URS

December 4, 2001

Mr. Amir Gholami
Hazardous Materials Specialist
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Number 250
Alameda, California 94502

RE: 2001 Second Quarter Groundwater Monitoring
Former Sears Retail Center #1058
2633 Telegraph Avenue
Oakland, California
Case I.D. #STID 1082
For Sears, Roebuck & Co.

Dear Mr. Gholami

Submitted with this letter is a URS report prepared on behalf of Sears, Roebuck & Co. Presented in the report are results of groundwater monitoring conducted at the above-referenced site during the Second quarter 2001. Quarterly groundwater monitoring will continue within the current scope of work. Please feel free to contact me or Taras Kruk at 714.835.6886 if you have questions or comments.

Respectfully Submitted,
URS CORPORATION

J.S. Rowlands, R.G., C.HG
Project Manager

cc: Mr. Scott DeMuth, Sears Roebuck and Co.
Mr. Ryan Hartley, URS Corporation
Mr. Tim Lester, Environmental Equalizers

URS

REPORT
2001 SECOND QUARTER
GROUNDWATER MONITORING
FORMER SEARS RETAIL CENTER #1058
2633 TELEGRAPH AVENUE
OAKLAND, CALIFORNIA
CASE I.D. # STID 1082
FOR SEARS, ROEBUCK & CO.

URS Job No. 22-00000139.01
December 4, 2001

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OAKLAND, CALIFORNIA
CASE I.D. # STID 1082
URS JOB NO. 22-00000139.01
FOR SEARS, ROEBUCK & CO.

1.0 INTRODUCTION

This report has been prepared by URS Corporation (URS; formerly as Dames & Moore) on behalf of Sears, Roebuck & Co. (Sears). It presents results of the 2001 Second Quarter Groundwater Monitoring conducted at the above-referenced site (Figure 1). The former Sears retail center (Site) is located at 2633 Telegraph Avenue. The groundwater monitoring event consisted of "post purge" groundwater sample collection from two of three monitoring wells (FOMW-1, FOMW-2, FOMW-3) installed on the Site during May 2000. Monitoring well FOMW-1 was not sampled due to the presence of separate phase product in the well casing. The purpose of the groundwater monitoring was to assess groundwater conditions in the vicinity of a slurry-filled 10,000-gallon heating oil underground storage tank (UST, Figure 2). The work is being performed under the regulatory oversight of the Alameda County Environmental Health Service (ACEHS).

2.0 SITE DESCRIPTION

The Site is bounded by 27th Street to the north, Telegraph Avenue to the east, Sycamore Street to the south, and Northgate Avenue to the west (Figure 2). The property is occupied by a vacant Sears retail store (currently undergoing redevelopment) that was constructed in 1930 and an above-grade parking garage that was constructed in the 1960's. Prior to the construction of the store, single and multi-family residences dating to the turn of the century occupied the site. The former Sears retail center is three stories tall (approximately 120,000 square feet) with a basement. Sears no longer owns the site but maintains responsibility for environmental issues related to the slurry-filled 10,000 heating oil UST. The Site elevation is approximately 30 feet above mean sea level (MSL), which slopes gently to the south towards San Francisco Bay.

3.0 BACKGROUND

Lowney Associates (Lowney) performed a "Phase I Environmental Site Assessment (ESA) and Soil and Groundwater Quality Evaluation" in April, 1998 and a "Phase II Soil and Groundwater Evaluation," in July, 1998. The first assessment included advancing five exploratory borings in three areas of recognized environmental concerns for collection of soil samples and groundwater grab samples (Figure 2). Borings EB-1, EB-2, and EB-3 were driven in an area between the boiler room and a suspect pipe in the 27th Street sidewalk. Two borings were drilled within 10-feet of an adjacent dry cleaners (EB-4) and in the vicinity of a possible former tire and oil shop at the southwest corner of the retail store (EB-5). Detectable concentrations of total petroleum hydrocarbons (TPH) ranging from 79 milligrams per kilogram (mg/kg) to 9,500 mg/kg were present in soil samples collected from borings EB-1, EB-2, EB-3 and EB-5. Benzene was not detected in any of the soil samples submitted for chemical analysis.

During the second assessment conducted by Lowney, seven additional borings were advanced down gradient of the anticipated groundwater flow direction to collect selected soil and groundwater grab samples (Figure 2). The investigation also confirmed the location and existence of the 10,000-gallon UST beneath the loading dock of the retail center and identified the piping beneath the sidewalk of 27th Street as the UST fill line. Soil samples collected from borings EB-6 through EB-12 contained non-detectable (ND) concentrations of TPH and benzene, toluene, ethylbenzene, total xylenes (BTEX).

Groundwater grab samples were collected by Lowney during the two assessments from borings EB-1 through EB-6, EB-10, EB-11, and EB-12. Groundwater grab samples collected from borings EB-1, EB-2, EB-3, and EB-5 contained detectable concentrations of TPH ranging from 38,000 micrograms per liter (µg/L) to 480,000 µg/L. Groundwater grab samples collected from borings EB-2 and EB-4 contained detectable concentrations of benzene at 4.8 µg/L and 4.3 µg/L, respectively. The remaining groundwater grab samples contained ND concentrations of TPH and BTEX.

SECOR International Incorporated (SECOR) subsequently performed an additional soil and groundwater investigation during November 1998 to further assess subsurface soils and groundwater near the southeastern corner of the property. The scope of work was approved by the ACEHS and included the advancement of nine soil borings (EB-13 through EB-21) for the collection of soil and groundwater grab samples (Figure 2). Soil samples collected from borings EB-19, EB-20, and EB-21 contained detectable concentrations of TPH ranging from 4 mg/kg to 160 mg/kg. All soil samples, excluding EB-20-7, analyzed during the investigation contained ND concentrations of BTEX. Soil sample EB-20-7 contained 0.044 mg/kg of ethylbenzene and ND concentrations of

benzene, toluene and total xylenes.

Groundwater grab samples collected by SECOR from borings EB-13, EB-14, EB-15 and EB-18 contained TPH concentrations ranging from ND to 2,300 µg/L. The groundwater grab samples collected from borings EB-13, EB-15 and EB-18 contained ND concentrations of BTEX. Groundwater grab sample EB-14 contained ND concentrations of benzene and toluene, 3.2 µg/L ethylbenzene, and 6.1 µg/L total xylenes.

URS installed three groundwater monitoring wells (FOMW-1, FOMW-2, FOMW-3) on the Site in May 2000 (Figure 2). The monitoring wells were located adjacent to, and south of the slurry-filled UST. Soil samples collected from the borings contained concentrations of total extractable petroleum hydrocarbons (TEPH) as diesel fuel or bunker oil ranging from ND to 3,200 mg/kg. BTEX and methyl tertiary butyl ether (MTBE) were not detected in any of the soil samples analyzed. Groundwater samples have been collected from the wells on a quarterly basis since June 2000. Analytical results for previous quarterly sampling events are provided on Table 2.

4.0 HEALTH AND SAFETY PLAN

Prior to initiating the field activities, URS prepared a site-specific Health & Safety plan to:

- Identify and describe potentially hazardous substances which may be encountered during field operations;
- Specify protective equipment and clothing for on-site activities;
- Outline measures to be implemented in the event of an emergency.

URS field personnel reviewed the Health & Safety plan prior to commencing the field procedures. Field monitoring activities were recorded in the Health and Safety Plan and were maintained in the project files at URS's San Francisco office. A copy of the Health and Safety Plan remained onsite during field operations.

5.0 QUARTERLY GROUNDWATER MONITORING

The 2001 Second Quarter Groundwater Monitoring was performed on June 22, 2001. The monitoring was performed on the three groundwater wells (FOMW-1, FOMW-2, and FOMW-3). The monitoring consisted of groundwater gauging of all three wells, and purging, sampling and analysis of two of the wells (FOMW-2 and FOMW-3). A description of the monitoring procedures is presented below.

5.1 GROUNDWATER GAUGING AND CONTOURING

Prior to sampling, each groundwater monitoring well was checked for the presence of free product. Separate phase product has been observed floating in well FOMW-1. However, an accurate thickness could not be measured, nor an accurate depth to groundwater to due the high viscosity of the separate phase product. Due to the presence of the separate phase product, well FOMW-1 was not purged and sampled. Water levels in wells FOMW-2 and FOMW-3, were gauged using a Solinst water level indicator relative to the surveyed top of casing. Groundwater depths and elevations are listed in Table 1. A Site map showing the estimated groundwater flow direction, based of previous quarterly data, is provided as Figure 3.

