URS

October 22, 2002

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

RE: 2002 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 2002. Quarterly groundwater monitoring will continue for two more quarters within the current scope of work with the addition of two down-gradient monitoring wells installed during the first quarter of 2002. Please feel free to contact Taras Kruk or me 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

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OAKLAND, CALIFORNIA
CASE I.D. # STID 1082
URS JOB NO. 25363708.02002
FOR SEARS, ROEBUCK & CO.

1.0 INTRODUCTION

This report has been prepared by URS Corporation (URS) on behalf of Sears, Roebuck & Co. (Sears). It presents results of the 2002 Second Quarter Groundwater Monitoring conducted at the above-referenced Site (Figure 1). The former Sears retail center (Site) is located at 2633 Telegraph Avenue in Oakland, California. The groundwater monitoring event consisted of "post purge" groundwater sample collection from three of five monitoring wells (FOMW-3, FOMW-4, FOMW-5) installed on the Site during May 2000. Due to Site construction activities, monitoring well FOMW-2 was not accessible for sampling during this quarterly event. The purpose of the groundwater monitoring was to assess groundwater conditions in the vicinity of a slurry-filled 10,000-gallon heating oil UST (Figure 2). The work is being performed under 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 gallon 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), a 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 (Secor, Dec. 1998). 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.

From October 19 to December 2, 1998, URS and subcontractor, Foss Environmental, conducted in-place closure activities for the heating-oil UST in accordance with City of Oakland Fire Prevention Bureau, Closure Permit #94-98 (URS, Jan, 2001). The closure activities were conducted after obtaining a closure permit and preparing a site-specific health and safety plan. During the UST closure activities the UST was accessed, evacuated, cleaned and filled with concrete slurry. URS submitted a letter report to the City of Oakland Fire Prevention Bureau dated February 22, 1999 that documents the in-place closure activities. Approximately 2 ½ cubic yards of oily soil was removed from the access shaft, transported offsite, and disposed at an approved facility. Approximately 500 gallons of oily water pumped from the access shaft and vault, and 10,000 gallons of oily water pumped from the UST was transported offsite and disposed at an approved facility.

The City of Oakland Fire Prevention Bureau forwarded the UST closure report to the ACEHS. The ACEHS issued a letter on October 29, 1999 to Sears requesting a site assessment work plan and a list of responsible parties. In the letter, ACEHS requested the installation of three groundwater monitoring wells to assess subsurface conditions related to the former UST and dry cleaning facility. Resolution of property ownership issues resulted in Sears assuming the responsibility of assessing conditions solely related to the slurry-filled, heating oil UST.

URS installed three groundwater monitoring wells (FOMW-1, FOMW-2, FOMW-3) on the Site in May 2000 (URS, Jan. 2001). The monitoring wells were located adjacent to, and south of the slurry-filled UST (Figure 2). 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.

During the first quarter 2002 URS conducted an additional assessment of the soil and groundwater at the site, which consisted of installing two groundwater monitoring wells (FOMW-5 and FOMW-

5) and two soil borings. The purpose of the additional assessment was to further characterize the nature and extent of petroleum hydrocarbon impacted soil and groundwater at the site. Specifically, the extent of heating oil impacted soil to the north and west of the UST, the lateral extent of separate phase product, and the down gradient extent of impacted groundwater were assessed. Results of the additional assessment were used to evaluate the site for closure under the City of ULR Program guidelines (URS Corporation, August 2002). Groundwater samples have been collected from the wells on a quarterly basis since June 2000. Field parameter and chemical analytical results for previous quarterly sampling events are provided as Appendices A and B.

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 Santa Ana office. A copy of the Health and Safety Plan remained onsite during field operations.

5.0 QUARTERLY GROUNDWATER MONITORING

The 2002 Second Quarter Groundwater Monitoring was performed on June 6, 2001. The monitoring was performed on four of five groundwater wells (FOMW-1, FOMW-2, FOMW-3, FOMW-4, and FOMW-5). The monitoring consisted of groundwater gauging of wells FOMW-1, FOMW-3, FOMW-4 and FOMW-5; purging and sampling of wells FOMW-3, FOMW-4, and FOMW-5. Well FOMW-1 contained measurable product and was not sampled. Well FOMW- 2 was damaged during recent construction activities and was not accessible for gauging or sampling. A description of the monitoring procedures is presented below.

5.1 GROUNDWATER GAUGING

Prior to sampling, the groundwater monitoring accessible wells were checked for the presence of separate phase product using a Solinst™ product interface probe. Water levels were measured relative to the surveyed top of the monitoring well casings using a Solinst™ water level indicator. Water levels were recorded to the nearest 0.01 foot. Due to the high viscosity of the separate phase product an accurate free product thickness was not measurable in well FOMW-1. However, based on historic data and field observations, the product thickness is estimated to be approximately one-inch. Groundwater depths and elevations for the 2002 second quarter are listed in Table 1.

5.2 PURGING AND SAMPLING METHODS

Prior to sample collection, wells FOMW-3, FOMW-4, and FOMW-5 were purged of approximately three well casing volumes at a purge rates varying from 0.5 to 1 gallon per minute (gpm) using a Grundfos™ RediFlo 2 submersible well pump. Water purged from the well was monitored for field parameters, including temperature, pH, electrical conductivity, turbidity, dissolved oxygen (D.O.), and oxygen reduction potential (O.R.P.) using a YSI™ multi-parameter meter equipped with a flow-through cell. Ferrous iron (Fe^{++}) was measured in the field using a Hach™ field testing kit. Measured field parameters are listed in Table 2.

The purging of wells FOMW-3, FOMW-4, and FOMW-5 was terminated following the removal of approximately three well casing volumes and when temperature, pH, and conductivity measurements stabilized. Following the purging and well recovery to at least 80% of original static water levels (or after two hours of recovery), groundwater samples were collected for laboratory analysis from the discharge tubing of the well pump. A blind duplicate was also collected from well FOMW-4 and labeled DUP-1. 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 pre-cleaned, polyethylene tubing connected to the pump was changed prior to well purging. An equipment blank, labeled EB-1, was collected by pouring de-ionized water over the pump housing into sample containers following decontamination procedures.

Sample containers and handling procedures for groundwater samples 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 at a temperature of 4 to 7 degrees centigrade and transported to Southland Technical Services (STS), a California Department of Health Services (CDHS) accredited laboratory, located in Montebello, California for chemical analysis. A trip blank (TB) prepared with deionized water by the laboratory remained in the cooler during field sampling and sample transport. Additional samples from selected wells were submitted to CytoCulture Laboratories in Richmond, California for biological analysis. Chain-of-custody records were maintained throughout the sampling program.

5.3 LABORATORY ANALYSIS PROGRAM

Groundwater samples, duplicates, equipment blanks, and trip blank were submitted to STS. All samples submitted to STS were analyzed for TPH as gasoline range organics (TPHg), diesel fuel range organics (TPHd), oil range organics (TPHo) by modified EPA method 8015M; for BTEX and the fuel oxygenates MTBE, Di-isopropyl Ether (DIPE), Ethyl tert-butyl Ether (ETBE), tert-Amyl Methyl Ether (TAME), and tert-Butanol (TBA) by EPA method 8260B. As part of the attenuation monitoring program, selected groundwater samples were also analyzed for total alkalinity by EPA method 310.1, nitrate by EPA method 352.1, sulfate by EPA method 375.4, 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 one 55-gallon DOT-approved drum. The container was numbered to identify the source of the wastes. The container was 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 12 feet bgs (15 to 18 feet 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. Groundwater elevations are presented in Table 1 and Appendix A.

Groundwater elevation contours for the site were generated by Kriging (a geostatistical gridding method) using SURFER™, a graphical, contouring software program. Resultant groundwater elevation contours and flow direction are shown on Figure 2. Water level contours generated from the June 6, 2002 water level measurements indicate shallow groundwater flow is to the south with an approximate gradient of 0.015. The groundwater flow direction and gradient are consistent with results from previous quarterly monitoring events.

6.2 LABORATORY ANALYTICAL RESULTS

Chemical analyses results for the groundwater samples collected during this monitoring event are presented in Table 2. Historical chemical analyses results are provided in Appendix B. The CDHS-accredited laboratory reports and chain-of-custody forms for the groundwater samples are provided in Appendix C.

The groundwater sample collected from monitoring well FOMW-3 contained 302 µg/L TPHd. The groundwater sample collected from monitoring well FOMW-4 contained 120 µg/L TPHd. Both concentrations were J-flagged as "trace levels, below reporting limits". None of the groundwater samples contained detectable concentrations of TPHg, TPHo, BTEX, MTBE, DIPE, ETBE, TAME, or TBA.

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 D.

