NO. OF SAMPLES DIST. 8	UNDIST.
LOGGED BY R. Ely		WATER LEVEL FIRST	COMPL. 24 HRS.

DEPTH (feet)	SAMPLES RUN	MATERIAL DESCRIPTION	USCS	OVA (ppm)
0 - 1	1	Asphalt over backfill PEAGRAVEL, gray (N5), hard, dry.	GP	
1 - 5	2	CLAYEY GRAVEL (fill)	GC	3.5
5 - 10	3	SAND, gray (N5), medium grained, well sorted, Loose, damp (backfill)	SP	0.0
10 - 15	4	GRAVELLY SANDY CLAY, dark brown (7.5 YR 4/4); clasts of sandstone and black chert up to 3 cm long. Lean, very stiff, damp. (Native Soil)	CL	0.5
15 - 20	5	SANDY CLAY, gray (5Y 5/1) mottled yellowish red (5 YR 4/6). Sand is fine grained, well sorted. Fat, firm, moist. Several clayey-sand intervals 0 - 2 inches thick.	CL	0.3
20 - 23	6	as above	CL	
23 - 25	7	CLAYEY SAND, dark brown (7.5 YR). Medium to very coarse grained, poorly sorted, angular to subangular, lithic debris, stiff, wet.	SC	
25 - 28	8	GRAVELLY CLAY, dark yellowish brown (10 YR 3/6). Gravel 2 cm long, angular to subangular sandstone and black chert. Stiff, moist.	GC	0.6
28 - 28.5		Bottom of Boring		

BORING LOCATION 1010 46th Street, Emeryville, California		PROJECT NO. 41-07099010.00	BORING NO. B-3
DRILLING AGENCY Presision	DRILLER Sergio	DATE STARTED 08/10/97	DATE FINISHED →
DRILLING EQUIPMENT Envirocore		COMPLETION DEPTH 28'	SAMPLER
DRILLING METHOD Direct Push	DRILL BIT 2 1/2"	NO OF SAMPLES 8	DIST 8
LOGGED BY R. Ely	WATER LEVEL	FIRST	COMPL. 24 HRS.

DEPTH (feet)	SAMPLES RUN	MATERIAL DESCRIPTION	USCS	OVA (ppm)
	1	Asphalt over gravel SANDY AND CLAYEY GRAVEL (fill)	GW-GC	
5				
	2	CLAYEY GRAVEL, dark reddish brown (5 YR 3/4), sandstone and black chert, 0.5 - 1.0 cm long. Stiff, damp. Grayish green (10G 4/2), below 7.5' (product alteration ?)	GC	0.0
10				
	3	SANDY GRAVELLY CLAY, grayish green (10G 4/2). Sand is fine to coarse, poorly sorted. Gravel clast up to 1 cm long. Stiff, moist.	CL	0.0
15				
	4	SANDY GRAVELLY CLAY, grayish brown (2.5 Y 5/2) with yellowish red (5 YR 5/6), mottling sand is fine grained well sorted. Firm, wet.	CL	0.0
20				
	5	CLAYEY SAND, grayish brown (7.5Y 5/2) with yellowish red (5 YR 5/6) mottling. Fine grained, well sorted, firm, wet.	SC	
		SANDY GRAVELLY CLAY, as above at 13'	CL	3.5
25				
	6		CL	0.2
	7	SANDY CLAY, dark yellowish brown (10 YR 4/6). Sand is fine grained, well sorted. Firm, wet.	CL	0.0
			CL	
	8	Gravelly below 26.1'		
		Bottom of Boring		

BORING LOCATION 1010 46th Street, Emeryville, California		PROJECT NO 41-07099010.00	BORING NO. B-4
DRILLING AGENCY Presision	DRILLER Sergio	DATE STARTED DATE FINISHED 08/10/97 →	
DRILLING EQUIPMENT Envirocore		COMPLETION DEPTH 25'	SAMPLER
DRILLING METHOD Direct Push	DRILL BIT 2 1/2"	NO. OF SAMPLES DIST. 7	UNDIST
LOGGED BY R. Ely		WATER LEVEL FIRST	COMPL. 24 HRS.

DEPTH (feet)	SAMPLES RUN	MATERIAL DESCRIPTION	USCS	OVA (ppm)
		Asphalt over gravel		
	1	CLAYEY GRAVEL (fill)	GC	
5		SANDY GRAVELLY CLAY, dark brown (7.5 YR 3/2) in upper part (soil ?) grading downward to dark yellowish brown (10 YR 4/4). Sand is fine to coarse, poorly sorted. Gravel is sandstone and black chert, clasts to 1 cm long. Stiff, damp.	CL	
	2		CL	0.0
10		SANDY CLAY with CLAYEY SAND (SC) interbeds, mottled gray (5Y 5/1) and yellowish red (5 YR 4/6). San is fine grained, well sorted. Firm, wet.	CL-SC	
	3			
15		Gravelly SANDY CLAY, dark brown (7.5 YR 8/2), sand is fine to coarse grained, gravel clasts up to 1 cm long. Stiff, moist.	CL	0.0
	4			
	5	SANDY CLAY as at 12' but with a few subrounded pebbles to 2 cm long	CL	0.0
	6			
20		Yellowish brown (10 yr 5/8) with trace subrounded pebbles up to 0.5 cm long.	CL	0.0
	7			
25		Bottom of Boring		



**Appendix B**  
**Analytical Laboratory Reports**

**Appendix B**  
**Analytical Laboratory Reports**

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**URS Greiner Woodward Clyde- Oakland**

500 12th Street, Suite 200

Oakland, CA 94607-4014

Attn.: Al Ridley

Project: 41-07099010.00

1010 46th Street

Attached is our report for your samples received on Wednesday August 11, 1999. This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

The report contains a Case Narrative detailing sample receipt and analysis.

Please note that any unused portion of the samples will be discarded after September 10, 1999 unless you have requested otherwise. We appreciate the opportunity to be of service to you. If you have any questions, please call me at (925) 484-1919.

