

**2008 ANNUAL GROUNDWATER  
MONITORING AND SITE CLOSURE  
ASSESSMENT  
FORMER SEARS AUTO CENTER #1058B  
2600 TELEGRAPH AVENUE  
OAKLAND, CALIFORNIA  
CASE I.D. # STID 1082  
FOR SEARS HOLDINGS MANAGEMENT  
CORPORATION**

**URS Job No. 29863494  
February 19, 2009**



February 19, 2009

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

**Subject: 2008 Annual Groundwater Monitoring and  
Site Closure Assessment  
Former Sears Auto Center #1058B  
2600 Telegraph Avenue  
Case I.D. # STID 1082  
For Sears Holdings Management Corporation**

Dear Mr. Khatri:

Submitted with this letter is the 2008 Annual Groundwater Monitoring and Site Closure Assessment Report prepared on behalf of Sears Holdings Management Corporation. Please feel free to contact me at (714) 648-2779 if you have questions or comments.

Respectfully Submitted,

**URS CORPORATION**

Joseph Liles, PG, CHG  
Project Manager

cc: Mr. Bruce Kaye, Sears Holdings Management Corporation

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
1.0 INTRODUCTION .....	1-1
2.0 SITE DESCRIPTION .....	2-1
2.1 Regional Geology and Hydrogeology .....	2-1
3.0 BACKGROUND .....	3-1
3.1 Soil and Hydropunch™ Sampling .....	3-1
3.2 Groundwater Sampling .....	3-2
4.0 HEALTH AND SAFETY PLAN .....	4-1
5.0 SITE CLOSURE ASSESSMENT.....	5-1
5.1 Utility Clearance .....	5-1
5.2 Soil Borings .....	5-1
5.3 Laboratory Analysis Program For Soil .....	5-2
5.4 Laboratory Analysis Results For Soil .....	5-2
5.5 Waste Management.....	5-3
6.0 ANNUAL GROUNDWATER MONITORING.....	6-1
6.1 Groundwater Gauging.....	6-1
6.2 Groundwater Sampling .....	6-1
6.3 Well Head Maintenance.....	6-2
6.4 Laboratory Analyses .....	6-2
6.5 Waste Management.....	6-2
6.6 Findings.....	6-2
6.6.1 Shallow Groundwater Conditions.....	6-2
6.6.2 Laboratory Analytical Results .....	6-2
7.0 SITE CLOSURE ANALYSIS.....	7-1
7.1 Site Closure Assessment.....	7-1
7.2 Groundwater Monitoring .....	7-2
7.3 Preferential Pathway Study.....	7-2
7.4 Oakland ULR Program .....	7-3
8.0 DISCUSSION .....	8-1
9.0 SCHEDULE .....	9-1
10.0 REFERENCES.....	10-1

# Annual Groundwater Monitoring and Site Closure Assessment

---

## LIST OF TABLES

- 1 Summary of Soil Analytical Results (December 2008)
- 2 2008 Annual Groundwater Levels and Field Parameters
- 3 2008 Annual Groundwater Analytical Results
- 4 Oakland Specific ULR Tier 2 SSTLs for Soil

## List of Figures

- 1 Vicinity Map
- 2 Plot Plan Showing Underground Utility Locations and Cross-Section Line
- 3 Groundwater Contour Map – 2008 Annual Groundwater Monitoring
- 4 TPH Concentration Map – 2008 Annual Groundwater Monitoring
- 5 Geologic Cross Section A-A' Showing Underground Utility Locations

## List of Appendices

- A ACEHS Correspondence
- B Historical Groundwater Monitoring Results
- C Soil Boring Logs
- D Laboratory Report and Chain-of-Custody Documentation for Soil
- E URS Data Validation Report for Soil
- F Groundwater Purge Logs
- G Laboratory Report and Chain-of-Custody Documentation for Groundwater
- H URS Data Validation Reports for Groundwater
- I Summary of Soil Analytical Results
- J Rose Diagrams for Historical Groundwater Gradient and Flow Direction
- K Well Survey Data
- L Oakland ULR Eligibility Checklist
- M Oakland ULR Tier 2 SSTLs