7.0 DISCUSSION

The additional assessment conducted during the First Quarter 2002 completed definition of the soil and groundwater affected with petroleum hydrocarbons onsite (URS, Aug. 2002). Analysis of the separate phase product in well FOMW-1, conducted during the 2001 third quarter groundwater monitoring event determined that the separate phase product present onsite does not contain BTEX. Evaluation of the separate phase product indicates it is not mobile or potentially mobile (URS, Aug. 2002). Based on the data collected during this and previous quarterly groundwater monitoring events, the site is eligible for closure under the Oakland ULR Program. A closure analysis was completed for the site and is provided in the Additional Site Assessment and 2002 First Quarter Groundwater Monitoring Report (URS, Aug. 2002).

URS recommends that two additional quarters of groundwater monitoring be conducted, which includes recently installed wells FOMW-4 and FOMW-5 to further confirm the stability of the dissolved phase plume and immobility of the separate phase product onsite. Site closure will be requested following the 2002 Fourth Quarter monitoring event if BTEX concentrations in groundwater do not exceed Tier 1 RBSLs, separate phase product in well FOMW-1 remains at low thickness levels, and separate phase product is not detected in well FOWM-4.

8.0 SCHEDULE

This report represents the ninth submittal for quarterly groundwater monitoring at the site. Field work for the 2002 Third quarter monitoring event was conducted during the first week of September. As indicated in previous groundwater monitoring reports submitted to the ACEHS, permanent closure of the UST vault, by filling with slurry, will be conducted following approval by the ACEHS. 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

Joseph Liles
Senior Staff Geologist

J.S. Rowlands, R.G., C.HG.
Senior Project Geologist

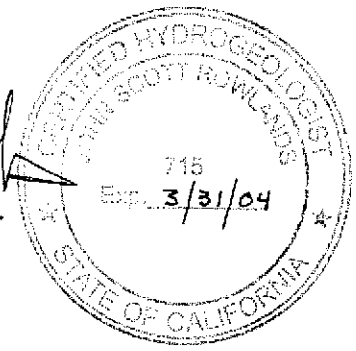

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Table 1
2002 Second Quarter Groundwater Levels and Parameters
Sears Retail Store No. 1058
Oakland, California

Monitoring Well No.	Date Collected	Notes	GROUNDWATER LEVELS				GROUNDWATER SAMPLING FIELD PARAMETERS						
			Product Thickness (feet)	Depth to Groundwater (feet bgs)	Casing Elevation (MSL)	Groundwater Elevation (MSL)	Temp. (Celcius)	pH	Cond (µS/cm)	Turbidity NTU	O.R.P. (mV)	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)
FOMW-1	6/6/2002	SP,6,7	--	8.1	26.21	18.11	NA	NA	NA	--	NA	NA	NA
FOMW-2	6/6/2002	4,5	NA	NA	NA	NA	NA	NA	NA	--	NA	NA	NA
FOMW-3	6/6/2002	6	0.00	10.78	26.70	15.92	15.91	6.63	538	2.1	138.8	0.02	NA
FOMW-4	6/6/2002	6	0.00	10.23	26.20	15.97	15.91	6.63	538	18.1	138.8	0.02	NA
FOMW-5	6/6/2002	6	0.00	12.60	26.23	13.63	16.54	6.02	464	43.5	265.6	-0.32	NA

Notes:
MSL - Mean Sea Level
BGS - Below ground surface
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
3 Well covered by demolition debris. Could not be accessed
4 Well casing damaged
5 Reference point for DTW measurement has not been surveyed
6 Well resurveyed by Mariscal & Associates on May 13, 2002
7 No measurable product.

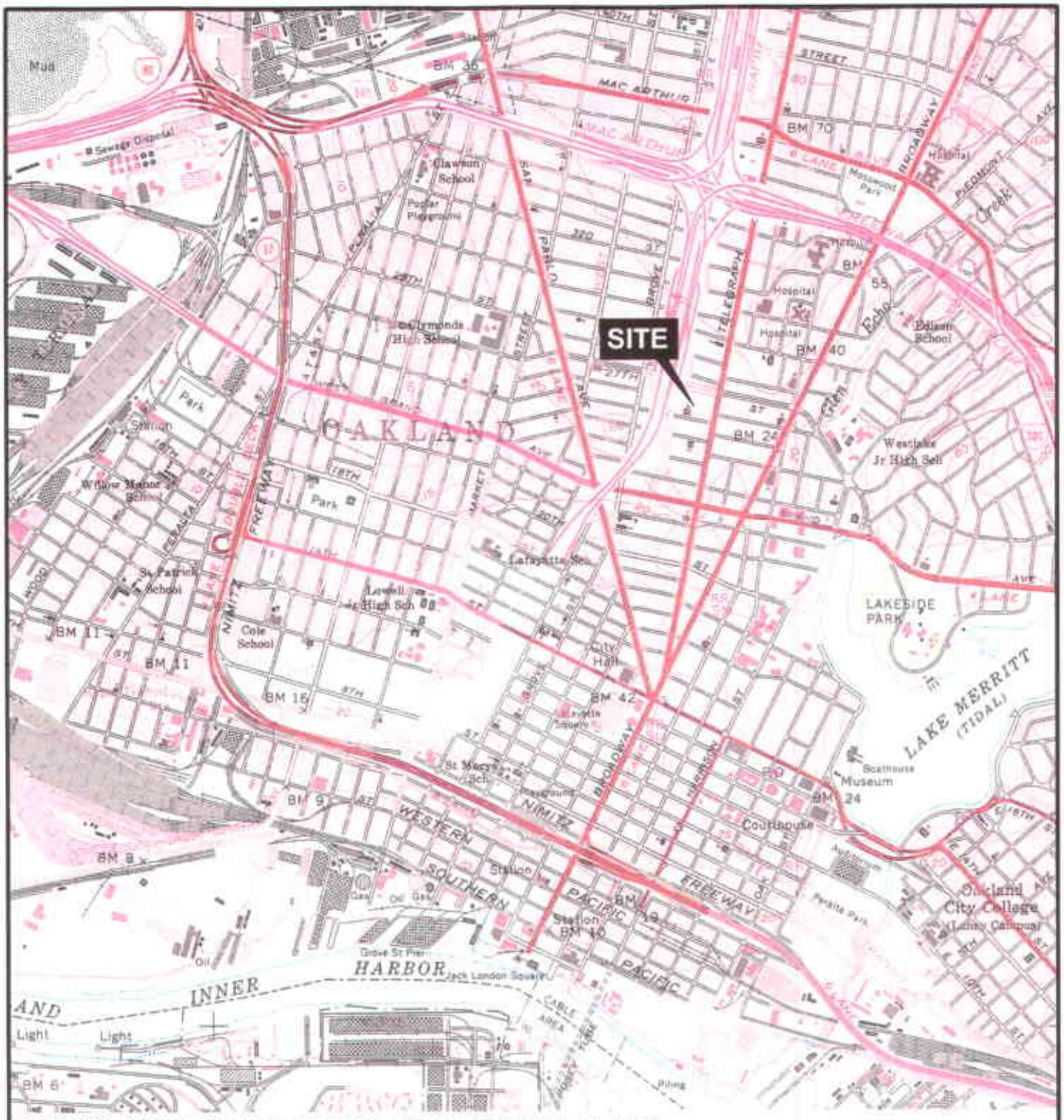
µS/cm - microSiemens per centimeter
mV - millivolt
mg/L - milligrams per liter
NTU - nephelometric turbidity units
SP - Separate phase product in well
NA - Not analyzed/Not available

TABLE 2
2002 SECOND QUARTER GROUNDWATER ANALYTICAL RESULTS
SEARS RETAIL STORE NO. 1058
OAKLAND CALIFORNIA

Monitoring Well No.	Sample Date	Notes	LABORATORY ANALYTICAL RESULTS								PHYSICAL PARAMETERS						
			TPH by 8015M			Volatile Organics by GC/MS 8260A											
			TPHg (µg/L)	TPHd (µg/L)	TPHo (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Nitrate (mg/L)	Sulfate (mg/L)	TDS (mg/L)	Total Alkalinity (mg/L)	Dissolved Methane (µg/ML)	Hydrocarbon Degraders (CFU/ML)	Heterotrophic Plate Count (CFU/ML)
FOMW-1	6/6/02	SP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FOMW-2	6/6/02	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FOMW-3	6/6/02	--	< 50	302 J	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	9.08	39.3	NA	160	NA	200	400
FOMW-4	6/6/02	--	< 50	120 J	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	12.7	25.6	NA	146	NA	1000	4000
FOMW-4	6/6/02	1	< 50	< 500	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	--	--	NA	--	NA	--	--
FOMW-5	6/6/02	--	< 50	< 500	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	11.4	25.9	NA	130	NA	200	1600

Notes:
1: Duplicate sample
2: Well blocked by demolition debris. Could not be accessed.
3: Well casing is damaged
J - Bunker-C detections were quantified 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

TPHg = Total Petroleum Hydrocarbons as gasoline range hydrocarbons by EPA Method 8015 (modified)
TPHd = Total Petroleum Hydrocarbonsas diesel range hydrocarbons by EPA Method 8015 (modified).
TRPo = Total Petroleum Hydrocarbons as oil range by EPA Method 8015 (modified)
B T E X - Benzene, Toluene, Ethylbenzene, Total Xylenes
MTBE - Methyl tertiary-butyl ether
TDS = Toal Dissolved Soilds
µg/L - micrograms per liter
mg/L - milligrams per liter
(CFU/ML)- colony forming unit per milliliter



REFERENCE: USGS 7.5 Minute Series Oakland West, CA Quad, 1959, Photorevised 1980

FIGURE 1

VICINITY MAP

SEARS AUTO CENTER #1039
1901-1911 TELEGRAPH AVENUE
OAKLAND, CALIFORNIA
For Sears, Roebuck & Co.