5.2 PURGING AND SAMPLING METHODS

Prior to sample collection, wells FOMW-2 and FOMW-3 were purged of approximately three to five well casing volumes using a using a Grundfos RediFlo 2™ well pump. Water purged from the wells was monitored for field parameters, including temperature, pH, electrical conductivity, turbidity, dissolved oxygen, and oxygen reduction potential (redox). The measured field parameters are listed on Table 1.

The purging of wells FOMW-2 and FOMW-3 was terminated when temperature, pH, and conductivity measurements stabilized. Following the purging and well recovery to at least 80% of original static water levels (or after one hour of recovery), groundwater samples were collected for laboratory analysis by lowering a pre-cleaned, disposable polyethylene bailer approximately one to two feet below the air-water interface. Prior to sampling, each bailer was fitted with a low-flow velocity sampling port to minimize sample turbulence and volatilization. The down-hole pump was cleaned prior to use, and between wells by washing in a solution of Alconox™, rinsing with tap

water, final rinsing with deionized water, and air drying. The polyethylene tubing connected to the pump was changed between each well.

Sample containers and handling procedures conformed to the established protocols for each specific parameter as described in EPA SW-846. The sample bottles, once filled and preserved as required, were properly labeled and logged on a chain of custody form. The label included well identification number, sample number, date and time sampled, job number, site/client name and location, and sampling personnel's initials. The sealed and labeled samples were placed in ice chests maintained and temperature of 4 to 7 degrees centigrade and transported to a California Department of Health Services (CDHS) accredited laboratory for analysis. Chain-of-custody records were maintained throughout the sampling program.

5.3 LABORATORY ANALYSIS PROGRAM

Groundwater samples submitted to the CDHS-accredited laboratory were analyzed for TEPH as diesel-fuel by modified EPA 8015, and for volatile organic compounds (VOCs) as benzene, toluene, ethylbenzene, total xylenes (BTEX) and methyl tertiary butyl ether (MTBE) by EPA method 8260A. As part of the attenuation monitoring program, the groundwater samples were also analyzed for dissolved methane by EPA method 3810M, total alkalinity by EPA 310.1, total dissolved solids (TDS) by EPA 160.1, hydrocarbon degraders by ASTM G-22, and heterotrophic plate count by SM 9215A.

5.4 WASTE MANAGEMENT

Liquid wastes (well purge water) were collected and stored in 55-gallon DOT-approved drums. Containers were numbered to identify the source of the wastes. The containers were stored onsite and properly disposed following review of the chemical analysis data.

6.0 MONITORING RESULTS

6.1 SHALLOW GROUNDWATER CONDITIONS

Historical groundwater measurements collected since June 2000 indicate that the potentiometric surface beneath the site has fluctuated from approximately 9 to 11 feet bgs (15 to 18 feet below MSL). The water bearing zones are moderately confined, as water levels ascended within drill rods after penetration of the coarser-grained water bearing units during well installation. Water level measurements collected during the two previous Quarter Groundwater Monitoring indicate groundwater flow is to the southeast with an approximate gradient of 0.015 foot per foot. Current Groundwater elevations beneath the site have decreased an average of 0.46 feet since the last monitoring event conducted in March 2001. Groundwater elevations are presented in Table 1 and shown on Figure 3.

6.2 LABORATORY ANALYTICAL RESULTS

Chemical analyses results of the soil and groundwater samples collected during this investigation are presented in Table 2. The CDHS-accredited laboratory reports and chain-of-custody forms are provided as Appendix A. The groundwater samples collected from monitoring well FOMW-3 contained 260 µg/L TEPH as diesel fuel. TEPH were not detected in the sample collected from well FOMW-2. None of the groundwater samples collected and submitted for chemical analysis during this quarter contained detectable concentrations of VOCs as BTEX or MTBE.

URS conducted a check of data completeness for the analytical laboratory reports. Results indicate that "these data are usable, as qualified, for their intended purpose." URS's Data Validation Reports are included as Appendix B.

7.0 DISCUSSION

Results of the 2001 Second Quarter Groundwater Monitoring indicate that petroleum hydrocarbons within the diesel fuel range are present in shallow groundwater beneath the Site in the vicinity of the slurry-filled, heating oil UST. VOCs associated with petroleum fuel products such as BTEX and MTBE were not detected in any groundwater samples collected during this quarter or the four previous sampling events conducted since the quarterly groundwater sampling program was initiated in June 2000. Concentrations of dissolved petroleum hydrocarbons have remained relatively stable. Results of the physical and biological testing are typical of nonaggressive oxidizing conditions. They also imply that conditions exist for biodegradation of residual petroleum hydrocarbons in the soil and groundwater.

Based on beneficial uses of groundwater in the Site vicinity, and the constituent concentrations detected during this and previous investigations, there appears to be no significant risk of petroleum hydrocarbon exposure to any sensitive receptors in the area. As introduced in the 2000 Second Quarter report, URS plans to further evaluate site conditions related to the petroleum hydrocarbon plume and establish closure conditions for the slurry-filled UST in accordance with the Urban Land Redevelopment (URL) Program. In order to establish site closure criteria and complete site characterization, URS submitted a work plan to the ACEHS dated August 23, 2001 for review and approval. The work plan proposes the following additional investigative activities be conducted at the Site:

- Install one well downgradient of FOMW-1 to further delineate the petroleum hydrocarbon impacted plume.
- Drill four soil borings for additional soil characterization on the perimeter of the UST vault.
- Remove separate phase product from well FOMW-1 on a monthly basis using a vacuum truck fitted with a PVC stinger. Gauge and record product thickness and/or reoccurrence.
- Completely fill the UST vault and access manway with slurry to eliminate the potential of unauthorized entry into the vault.
- After one additional quarter of groundwater monitoring following the additional well installation and additional soil characterization program; complete a site closure analysis in accordance with the URL Program guidance document.

Given our current understanding of the petroleum hydrocarbon plume conditions, the Site will likely conform to the URL Program closure criteria.

8.0 SCHEDULE

This report represents the fifth submittal for quarterly groundwater monitoring at the site. Field work for the 2001 third quarter groundwater monitoring was conducted in September 2001. The next groundwater sampling event has been scheduled for December 2001. URS proposes to install one additional groundwater monitoring well and four additional soil borings in the area of the slurry filled heating oil UST during the first quarter 2002 pending work plan approval from the ACEHS. The proposed monitoring well and soil boring locations are shown on Figure 2. Options regarding permanent closure of the UST vault are currently being evaluated. The site will be evaluated for closure in accordance with the URL Program following completion of the additional site characterization. URS will continue to notify ACEHS personnel of upcoming field activities.

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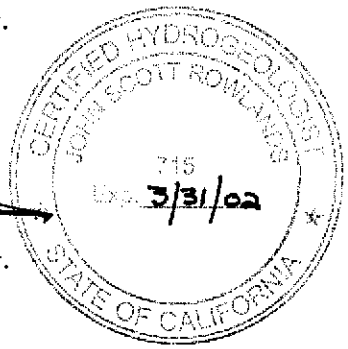
Should you have any questions or comments, please do not hesitate to contact us.

Respectfully Submitted,

URS CORPORATION

Taras B. Kruk, R.G., C.HG.
Project Director

J.S. Rowlands, R.G., C.HG.
Project Manager



9.0 REFERENCES

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Figuers, S., 1998. Groundwater Study and Water Supply History of the East Bay Plain, Alameda and Contra Costa Counties, California, 12 p.

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URS, 2001. *2000 Fourth Quarter Groundwater Monitoring,* Former Sears Retail Center #1058, 2633 Telegraph Avenue, Oakland, California, June 21.

URS, 2001. *2001 First Quarter Groundwater Monitoring*, Former Sears Retail Center #1058, 2633 Telegraph Avenue, Oakland, California, July 6.