## 1.0 INTRODUCTION

This report has been prepared by URS Corporation on behalf of Sears Holdings Management Corporation. It presents the results of the 2008 annual groundwater monitoring and Site closure assessment conducted at the former Sears Auto Center (Site) located at 2600 Telegraph Avenue in Oakland, California. A Site vicinity map is provided as Figure 1, and a plot plan showing the former facility and current well layout is provided as Figure 2. The groundwater monitoring event consisted of gauging, purging, and sampling nine monitoring wells (MW-1 through MW-9) and one extraction well (EW-1). The Site closure assessment consisted of advancing two soil borings in the vicinity of monitoring well MW-3 (Figure 2).

The purpose of the Site closure assessment and the groundwater monitoring event was to assess current soil and groundwater conditions in the vicinity of removed gasoline underground storage tanks (USTs), associated fuel dispensers and product piping, and removed motor oil and used oil USTs and to evaluate the Site for closure. The removed gasoline USTs, fuel dispensing system, motor oil USTs and used oil UST were associated with a former Sears Auto Center (Figure 2). The work is being performed under regulatory oversight of the Alameda County Environmental Health Services (ACEHS) pursuant to quarterly monitoring and reporting requirements under Title 23, Division 3, Chapter 16 of the California Code of Regulations.

A 2004 Groundwater Monitoring and Closure Assessment Report was submitted to ACEHS in June 2004. In response to ACEHS comments dated May 10, 2006, URS proposed two additional borings in the vicinity of MW-3 to assess the hydrocarbon impacts in the area (URS, December 2006). A copy of the September 11, 2008 ACEHS correspondence approving with comments the proposed scope of work for advancing two soil borings is provided in Appendix A. ACEHS also requested one additional round of groundwater sampling be completed for evaluation of Site closure (Appendix A).

## 2.0 SITE DESCRIPTION

The Site is located at 2600 Telegraph Avenue, Oakland California (Figure 1). It is bordered by 27<sup>th</sup> Street to the north, Telegraph Avenue to the west, 26<sup>th</sup> Street to the south, and commercial and residential buildings to the east (Figure 2). The property is occupied by a single-story commercial structure and associated parking lots.

### 2.1 REGIONAL GEOLOGY AND HYDROGEOLOGY

The Site is approximately 1.5 miles east of the San Francisco Bay and 3 miles west of the Diablo Range in Oakland, California. The Site is located on the eastern flank of the San Francisco Basin, a broad Franciscan depression. The basement rock of the basin is respectively overlain by the Santa Clara Formation, the Alameda Formation, and the Temescal Formation. These formations consist of unconsolidated sediments ranging in total thickness from approximately 300 feet to 1,000 feet. The Pleistocene Santa Clara Formation consists primarily of alluvial fan deposits that are interspersed with lake, swamp, river channel, and flood plain deposits. The overlying Alameda Formation was deposited in an estuary environment and consists of organic clays and alluvial fan deposits of sands, gravels, and silts. The uppermost Holocene Temescal Formation is an alluvial deposit ranging in thickness from 1 to 50 feet and consists primarily of silts and clays with a basal gravel unit (California Regional Water Quality Control Board [RWQCB], San Francisco Bay Region, June 1999).

Three types of shallow soils are typically found in the Site vicinity. These soil types include the Merritt sands, sandy silts, and clayey silts. The Merritt sands are primarily located in the flatlands area to the west of Lake Merritt. They are a fine-grained, silty sand with lenses of sandy clay and clay. The Merritt sands are typically characterized as having a low moisture content and high permeability. The sandy silts generally consist of unconsolidated, moderately sorted sand, silt, and clay sediments, with both fine-grain and course-grain materials. The sandy silts are typically characterized as having a medium moisture content and moderate permeability. The clayey silts are generally found along the San Francisco Bay and estuary, and in land fills from those areas. The clayey silts may contain organic materials, peaty layers and small lenses of sand. The clayey silts are typically characterized as having high moisture content and low permeability (City of Oakland Public Works Agency, 2000).