N

0 1/2 1

Scale in Miles

URS

L:\sears oakland\topo #1058.fm10 10/02

JEFFERSON STREET

SYCAMORE STREET

27TH STREET

TELEGRAPH AVENUE

Parking Garage

Property Boundary

Portion of Building Recently Demolished

Nursery

Former Loading Dock

Boiler Room

Vacant Sears Retail Store

Former Dry Cleaners

Approximate location of heating oil UST

UST fill port and pipe

EB-1 EB-2 EB-3 EB-4 EB-5 EB-6 EB-7 EB-8 EB-9 EB-10 EB-11 EB-12 EB-13 EB-14 EB-15 EB-16 EB-17 EB-18 EB-19 EB-20 EB-21 EB-22 EB-23 NA EB-24

FOMW-1 FOMW-2 FOMW-3 FOMW-4 FOMW-5

S1-2

A A'

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)
- Location of exploratory boring (URS 2002)
- UST Vault Soil Sample Location

N

0 60 120

Approximate Scale in Feet

Reference: Lowney Associates (1998)
SECOR (1998)

SITE PLAN

Project: SEARS ROEBUCK & COMPANY

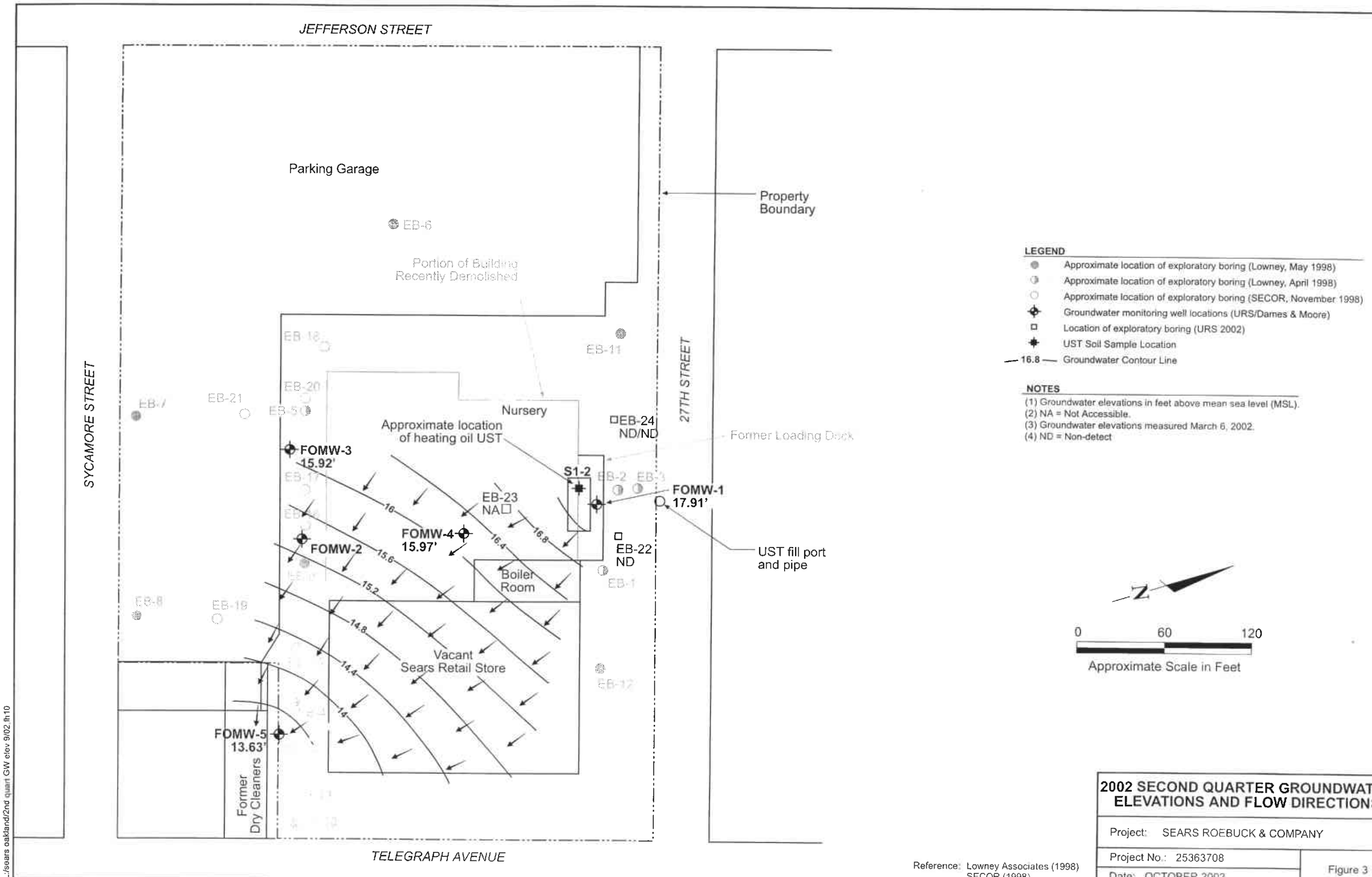
Project No.: 25363708

Date: OCTOBER 2002

Figure 2

URS

L:\sears oakland\site plan oakland 2nd quart 02.fh10 10/02



L:/sears oakland/2nd quart GW elev 9/02.fh10

Reference: Lowney Associates (1998)
SECOR (1998)