URS, 2001 *Additional Site Assessment and Groundwater Monitoring Well Installation Heating Oil Underground Storage Tank*, Former Sears Retail Center #1058, 2633 Telegraph Avenue, Oakland, California, August 23

Table 1
Historical Groundwater Levels and Parameters
Sears Retail Center Store No. 1058
Oakland, California

Monitoring Well No.	Date Collected	Notes	GROUNDWATER LEVELS				GROUNDWATER SAMPLING FIELD PARAMETERS					
			Product Thickness (ft)	Depth to Groundwater (feet bgs)	Casing Elevation (MSL)	Groundwater Elevation (MSL)	Temp. (Celcius)	pH	Cond (uS)	Redox (mV)	Dissolved Oxygen (mg/l)	Ferrous Iron (%)
FOMW-1	6/8/00	1,2	0.00	9.59	27.81	18.22	18.3	6.72	659	13.00	0.28	NA
	10/10/00	SP	0.01	9.91	27.81	17.90	NA	NA	NA	NA	NA	NA
	12/15/00	SP	0.01	9.44	27.81	18.37	NA	NA	NA	NA	NA	NA
	3/27/01	SP	0.01	9.00	27.81	18.81	NA	NA	NA	NA	NA	NA
	6/22/01	--	--	--	--	--	NA	NA	NA	NA	NA	NA
FOMW-2	6/8/00	--	0.00	11.14	26.65	15.51	14.7	7.00	673	10.00	2.92	NA
	10/10/00	--	0.00	12.34	26.65	14.31	15.8	7.58	420	0.01	NA	NA
	12/15/00	--	0.00	11.05	26.65	15.60	14.0	7.09	1210	NA	0.15	NA
	3/27/01	--	0.00	10.91	26.65	15.74	15.4	7.62	305	92.00	0.61	NA
	6/22/01	--	0.00	11.30	26.65	15.35	15.3	5.33	340	0.20	0.25	NA
FOMW-3	6/8/00	2	0.00	10.48	26.80	16.32	15.0	6.87	689	23.00	0.22	NA
	10/10/00	--	0.00	11.15	26.80	15.65	15.6	7.66	430	39.00	NA	NA
	12/15/00	--	0.00	10.36	26.80	16.44	14.1	7.31	1400	45.00	0.15	NA
	3/27/01	--	0.00	10.12	26.80	16.68	NA	NA	NA	NA	NA	NA
	6/22/01	--	0.00	10.65	26.80	16.15	15.7	5.11	330	0.09	0.50	NA

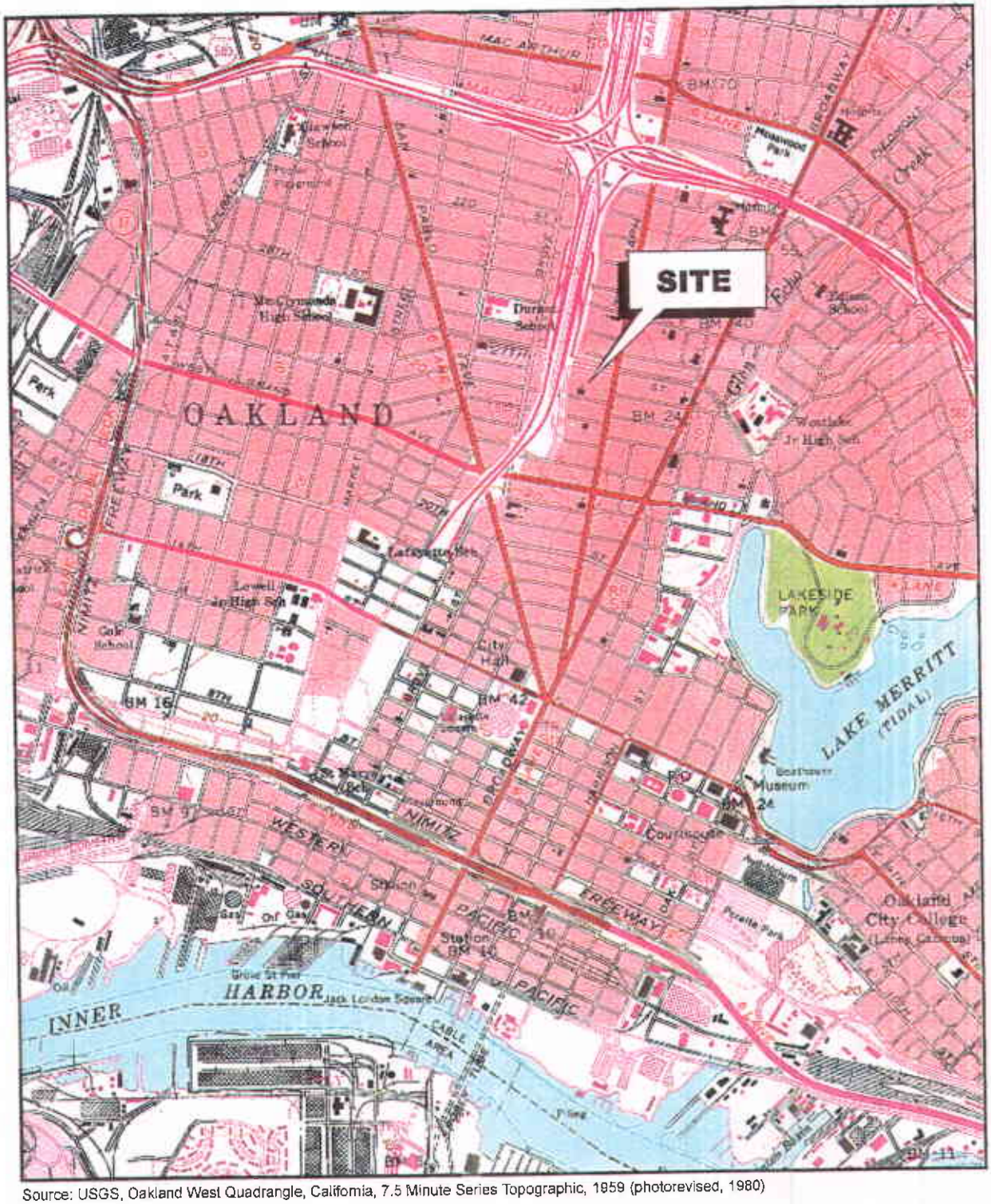
Notes:
MSL - Mean Sea Level
Groundwater Elevation reference to MSL
Groundwater Elevation = Top of casing elevation - Depth to Water
1 Sheen observed on water surface.
2 Petroleum odor in groundwater
SP = Separate phase product in well
NA: Not analyzed/Not available

TABLE 2
HISTORICAL SUMMARY OF GROUNDWATER MONITORING RESULTS
SEARS RETAIL STORE NO. 1058
OAKLAND, CALIFORNIA

Monitoring Well No.	Sample Date	Notes	LABORATORY ANALYTICAL RESULTS							PHYSICAL PARAMETERS						
			Volatile Organics by GC/MS 8260A					TEPH								
			B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	Diesel (ug/L)	Bunker Oil (ug/L)	Nitrate (mg/L)	Sulfate (mg/L)	TDS (mg/L)	Total Alkalinity (mg/L)	Dissolved Methane (ug/ML)	Hydrocarbon Degraders (CFU/ML)	Heterotrophic Plate Count (CFU/ML)
FOMW-1	6/8/00	--	< 0.5	< 0.5	< 0.5	< 1	< 5	< 50	J 1200	NA	NA	360	230	< 0.01	390	4000
	10/10/00	SP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/15/00	SP	< 0.5	< 0.5	< 0.5	< 1	< 5	260	< 50	NA	NA	NA	NA	NA	NA	NA
	12/15/00	1	< 0.5	< 0.5	< 0.5	< 1	< 5	370	< 50	NA	NA	NA	NA	NA	NA	NA
	3/27/01	SP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/22/01	SP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FOMW-2	6/8/00	--	< 0.5	< 0.5	< 0.5	< 1	< 5	< 50	< 50	NA	NA	250	150	< 0.01	1	110
	10/10/00	--	< 0.5	< 0.5	< 0.5	< 1	< 5	< 50	< 50	NA	NA	260	140	< 0.01	170	1600
	12/15/00	--	< 0.5	< 0.5	< 0.5	< 1	< 5	< 50	< 50	7.8	30	210	190	< 0.01	550	1000
	3/27/01	--	< 0.5	< 0.5	< 0.5	< 1	< 5	< 50	NA	8.4	47	290	130	< 0.01	30	170
	3/27/01	1	< 0.5	< 0.5	< 0.5	< 1	< 5	< 50	NA	9.1	47	320	130	< 0.01	40	70
	6/22/01	--	< 1	< 1	< 1	< 1	< 5	< 250	< 250	NA	NA	220	110	< 0.01	4000	400000
FOMW-3	6/8/00	--	< 0.5	< 0.5	< 0.5	< 1	< 5	< 50	J 1200	NA	NA	330	190	< 0.01	440	110000
	6/8/00	1	< 0.5	< 0.5	< 0.5	< 1	< 5	< 50	J 1100	NA	NA	330	180	< 0.01	50	8000
	10/10/00	--	< 0.5	< 0.5	< 0.5	< 1	< 5	230	< 50	NA	NA	300	170	< 0.01	800	4000
	12/15/00	--	< 0.5	< 0.5	< 0.5	< 1	< 5	100	< 50	3.2	30	290	190	< 0.01	1200	1800
	3/27/01	--	< 0.5	< 0.5	< 0.5	< 1	< 5	170	NA	3.3	51	420	130	< 0.01	400	300
	6/22/01	--	< 1	< 1	< 1	< 1	< 5	260	< 250	NA	NA	250	150	< 0.01	4000	350000