Sincerely,

  
Afsaneh Salimpour

To: URS Greiner Woodward Clyde- Oakland  
Attn.: Al Ridley

## CASE NARRATIVE

### General and Sample Comments

We (ChromaLab, Inc.) received 4 Water samples, 3 Soil samples, on Aug 11 1999 6:55PM.

### Per QC Batch Comments

Gas BTEX	Soil	QC Batch#: 1999/08/12.01-04
----------	------	-----------------------------

**S31 >> MS**

Lab#: 1999/08/12.01-04-004

## Compound Flag(s)

mso Analyte MS/MSD recoveries were out of QC limits due to matrix interference. Precision and Accuracy were verified by LCS/LCSD.

**S31 >> MSD**

Lab#: 1999/08/12.01-04-005

mso Analyte MS/MSD recoveries were out of QC limits due to matrix interference. Precision and Accuracy were verified by LCS/LCSD.

TEPH (Selectable)	Soil	QC Batch#: 1999/08/13.01-10
-------------------	------	-----------------------------

**B2-10.7'-11.2'**

Lab#: 1999-08-0161-001

ndp Hydrocarbon reported does not match the pattern of our Diesel standard

**B3-11.8'-12.4'**

Lab#: 1999-08-0161-002

ndp Hydrocarbon reported does not match the pattern of our Diesel standard

TEPH (Selectable)	Water	QC Batch#: 1999/08/13.03-10
-------------------	-------	-----------------------------

**B2-W**

Lab#: 1999-08-0161-005

ndp Hydrocarbon reported does not match the pattern of our Diesel standard

**B3-W**

Lab#: 1999-08-0161-006

ndp Hydrocarbon reported does not match the pattern of our Diesel standard

Volatile Hydrocarbons by 8015/8020

URS Greiner Woodward Clyde- Oakland

✉ 500 12th Street, Suite 200  
Oakland, CA 94607-4014

Attn: Al Ridley

Phone: (510) 874-3125 Fax: (510) 874-3268

Project #: 41-07099010.00

Project: 1010 46th Street

### Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
B2-10.7'-11.2'	Soil	08/10/1999 10:10	1
B3-11.8'-12.4'	Soil	08/10/1999 11:25	2
B4-9.0'-9.5'	Soil	08/10/1999 12:40	3
B1-W	Water	08/10/1999 14:55	4
B2-W	Water	08/10/1999 15:10	5
B3-W	Water	08/10/1999 15:20	6
B4-W	Water	08/10/1999 15:30	7

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8020

Attn.: Al Ridley

Prep Method: 5030

Volatile Hydrocarbons by 8015/8020

Sample ID: <b>B2-10.7'-11.2'</b>	Lab Sample ID: <b>1999-08-0161-001</b>
Project: 41-07099010.00 1010 46th Street	Received: 08/11/1999 18:55
Sampled: 08/10/1999 10:10	Extracted: 08/12/1999 18:36
Matrix: Soil	QC-Batch: 1999/08/12-01.04

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Benzene	ND	0.0050	mg/Kg	1.00	08/12/1999 18:36	
Toluene	ND	0.0050	mg/Kg	1.00	08/12/1999 18:36	
Ethyl benzene	ND	0.0050	mg/Kg	1.00	08/12/1999 18:36	
Xylene(s)	ND	0.0050	mg/Kg	1.00	08/12/1999 18:36	
MTBE	ND	0.0050	mg/Kg	1.00	08/12/1999 18:36	
<b>Surrogate(s)</b> Trifluorotoluene	84.5	53-125	%	.00	08/12/1999 18:36	

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8020

Attn.: Al Ridley

Prep Method: 5030

Volatile Hydrocarbons by 8015/8020

Sample ID: B3-11.8'-12.4'	Lab Sample ID: 1999-08-0161-002
Project: 41-07099010.00 1010 46th Street	Received: 08/11/1999 18:55
Sampled: 08/10/1999 11:25	Extracted: 08/16/1999 11:16
Matrix: Soil	QC-Batch: 1999/08/16-01.04

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Benzene	ND	0.0050	mg/Kg	1.00	08/16/1999 11:16	
Toluene	ND	0.0050	mg/Kg	1.00	08/16/1999 11:16	
Ethyl benzene	ND	0.0050	mg/Kg	1.00	08/16/1999 11:16	
Xylene(s)	ND	0.0050	mg/Kg	1.00	08/16/1999 11:16	
MTBE	ND	0.0050	mg/Kg	1.00	08/16/1999 11:16	
<b>Surrogate(s)</b> Trifluorotoluene	93.0	53-125	%	.00	08/16/1999 11:16	

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8020

Attn.: Al Ridley

Prep Method: 5030

Volatile Hydrocarbons by 8015/8020

Sample ID: B4-9.0`-9.5`	Lab Sample ID: 1999-08-0161-003
Project: 41-07099010.00 1010 46th Street	Received: 08/11/1999 18:55
Sampled: 08/10/1999 12:40	Extracted: 08/16/1999 10:22
Matrix: Soil	QC-Batch: 1999/08/16-01.04

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Benzene	ND	0.0050	mg/Kg	1.00	08/16/1999 10:22	
Toluene	ND	0.0050	mg/Kg	1.00	08/16/1999 10:22	
Ethyl benzene	ND	0.0050	mg/Kg	1.00	08/16/1999 10:22	
Xylene(s)	ND	0.0050	mg/Kg	1.00	08/16/1999 10:22	
MTBE	ND	0.0050	mg/Kg	1.00	08/16/1999 10:22	
<i>Surrogate(s)</i> Trifluorotoluene	90.9	53-125	%	.00	08/16/1999 10:22	



To: URS Greiner Woodward Clyde- Oakland

Test Method: 8020

Attn.: Al Ridley

Prep Method: 5030

Volatile Hydrocarbons by 8015/8020

Sample ID: <b>B1-W</b>	Lab Sample ID: <b>1999-08-0161-004</b>
Project: 41-07099010.00 1010 46th Street	Received: 08/11/1999 18:55
Sampled: 08/10/1999 14:55	Extracted: 08/17/1999 16:33
Matrix: Water	QC-Batch: 1999/08/17-01.01