2002 SECOND QUARTER GROUNDWATER ELEVATIONS AND FLOW DIRECTIONS

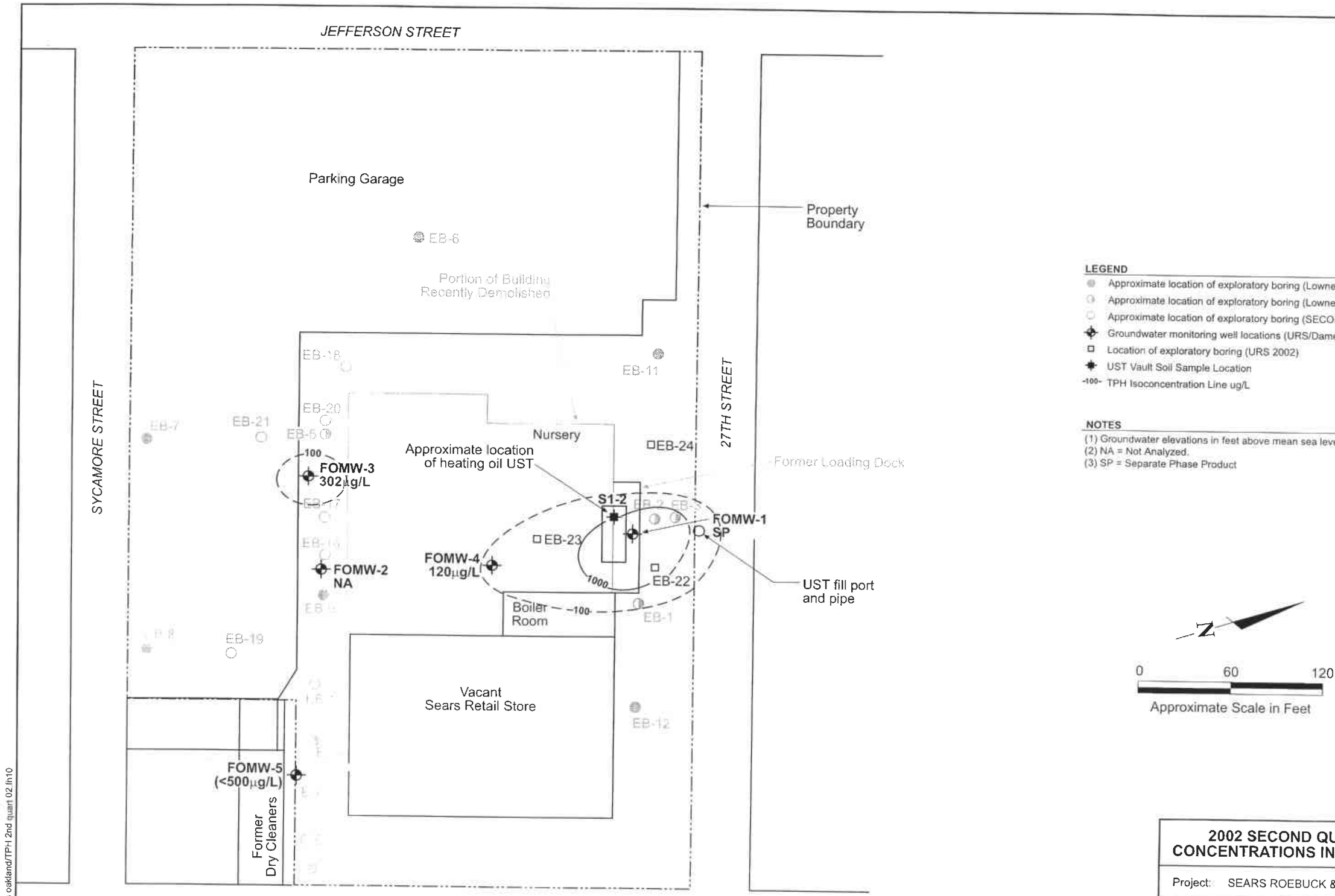
Project: SEARS ROEBUCK & COMPANY

Project No.: 25363708

Date: OCTOBER 2002

Figure 3

URS



L:/sears oakland/TPH 2nd quart 02 fn10

Reference: Lowney Associates (1998)
SECOR (1998)

2002 SECOND QUARTER TPH CONCENTRATIONS IN GROUNDWATER

Project: SEARS ROEBUCK & COMPANY

Project No.: 25363708

Date: OCTOBER 2002

Figure 4

URS

APPENDIX A

HISTORICAL GROUNDWATER LEVELS AND FIELD PARAMETERS

APPENDIX A

HISTORICAL GROUNDWATER LEVELS AND PARAMETERS

SEARS RETAIL STORE NO. 1058

OAKLAND, CALIFORNIA

Monitoring Well No.	Date Collected	Notes	GROUNDWATER LEVELS				GROUNDWATER SAMPLING FIELD PARAMETERS						
			Product Thickness (feet)	Depth to Groundwater (feet bgs)	Casing Elevation (MSL)	Groundwater Elevation (MSL)	Temp. (Celcius)	pH	Cond (µS/cm)	Turbidity	O.R.P. (mV)	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)
FOMW-1	6/8/2000	1,2	0.00	9.59	27.81	18.22	18.3	6.72	659	NA	13.00	0.28	NA
	10/10/2000	SP	0.01	9.91	27.81	17.90	NA	NA	NA	NA	NA	NA	NA
	12/15/2000	SP	0.01	9.44	27.81	18.37	NA	NA	NA	NA	NA	NA	NA
	3/27/2001	SP	0.01	9.00	27.81	18.81	NA	NA	NA	NA	NA	NA	NA
	6/22/2001	SP	NA	NA	27.81	NA	NA	NA	NA	NA	NA	NA	NA
	9/26/2001	SP	0.01	10.85	27.81	16.96	NA	NA	NA	NA	NA	NA	NA
	12/7/2001	3	NA	NA	27.81	NA	NA	NA	NA	NA	NA	NA	NA
	3/6/2002	SP,6	0.01	8.7	26.21	17.51	NA	NA	NA	NA	NA	NA	NA
	6/6/2002	SP,6	0.2	8.3	26.21	17.91	NA	NA	NA	NA	NA	NA	NA
FOMW-2	6/8/2000	--	0.00	11.14	26.65	15.51	14.7	7.00	673	NA	10.00	2.92	NA
	10/10/2000	--	0.00	12.34	26.65	14.31	15.8	7.58	420	NA	0.01	NA	NA
	12/15/2000	--	0.00	11.05	26.65	15.60	14.0	7.09	1210	NA	NA	0.15	NA
	3/27/2001	--	0.00	10.91	26.65	15.74	15.4	7.62	305	NA	92.00	0.61	NA
	6/22/2001	--	0.00	11.30	26.65	15.35	15.3	5.33	340	NA	0.20	0.25	NA
	9/26/2001	3	NA	NA	26.65	NA	NA	NA	NA	NA	NA	NA	NA
	12/7/2001	4	NA	NA	26.65	NA	NA	NA	NA	NA	NA	NA	NA
	3/6/2002	4,5	NA	11.25	26.65	15.40	NA	NA	NA	NA	NA	NA	NA
	6/6/2002	4,5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FOMW-3	6/8/2000	2	0.00	10.48	26.80	16.32	15.0	6.87	689	NA	23.00	0.22	NA
	10/10/2000	--	0.00	11.15	26.80	15.65	15.6	7.66	430	NA	39.00	NA	NA
	12/15/2000	--	0.00	10.36	26.80	16.44	14.1	7.31	1400	NA	45.00	0.15	NA
	3/27/2001	--	0.00	10.12	26.80	16.68	NA	NA	NA	NA	NA	NA	NA
	6/22/2001	--	0.00	10.65	26.80	16.15	15.7	5.11	330	NA	0.09	0.50	NA
	9/26/2001	--	0.00	11.74	26.80	15.06	17.5	6.81	528	NA	23.80	0.78	NA
	12/7/2001	--	0.00	9.59	26.80	17.21	16.8	6.71	432	228.9	34.2	0.18	0.32
	3/6/2002	6	0.00	10.59	26.70	16.11	16.3	6.76	471	46.8	45.6	0.3	0.11
	6/6/2002	--	0.00	10.78	26.70	15.92	15.91	6.63	538	2.1	138.8	0.02	NA
FOMW-4	3/6/2002	5,6	0.00	10.08	26.20	16.12	15.90	6.75	376	729.2	78.2	0.18	0.47
	6/6/2002	--	0.00	10.23	26.20	15.97	15.91	6.63	538	18.1	138.8	0.02	NA
FOMW-5	3/6/2002	5,6	0.00	12.91	26.23	13.32	16.63	6.62	386	303.1	77.9	0.09	0.34
	6/6/2002	--	0.00	12.60	26.23	13.63	16.54	6.02	464	43.5	265.6	-0.32	NA

Notes:

MSL - Mean Sea Level
BGS - Below ground surface
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
3 Well covered by demolition debris. Could not be accessed.
4 Well casing damaged
5 Reference point for DTW measurement has not been surveyed
6 Well resurveyed by Mariscal & Associates on May 13, 2002
SP - Separate phase product in well
NA - Not analyzed/Not available.