Notes:

TPH - Total extractable petroleum hydrocarbons
B T E X - Benzene, Toluene, Ethylbenzene, Total Xylenes
MTBE - Methyl tertiary-butyl ether
TDS = Toal Dissolved Soilds
1: Duplicate sample
J - Bunker-C detections were quatitated against the diesel standard and flagged as estimated concentrations
< - Analyte not detected above indicated method detection limit
NA: Not analyzed/Not available.
SP: Separate Phase Product



Source: USGS, Oakland West Quadrangle, California, 7.5 Minute Series Topographic, 1959 (photorevised, 1980)

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SITE LOCATION MAP

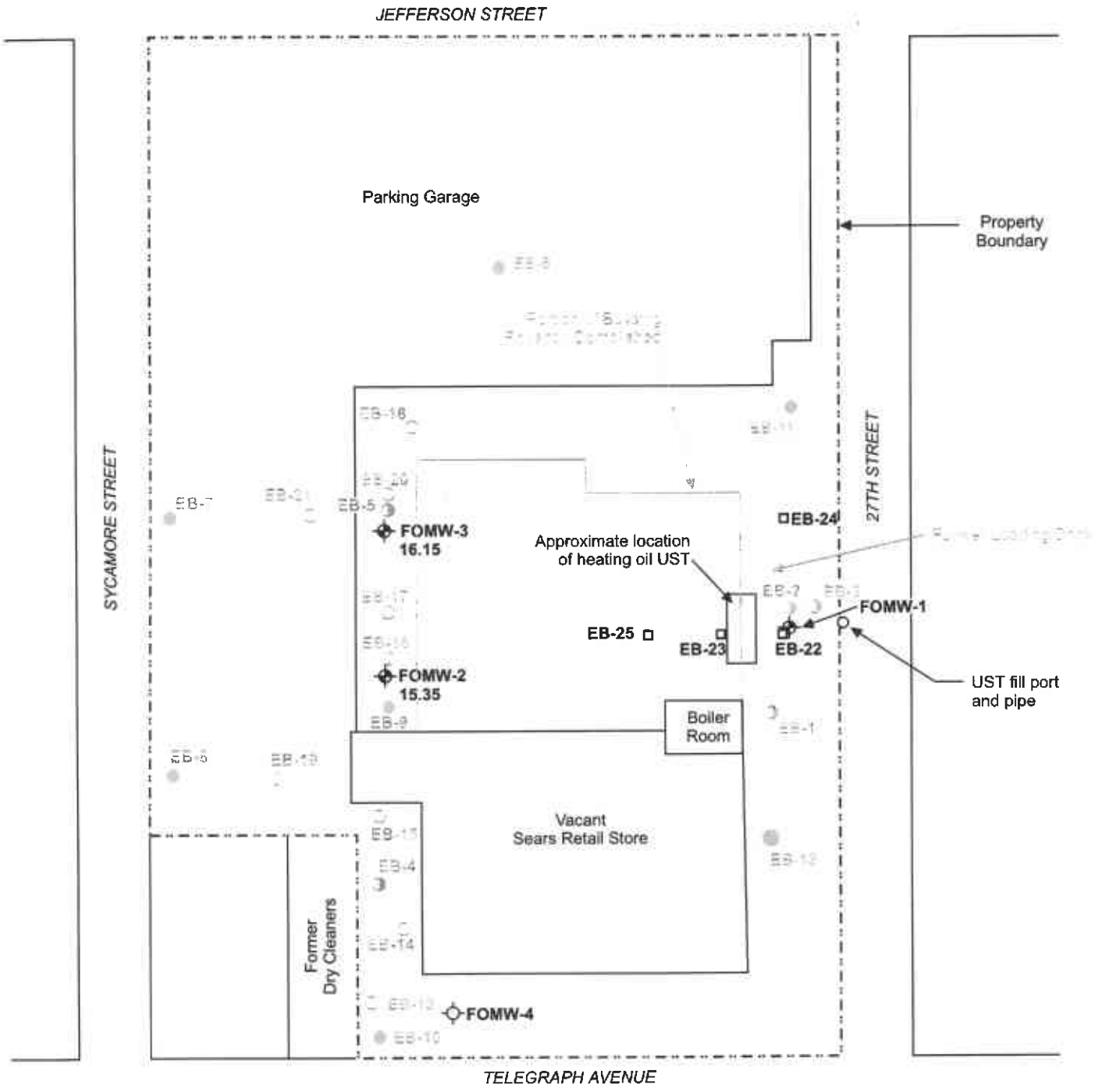
Sears Roebuck & Company
Soil & Groundwater Evaluation
Oakland, California

February 2000
00188-248-170

URS

FIGURE 1

1/25/00 sv ..\00188-248\slm.cdr



LEGEND

- Approximate location of exploratory boring (Lowney, May 1998)
- Approximate location of exploratory boring (Lowney, April 1998)
- Approximate location of exploratory boring (SECOR, November 1998)
- Groundwater monitoring well locations (URS/Dames & Moore)
- Proposed monitoring well location
- Proposed soil boring location

NOTES

N

0 100

Approximate Scale in Feet

Reference: Lowney Associates (1998)
SECOR (1998)