The Site is located within the Oakland sub-area of the East Bay Plain groundwater basin. The East Bay Plain groundwater basin encompasses approximately 115 square miles and is bounded by San Pablo Bay to the north, Alameda County to the south, the Hayward Fault to the east, and San Francisco Bay to the west. Existing beneficial uses of groundwater within the East Bay Plain basin include municipal and domestic water supply, industrial process water supply, industrial service water supply, and agricultural water supply (RWQCB, June 1995).

Groundwater flow direction in the basin typically follows surface topography. Historical high production wells in the Oakland sub-area were screened at depths greater than 200 feet below ground surface (bgs), beneath the Yerba Buena Mud Member of the Alameda Formation. The Yerba Buena Mud is a black organic clay with an average thickness of 25 feet to 50 feet that forms an aquitard between upper and

## Annual Groundwater Monitoring and Site Closure Assessment

---

lower groundwater bearing units. From the 1860's until water importation programs were initiated in the 1930's, groundwater in the East Bay Plain was utilized as the primary municipal water source. Current beneficial uses of groundwater in the basin are minimal due to "readily available high quality imported surface water" (RWQCB, June 1999). Alameda County Well permit applications indicated 91% of groundwater wells within the basin are used for "backyard" or commercial irrigation, 8.6% of the wells are used for industrial process water, and 0.4% are used for drinking water supply (RWQCB, June 1999).

### 3.0 BACKGROUND

The Site consists of a Former Sears Auto Center converted to a commercial strip mall. A number of USTs were installed and operated in connection with the gasoline concession and auto center. Five 1,000-gallon motor oil USTs and one 2,000-gallon motor oil UST were previously located on the east side of the former auto center building. One 1,000-gallon used oil UST and two 10,000 gallon gasoline USTs were previously located on the west side of the former auto center building. The USTs were installed in the 1960s. The two 10,000-gallon USTs associated with the gasoline concession were removed prior to 1990. American Environmental Management Corporation (AEMC) removed all the USTs containing motor oil and used oil in September 1990 (AEMC, October 1990). The former UST locations are shown on Figure 2.

#### 3.1 SOIL AND HYDROPUNCH™ SAMPLING

Soil samples collected by AEMC from the motor oil and used oil UST excavations in September 1990 contained concentrations of total petroleum hydrocarbons as gasoline (TPHg) up to 39 milligrams per kilogram (mg/kg). Soil samples collected from the motor oil and used oil UST excavations contained concentrations of total petroleum hydrocarbons as diesel fuel (TPHd) up to 4,400 mg/kg. Benzene was detected in soil samples at concentrations up to 12 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ). Toluene was detected in soil samples at concentrations up to 310  $\mu\text{g}/\text{kg}$ . Ethylbenzene was detected in soil samples at concentrations up to 410  $\mu\text{g}/\text{kg}$ . Xylenes were detected in soil samples at concentrations up to 3,000  $\mu\text{g}/\text{kg}$ . Trichloroethene was detected in two soil samples at concentrations up to 19  $\mu\text{g}/\text{kg}$ . Tetrachloroethene was detected in three soil samples at concentrations up to 82  $\mu\text{g}/\text{kg}$ . Acetone was detected in one soil sample at a concentration of 140  $\mu\text{g}/\text{kg}$ .