µS/cm - microSiemens per centimeter
mV - millivolt
mg/L - milligrams per liter

APPENDIX B

HISTORICAL SUMMARY OF GROUNDWATER ANALYSES RESULTS

APPENDIX B
HISTORICAL SUMMARY OF GROUNDWATER MONITORING RESULTS
SEARS RETAIL STORE NO. 1058
OAKLAND, CALIFORNIA

Monitoring Well No.	Sample Date	Notes	LABORATORY ANALYTICAL RESULTS									PHYSICAL PARAMETERS						
			TPH by 8015M			Volatile Organics by GC/MS 8260A												
			TPHg (µg/L)	TPHd (µg/L)	TPHo (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)		Nitrate (mg/L)	Sulfate (mg/L)	TDS (mg/L)	Total Alkalinity (mg/L)	Dissolved Methane (µg/ML)	Hydrocarbon Degraders (CFU/ML)	Heterotrophic Plate Count (CFU/ML)
FOMW-1	6/8/2000	--	NA	< 50	J 1200	< 0.5	< 0.5	< 0.5	< 1	< 5		NA	NA	360	230	< 0.01	390	4000
	10/10/2000	SP	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
	12/15/2000	SP	NA	260	< 50	< 0.5	< 0.5	< 0.5	< 1	< 5		NA	NA	NA	NA	NA	NA	NA
	12/15/2000	1	NA	370	< 50	< 0.5	< 0.5	< 0.5	< 1	< 5		NA	NA	NA	NA	NA	NA	NA
	3/27/2001	SP	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
	6/22/2001	SP	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
	9/26/2001	SP	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
	12/7/2001	2	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
	3/6/2002	SP	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
	6/6/2002	SP	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
FOMW-2	6/8/2000	--	NA	< 50	< 50	< 0.5	< 0.5	< 0.5	< 1	< 5		NA	NA	250	150	< 0.01	1	110
	10/10/2000	--	NA	< 50	< 50	< 0.5	< 0.5	< 0.5	< 1	< 5		NA	NA	260	140	< 0.01	170	1600
	12/15/2000	--	NA	< 50	< 50	< 0.5	< 0.5	< 0.5	< 1	< 5		7.8	30	210	190	< 0.01	550	1000
	3/27/2001	--	NA	< 50	NA	< 0.5	< 0.5	< 0.5	< 1	< 5		8.4	47	290	130	< 0.01	30	170
	3/27/2001	1	NA	< 50	NA	< 0.5	< 0.5	< 0.5	< 1	< 5		9.1	47	320	130	< 0.01	40	70
	6/22/2001	--	NA	< 250	< 250	< 1	< 1	< 1	< 1	< 5		NA	NA	220	110	< 0.01	4000	400000
	9/26/2001	2	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
	12/7/2001	3	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
	3/6/2002	3	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
	6/6/2002	3	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
FOMW-3	6/8/2000	--	NA	< 50	J 1200	< 0.5	< 0.5	< 0.5	< 1	< 5		NA	NA	330	190	< 0.01	440	110000
	6/8/2000	1	NA	< 50	J 1100	< 0.5	< 0.5	< 0.5	< 1	< 5		NA	NA	330	180	< 0.01	50	8000
	10/10/2000	--	NA	230	< 50	< 0.5	< 0.5	< 0.5	< 1	< 5		NA	NA	300	170	< 0.01	800	4000
	12/15/2000	--	NA	100	< 50	< 0.5	< 0.5	< 0.5	< 1	< 5		3.2	30	290	190	< 0.01	1200	1800
	3/27/2001	--	NA	170	NA	< 0.5	< 0.5	< 0.5	< 1	< 5		3.3	51	420	130	< 0.01	400	300
	6/22/2001	--	NA	260	< 250	< 1	< 1	< 1	< 1	< 5		NA	NA	250	150	< 0.01	4000	350000
	9/26/2001	--	NA	95	< 500	0.72	1	< 0.5	< 0.5	< 5		5.0	55	NA	150	0.011	30	170
	12/7/2001	--	NA	110	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 5		7.1	66	NA	130	NA	260	1000
	3/6/2002	--	< 50	53	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 5		6.8	84	NA	140	NA	NA	NA
	6/6/2002	--	< 50	302 J	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		9.08	39.3	NA	160	NA	200	400
FOMW-4	3/6/2002	--	< 50	< 50	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 5		9.7	53	NA	100	NA	NA	NA
	3/6/2002	1	< 50	52	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 5		9.7	53	NA	110	NA	NA	NA
	6/6/2002	--	< 50	120 J	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		12.7	25.6	NA	146	NA	1000	4000
	6/6/2002	1	< 50	< 500	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		--	--	NA	--	NA	--	NA
FOMW-5	3/6/2002	--	< 50	< 50	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		15	41	NA	120	NA	NA	NA
	6/6/2002	--	< 50	< 500	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		11.4	25.9	NA	130	NA	200	1600

Notes:

1: Duplicate sample
2: Well blocked by demolition debris. Could not be accessed.
3: Well casing is damaged
J - Bunker-C detections were quantified 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

TPHg = Total Petroleum Hydrocarbons as gasoline range hydrocarbons by EPA Method 8015 (modified)
TPHd = Total Petroleum Hydrocarbonsas diesel range hydrocarbons by EPA Method 8015 (modified).
TRPo = Total Petroleum Hydrocarbons as oil range by EPA Method 8015 (modified)
B T E X - Benzene, Toluene, Ethylbenzene, Total Xylenes
MTBE - Methyl tertiary-butyl ether
TDS = Toal Dissolved Soilds
µg/L - micrograms per liter
mg/L - milligrams per liter
(CFU/ML)- colony forming unit per milliliter

APPENDIX C

LABORATORY REPORTS AND CHAIN OF CUSTODY DOCUMENTS FOR GROUNDWATER

06-19-2002

Mr. Scott Rowlands
URS Corporation
2020 E. First Street, Suit 400
Santa Ana, CA 92705

Project: 22-00000139.02
Project Site: Sears Oakland 1058A
Sample Date: 06-06-2002
Lab Job No.: UR206043

Dear Mr. Rowlands:

Enclosed please find the analytical report for the sample(s) received by STS Environmental Laboratories on 06-07-2002 and analyzed by the following EPA methods:

EPA 8015M (Gasoline)
EPA 8015M (Diesel & Oil)
EPA 8260B (BTEX & Oxygenates by GC/MS)
EPA 352.1 (Nitrate)
EPA 375.4 (Sulfate)
EPA 310.1 (Alkalinity)

EPA 310.1 analysis was subcontracted to AmeriChem Testing Laboratory, ELAP No. 1758.

The sample(s) arrived in good conditions (i.e., chilled at 4°C, intact) and with a chain of custody record attached.

STS Environmental Laboratory is certified by CA DHS (Certificate Number 1986). Thank you for giving us the opportunity to serve you. Please feel free to call me at (323) 888-0728 if our laboratory can be of further service to you.

Sincerely,

Roger Wang, Ph. D.
Laboratory Director

Enclosures

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

Environmental Laboratories

06-19-2002

Client:	URS Corporation	Lab Job No.:	UR206043
Project:	22-00000139.02		
Project Site:	Sears Oakland 1058A	Date Sampled	06-06-2002
Matrix:	Water	Date Received:	06-07-2002
Batch No.:	AF10-GW2/for Gasoline	Date Analyzed:	06-10-2002
Batch No.:	EF07-DW1/for Diesel & Oil	Date Analyzed:	06-07-2002

EPA 8015M (Gasoline, Diesel & Oil)

Reporting Unit: **µg/L (ppb)**

Date of Analysis for TPH (Gasoline)			06-10-02	06-10-02	06-10-02	06-10-02	06-10-02
Preparation Method for TPH (Gasoline)			5030	5030	5030	5030	5030
Date of Analysis for TPH (D & O)			06-07-02	06-07-02	06-07-02	06-07-02	06-07-02
Date of Extraction for TPH (D & O)			06-07-02	06-07-02	06-07-02	06-07-02	06-07-02
Preparation Method for TPH (D & O)			3510C	3510C	3510C	3510C	3510C
LAB SAMPLE I.D.				UR206043-1	UR206043-2	UR206043-3	UR206043-4
CLIENT SAMPLE I.D.				FOMW-3	FOMW-4	FOMW-5	TB
Analyte		**MDL**	**MB**				
TPH-Gasoline (C4 - C10)		50	ND	ND	ND	ND	ND
TPH-Diesel (C11 - C23)		500	ND	302 J	120 J	ND	NA
TPH-Oil (C24 - C40)		500	ND	ND	ND	ND	NA
Surrogate	Spk Conc.	ACP%	MB %RC	%RC	%RC	%RC	%RC
BFB (for TPH-Gasoline)	20 ppb	70-130	98	123	105	90	96
Diocthyl Phthalate (for TPH-Diesel)	5 ppm	70-130	100	100	93	93	NA

SPK Conc.=Spiking Concentration; ACP%=Acceptable Range of Percent; %RC=% Recovery
MDL=Method Detection Limit; MB=Method Blank; ND=Not Detected(Below MDL); NA=Not Analyzed

J=Trace level, below reporting limit.

Checked & approved by:

Roger Wang, Ph.D.
Laboratory Director.

06-19-2002

Client:	URS Corporation	Lab Job No.:	UR206043
Project:	22-00000139.02		
Project Site:	Sears Oakland 1058A	Date Sampled	06-06-2002
Matrix:	Water	Date Received:	06-07-2002
Batch No.:	AF10-GW2/for Gasoline	Date Analyzed:	06-10-2002
Batch No.:	EF07-DW1/for Diesel & Oil	Date Analyzed:	06-07-2002

EPA 8015M (Gasoline & Diesel)
Reporting Unit: µg/L (ppb)

Date of Analysis for TPH (Gasoline)			06-10-02	06-10-02	06-10-02		
Preparation Method for TPH (Gasoline)			5030	5030	5030		
Date of Analysis for TPH (D & O)			06-07-02	06-07-02	06-07-02		
Date of Extraction for TPH (D & O)			06-07-02	06-07-02	06-07-02		
Preparation Method for TPH (D & O)			3510C	3510C	3510C		
LAB SAMPLE I.D.				UR206043-5	UR206043-6		
CLIENT SAMPLE I.D.				DUP-1	EB-1		
Analyte		**MDL**	**MB**				
TPH-Gasoline (C4 - C12)		50	ND	ND	ND		
TPH-Diesel (C13 - C23)		500	ND	ND	NA		
TPH-Oil (C24 - C40)		500	ND	ND	NA		
Surrogate	Spk Conc.	ACP%	MB %RC	%RC	%RC		
BFB (for TPH-Gasoline)	20 ppb	70-130	98	104	112		
Diocthyl Phthalate (for TPH-Diesel)	5 ppm	70-130	100	93	NA		

SPK Conc.=Spiking Concentration; ACP%=Acceptable Range of Percent; %RC=% Recovery
MDL=Method Detection Limit; MB=Method Blank; ND=Not Detected(Below MDL); NA=Not Analyzed.