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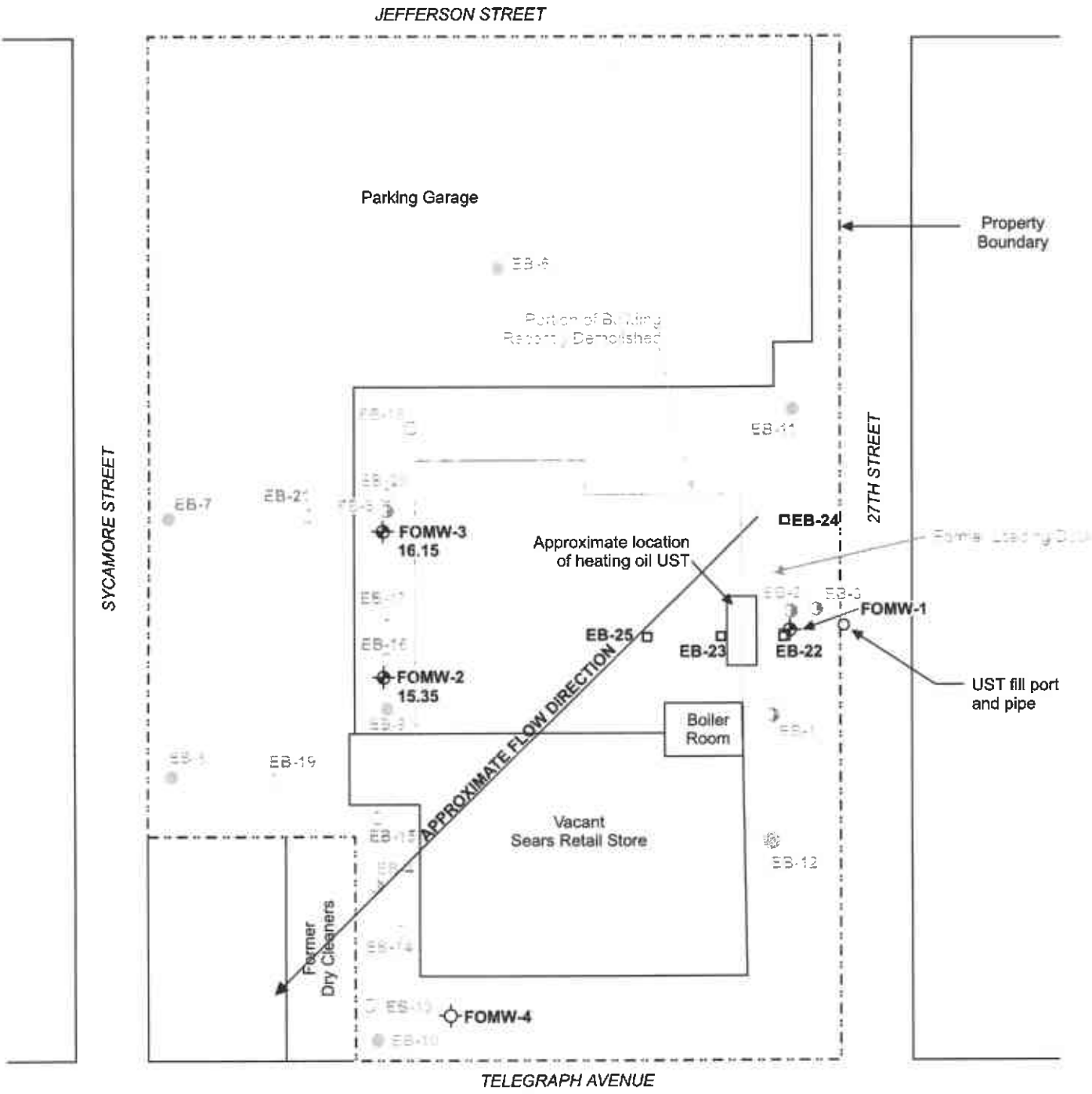
SITE PLAN SHOWING BORING AND MONITORING WELL LOCATIONS

Sears Roebuck & Company
Site Assessment
Oakland, California

August 2001

URS

FIGURE 2



LEGEND

- Approximate location of exploratory boring (Lowney, May 1998)
- Approximate location of exploratory boring (Lowney, April 1998)
- Approximate location of exploratory boring (SECOR, November 1998)
- Fuel oil monitoring well locations (URS/Dames & Moore)
- 16.15 Water level measurements in feet above Mean Sea Level Datum (MSLD)
- Proposed monitoring well location
- Proposed soil boring location

N

0 100

Approximate Scale in Feet

Reference: Lowney Associates (1998)
SECOR (1998)

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NOTES

(1) Groundwater analytical results presented in tables 1 and 2.

2001 SECOND QUARTER GROUNDWATER LEVELS AND CONTOURS

Sears Roebuck & Company
Site Assessment
Oakland, California

August 2001

URS

FIGURE 3

APPENDIX A

LABORATORY REPORTS AND CHAIN OF CUSTODY DOCUMENTS

Cyto Culture
ENVIRONMENTAL
BIOTECHNOLOGY
CytoCulture International Inc.
249 Tewksbury Avenue
Pt. Richmond, CA 94801 USA

Dames & Moore / URS Corporation
DM-URS Project No.
Project Manager: Steve McKnight
221 Main St., # 600, San Francisco CA 94105

Reporting Date: July 9, 2001
CytoCulture Lab Login: 01-51
Project Description: Sears-Hayward
Tel. 415-243-3839 Fax 415-882-9261

SAMPLES: Ten water samples on ice were received on 6/25/01. The samples were assayed the following business day and stored at 4°C. See attached chain of custody form.

Aerobic Hydrocarbon-Degrading and Total Heterotrophic Bacteria Enumeration Assays

ANALYSIS REQUEST: Bacterial enumeration for aerobic petroleum hydrocarbon-degraders (broad range petroleum hydrocarbons derived from diesel and gasoline) and total heterotrophic plate counts by method 9215A (HPC) / Standard Methods 9215B modified.

CARBON SOURCE: Sterilized Chevron No. 2 diesel and gasoline were dissolved into agar plates as the sole carbon and energy sources for the growth of hydrocarbon-degrading aerobic bacteria. Heterotrophic plates were made up with standard methods total plate count agar (Difco) containing a wide range of carbon sources derived from yeast extract, tryptone, pancreatic digest of casein and glucose.

PROTOCOLS:

Hydrocarbon Degraders: Sterile agar plates (100 x 15 mm) were prepared with minimal salts medium at pH 6.8 with noble agar and hydrocarbons, without any other carbon sources or nutrients added. Triplicate plates were inoculated with 1.0 ml of each sample, or log dilutions of the sample, at 10^{0}, 10^{-1}, 10^{-2} and 10^{-3}. Hydrocarbon plates were counted 12 days after incubation at 30 Deg C. The plate count data are reported as colony forming units (cfu) per milliliter (ml). Each bacteria population value represents a statistical average of the plate count data obtained with inoculations for two of the four log dilutions tested.

Heterotrophs: Sterile agar plates (100 x 15 mm) were prepared with minimal salts medium and 2.35% heterotrophic plate count agar at pH 6.8 without any other carbon sources or nutrients added. Plates were inoculated with 1.0 ml of water sample, or log dilutions of the sample, in triplicate at sample dilutions of 10^{0}, 10^{-1},10^{-2}, and 10^{-3}. The heterotroph plates were counted after 3 days of incubation at 30 Deg. C. The plate count data are reported as colony forming units (cfu) per milliliter (ml) of sample. Each enumeration value represents a statistical average of two of the four log dilutions inoculated in plates.

Aerobic
Hydrocarbon-Degrading and Heterotrophic Bacteria Enumeration Results

CLIENT SAMPLE NUMBER	SAMPLE DATE	HYDROCARBON DEGRADERS (CFU/ML)	TARGET HYDROCARBONS TESTED	TOTAL HETEROTROPHS (CFU/ML)
MW-2	6/21/01	3.5×10^4	Gasoline + diesel	1×10^5
MW-4	6/21/01	2.5×10^4	Gasoline + diesel	$3.5 \times 10^{4*}$
MW-10	6/21/01	2×10^4	Gasoline + diesel	$1 \times 10^{5*}$
MW-11	6/21/01	4×10^4	Gasoline + diesel	6×10^5
MW-16	6/20/01	4.4×10^3	Gasoline + diesel	3×10^4
MW-15	6/20/01	7×10^3	Gasoline + diesel	2.5×10^4
MW-13	6/20/01	5×10^4	Gasoline + diesel	1×10^6
MW-22	6/20/01	7.5×10^3	Gasoline + diesel	$2.5 \times 10^{4*}$
FOMW-2	6/22/01	4×10^3	Gasoline + diesel	4×10^5
FOMW-3	6/22/01	4×10^3	Gasoline + diesel	3.5×10^5
Sterile water	6/26/01	zero	Gasoline + diesel	zero
Air control	6/26/01	zero	Gasoline + diesel	2
Positive control	6/26/01	3.5×10^5	Gasoline + diesel	7.4×10^6

*Actual bacterial counts may be higher as motile bacterial colonies partially occluded counting of this plate

A hydrocarbon-degrading bacteria positive control sample was run concurrently with these samples using a mixed flask culture of bacteria from Northern California contaminated groundwater sites.

CytoCulture is available on a consulting basis to assist in the interpretation of these data and their application to field bioremediation protocols.