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Benzene	ND	0.50	ug/L	1.00	08/17/1999 16:33	
Toluene	ND	0.50	ug/L	1.00	08/17/1999 16:33	
Ethyl benzene	ND	0.50	ug/L	1.00	08/17/1999 16:33	
Xylene(s)	ND	0.50	ug/L	1.00	08/17/1999 16:33	
MTBE	ND	5.0	ug/L	1.00	08/17/1999 16:33	
<b>Surrogate(s)</b> Trifluorotoluene	86.3	58-124	%	.00	08/17/1999 16:33	

# CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-08-0161

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8020

Attn.: Al Ridley

Prep Method: 5030

Volatile Hydrocarbons by 8015/8020

Sample ID: <b>B2-W</b>	Lab Sample ID: 1999-08-0161-005
Project: 41-07099010.00 1010 46th Street	Received: 08/11/1999 18:55
Sampled: 08/10/1999 15:10	Extracted: 08/18/1999 19:38
Matrix: Water	QC-Batch: 1999/08/18-01.01

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Benzene	ND	0.50	ug/L	1.00	08/18/1999 19:38	
Toluene	ND	0.50	ug/L	1.00	08/18/1999 19:38	
Ethyl benzene	ND	0.50	ug/L	1.00	08/18/1999 19:38	
Xylene(s)	0.81	0.50	ug/L	1.00	08/18/1999 19:38	
MTBE	ND	5.0	ug/L	1.00	08/18/1999 19:38	
<b>Surrogate(s)</b> Trifluorotoluene	108.0	58-124	%	.00	08/18/1999 19:38	

1220 Quarry Lane \* Pleasanton, CA 94566-4756

Telephone: (925) 484-1919 \* Facsimile: (925) 484-1096

To: **URS Greiner Woodward Clyde- Oakland**

Test Method: 8020

Attn.: Al Ridley

Prep Method: 5030

Volatile Hydrocarbons by 8015/8020

Sample ID: <b>B3-W</b>	Lab Sample ID: <b>1999-08-0161-006</b>
Project: 41-07099010.00 1010 46th Street	Received: 08/11/1999 18:55
Sampled: 08/10/1999 15:20	Extracted: 08/16/1999 22:10
Matrix: Water	QC-Batch: 1999/08/16-01.01

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Benzene	ND	0.50	ug/L	1.00	08/16/1999 22:10	
Toluene	ND	0.50	ug/L	1.00	08/16/1999 22:10	
Ethyl benzene	ND	0.50	ug/L	1.00	08/16/1999 22:10	
Xylene(s)	ND	0.50	ug/L	1.00	08/16/1999 22:10	
MTBE	ND	5.0	ug/L	1.00	08/16/1999 22:10	
<b>Surrogate(s)</b> Trifluorotoluene	90.6	58-124	%	.00	08/16/1999 22:10	

To: **URS Greiner Woodward Clyde- Oakland**

Test Method: 8020

Attn.: Al Ridley

Prep Method: 5030

Volatile Hydrocarbons by 8015/8020

Sample ID: <b>B4-W</b>	Lab Sample ID: <b>1999-08-0161-007</b>
Project: 41-07099010.00 1010 46th Street	Received: 08/11/1999 18:55
Sampled: 08/10/1999 15:30	Extracted: 08/17/1999 18:48
Matrix: Water	QC-Batch: 1999/08/17-01.01

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Benzene	ND	0.50	ug/L	1.00	08/17/1999 18:48	
Toluene	ND	0.50	ug/L	1.00	08/17/1999 18:48	
Ethyl benzene	ND	0.50	ug/L	1.00	08/17/1999 18:48	
Xylene(s)	ND	0.50	ug/L	1.00	08/17/1999 18:48	
MTBE	ND	5.0	ug/L	1.00	08/17/1999 18:48	
<b>Surrogate(s)</b> Trifluorotoluene	95.2	58-124	%	.00	08/17/1999 18:48	

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8020

Attn.: Al Ridley

Prep Method: 5030

### Batch QC Report

Volatile Hydrocarbons by 8015/8020

<b>Method Blank</b>	<b>Soil</b>	<b>QC Batch # 1999/08/12-01.04</b>
MB: 1999/08/12-01.04-001		Date Extracted: 08/12/1999 05:55

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Benzene	ND	0.0050	mg/Kg	08/12/1999 05:55	
Toluene	ND	0.0050	mg/Kg	08/12/1999 05:55	
Ethyl benzene	ND	0.0050	mg/Kg	08/12/1999 05:55	
Xylene(s)	ND	0.0050	mg/Kg	08/12/1999 05:55	
MTBE	ND	0.0050	mg/Kg	08/12/1999 05:55	
<b>Surrogate(s)</b>					
Trifluorotoluene	111.4	53-125	%	08/12/1999 05:55	

To: **URS Greiner Woodward Clyde- Oakland**

Test Method: 8020

Attn.: Al Ridley

Prep Method: 5030

**Batch QC Report**

Volatile Hydrocarbons by 8015/8020

<b>Method Blank</b>	<b>Water</b>	<b>QC Batch # 1999/08/16-01.01</b>
MB: 1999/08/16-01.01-001		Date Extracted: 08/16/1999 06:37

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Benzene	ND	0.5	ug/L	08/16/1999 06:37	
Toluene	ND	0.5	ug/L	08/16/1999 06:37	
Ethyl benzene	ND	0.5	ug/L	08/16/1999 06:37	
Xylene(s)	ND	0.5	ug/L	08/16/1999 06:37	
MTBE	ND	5.0	ug/L	08/16/1999 06:37	
<b>Surrogate(s)</b>					
Trifluorotoluene	83.4	58-124	%	08/16/1999 06:37	

To: **URS Greiner Woodward Clyde- Oakland**  
Attn.: Al Ridley

Test Method: 8020  
Prep Method: 5030

**Batch QC Report**  
Volatile Hydrocarbons by 8015/8020

<b>Method Blank</b>	<b>Soil</b>	<b>QC Batch # 1999/08/16-01.04</b>
MB: 1999/08/16-01.04-001		Date Extracted: 08/16/1999 06:27