Based on these results, approximately 55 cubic yards of this impacted soil was excavated by AEMC during the motor oil and used oil UST removals and a subsequent excavation project. The excavated soil was transported from the Site and disposed at Gibson Asphalt Recyclers in Bakersfield, California (AEMC, January 1991). Confirmation samples collected from the excavations contained less than 60 mg/kg of TPHd. Ethylbenzene and xylenes were detected in one soil sample at concentrations of 13  $\mu\text{g}/\text{kg}$  and 14  $\mu\text{g}/\text{kg}$ , respectively. These detections were below regulatory screening levels (Section 7.1).

AEMC conducted a Phase II assessment of soil and groundwater on the west side of the former auto Center in the areas of the removed gasoline and used oil USTs in February 1991 (AEMC, August 1991). Due to drill refusal, soil samples were not collected from depths greater than 15 feet bgs. TPHg was detected in soil samples at concentrations up to 6.3 mg/kg. TPHd were “non-detect” (ND) in all soil samples. Total petroleum hydrocarbons as oil and grease (TPHo) were detected in soil samples at concentrations up to 930 mg/kg. Benzene was detected in soil samples at concentrations up to 100  $\mu\text{g}/\text{kg}$ . Toluene was detected in soil samples at concentrations up to 300  $\mu\text{g}/\text{kg}$ . Ethylbenzene was detected in



## Annual Groundwater Monitoring and Site Closure Assessment

---

soil samples at concentrations up to 170 µg/kg. Xylenes were detected in soil samples at concentrations up to 280 µg/kg.

TPHg were detected in Hydropunch™ groundwater samples collected during the AEMC Phase II assessment at concentrations up to 18,000 µg/L. TPH oil and grease were detected in Hydropunch™ groundwater samples at concentrations up to 7,000 µg/L. Benzene, toluene, ethylbenzene and xylenes (BTEX) were detected in Hydropunch™ groundwater samples at concentrations up to 240 µg/L.

URS conducted a Site closure assessment of soil on the east and west side of the former Auto Center in the areas of the removed gasoline and used oil USTs during February 2004 (URS, June 2004). The Site closure assessment consisted of advancing 14 soil borings, collecting and analyzing soil samples. The data were used to evaluate the Site for closure under the City of Oakland Urban Land Redevelopment (ULR) Program. TPHg was detected in soil samples at concentrations up to 1,780 mg/kg (CB8-5). TPHd was detected in soil samples at concentrations up to 202 mg/kg (CB5-10). TPHo was detected in soil samples at concentrations up to 1,430 mg/kg (CB5-10). Benzene was detected in one sample (CB7-20) at a concentration of 5.8 µg/kg. Toluene was detected in soil samples at concentrations up to 1,630 µg/kg (CB8-5). Ethylbenzene was detected in soil samples at concentrations up to 39,000 µg/kg (CB8-5). Total xylenes were detected in soil samples at concentrations up to 160,000 µg/kg (CB8-5). Soil samples analyzed from borings CB2, CB4, CB6, CB9, CB11, CB12, and CB14 contained non-detect (ND) concentrations of BTEX and fuel oxygenates methyl tert-butyl ether (MTBE), di-isopropyl ether (DIPE), tertiary butyl ether (TAME), ethyl tertiary butyl ether (ETBE), and tertiary butyl alcohol (TBA).

### 3.2 GROUNDWATER SAMPLING

Since December 1992, a total of nine groundwater monitoring wells (MW-1 to MW-9) and one groundwater extraction well (EW-1) have been installed to evaluate the extent of petroleum hydrocarbon-affected groundwater beneath the Site. However, well EW-1 has never been utilized for groundwater extraction and has only been used for monitoring purposes. Groundwater monitoring wells MW-1, MW-2, MW-3, MW-4, and MW-5 have been monitored on a periodic basis since December 1992. Wells MW-6, MW-7, and MW-8 have been monitored on a periodic basis since December 1993. Wells MW-9 and EW-1 have been monitored on a periodic basis since December 1996.