Wendy Fulkerson, B.S.
Laboratory Technician

Randall von Wedel, Ph.D.
Principal Biochemist

C:\cytolab\lab reports\D&M 01-51

Dames & Moore

Subcontracted Microbiology Assays
performed by

CytoCulture Environmental Biotechnology

Chain of Custody Form

#01-51

Dames & Moore Project Name: Sears - Hayward Project No.	Dames & Moore Analytical Laboratories Purchase Order / LOG IN #:
Dames & Moore Analytical client:	Dames & Moore Analytical Laboratories Project Manager:
Address to Send Results: 221 Main Street #600, San Francisco, CA ~~94117~~ 94105	
Fax for Sending Data: 415 - ~~333~~ 882 - 9261	Contact / Project Manager: Steve McKnight
Tel for Follow-up: 415 - 243 - 3839	Sampler / Recorder: Steve McKnight

Sample I.D. Indicate target Hydrocarbon range e.g., gas, diesel, oil)	Sampling Date	Sampling Time	Matrix Soil	Matrix Water	Analyses Requested: Aerobic Hydrocarbon Degrading Bacteria	Aerobic Heterotrophic Bacteria	pH	DO	NH_3	PO_4	NO_3	SO_4	Other Tests or Comments
~~MW-3~~	~~6/21/01~~	~~12:30~~											
MW-2	6/21/01	12:30		X	X	X							
MW-4	6/21/01	12:00		X	X	X							
MW-10	6/21/01	11:30		X	X	X							
MW-11	6/21/01	10:20		X	X	X							
MW-16	6/20/01	16:35		X	X	X							
MW-15	6/20/01	15:30		X	X	X							

Chain of Custody Record	Signature of this form constitutes	a firm Purchase Order for services.	Payment DUE on Reporting Date.
Relinquished by: Steve B. McKnight	Date/Hr: 6/22/01 10:05 a.m.	Received by:	Date/Hr:
Received for CytoCulture Lab by: Wendy Keller	Date/Hr: 25-Jun-01 1200	CytoCulture Lab Services Tel: 510-233-0102 Fax: 510-233-3777	Please fax Chain of Custody form to CytoCulture prior to delivery.

Dames & Moore

Subcontracted Microbiology Assays
performed by

CytoCulture Environmental Biotechnology

Chain of Custody Form

Dames & Moore Project Name: Sears - Hayward Project No.	Dames & Moore Analytical Laboratories Purchase Order / LOG IN #:
Dames & Moore Analytical client: Sears	Dames & Moore Analytical Laboratories Project Manager:
Address to Send Results: 221 Main St. #600, San Francisco, CA, 94105	
Fax for Sending Data: 415-882-9261	Contact / Project Manager: Steve McKnight
Tel for Follow-up: 415-243-3839	Sampler / Recorder: Steve McKnight

Sample I.D. Indicate target Hydrocarbon range e.g., gas, diesel, oil)	Sampling Date	Sampling Time	Matrix: Soil	Matrix: Water	Analyses Requested: Aerobic Hydrocarbon Degrading Bacteria	Aerobic Heterotrophic Bacteria	pH	DO	NH_3	PO_4	NO_3	SO_4	Other Tests or Comments
MW-13	6/20/01	13:45		X	X	X							
MW-33	6/26/01	15:30		X	X	X							
FOMW-2	6/22/01	1200		X	X	X							
FOMW-3	6/22/01	1050		X	X	X							

Sears Final

Chain of Custody Record	Signature of this form constitutes	a firm Purchase Order for services.	Payment DUE on Reporting Date.
Relinquished by: Steve B. McKnight	Date/Hr: 6/22/01 10:05 a.m.	Received by:	Date/Hr:
Received for CytoCulture Lab by:	Date/Hr:	CytoCulture Tel: 510-233-0102 Lab Services Fax: 510-233-3777	Please fax Chain of Custody form to CytoCulture prior to delivery.

URS -San Francisco
221 Main Street Suite 600
San Francisco, CA 94105

Attn.: Mr. Chris Sheridan

Project: Sears-Oakland

Dear Mr. Sheridan,

Attached is our report for your samples received on Friday June 22, 2001
This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after August 6, 2001 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. You can also contact me via email.
My email address is: asalimpour@chromalab.com

Sincerely,

Afsaneh Salimpour

Gases by 3810M

URS -San Francisco

221 Main Street Suite 600
San Francisco, CA 94105

Attn: Chris Sheridan

Phone: (415) 896-5858 Fax: (415) 882-9261

Project #:

Project: Sears-Oakland

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
FOMW-2	Water	06/22/2001 12:00	1
FOMW-3	Water	06/22/2001 10:50	2

To: **URS -San Francisco**
Attn.: Chris Sheridan

Test Method: 3810M
Prep Method: 3810

Gases by 3810M

Sample ID:	**FOMW-2**	Lab Sample ID:	**2001-06-0456-001**
Project:	Sears-Oakland	Received:	06/22/2001 16:25
		Extracted:	06/28/2001 13:34
Sampled:	06/22/2001 12:00	QC-Batch:	2001/06/28-01.37
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Methane	ND	0.010	ug/ml	1.00	06/28/2001 13:34	

To: **URS -San Francisco**
Attn.: Chris Sheridan

Test Method: 3810M
Prep Method: 3810

Gases by 3810M

Sample ID:	**FOMW-3**	Lab Sample ID:	**2001-06-0456-002**
Project:	Sears-Oakland	Received:	06/22/2001 16:25
		Extracted:	06/28/2001 13:44
Sampled:	06/22/2001 10:50	QC-Batch:	2001/06/28-01.37
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Methane	ND	0.010	ug/ml	1.00	06/28/2001 13:44	

To: **URS -San Francisco**
Attn.: Chris Sheridan

Test Method: 3810M
Prep Method: 3810

Batch QC Report
Gases by 3810M

Method Blank | **Water** | **QC Batch # 2001/06/28-01.37**

MB: 2001/06/28-01.37-001

Date Extracted: 06/28/2001 09:01

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Methane	ND	0.01	ug/ml	06/28/2001 09:01	

To: **URS -San Francisco**

Attn: Chris Sheridan

Test Method: 3810M

Prep Method: 3810

Batch QC Report

Gases by 3810M

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2001/06/28-01.37**

LCS: 2001/06/28-01.37-002 Extracted: 06/28/2001 09:11 Analyzed 06/28/2001 09:11

LCSD: 2001/06/28-01.37-003 Extracted: 06/28/2001 09:21 Analyzed 06/28/2001 09:21

Compound	Conc. [ug/ml]		Exp.Conc. [ug/ml]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Methane	0.0677	0.0716	0.0721	0.0721	93.9	99.3	5.6	65-135	35		

Total Extractable Petroleum Hydrocarbons (TEPH)

URS -San Francisco

221 Main Street Suite 600
San Francisco, CA 94105

Attn: Chris Sheridan

Phone: (415) 896-5858 Fax: (415) 882-9261

Project #:

Project: Sears-Oakland

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
FOMW-2	Water	06/22/2001 12:00	1
FOMW-3	Water	06/22/2001 10:50	2

To: **URS -San Francisco**
Attn.: Chris Sheridan

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

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID:	**FOMW-2**	Lab Sample ID:	**2001-06-0456-001**
Project:	Sears-Oakland	Received:	06/22/2001 16:25
		Extracted:	06/28/2001 10:24
Sampled:	06/22/2001 12:00	QC-Batch:	2001/06/28-01.10
Matrix:	Water		

Sample/Analysis Flag rl (See Legend & Note section)

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	250	ug/L	5.00	06/29/2001 04:49	
Bunker-C	ND	250	ug/L	5.00	06/29/2001 04:49	
Surrogate(s)						
o-Terphenyl	85.2	60-130	%	5.00	06/29/2001 04:49	

To: **URS -San Francisco**
Attn.: Chris Sheridan

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

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID:	**FOMW-3**	Lab Sample ID:	**2001-06-0456-002**
Project:	Sears-Oakland	Received:	06/22/2001 16:25
		Extracted:	06/28/2001 10:24
Sampled:	06/22/2001 10:50	QC-Batch:	2001/06/28-01.10
Matrix:	Water		

Sample/Analysis Flag rl (See Legend & Note section)

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	260	250	ug/L	5.00	06/29/2001 05:28	ndp
Bunker-C	ND	250	ug/L	5.00	06/29/2001 05:28	
Surrogate(s)						
o-Terphenyl	85.8	60-130	%	5.00	06/29/2001 05:28	

To: **URS -San Francisco**
Attn.: Chris Sheridan

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

Batch QC Report
Total Extractable Petroleum Hydrocarbons (TEPH)

Method Blank **Water** **QC Batch # 2001/06/28-01.10**

MB: 2001/06/28-01.10-001 Date Extracted: 06/28/2001 10:24

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Diesel	ND	250	ug/L	06/29/2001 02:52	
Bunker-C	ND	250	ug/L	06/29/2001 02:52	
Surrogate(s)					
o-Terphenyl	80.5	60-130	%	06/29/2001 02:52	

To: **URS -San Francisco**
Attn: Chris Sheridan

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

Legend & Notes

Total Extractable Petroleum Hydrocarbons (TEPH)

Analysis Flags

rl

Reporting limits raised due to reduced sample size.