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Benzene	ND	0.0050	mg/Kg	08/16/1999 06:27	
Toluene	ND	0.0050	mg/Kg	08/16/1999 06:27	
Ethyl benzene	ND	0.0050	mg/Kg	08/16/1999 06:27	
Xylene(s)	ND	0.0050	mg/Kg	08/16/1999 06:27	
MTBE	ND	0.0050	mg/Kg	08/16/1999 06:27	
<b>Surrogate(s)</b>					
Trifluorotoluene	111.0	53-125	%	08/16/1999 06:27	

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8020

Attn.: Al Ridley

Prep Method: 5030

**Batch QC Report**  
Volatile Hydrocarbons by 8015/8020

<b>Method Blank</b>	<b>Water</b>	<b>QC Batch # 1999/08/17-01.01</b>
MB: 1999/08/17-01.01-001		Date Extracted: 08/17/1999 15:39

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Benzene	ND	0.5	ug/L	08/17/1999 15:39	
Toluene	ND	0.5	ug/L	08/17/1999 15:39	
Ethyl benzene	ND	0.5	ug/L	08/17/1999 15:39	
Xylene(s)	ND	0.5	ug/L	08/17/1999 15:39	
MTBE	ND	5.0	ug/L	08/17/1999 15:39	
<b>Surrogate(s)</b>					
Trifluorotoluene	99.4	58-124	%	08/17/1999 15:39	
Trifluorotoluene-FID	92.0	58-124	%	08/17/1999 15:39	



To: URS Greiner Woodward Clyde- Oakland

Test Method: 8020

Attn.: Al Ridley

Prep Method: 5030

**Batch QC Report**

Volatile Hydrocarbons by 8015/8020

**Method Blank****Water****QC Batch # 1999/08/18-01.01**

MB: 1999/08/18-01.01-001

Date Extracted: 08/18/1999 06:52

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Benzene	ND	0.5	ug/L	08/18/1999 06:52	
Toluene	ND	0.5	ug/L	08/18/1999 06:52	
Ethyl benzene	ND	0.5	ug/L	08/18/1999 06:52	
Xylene(s)	ND	0.5	ug/L	08/18/1999 06:52	
MTBE	ND	5.0	ug/L	08/18/1999 06:52	
<b>Surrogate(s)</b>					
Trifluorotoluene	92.6	58-124	%	08/18/1999 06:52	
Trifluorotoluene-FID	93.2	58-124	%	08/18/1999 06:52	

To: **URS Greiner Woodward Clyde- Oakland**

Test Method: 8020

Attn: Al Ridley

Prep Method: 5030

## Batch QC Report

Volatile Hydrocarbons by 8015/8020

Laboratory Control Spike (LCS/LCSD)		Soil		QC Batch # 1999/08/12-01.04	
LCS:	1999/08/12-01.04-002	Extracted:	08/12/1999 06:22	Analyzed:	08/12/1999 06:22
LCSD:	1999/08/12-01.04-003	Extracted:	08/12/1999 07:15	Analyzed:	08/12/1999 07:15

Compound	Conc. [ mg/Kg ]		Exp.Conc. [ mg/Kg ]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
Benzene	0.100	0.0970	0.1000	0.1000	100.0	97.0	3.0	77-123	35		
Toluene	0.0990	0.0950	0.1000	0.1000	99.0	95.0	4.1	78-122	35		
Ethyl benzene	0.0970	0.0930	0.1000	0.1000	97.0	93.0	4.2	70-130	35		
Xylene(s)	0.288	0.278	0.300	0.300	96.0	92.7	3.5	75-125	35		
<b>Surrogate(s)</b> Trifluorotoluene	539	526	500	500	107.8	105.2		53-125			

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8020

Attn: Al Ridley

Prep Method: 5030

### Batch QC Report

Volatile Hydrocarbons by 8015/8020

<b>Laboratory Control Spike (LCS/LCSD)</b>	<b>Water</b>	<b>QC Batch # 1999/08/16-01.01</b>
LCS: 1999/08/16-01.01-002	Extracted: 08/16/1999 10:01	Analyzed: 08/16/1999 10:01
LCSD: 1999/08/16-01.01-003	Extracted: 08/16/1999 07:56	Analyzed: 08/16/1999 07:56

Compound	Conc. [ ug/L ]		Exp.Conc. [ ug/L ]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
Benzene	99.6	106	100.0	100.0	99.6	106.0	6.2	77-123	20		
Toluene	102	105	100.0	100.0	102.0	105.0	2.9	78-122	20		
Ethyl benzene	96.1	102	100.0	100.0	96.1	102.0	6.0	70-130	20		
Xylene(s)	284	300	300	300	94.7	100.0	5.4	75-125	20		
<b>Surrogate(s)</b>											
Trifluorotoluene	527	524	500	500	105.4	104.8		58-124			

To: **URS Greiner Woodward Clyde- Oakland**

Test Method: 8020

Attn: Al Ridley

Prep Method: 5030

## Batch QC Report

Volatile Hydrocarbons by 8015/8020

Laboratory Control Spike (LCS/LCSD)		Soil		QC Batch # 1999/08/16-01.04	
LCS:	1999/08/16-01.04-002	Extracted:	08/16/1999 06:54	Analyzed:	08/16/1999 06:54
LCSD:	1999/08/16-01.04-003	Extracted:	08/16/1999 07:47	Analyzed:	08/16/1999 07:47

Compound	Conc. [ mg/Kg ]		Exp.Conc. [ mg/Kg ]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
Benzene	0.0990	0.0960	0.1000	0.1000	99.0	96.0	3.1	77-123	35		
Toluene	0.0990	0.0950	0.1000	0.1000	99.0	95.0	4.1	78-122	35		
Ethyl benzene	0.100	0.0940	0.1000	0.1000	100.0	94.0	6.2	70-130	35		
Xylene(s)	0.301	0.281	0.300	0.300	100.3	93.7	6.8	75-125	35		
<b>Surrogate(s)</b>											
Trifluorotoluene	549	523	500	500	109.8	104.6		53-125			