Checked & approved by:

Roger Wang, Ph.D.
Laboratory Director.

06-19-2002

Client:	URS Corporation	Lab Job No.:	UR206043
Project:	22-00000139.02		
Project Site:	Sears Oakland 1058A	Date Sampled	06-06-2002
Matrix:	Water	Date Received:	06-07-2002

Analytical Test Results

Analyte	Method	Date Analyzed	Reporting Unit	Sample Results				Reporting Limit
				MB	FOMW-3	FOMW-4	FOMW-5	
Alkalinity	310.1	06-10-02	mg/L	ND	160	146	130	1 mg/L
Nitrate	352.1	06-07-02	mg/L (ppm)	ND	9.08	12.7	11.4	0.05 ppm
Sulfate	375.4	06-07-02	mg/L (ppm)	ND	39.3	25.6	25.9	1.0 ppm

MB: Method Blank.

Note: EPA 310.1 analysis was subcontracted to AmeriChem Testing Laboratory, ELAP No. 1758.

Checked & approved by:

Roger Wang, Ph.D.
Laboratory Director.

06-19-2002

Client:	URS Corporation	Lab Job No.:	UR206043
Project:	22-00000139.02		
Project Site:	Sears Oakland 1058A	Date Sampled	06-06-2002
Matrix:	Water	Date Received:	06-07-2002
Batch No.:	0611-VOAW	Date Analyzed:	06-11-2002

EPA 8260B (BTEX & Oxygenates by GC/MS)
Reporting Units: µg/L (ppb)

Lab ID	Method Blank	UR206043-1	UR206043-2	UR206043-3	UR206043-4	UR206043-5	UR206043-6	MDL
Sample ID		FOMW-3	FOMW-4	FOMW-5	TB	DUP-1	EB-1	
DF	1	1	1	1	1	1	1	1
Benzene	ND	ND	ND	ND	ND	ND	ND	1
Toluene	ND	ND	ND	ND	ND	ND	ND	1
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	1
Total Xylenes	ND	ND	ND	ND	ND	ND	ND	2
MTBE	ND	ND	ND	ND	ND	ND	ND	2
ETBE	ND	ND	ND	ND	ND	ND	ND	2
DIPE	ND	ND	ND	ND	ND	ND	ND	2
TAME	ND	ND	ND	ND	ND	ND	ND	2
T-Butyl Alcohol	ND	ND	ND	ND	ND	ND	ND	10
SURRO-GATE	**MB %RC**	**%RC**	**%RC**	**%RC**	**%RC**	**%RC**	**%RC**	Accept Limit%
Dibromofluoro-methane	99	94	92	91	94	98	101	79-126
Toluene-d8	94	98	100	96	99	103	116	79-121
Bromofluoro-benzene	102	98	102	105	102	109	108	71-131

MDL=Method Detection Limit, DF=Dilution Factor (**DF × MDL = Reporting Limit** for the sample), ND=Not Detected (at the specified limit),%RC=Percent Recovery, MB=Method Blank.

Note: Surrogate spike concentrations are 25 µg/L for all the compounds.

Checked & approved by:

Roger Wang, Ph.D.
Laboratory Director.

06-19-2002

Client: URS Corporation
Project: 22-00000139.02
Project Site: Sears Oakland 1058A
Matrix: Water

Lab Job No.: UR206043

Date Sampled 06-06-2002
Date Received: 06-07-2002

Analytical Test Results

Analyte	Method	Date Analyzed	Reporting Unit	Sample Results				Reporting Limit
				FOMW-3	FOMW-4	FOMW-5		
Alkalinity	310.1	06-10-02	mg/L	160	146	130		1 mg/L
Nitrate	352.1	06-07-02	mg/L (ppm)	9.08	12.7	11.4		0.05 ppm
Sulfate	375.4	06-07-02	mg/L (ppm)	39.3	25.6	25.9		1.0 ppm

Note: EPA 310.1 analysis was subcontracted to AmeriChem Testing Laboratory, ELAP No. 1758.

Checked & approved by:

Roger Wang, Ph.D.
Laboratory Director.

06-19-2002

EPA 8015M (TPH)
Batch QA/QC Report

Client:	URS Corporation	Lab Job No.:	UR206043
Project:	22-00000139.02		
Matrix:	Water	Lab Sample ID:	UR206042-3
Batch No.:	EF07-DW1	Date Analyzed:	06-07-2002

I. MS/MSD Report
Unit: ppm

Analyte	Sample Conc.	Spike Conc.	MS	MSD	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
TPH-d	ND	20	22.4	22.2	112.0	111.0	0.9	30	70-130

II. LCS Result
Unit: ppm

Analyte	LCS Report Value	True Value	Rec.%	%Rec Accept. Limit
TPH-d	23.2	20	116.0	80-120

ND: Not Detected (at the specified limit).

06-19-2002

EPA 8015M (TPH)
Batch QA/QC Report

Client:	URS Corporation	Lab Job No.:	UR206043
Project:	22-00000139.02		
Matrix:	Water	Lab Sample ID:	UR206043-3
Batch No.:	AF10-GW2	Date Analyzed:	06-10-2002

I. MS/MSD Report
Unit: ppb

Analyte	Sample Conc.	Spike Conc.	MS	MSD	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
TPH-G	ND	1000	768	848	76.8	84.8	9.9	30	70-130

II. LCS Result
Unit: ppb

Analyte	LCS Report Value	True Value	Rec.%	%Rec Accept. Limit
TPH-G	912	1000	91.2	80-120

ND: Not Detected (at the specified limit).

06-19-2002

EPA 8260B
Batch QA/QC Report

Client:	URS Corporation	Lab Job No.:	UR206043
Project:	22-00000139.02		
Matrix:	Water	Sample ID:	UR206042-3
Batch No:	0611-VOAW	Date Analyzed:	06-11-2002

I. MS/MSD Report
Unit: ppb

Compound	Sample Conc.	Spike Conc.	MS	MSD	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
1,1-Dichloroethene	ND	20	24.8	24.7	124.0	123.5	0.4	30	70-130
Benzene	ND	20	22.5	21.5	112.5	107.5	4.5	30	70-130
Trichloro-ethene	ND	20	18.2	17.1	91.0	85.5	6.2	30	70-130
Toluene	ND	20	20.8	19.9	104.0	99.5	4.4	30	70-130
Chlorobenzene	ND	20	21.0	20.3	105.0	101.5	3.4	30	70-130

II. LCS Result
Unit: ppb

Analyte	LCS Value	True Value	Rec.%	Accept. Limit
1,1-Dichloroethene	20.5	20.0	102.5	80-120
Benzene	20.7	20.0	103.5	80-120
Trichloro-ethene	17.8	20.0	89.0	80-120
Toluene	19.4	20.0	97.0	80-120
Chlorobenzene	19.4	20.0	97.0	80-120

ND: Not Detected.

URS CORPORATION

2020 East First Street, Suite 400
Santa Ana, CA 92705
(714) 835-6886
FAX (714) 667-7147

CHAIN OF CUSTODY RECORD

Date: 6/6/02

Page 1 of 1

UR206043

☐ Data Requested in GISKey Format

Lab Name: STS	URS Project/PO Number: 22-00000139.02
Client Name/Project Name/Location: Sears Oakland 1058A	GeoTracker Information:
URS Project Manager: Scott Rowlands	EDF Reporting: Y N Global ID:
Sampler Name and Signature: Robert Kovacs	COELT Log Number:

	Sample Name:	Sample Date:	Sample Time:	Preserved:	Matrix:	Container Type:	# of Cont.:	TPH-g (8015M)	TPH-d (8015M)	BTEX MTBE (8021,8260Conf)	Nitrate	Sulfate	Alk	HOLD	Special Instructions
1	TB			Y N	S L G	Acetate SS. Brass Jar Encore 40 ml Amb. Plas. Glass VOA	2	X		X					UR206043-1A
2	FOMW-3	6-6	725	Y N	S L G	Acetate SS. Brass Jar Encore 40 ml Amb. Plas. Glass VOA	6	X		X					
3	FOMW-3	6-6	725	Y N	S L G	Acetate SS. Brass Jar Encore 1000 ml Amb. Plas. Glass VOA	1		X						
4	FOMW-3	6-6	725	Y N	S L G	Acetate SS. Brass Jar Encore 250 ml Amb. Plas. Glass VOA POLY	3				X	X	X		
5	FOMW-5	6-6	820	Y N	S L G	Acetate SS. Brass Jar Encore 40 ml Amb. Plas. Glass VOA	6	X		X					
6	FOMW-5	6-6	820	Y N	S L G	Acetate SS. Brass Jar Encore 1000 ml Amb. Plas. Glass VOA	1		X						
7	FOMW-5	6-6	820	Y N	S L G	Acetate SS. Brass Jar Encore 250 ml Amb. Plas. Glass VOA POLY	3				X	X	X		
8	FOMW-4	6-6	915	Y N	S L G	Acetate SS. Brass Jar Encore 40 ml Amb. Plas. Glass VOA	6	X		X					
9	FOMW-4	6-6	915	Y N	S L G	Acetate SS. Brass Jar Encore 1000 ml Amb. Plas. Glass VOA	1		X						
10	FOMW-4	6-6	915	Y N	S L G	Acetate SS. Brass Jar Encore 250 ml Amb. Plas. Glass VOA POLY	3				X	X	X		