The historical groundwater monitoring data indicate that separate phase product was periodically present in well MW-3 from September 1993 until August 2000, but has not been observed in subsequent quarterly/annual monitoring events. Historical chemical analysis results indicated that the separate phase product observed in well MW-3 consists of TPHg, TPHd, and TPHo.

The highest dissolved phase concentrations of TPHg, TPHd, TPHo, BTEX, and MTBE historically detected in groundwater samples collected from the Site are summarized in the following table:

#### Historical Maximum Concentrations in Groundwater

## Annual Groundwater Monitoring and Site Closure Assessment

Analyte	Well	Concentration ( $\mu\text{g/L}$ )	Date of Detection
TPHg	MW-3	7,800	02/25/00
TPHd	MW-3	1,026	06/06/02
TPHo	MW-3	130,000	02/25/00
Benzene	EW-1	83	06/09/97
Toluene	MW-3	6	08/25/97
Ethylbenzene	MW-3	5	08/25/97
Total Xylenes	MW-3	27	11/15/95
MTBE	EW-1	30	02/12/98

A summary of the historical chemical analytical results for previous groundwater monitoring events is provided as Appendix B. It should be noted that the gasoline USTs were removed from the Site prior to the widespread use of MTBE, and the 1998 detected concentrations that were not confirmed by subsequent sample using EPA analysis method 8260B indicating that the MTBE detection may be “false positive”.

## 4.0 HEALTH AND SAFETY PLAN

Pursuant to Health and Safety Code 1910.120, and prior to initiating the field activities, URS updated a site-specific Health & Safety (H&S) plan to:

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

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

## 5.0 SITE CLOSURE ASSESSMENT

The scope of work completed for the Site closure assessment consisted of the following tasks;

- ◆ Updating a H&S Plan,
- ◆ Clearing proposed boring locations with Underground Service Alert,
- ◆ Advancing two soil borings to depths of approximately 20 feet bgs,
- ◆ Collecting soil samples at discrete intervals;
- ◆ Analyzing the soil samples for TPHg, TPHd, and TPHo by EPA Method 8015M, for volatile organic compounds (VOCs) including BTEX and MTBE by EPA Method 8260B, and for total lead by EPA Method 6010B.

The soil boring locations are shown on Figure 2. The Site closure assessment methods and results are presented in the following sections.

### 5.1 UTILITY CLEARANCE

In accordance with California Assembly Bill AB 73, Underground Services Alert (USA) was notified of our intent to conduct subsurface borings at least 48 hours prior to initiation of intrusive field tasks. The proposed subsurface boring locations were clearly marked with white paint as required by California Code 4216. USA contacted utility owners of record within the vicinity and notified them of our intention to conduct subsurface borings in proximity to buried utilities. The utility owners of record, or their designated agents, clearly marked the position of their utilities on the ground surface throughout the area designated for investigation.

An independent underground utility clearance survey was performed by Cruz Brothers Locaters, Inc. of Scotts Valley, California on December 22, 2008, at the proposed boring locations. The subsurface survey was conducted to locate and identify piping, conduit, and other subsurface structures or utilities in the vicinity of the proposed boring locations, which may not have been identified previously. A electromagnetic line locator (RD-400) was used to identify potential subsurface utilities.

### 5.2 SOIL BORINGS

Soil borings SB-01 and SB-02 were drilled with a MARL-25 direct push drill rig. The first 5 feet of each boring was hand-augered to assess the potential presence of subsurface utilities or other structures. The borings were drilled on December 23, 2008, by Gregg Drilling of Martinez, CA (C-57 License #485165).

Discrete soil samples were collected in soil borings SB-01 and SB-02 at 5-foot intervals to depths of approximately 20 feet bgs. Soil samples were collected utilizing a macrocore sampler (driven 24 inches) equipped with an acetate sleeve. Upon retrieval of the sampler at each sampling interval, the sample sleeve was separated and observed for possible staining. Soil samples analyzed for VOCs were collected using the current EPA Method 5035 protocol required by the RWQCB.