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8020

Attn: Al Ridley

Prep Method: 5030

## Batch QC Report

Volatile Hydrocarbons by 8015/8020

<b>Laboratory Control Spike (LCS/LCSD)</b>	<b>Water</b>	<b>QC Batch # 1999/08/17-01.01</b>
LCS: 1999/08/17-01.01-002	Extracted: 08/17/1999 09:23	Analyzed: 08/17/1999 09:23
LCSD: 1999/08/17-01.01-003	Extracted: 08/17/1999 10:52	Analyzed: 08/17/1999 10:52

Compound	Conc. [ ug/L ]		Exp.Conc. [ ug/L ]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
Benzene	109	108	100.0	100.0	109.0	108.0	0.9	77-123	20		
Toluene	108	106	100.0	100.0	108.0	106.0	1.9	78-122	20		
Ethyl benzene	105	108	100.0	100.0	105.0	108.0	2.8	70-130	20		
Xylene(s)	311	323	300	300	103.7	107.7	3.8	75-125	20		
<b>Surrogate(s)</b>											
Trifluorotoluene	498	539	500	500	99.6	107.8		58-124			
Trifluorotoluene-FID	525	539	500	500	105.0	107.8		58-124			

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8020

Attn: Al Ridley

Prep Method: 5030

### Batch QC Report

Volatile Hydrocarbons by 8015/8020

<b>Laboratory Control Spike (LCS/LCSD)</b>	<b>Water</b>	<b>QC Batch # 1999/08/18-01.01</b>
LCS: 1999/08/18-01.01-002	Extracted: 08/18/1999 07:18	Analyzed: 08/18/1999 07:18
LCSD: 1999/08/18-01.01-003	Extracted: 08/18/1999 08:11	Analyzed: 08/18/1999 08:11

Compound	Conc. [ ug/L ]		Exp.Conc. [ ug/L ]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
Benzene	102	88.0	100.0	100.0	102.0	88.0	14.7	77-123	20		
Toluene	98.4	85.6	100.0	100.0	98.4	85.6	13.9	78-122	20		
Ethyl benzene	97.3	85.5	100.0	100.0	97.3	85.5	12.9	70-130	20		
Xylene(s)	288	255	300	300	96.0	85.0	12.2	75-125	20		
<b>Surrogate(s)</b>											
Trifluorotoluene	494	546	500	500	98.8	109.2		58-124			
Trifluorotoluene-FID	512	546	500	500	102.4	109.2		58-124			

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8020

Attn.: Al Ridley

Prep Method: 5030

## Batch QC Report

Volatile Hydrocarbons by 8015/8020

Matrix Spike ( MS / MSD )

Soil

QC Batch # 1999/08/12-01.04

Sample ID: S31

Lab Sample ID: 1999-08-0137-013

MS: 1999/08/12-01.04-004 Extracted: 08/12/1999 15:17 Analyzed: 08/12/1999 15:17 Dilution: 1.0

MSD: 1999/08/12-01.04-005 Extracted: 08/12/1999 16:20 Analyzed: 08/12/1999 16:20 Dilution: 1.0

Compound	Conc [ mg/Kg ]			Exp.Conc. [ mg/Kg ]		Recovery [%]		RPD [%]	Ctrl. Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD		Recovery	RPD	MS	MSD
Benzene	0.0600	0.0200	ND	0.0982	0.0852	61.1	23.5	88.9	65-135	35	mso	mso
Toluene	0.0570	0.0200	ND	0.0982	0.0852	58.0	23.5	84.7	65-135	35	mso	mso
Ethyl benzene	0.0500	0.0380	ND	0.0982	0.0852	50.9	44.6	13.2	65-135	35	mso	mso
Xylene(s)	0.153	0.120	ND	0.295	0.256	51.9	46.9	10.1	65-135	35	mso	mso
<b>Surrogate(s)</b>												
Trifluorotoluene	341	177		500	500	68.2	35.4		53-125			
Trifluorotoluene-FID	317	177		500	500	63.4	35.4		53-125			

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8020

Attn.: Al Ridley

Prep Method: 5030

## Batch QC Report

Volatile Hydrocarbons by 8015/8020

Matrix Spike ( MS / MSD )

Water

QC Batch # 1999/08/16-01.01

Sample ID: NB-19

Lab Sample ID: 1999-08-0022-017

MS: 1999/08/16-01.01-004 Extracted: 08/16/1999 12:46 Analyzed: 08/16/1999 12:46 Dilution: 1.0

MSD: 1999/08/16-01.01-005 Extracted: 08/16/1999 13:40 Analyzed: 08/16/1999 13:40 Dilution: 1.0

Compound	Conc [ ug/L ]			Exp. Conc. [ ug/L ]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD		Recovery	RPD	MS	MSD
Benzene	98.4	102	4.1775	100.0	100.0	94.2	97.8	3.8	65-135	20		
Toluene	97.5	104	2.7114	100.0	100.0	94.8	101.3	6.6	65-135	20		
Ethyl benzene	94.3	97.3	3.1531	100.0	100.0	91.1	94.1	3.2	65-135	20		
Xylene(s)	284	290	11.3125	300	300	90.9	92.9	2.2	65-135	20		
<b>Surrogate(s)</b>												
Trifluorotoluene	437	493		500	500	87.4	98.6		58-124			



To: URS Greiner Woodward Clyde- Oakland

Test Method: 8020

Attn.: Al Ridley

Prep Method: 5030

**Batch QC Report**

Volatile Hydrocarbons by 8015/8020

**Matrix Spike ( MS / MSD )**

**Soil**

**QC Batch # 1999/08/16-01.04**

Sample ID: B2-10.7`-11.2`

Lab Sample ID: 1999-08-0161-001

MS: 1999/08/16-01.04-004 Extracted: 08/16/1999 12:43 Analyzed: 08/16/1999 12:43 Dilution: 1.0

MSD: 1999/08/16-01.04-005 Extracted: 08/16/1999 13:37 Analyzed: 08/16/1999 13:37 Dilution: 1.0