Requested Analyses

Relinquished by:	Date:	Received By:	Date/Time:
Robert Kovacs	6/6/02	STS	6/7/02 9:00A
Relinquished by:	Date	Received By:	Date/Time:
Relinquished by:	Date	Received By:	Date/Time:

Turnaround Time. (Check)

Same Day:	72 Hour
24 Hour:	5 Day
48 Hour	Standard

Lab Use Only

Cooler Temperature*: 4°C

*Record upon arrival

URS

S=Solid L=Liquid G= Gas

White Copy in Final Report, Yellow to File, Pink to URS at Dropoff

URS CORPORATION

2020 East First Street, Suite 400
Santa Ana, CA 92705
(714) 835-6886
FAX (714) 667-7147

CHAIN OF CUSTODY RECORD

Date: 6/6/02

UR 206043

☐ Data Requested in GISKey Format

Lab Name: STS	URS Project/PO Number: 22-00000139.02
Client Name/Project Name/Location: Sears Oakland 1058A	GeoTracker Information:
URS Project Manager: Scott Rowlands	EDF Reporting: Y N Global ID:
Sampler Name and Signature: Robert Kovacs	COELT Log Number:

Requested Analyses: TPHg (8015M); TPHd, TPHo (8015M); BTEX/MTBE (8021, 8260 Conf); Nitrate; Sulfate; Alk; HOLD

#	Sample Name	Sample Date	Sample Time	Preserved	Matrix	Container Type	# of Cont.	TPHg (8015M)	TPHd, TPHo (8015M)	BTEX/MTBE (8021, 8260 Conf)	Nitrate	Sulfate	Alk	HOLD	Special Instructions
1	DUP-1	6-6	925	Y	L	Acetate SS. Brass Jar Encore 40 ml Amb. Plas. Glass VOA (VOA circled)	6	X		X					[illegible]
2	DUP-1	6-6	925	N	L	Acetate SS. Brass Jar Encore 1000 ml Amb. Plas. Glass VOA (Amb circled)	1		X						
3	EB-1	6-6	950	Y	L	Acetate SS. Brass Jar Encore 40 ml Amb. Plas. Glass VOA (VOA circled)	6	X		X					
4				Y N	S L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA									
5				Y N	S L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA									
6				Y N	S L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA									
7				Y N	S L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA									
8				Y N	S L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA									
9				Y N	S L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA									
10				Y N	S L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA									

Relinquished by	Date	Received By	Date/Time
Robert Kovacs	6/6/02	[signature] STS	6/7/02 9:10

Turnaround Time (Check): Same Day ___ 72 Hour ___ 24 Hour ___ 5 Day ___ 48 Hour Standard

Lab Use Only

Cooler Temperature*: 4°C
*Record upon arrival

URS

S=Solid L=Liquid G=Gas White Copy in Final Report, Yellow to File, Pink to URS at Dropoff

AmeriChem
Testing
Laboratory

[illegible] Batavia St
Orange, CA 92865

[illegible]
FAX: (714) 921-4776

Analytical Report

REPORT NUMBER: AL-3587
CLIENT:
STS Environmental Lab.
7801 Telegraph Rd. suite J
Montebello, CA 90640

REPORT ON:
Water sample, UR206043, Oakland
FOMW -3-4-5

DATE RECEIVED: 06/08/02
DATE REPORTED: 06/10/02

ANALYSIS	TEST RESULT, mg/l -03	-04	-05	DET. LIMIT	METHOD
Total Alkalinity	160	146	130	1.0	EPA 310.1

Peter T. Wu
Lab Director

SOUTHLAND TECHINICAL SERVICES, INC.

CHAIN OF CUSTODY RECORD

Lab Job Number _____

Client: Southland Tech. Services, Inc.

Address: 7801 Telegraph Rd. #L, Montebello, CA 90640

Report Attention: Roger Ivanoff | Phone 323 888-0728 | Fax 323 888-1509 | Sampled by:

Project Name/No: 2R2003 | Project Site: Oakland

Client Sample ID	Lab Sample ID	Sample Collect Date	Sample Collect Time	Matrix Type	Sample Preserve	No.,type* & size of container	602/8021 (BTEX,MTBE)	8015M (Gasoline)	8015M (Diesel)	8260B (VOCs)	8260B (Oxygenates, BTEX)	8260B (MTBE Confirm.)	Alkalinity						Remarks
FOMW-3		6-6-02	7:25	Water	Cool	1P							X						
FOMW-4		6-6-02	9:15	"	"	1P							X						
FOMW-5		6-6-02	8:20	"	"	1P							X						

T.A.T. Requested: ☐ Rush 8 12 24 hours ☐ 2-3 days ☒ Normal

Sample Condition: ☐ Chilled ☒ Intact ☐ Sample seals

Relinquished by	Company	Date	Time	Received by	Company
[signature]	STS	6/7/02	1400	[signature]	[signature] 6-8-02
Relinquished by	Company	Date	Time	Received by	Company

Container types: M=Metal Tube, A=Air Bag, P=Plastic bottle, G=Glass bottle, V=VOA vial

Southland Tech. Services, Inc.
7801 Telegraph Road, Suite L & K
Montebello, CA 90640
Tel: (323) 888-0728
Fax: (323) 888-1509

Note: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client's expense.
Distribution: WHITE with report, PINK to courier.

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

URS Corporation
Project name: Sears-Oakland 1058A
Project Manager: Scott Rowlands
Project Number: 22-00000139.02

Reporting date: June 24,2002
CytoCulture lab login: 02-26C
Address: 2020 East First Street, Suite 400
Santa Ana, CA 92705
Tel: 714-835-6886 **Fax:** 714-667-7147

Samples: Three water samples on ice were received 6/7/02. They were assayed the same business day and stored at 4°C. See attached chain of custody form.

Aerobic Hydrocarbon-Degrading and Total Heterotrophic Bacteria Enumeration Assays

Analysis Request: Bacteria enumeration for aerobic petroleum hydrocarbon-degraders (broad range petroleum derived form gasoline and diesel) and total heterotrophic plate counts plate counts by method 9215A (HPC)/ Standard Methods 9215B modified.

Carbon Source: Pasteurized Chevron gasoline No.2 and diesel were dissolved into agar plates as the sole carbon and energy source for the growth of hydrocarbon-degrading aerobic bacteria.

Protocol for Hydrocarbon Degraders: Sterile agar plates (100x 15 mm) were prepared with minimal salts medium at pH 6.8 with agar and hydrocarbons, without any other carbon sources or nutrients added. Triplicate plates were inoculated with 1.0 ml of each sample and then log dilutions of each sample: 10^{0}, 10^{-1}, 10^{-2} and 10^{-3}. Hydrocarbon plates were poured and counted after 10 days incubation at 30 degrees Celsius. The plate count data is 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.

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

Aerobic Hydrocarbon-Degrading and Total Heterotrophic Bacteria Enumeration

Client Sample Number	Sample Date	Hydrocarbon Degraders (cfu/ml)	Target Hydrocarbons Tested	Total Heterotrophs (cfu/ml)
FOMW-3	6/6/02	2×10^{2}	Gasoline/Diesel	4×10^{2}
FOMW-5	6/6/02	2×10^{2}	Gasoline/Diesel	1.6×10^{3}
FOMW-4	6/6/02	1×10^{3}	Gasoline/Diesel	4×10^{3}
Sterile Water	6/5/02	zero	Gasoline/Diesel	zero
Air control	6/5/02	zero	Gasoline/Diesel	zero
Positive Control	2/19/02	1×10^{7}	Gasoline/Diesel	6×10^{7}

Reporting Limit for enumeration data is 1.0×10^{1} cfu/ml.

Note: The majority of colonies counted in this sample represent slow growing bacteria that produce tiny colonies.

A hydrocarbon-degrading bacteria positive control sample was run concurrently with these samples using a mixed flask culture of bacteria isolated 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.