Analyte Flags

ndp

Hydrocarbon reported does not match the pattern of our Diesel standard

Total Dissolved Solids (TDS)

URS -San Francisco

221 Main Street Suite 600
San Francisco, CA 94105

Attn: Chris Sheridan

Phone: (415) 896-5858 Fax: (415) 882-9261

Project #:

Project: Sears-Oakland

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
FOMW-2	Water	06/22/2001 12:00	1
FOMW-3	Water	06/22/2001 10:50	2

To: **URS -San Francisco**
Attn.: Chris Sheridan

Test Method: 160.1
Prep Method: 160.1

Total Dissolved Solids (TDS)

Sample ID:	**FOMW-2**	Lab Sample ID:	**2001-06-0456-001**
Project:	Sears-Oakland	Received:	06/22/2001 16:25
		Extracted:	06/26/2001
Sampled:	06/22/2001 12:00	QC-Batch:	2001/06/26-01.28
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
TDS	220	10	mg/L	1.00	06/27/2001	

To: **URS -San Francisco**
Attn.: Chris Sheridan

Test Method: 160.1
Prep Method: 160.1

Total Dissolved Solids (TDS)

Sample ID:	**FOMW-3**	Lab Sample ID:	**2001-06-0456-002**
Project:	Sears-Oakland	Received:	06/22/2001 16:25
		Extracted:	06/26/2001
Sampled:	06/22/2001 10:50	QC-Batch:	2001/06/26-01.28
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
TDS	250	10	mg/L	1.00	06/27/2001	

To: **URS -San Francisco**
Attn.: Chris Sheridan

Test Method: 160.1
Prep Method: 160.1

Batch QC Report
Total Dissolved Solids (TDS)

Method Blank | **Water** | **QC Batch # 2001/06/26-01.28**

MB: 2001/06/26-01.28-001 | Date Extracted: 06/26/2001

Compound	Result	Rep.Limit	Units	Analyzed	Flag
TDS	ND	10	mg/L	06/27/2001	

To: **URS -San Francisco**
Attn: Chris Sheridan

Test Method: 160.1
Prep Method: 160.1

Batch QC Report

Total Dissolved Solids (TDS)

Laboratory Control Spike (LCS/LCSD)		**Water**		**QC Batch # 2001/06/26-01.28**	
LCS:	2001/06/26-01.28-002	Extracted:	06/26/2001	Analyzed	06/27/2001
LCSD:	2001/06/26-01.28-003	Extracted:	06/26/2001	Analyzed	06/27/2001

Compound	Conc. [mg/L]		Exp.Conc. [mg/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
TDS	978	958	1000	1000	97.8	95.8	2.1	80-120	20		

Alkalinity (Total)

URS -San Francisco

221 Main Street Suite 600
San Francisco, CA 94105

Attn: Chris Sheridan

Phone: (415) 896-5858 Fax: (415) 882-9261

Project #:

Project: Sears-Oakland

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
FOMW-2	Water	06/22/2001 12:00	1
FOMW-3	Water	06/22/2001 10:50	2

To: **URS -San Francisco**
Attn.: Chris Sheridan

Test Method: 310.1
Prep Method: 310.1

Alkalinity (Total)

Sample ID:	**FOMW-2**	Lab Sample ID:	**2001-06-0456-001**
Project:	Sears-Oakland	Received:	06/22/2001 16:25
		Extracted:	06/29/2001
Sampled:	06/22/2001 12:00	QC-Batch:	2001/06/29-01.58
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Alkalinity (Total)	110	5.0	mg/L	1.00	06/29/2001	

To: **URS -San Francisco**
Attn.: Chris Sheridan

Test Method: 310.1
Prep Method: 310.1

Alkalinity (Total)

Sample ID:	**FOMW-3**	Lab Sample ID:	**2001-06-0456-002**
Project:	Sears-Oakland	Received:	06/22/2001 16:25
		Extracted:	06/29/2001
Sampled:	06/22/2001 10:50	QC-Batch:	2001/06/29-01.58
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Alkalinity (Total)	150	5.0	mg/L	1.00	06/29/2001	

To: **URS -San Francisco**
Attn.: Chris Sheridan

Test Method: 310.1
Prep Method: 310.1

Batch QC Report
Alkalinity (Total)

Method Blank **Water** **QC Batch # 2001/06/29-01.58**

MB: 2001/06/29-01.58-001 Date Extracted: 06/29/2001

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Alkalinity (Total)	ND	5.0	mg/L	06/29/2001	

To: **URS -San Francisco**
Attn: Chris Sheridan

Test Method: 310.1
Prep Method: 310.1

Batch QC Report

Alkalinity (Total)

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2001/06/29-01.58**

LCS: 2001/06/29-01.58-002 Extracted: 06/29/2001 Analyzed 06/29/2001
LCSD: 2001/06/29-01.58-003 Extracted: 06/29/2001 Analyzed 06/29/2001

Compound	Conc. [mg/L]		Exp.Conc. [mg/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Alkalinity (Total)	2320	2350	2500	2500	92.8	94.0	1.3	80-120	20		

MTBE+BTEX by 8260B

URS -San Francisco

221 Main Street Suite 600
San Francisco, CA 94105

Attn: Chris Sheridan

Phone: (415) 896-5858 Fax: (415) 882-9261

Project #:

Project: Sears-Oakland

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
FOMW-2	Water	06/22/2001 12:00	1
FOMW-3	Water	06/22/2001 10:50	2

To: **URS -San Francisco**
Attn.: Chris Sheridan

Test Method: 8260B
Prep Method: 5030B

MTBE+BTEX by 8260B

Sample ID:	**FOMW-2**	Lab Sample ID:	**2001-06-0456-001**
Project:	Sears-Oakland	Received:	06/22/2001 16:25
		Extracted:	06/29/2001 12:24
Sampled:	06/22/2001 12:00	QC-Batch:	2001/06/29-01.27
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/L	1.00	06/29/2001 12:24	
Benzene	ND	1.0	ug/L	1.00	06/29/2001 12:24	
Toluene	ND	1.0	ug/L	1.00	06/29/2001 12:24	
Ethylbenzene	ND	1.0	ug/L	1.00	06/29/2001 12:24	
Total xylenes	ND	1.0	ug/L	1.00	06/29/2001 12:24	
Surrogate(s)						
4-Bromofluorobenzene	114.2	86-115	%	1.00	06/29/2001 12:24	
1,2-Dichloroethane-d4	109.1	76-114	%	1.00	06/29/2001 12:24	
Toluene-d8	98.2	88-110	%	1.00	06/29/2001 12:24	

To: **URS -San Francisco**
Attn.: Chris Sheridan

Test Method: 8260B
Prep Method: 5030B

MTBE+BTEX by 8260B

Sample ID:	**FOMW-3**	Lab Sample ID:	**2001-06-0456-002**
Project:	Sears-Oakland	Received:	06/22/2001 16:25
		Extracted:	06/29/2001 16:03
Sampled:	06/22/2001 10:50	QC-Batch:	2001/06/29-01.27
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/L	1.00	06/29/2001 16:03	
Benzene	ND	1.0	ug/L	1.00	06/29/2001 16:03	
Toluene	ND	1.0	ug/L	1.00	06/29/2001 16:03	
Ethylbenzene	ND	1.0	ug/L	1.00	06/29/2001 16:03	
Total xylenes	ND	1.0	ug/L	1.00	06/29/2001 16:03	
Surrogate(s)						
4-Bromofluorobenzene	105.9	86-115	%	1.00	06/29/2001 16:03	
1,2-Dichloroethane-d4	111.1	76-114	%	1.00	06/29/2001 16:03	
Toluene-d8	96.4	88-110	%	1.00	06/29/2001 16:03	