Compound	Conc [ mg/Kg ]			Exp. Conc. [ mg/Kg ]		Recovery [%]		RPD [%]	Ctrl. Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD		Recovery	RPD	MS	MSD
Benzene	0.0710	0.0790	ND	0.0835	0.0951	85.0	83.1	2.3	65-135	35		
Toluene	0.0690	0.0770	ND	0.0835	0.0951	82.6	81.0	2.0	65-135	35		
Ethyl benzene	0.0680	0.0750	ND	0.0835	0.0951	81.4	78.9	3.1	65-135	35		
Xylene(s)	0.205	0.225	ND	0.250	0.285	82.0	78.9	3.9	65-135	35		
<b>Surrogate(s)</b>												
Trifluorotoluene	477	494		500	500	95.4	98.8		53-125			

To: **URS Greiner Woodward Clyde- Oakland**  
 Attn.: Al Ridley

Test Method: 8020  
 Prep Method: 5030

**Batch QC Report**

Volatile Hydrocarbons by 8015/8020

<b>Matrix Spike ( MS / MSD )</b>	<b>Water</b>	<b>QC Batch # 1999/08/18-01.01</b>
Sample ID: <b>294-0558-DB5028-8-16-A</b>		Lab Sample ID: 1999-08-0227-001
MS: 1999/08/18-01.01-004	Extracted: 08/19/1999 11:05	Analyzed: 08/19/1999 11:05 Dilution: 1.0
MSD: 1999/08/18-01.01-005	Extracted: 08/19/1999 13:00	Analyzed: 08/19/1999 13:00 Dilution: 1.0

Compound	Conc [ ug/L ]			Exp.Conc. [ ug/L ]		Recovery [%]		RPD [%]	Ctrl. Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD		Recovery	RPD	MS	MSD
Benzene	114	104	ND	100.0	100.0	114.0	104.0	9.2	65-135	20		
Toluene	114	103	ND	100.0	100.0	114.0	103.0	10.1	65-135	20		
Ethyl benzene	112	102	ND	100.0	100.0	112.0	102.0	9.3	65-135	20		
Xylene(s)	330	300	ND	300	300	110.0	100.0	9.5	65-135	20		
<b>Surrogate(s)</b>												
Trifluorotoluene	565	499		500	500	113.0	99.8		58-124			

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8020

Attn.: Al Ridley

Prep Method: 5030

## Batch QC Report

Volatile Hydrocarbons by 8015/8020

Matrix Spike ( MS / MSD )

Water

QC Batch # 1999/08/17-01.01

Sample ID: B1-W

Lab Sample ID: 1999-08-0161-004

MS: 1999/08/17-01.01-004 Extracted: 08/17/1999 17:00 Analyzed: 08/17/1999 17:00 Dilution: 1.0

MSD: 1999/08/17-01.01-005 Extracted: 08/17/1999 17:54 Analyzed: 08/17/1999 17:54 Dilution: 1.0

Compound	Conc [ ug/L ]			Exp. Conc. [ ug/L ]		Recovery [%]		RPD [%]	Ctrl. Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD		Recovery	RPD	MS	MSD
Benzene	111	110	ND	100.0	100.0	111.0	110.0	0.9	65-135	20		
Toluene	112	108	ND	100.0	100.0	112.0	108.0	3.6	65-135	20		
Ethyl benzene	105	104	ND	100.0	100.0	105.0	104.0	1.0	65-135	20		
Xylene(s)	306	300	ND	300	300	102.0	100.0	2.0	65-135	20		
<b>Surrogate(s)</b>												
Trifluorotoluene	546	557		500	500	109.2	111.4		58-124			

Total Extractable Petroleum Hydrocarbons (TEPH)

URS Greiner Woodward Clyde- Oakland

✉ 500 12th Street, Suite 200  
Oakland, CA 94607-4014

Attn: Al Ridley

Phone: (510) 874-3125 Fax: (510) 874-3268

Project #: 41-07099010.00

Project: 1010 46th Street

**Samples Reported**

Sample ID	Matrix	Date Sampled	Lab #
B2-10.7'-11.2'	Soil	08/10/1999 10:10	1
B3-11.8'-12.4'	Soil	08/10/1999 11:25	2
B4-9.0'-9.5'	Soil	08/10/1999 12:40	3
B1-W	Water	08/10/1999 14:55	4
B2-W	Water	08/10/1999 15:10	5
B3-W	Water	08/10/1999 15:20	6
B4-W	Water	08/10/1999 15:30	7

To: **URS Greiner Woodward Clyde- Oakland**  
Attn.: Al Ridley

Test Method: 8015m  
Prep Method: 3550/8015M  
3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID: <b>B2-10.7'-11.2'</b>	Lab Sample ID: <b>1999-08-0161-001</b>
Project: 41-07099010.00 1010 46th Street	Received: 08/11/1999 18:55
Sampled: 08/10/1999 10:10	Extracted: 08/13/1999 09:00
Matrix: Soil	QC-Batch: 1999/08/13-01.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	7.5	1.0	mg/Kg	1.00	08/13/1999 17:51	ndp
Kerosene	ND	1.0	mg/Kg	1.00	08/13/1999 17:51	
<b>Surrogate(s)</b> o-Terphenyl	90.6	60-130	%	1.00	08/13/1999 17:51	

To: **URS Greiner Woodward Clyde- Oakland**  
Attn.: Al Ridley

Test Method: 8015m  
Prep Method: 3550/8015M  
3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID: <b>B3-11.8`-12.4`</b>	Lab Sample ID: <b>1999-08-0161-002</b>
Project: 41-07099010.00 1010 46th Street	Received: 08/11/1999 18:55
Sampled: 08/10/1999 11:25	Extracted: 08/13/1999 09:00
Matrix: Soil	QC-Batch: 1999/08/13-01.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	3.4	1.0	mg/Kg	1.00	08/13/1999 16:38	ndp
Kerosene	ND	1.0	mg/Kg	1.00	08/13/1999 16:38	
<b>Surrogate(s)</b> o-Terphenyl	85.2	60-130	%	1.00	08/13/1999 16:38	