Jill Heshmati
Laboratory Technician

Randall von Wedel, Ph.D.
Principal Biochemist

C:\cytolab\lab reports\URS 02-26C Water

CytoCulture Environmental Biotechnology
249 Tewksbury Avenue
Pt. Richmond, CA 94801 USA Tel 510-233-0102 Email: lab@cytoculture.com

INVOICE: 02-26C
URS Corporation
2020 East First Street, Suite 400
Santa Ana, CA 92705
Tel.714-835-6886
Attn: Scott Rowlands
email:

Invoice Date: June 24, 2002
Reporting Date: June 24, 2002
Project Number:22-00000139.02
Project Name: Sears-Oakland 1058A

No. Samples: 3 Water
Sampling Dates: June 6, 2002

Chemistry Assay Description	Qty	Unit Price	Amount
Ammonia Nitrogen - Water		$30	$0.00
Ammonia Nitrogen - Soil		$35	$0.00
Nitrate Nitrogen - Water		$30	$0.00
Nitrate Nitrogen - Soil		$35	$0.00
Ortho-Phosphate - Water		$30	$0.00
Ortho-Phosphate - Soil		$35	$0.00
Sulfate - Water		$30	$0.00
Sulfate - Soil		$35	$0.00
Ferrous Iron - Water		$32	$0.00
Ferric Iron - Water		$30	$0.00
pH - Water		$10	$0.00
pH - Soil		$15	$0.00
Chemical Oxygen Demand COD		$32	$0.00
Total Organic Carbon TOC		$54	$0.00
Biological Oxygen Demand BOD		$58	$0.00
Bacterial Plate Enumerations			
Aerobic Hydrocarbon Degraders (cfu/ml) - Water	3	$60	$180.00
Aerobic Hydrocarbon Degraders (cfu/g) - Soil		$70	$0.00
Aerobic Total Heterotrophs (cfu/ml) - Water	3	$60	$180.00
Aerobic Total Heterotrophs (cfu/g) - Soil		$70	$0.00
Anaerobic Hydrocarbon Degraders (cfu/ml) - Water		$90	$0.00
Anaerobic Hydrocarbon Degraders (cfu/g) - Soil		$95	$0.00
Anaerobic Total Heterotrophs (cfu/ml) - Water		$90	$0.00
Anaerobic Total Heterotrophs (cfu/g) - Soil		$95	$0.00
Bacterial MPN Enumerations (Priced per sets of 6)			
Nitrate Reducing Bacteria (cells/ml) - Water - Each		$160	$0.00
Iron Reducing Bacteria (cells/ml) - Water - Each		$160	$0.00
Sulfate Reducing Bacteria (cells/ml) - Water - Each		$160	$0.00
Technical Consulting / Research			
Principal Biochemist: Randall von Wedel, Ph.D. (per Hr)		$125	$0.00
Laboratory Technician: Jill Heshmati (per Hr)		$65	$0.00
Invoice Total			**$360.00**

Federal ID# 94-3029-884
Please have check mailed within 21 days payable to:

CytoCulture International, Inc.
249 Tewksbury Avenue
Point Richmond, CA 94801-3829

Thank you.

URS CORPORATION
2020 East First Street, Suite 400
Santa Ana, CA 92705
(714) 835-6886
FAX (714) 667-7147

CHAIN OF CUSTODY RECORD

02-26C
(3rd part)

Date: 6/6/02

Page 1 of 1

☐ Data Requested in GISKey Format

Lab Name: CYTO CULTURE	URS Project/PO Number: 22-00000139.02
Client Name/Project Name/Location: Sears / Oakland 1058A	GeoTracker Information:
URS Project Manager: Scott Rowlands	EDF Reporting: Y N Global ID:
Sampler Name and Signature: Robert Kovacs	COELT Log Number:

	Sample Name:	Sample Date	Sample Time	Preserved:	Matrix:	Container Type:	# of Cont.:	Requested Analyses: H. Peroxides (6-22)	Requested Analyses: HPLC (SM 9215)	Requested Analyses: HOLD	Special Instructions
1	FOMW-3	6-6	725	Y (N)	S (L) G	Acetate SS. Brass Jar Encore 500 ml Amb. Plas. Glass VOA poly	1	X	X		
2	FOMW-5	6-6	820	Y (N)	S L G	Acetate SS. Brass Jar Encore 500 ml Amb. Plas. Glass VOA poly	1	X	X		
3	FOMW-4	6-6	915	Y (N)	S L G	Acetate SS. Brass Jar Encore 500 ml Amb. Plas. Glass VOA poly	1	X	X		
4				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA					
5				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA					
6				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA					
7				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA					
8				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA					
9				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA					
10				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA					

Relinquished by	Date	Received By	Date/Time
Robert Kovacs	6-6-02		
Relinquished by	Date	Received By	Date/Time
Relinquished by	Date	Received By	Date/Time
		[signature]	6/7/02 0830

S=Solid L=Liquid G=Gas

White Copy in Final Report, Yellow to File, Pink to URS at Dropoff

Plates pumped same day.

Turnaround Time (Check)

Same Day	72 Hour
24 Hour	5 Day
48 Hour	Standard

Lab Use Only

Cooler Temperature*: _____
*Record upon arrival

URS

APPENDIX D

URS DATA VALIDATION REPORTS

Level III Data Validation Summary

PROJECT: Sears Oakland 1058A
LABORATORY: Southland Technical Services, Inc. (STS)
MATRIX: Groundwater
LAB PROJECT #: UR206043
SAMPLES: See table below

Field ID	QC Designations	Lab ID	BTEX, MTBE, Fuel Oxygenates	TPH-Gasoline	TPH-Diesel, TPH-Oil	Nitrate, Sulfate	Alkalinity
TB	Trip blank	UR206043-4	X	X			
FOMW-3		UR206043-1	X	X	X	X	X
FOMW-5		UR206043-3	X	X	X	X	X
FOMW-4		UR206043-2	X	X	X	X	X
Dup-1	Field duplicate of FOMW-4	UR206043-5	X	X	X		
EB-1	Equipment blank	UR206043-6	X	X			

Date Sampled: 6/06/02
TPH-Gasoline = Total petroleum hydrocarbons, gasoline range (C4-C10).
TPH-Diesel = Total petroleum hydrocarbons, diesel range (C11-C23). TPH-Oil = Total petroleum hydrocarbons, oil range (C24-C40).
BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes. MTBE = Methyl tertiary butyl ether.
Fuel Oxygenates = t-butyl alcohol (TBA), t-amyl methyl ether (TAME), di - isopropyl ether (DIPE), ethyl-t-butyl ether (ETBE)
STS is certified by California Department of Health Services. Environmental Laboratory Accreditation Program (ELAP Certificate Number 1986).

DATA REVIEW MATRIX

QC Parameter	BTEX, MTBE, Fuel Oxygenates EPA 8260B	TPH-Gasoline EPA 5030/8015M	TPH-Diesel, TPH-Oil EPA 3510C/8015M	Nitrate, Sulfate EPA352.1/375.4	Alkalinity EPA 310.1
Chain-of-custody (COC)	✓	✓	✓	✓	✓(3)
Sample Receipt	✓	✓	✓	✓	✓
Holding Times	✓	✓	✓	✓	✓
Method Blank	✓	✓	✓	✓	NP
Surrogate Recovery	✓	✓	✓	NA	NA
Laboratory Control Sample	✓	✓	✓	NP	NP
Matrix Spike	(1)	✓(2)	(1)	NP	NP
Duplicate, or Spike Duplicate	(1)	✓(2)	(1)	NP	NP
Field Duplicate	✓	✓	✓	NC	NC
Trip Blank	✓	✓	NC	NC	NC
Equipment Blank	✓	✓	NC	NC	NC

✓ = Quality control evaluation criteria met.
NA = Not Applicable or Not Analyzed NP = Not Provided NC = Not Collected

Notes:
1. MS/MSD was conducted on a non-site related sample; therefore, the MS/MSD results obtained may not be fully representative of the accuracy and precision of the analysis on the site-specific sample matrix.
2. MS/MSD was conducted on sample FOMW-5. The results were within acceptance criterion.
3. Analyses subcontracted to Americhem Testing Laboratories, ELAP certificate number 1758.

Summary: Based on this Level III validation covering the QC parameters listed in the table above, these data are considered to be useable for meeting project objectives without qualification. However, the data user must evaluate the ultimate usability of the data based on the reporting limits obtained. The table below lists the detection limits obtained for undiluted samples.

Analyte	**Detection Limits Obtained**
TPH-Gasoline	50
TPH-Diesel	500
TPH-Oil	500
Benzene	1
Toluene	1
Ethylbenzene	1
Xylenes	2
MTBE	2
TBA	10
Other Fuel Oxygenates	2
Alkalinity	1000
Nitrate	50
Sulfate	1000

Aqueous units are microgram per Liter (μg /L).