To: **URS -San Francisco**
Attn.: Chris Sheridan

Test Method: 8260B
Prep Method: 5030B

Batch QC Report
MTBE+BTEX by 8260B

Method Blank | **Water** | **QC Batch # 2001/06/29-01.27**

MB: 2001/06/29-01.27-004 | Date Extracted: 06/29/2001 10:16

Compound	Result	Rep.Limit	Units	Analyzed	Flag
MTBE	ND	5.0	ug/L	06/29/2001 10:16	
Benzene	ND	1.0	ug/L	06/29/2001 10:16	
Toluene	ND	1.0	ug/L	06/29/2001 10:16	
Ethylbenzene	ND	1.0	ug/L	06/29/2001 10:16	
Total xylenes	ND	1.0	ug/L	06/29/2001 10:16	
Surrogate(s)					
4-Bromofluorobenzene	109.6	86-115	%	06/29/2001 10:16	
1,2-Dichloroethane-d4	107.6	76-114	%	06/29/2001 10:16	
Toluene-d8	96.6	88-110	%	06/29/2001 10:16	

To: **URS -San Francisco**
Attn: Chris Sheridan

Test Method: 8260B
Prep Method: 5030B

Batch QC Report

MTBE+BTEX by 8260B

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2001/06/29-01.27**

LCS: 2001/06/29-01.27-002 Extracted: 06/29/2001 09:07 Analyzed 06/29/2001 09:07
LCSD: 2001/06/29-01.27-003 Extracted: 06/29/2001 09:47 Analyzed 06/29/2001 09:47

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
MTBE	27.2	26.0	25.0	25	108.8	104.0	4.5	65-165	20		
Benzene	24.3	24.2	25	25	97.2	96.8	0.4	69-129	20		
Toluene	23.2	22.4	25	25	92.8	89.6	3.5	70-130	20		
Surrogate(s)											
4-Bromofluorobenzene	559	558	500	500	111.8	111.6		86-115			
1,2-Dichloroethane-d4	502	516	500	500	100.4	103.2		76-114			
Toluene-d8	465	466	500	500	93.0	93.2		88-110			

To: **URS -San Francisco**

Attn.: Chris Sheridan

Test Method: 8260B

Prep Method: 5030B

Batch QC Report

MTBE+BTEX by 8260B

Matrix Spike (MS / MSD) **Water** **QC Batch # 2001/06/29-01.27**

Sample ID: **FOMW-2** Lab Sample ID: 2001-06-0456-001

MS: 2001/06/29-01.27-009 Extracted: 06/29/2001 13:06 Analyzed: 06/29/2001 13:06 Dilution: 1.0

MSD: 2001/06/29-01.27-010 Extracted: 06/29/2001 13:35 Analyzed: 06/29/2001 13:35 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
MTBE	27.8	28.1	ND	25	25	111.2	112.4	1.1	65-165	20		
Benzene	25.6	25.6	ND	25	25	102.4	102.4	0.0	69-129	20		
Toluene	22.3	23.5	ND	25	25	89.2	94.0	5.2	70-130	20		
Surrogate(s)												
4-Bromofluorobenzene	529	542		500	500	105.8	108.4		86-115			
1,2-Dichloroethane-d4	516	528		500	500	103.2	105.6		76-114			
Toluene-d8	466	471		500	500	93.2	94.2		88-110			

2001-06-0456

CHAIN OF CUSTODY FORM

Page 1 of 1

Curtis & Tompkins, Ltd.
Analytical Laboratory Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510)486-0900 Phone
(510)486-0532 Fax

C&T LOGIN # _____

Project No:

Project Name: Sears - Oakland

Project P.O.:

Turnaround Time: 5 Dy

Sampler: Chris Sheridan

Report To: " "

Company: URS

Telephone: 415. 243.3815

Fax: 415. 882. 9261

Analyses

Laboratory Number	Sample ID.	Sampling Date Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCl	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: ICE	Field Notes	TEPH (8015) - Diesel + Bunker Oil	BTEX + MTBE (8260)	Dissolved Methane	Total Alkalinity (310.1)	TDS (160.1)
	FOMW-2	6/22/01 1057 CS 1200		X		8	HCl			X	Hold any extra sample	X	X	X	X	X
	FOMW-3	6/22/01 1050		X		8 9	HCl			X	" "	X	X	X	X	X
For Laboratory Use																

Notes:
P/S fax results to above #
attn. Chris Sheridan
5.5°C

RELINQUISHED BY:
Chris Sheridan 6/22/01 1:40 DATE/TIME
DM #347 6/22 16:25 DATE/TIME
DATE/TIME

RECEIVED BY:
DM #347 6/22 13:40 DATE/TIME
Denise Harrington 6/22/01 @ 1625 DATE/TIME
DATE/TIME

Signature

APPENDIX B

URS DATA VALIDATION REPORTS

LEVEL III Data Validation Report

PROJECT: Sears Oakland, Oakland, CA

LABORATORY: Chromalab, Pleasanton, CA

LAB NUMBER: 2001-06-0456

SAMPLES: FOMW-2, FOMW-3

MATRIX: Water

Analysis	BTEX/MTBE 8260B
Holding Time	✓
Surrogate Recovery	✓
MS/MSD	✓
LCS (Blank Spike)	✓
Method Blanks	✓
Duplicates	NA
Trip/Field/Equipment Blanks	NA
Reporting Limits	✓

✓ – QC criteria were met.

Notes: None

Summary:

Based on this Level III validation, these data are usable for their intended purpose. None of these data were qualified or rejected.

LEVEL III Data Validation Report

PROJECT: Sears Oakland, Oakland, CA

LABORATORY: Chromalab, Pleasanton, CA

LAB NUMBER: 2001-06-0456

SAMPLES: FOMW-2, FOMW-3

MATRIX: Water

Analysis	Alkalinity 310.1
Holding Time	✓
MS/MSD	NA
LCS (Blank Spike)	✓
Method Blanks	✓
Duplicates	NA
Trip/Field/Equipment Blanks	NA
Reporting Limits	✓

✓ – QC criteria were met.

Notes: None

Summary:

Based on this Level III validation, these data are usable for their intended purpose. None of these data were qualified or rejected.

LEVEL III Data Validation Report

PROJECT: Sears Oakland, Oakland, CA

LABORATORY: Chromalab, Pleasanton, CA

LAB NUMBER: 2001-06-0456

SAMPLES: FOMW-2, FOMW-3

MATRIX: Water

Analysis	Methane 3810M
Holding Time	✓
MS/MSD	NA
LCS (Blank Spike)	✓
Method Blanks	✓
Duplicates	NA
Trip/Field/Equipment Blanks	NA
Reporting Limits	✓

✓ – QC criteria were met.

Notes: None

Summary:

Based on this Level III validation, these data are usable for their intended purpose. None of these data were qualified or rejected.

LEVEL III Data Validation Report

PROJECT: Sears Oakland, Oakland, CA

LABORATORY: Chromalab, Pleasanton, CA

LAB NUMBER: 2001-06-0456

SAMPLES: FOMW-2, FOMW-3

MATRIX: Water

Analysis	Total Dissolved Solids 160.1
Holding Time	✓
MS/MSD	NA
LCS (Blank Spike)	✓
Method Blanks	✓
Duplicates	NA
Trip/Field/Equipment Blanks	NA
Reporting Limits	✓

✓ – QC criteria were met.

Notes: None

Summary:

Based on this Level III validation, these data are usable for their intended purpose. None of these data were qualified or rejected.

LEVEL III Data Validation Report

PROJECT: Sears Oakland, Oakland, CA

LABORATORY: Chromalab, Pleasanton, CA

LAB NUMBER: 2001-06-0456

SAMPLES: FOMW-2, FOMW-3

MATRIX: Water

Analysis	Diesel, Bunker-C 8015M
Holding Time	✓
Surrogate Recovery	✓
MS/MSD	NA
LCS (Blank Spike)	✓
Method Blanks	✓
Duplicates	NA
Trip/Field/Equipment Blanks	NA
Reporting Limits	Note 1
Chromatography	Note 2

✓ – QC criteria were met.

Notes:

1. Due to limited sample volume, both samples were diluted by factors of five. Reporting limits were increased by the same factor.

2. In the case of sample FOMW-3, the chromatogram did not match that of the laboratory standard for diesel. Consequently, the reported concentration of diesel was flagged "J," estimated.

Summary:

Based on this Level III validation, these data are usable, as qualified, for their intended purpose. None of these data were rejected.