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8015m

Attn.: Al Ridley

Prep Method: 3550/8015M

3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID: B4-9.0`-9.5`	Lab Sample ID: 1999-08-0161-003
Project: 41-07099010.00 1010 46th Street	Received: 08/11/1999 18:55
Sampled: 08/10/1999 12:40	Extracted: 08/13/1999 09:00
Matrix: Soil	QC-Batch: 1999/08/13-01.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	08/13/1999 17:14	
Kerosene	ND	1.0	mg/Kg	1.00	08/13/1999 17:14	
<b>Surrogate(s)</b> o-Terphenyl	80.8	60-130	%	1.00	08/13/1999 17:14	

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8015m

Attn.: Al Ridley

Prep Method: 3550/8015M  
3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID: <b>B1-W</b>	Lab Sample ID: <b>1999-08-0161-004</b>
Project: 41-07099010.00 1010 46th Street	Received: 08/11/1999 18:55
Sampled: 08/10/1999 14:55	Extracted: 08/13/1999 09:00
Matrix: Water	QC-Batch: 1999/08/13-03.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	08/16/1999 11:43	
Kerosene	ND	50	ug/L	1.00	08/16/1999 11:43	
<b>Surrogate(s)</b> o-Terphenyl	109.4	60-130	%	1.00	08/16/1999 11:43	



To: URS Greiner Woodward Clyde- Oakland

Test Method: 8015m

Attn.: Al Ridley

Prep Method: 3550/8015M  
3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID: <b>B2-W</b>	Lab Sample ID: <b>1999-08-0161-005</b>
Project: 41-07099010.00 1010 46th Street	Received: 08/11/1999 18:55
Sampled: 08/10/1999 15:10	Extracted: 08/13/1999 09:00
Matrix: Water	QC-Batch: 1999/08/13-03.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	66	50	ug/L	1.00	08/16/1999 12:56	ndp
Kerosene	ND	50	ug/L	1.00	08/16/1999 12:56	
<b>Surrogate(s)</b> o-Terphenyl	94.1	60-130	%	1.00	08/16/1999 12:56	

To: **URS Greiner Woodward Clyde- Oakland**

Test Method: 8015m

Attn.: Al Ridley

Prep Method: 3550/8015M  
3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID: <b>B3-W</b>	Lab Sample ID: <b>1999-08-0161-006</b>
Project: 41-07099010.00 1010 46th Street	Received: 08/11/1999 18:55
Sampled: 08/10/1999 15:20	Extracted: 08/13/1999 09:00
Matrix: Water	QC-Batch: 1999/08/13-03.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	89	50	ug/L	1.00	08/16/1999 13:32	ndp
Kerosene	ND	50	ug/L	1.00	08/16/1999 13:32	
<b>Surrogate(s)</b> o-Terphenyl	96.8	60-130	%	1.00	08/16/1999 13:32	

To: **URS Greiner Woodward Clyde- Oakland**  
Attn.: Al Ridley

Test Method: 8015m  
Prep Method: 3550/8015M  
3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID: <b>B4-W</b>	Lab Sample ID: <b>1999-08-0161-007</b>
Project: 41-07099010.00 1010 46th Street	Received: 08/11/1999 18:55
Sampled: 08/10/1999 15:30	Extracted: 08/13/1999 09:00
Matrix: Water	QC-Batch: 1999/08/13-03.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	08/16/1999 12:19	
Kerosene	ND	50	ug/L	1.00	08/16/1999 12:19	
<b>Surrogate(s)</b> o-Terphenyl	95.2	60-130	%	1.00	08/16/1999 12:19	

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8015m

Attn.: Al Ridley

Prep Method: 3550/8015M  
3510/8015M

### Batch QC Report

Total Extractable Petroleum Hydrocarbons (TEPH)

<b>Method Blank</b>	<b>Soil</b>	<b>QC Batch # 1999/08/13-01.10</b>
MB: 1999/08/13-01.10-001		Date Extracted: 08/13/1999 09:00

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Diesel	ND	1	mg/Kg	08/13/1999 12:59	
Kerosene	ND	1	mg/Kg	08/13/1999 12:59	
<b>Surrogate(s)</b>					
o-Terphenyl	88.5	60-130	%	08/13/1999 12:59	

To: **URS Greiner Woodward Clyde- Oakland**  
Attn.: Al Ridley

Test Method: 8015m  
Prep Method: 3550/8015M  
3510/8015M

**Batch QC Report**  
Total Extractable Petroleum Hydrocarbons (TEPH)

<b>Method Blank</b>	<b>Water</b>	<b>QC Batch # 1999/08/13-03.10</b>
MB: 1999/08/13-03.10-001		Date Extracted: 08/13/1999 09:00

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Diesel	ND	50	ug/L	08/16/1999 12:19	
Kerosene	ND	50	ug/L	08/16/1999 12:19	
<b>Surrogate(s)</b> o-Terphenyl	111.5	60-130	%	08/16/1999 12:19	

Environmental Services (SDB)

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8015m

Attn: Al Ridley

Prep Method: 3510/8015M  
3550/8015M

## Batch QC Report

### Total Extractable Petroleum Hydrocarbons (TEPH)

Laboratory Control Spike (LCS/LCSD)		Soil		QC Batch # 1999/08/13-01.10	
LCS:	1999/08/13-01.10-002	Extracted:	08/13/1999 09:00	Analyzed:	08/13/1999 16:38
LCSD:	1999/08/13-01.10-003	Extracted:	08/13/1999 09:00	Analyzed:	08/13/1999 17:14

Compound	Conc. [ mg/Kg ]		Exp.Conc. [ mg/Kg ]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
Diesel	41.0	40.1	41.7	41.7	98.3	96.2	2.2	60-130	25		
<b>Surrogate(s)</b> o-Terphenyl	20.8	20.8	20.0	20.0	104.0	104.0		60-130			

To: URS Greiner Woodward Clyde- Oakland

Test Method: 8015m

Attn: Al Ridley

Prep Method: 3510/8015M  
3550/8015M

### Batch QC Report

#### Total Extractable Petroleum Hydrocarbons (TEPH)

Laboratory Control Spike (LCS/LCSD)	Water	QC Batch # 1999/08/13-03.10
LCS: 1999/08/13-03.10-002	Extracted: 08/13/1999 09:00	Analyzed: 08/16/1999 12:17
LCSD: 1999/08/13-03.10-003	Extracted: 08/13/1999 09:00	Analyzed: 08/16/1999 12:49

Compound	Conc. [ ug/L ]		Exp. Conc. [ ug/L ]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
Diesel	978	947	1250	1250	78.2	75.8	3.1	60-130	25		
<b>Surrogate(s)</b> o-Terphenyl	22.5	22.6	20.0	20.0	112.5	113.0		60-130			

To: URS Greiner Woodward Clyde- Oakland

Attn: Al Ridley

Test Method: 8015m

Prep Method: 3510/8015M  
3550/8015M

## Legend & Notes

Total Extractable Petroleum Hydrocarbons (TEPH)

### Analyte Flags

ndp

Hydrocarbon reported does not match the pattern of our Diesel standard



CHROMALAB

Change request received by: \_\_\_\_\_

Date Requested: 08/13/99

**SAMPLE STATUS CHANGE FORM**

Submission#	Client Samp.ID	Old Status Description	Description of Changes
99080161	B 1W: 2W 3W 4W	NO Analyzers	Run for G B & MTBE TEPH

Requested by  
(Client's name)  
duke  
08/18/99

Changes were done in lims by(login): rise/do On: 08/13/99

CC:  Lab.Director  Dept.manager  Analyst  Proj.Manager

# CHROMALAB, INC.

1220 Quarry Lane • Pleasanton, California 94566-4756  
925 /484-1919 • Facsimile 925/484-1096

Reference #: 91-07099010.00

Environmental Services (SDB) (DOHS 1094)

DATE 8/10/99 PAGE 1 of 1

9908016

47514

## ANALYSIS REPORT

PROJ. MGR DL RIDLEY  
COMPANY URS Greiner Woodward Clyde  
ADDRESS 500 12th St, Suite 200  
Dakland, CA 94607  
SAMPLERS (SIGNATURE) Richard W. Ely (PHONE NO.) 707-824-4936  
(FAX NO.) same

SAMPLE ID	DATE	TIME	MATRIX	PRESERV.	ANALYSIS REPORT												NUMBER OF CONTAINERS									
					TPH-IEPA 8015, 8020 <input checked="" type="checkbox"/> BTEX <input type="checkbox"/> MTBE	PURGEABLE AROMATICS BTX (EPA 8020)	TPH-Diesel (EPA 8015M)	TPH (EPA 8015M) <u>Kerosene</u> <input checked="" type="checkbox"/> Diesel <input type="checkbox"/> M.O. <input type="checkbox"/> Other	PURGEABLE HALOCARBONS (EPOCs) (EPA 8010)	VOLATILE ORGANICS (VOCs) (EPA 8260)	SEMIVOLATILES (EPA 8270)	TOTAL OIL AND GREASE (SM 5520 B+F, E+F)	<input type="checkbox"/> PESTICIDES (EPA 8080) <input type="checkbox"/> PCB'S (EPA 8080)	PNA's by <input type="checkbox"/> 8270 <input type="checkbox"/> 8310	<input type="checkbox"/> Spec. Cond. <input type="checkbox"/> TSS <input type="checkbox"/> TDS	LUFT METALS: Cd, Cr, Pb, Ni, Zn		CAM 17 METALS (EPA 6010/7470/7471)	TOTAL LEAD	D.W.E.T. (STLC) <input type="checkbox"/> TCLP	<input type="checkbox"/> Hexavalent Chromium <input type="checkbox"/> pH (24 hr hold time for H2O)					
B2-10.7'-11.2'	8/10	10:10	S	N	X			X																	1	
B3-11.8'-12.4'	8/10	11:25	S	N	X			X																		1
B4-9.0'-9.5'	8/10	12:40	S	N	X			X																		1
B1-W	8/10	2:55	W	Y	X			X																		5
B2-W	8/10	3:10	U	<del>N</del>	X			X																		5
B3-W	8/10	3:20	W	<del>N</del>	X			X																		5
B4-W	8/10	3:30	W	<del>N</del>	X			X																		5

Samples returned with HCL

PROJECT INFORMATION				SAMPLE RECEIPT			
PROJECT NAME: 1010 46th STREET				TOTAL NO. OF CONTAINERS 23			
PROJECT NUMBER 41-07099010.00				H <sup>2</sup> O AD SPACE			
P.O. #				TEMPERATURE			
				COI. FORMS TO RECORD			
TAT	STANDARD 5-DAY	X		24	48	72	OTHER

RELINQUISHED BY 1 <u>Richard W. Ely</u> (SIGNATURE) (TIME) 17:05 <u>RICHARD W. ELY 8/10</u> (PRINTED NAME) (DATE) <u>URSSWC</u> (COMPANY)	RELINQUISHED BY 2 <u>[Signature]</u> (SIGNATURE) (TIME) 1839 <u>B Morrow 8-11-99</u> (PRINTED NAME) (DATE) <u>Chromalab</u> (COMPANY)
---	---

SPECIAL INSTRUCTIONS/COMMENTS:  
Report:  Routine  Level 2  Level 3  Level 4  Electronic Report  
  
4.2°C

RECEIVED BY 1 <u>[Signature]</u> (SIGNATURE) (TIME) 1925 <u>B Morrow 8-11-99</u> (PRINTED NAME) (DATE) <u>[Signature]</u> (COMPANY)	RECEIVED BY 2 <u>[Signature]</u> (SIGNATURE) (TIME) 1855 <u>[Signature]</u> (PRINTED NAME) (DATE) <u>[Signature]</u> (COMPANY)	RECEIVED BY (LABORATORY) <u>[Signature]</u> (SIGNATURE) (TIME) 8:11 <u>[Signature]</u> (PRINTED NAME) (DATE) <u>[Signature]</u> (LAB)
---	--	---