## Annual Groundwater Monitoring and Site Closure Assessment

---

During drilling operations, a photo ionization detector (PID) was used to monitor the presence and level of organic vapors in the borings and soil cuttings, and to screen soil samples. Organic vapor readings were recorded on the boring logs prepared by the field geologist during drilling activities. The following sampling information was recorded on the boring log; boring number and location, sample identification numbers, time, sample depth, lithologic description in accordance with the Unified Soils Classification System (USCS), description of any visible evidence of soil contamination (i.e., odor, staining), and organic vapor readings. The boring logs for the completed borings (SB-01 and SB-02) are provided in Appendix C.

The sealed and labeled samples were logged on a chain-of-custody (COC) document, placed in an ice chest containing ice, and transported to a California Department of Health Services (DHS) accredited laboratory for analysis. The ice chest temperature was recorded at 4 degrees centigrade by the laboratory upon sample receipt. COC documentation was maintained throughout the sampling program and is included in Appendix D.

### 5.3 LABORATORY ANALYSIS PROGRAM FOR SOIL

A total of seven soil samples collected from the soil borings were submitted to Alpha Scientific Corporation (ASC), located in Cerritos, California. The soil samples submitted to ASC were analyzed for TPHg, TPHd, and TPHo by EPA Method 8015M, VOCs by EPA Method 8260B, and total lead by EPA Method 6010B. A summary of the chemical analytical results for the soil samples is provided in Table 1. Copies of the laboratory reports and COC documents are provided in Appendix D.

### 5.4 LABORATORY ANALYSIS RESULTS FOR SOIL

TPHg was detected in two soil samples collected from borings SB-01 and SB-02 at concentrations of 5.1 mg/kg (SB02-15) and 78.7 mg/kg (SB01-15). TPHd was detected in three soil samples collected from soil borings SB-01 and SB-02 at concentrations ranging from 16 mg/kg (SB01-20) to 187 mg/kg (SB01-15). TPHo was detected in three soil samples collected from soil borings SB-1 and SB-2 at concentrations ranging from 61 mg/kg (SB01-20) to 891 mg/kg (SB01-15).

Soil samples analyzed from borings SB-01 and SB-02 contained no detectable BTEX or fuel oxygenates MTBE, DIPE, TAME, ETBE, and TBA. Total lead was detected in the seven soil samples collected during this investigation at concentrations ranging from 6.1 mg/kg (SB02-20) to 8.7 mg/kg (SB01-5) which would be indicative of background conditions. Other VOCs detected above the laboratory reporting limits include the following: 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, tert-butylbenzene, and n-butylbenzene. Most of the chemical constituents were detected at 15 feet bgs. A summary of the analytical results for soil is included in Table 1. Copies of the laboratory report and COC documents are provided in Appendix D.

URS conducted a check of data completeness for the chemical analytical laboratory reports for soil samples collected during this project. Results indicate that “these data are considered to be useable for meeting project objectives.” URS’ Data Validation Report for soil is included in Appendix E.

### 5.5 WASTE MANAGEMENT

Drill cuttings and decontamination water were collected and stored in two 55-gallon DOT-approved drums. Containers were numbered and labeled with the date and contents to identify the source of the wastes. The containers were stored onsite in a designated area and properly disposed of by a licensed waste transporter contracted to Sears following review of the chemical analytical data.

## 6.0 ANNUAL GROUNDWATER MONITORING

The 2008 annual groundwater monitoring was performed on November 13 and 14, 2008. The monitoring consisted of gauging, purging and sampling nine monitoring wells (MW-1 through MW-9) and one extraction well (EW-1). A description of the monitoring procedures is presented below.

### 6.1 GROUNDWATER GAUGING

Prior to sampling, water levels were measured relative to the surveyed top of casing using a Solinst water level indicator. Water level data were recorded to the nearest 0.01 foot. Each groundwater monitoring well was also checked for the presence of separate phase product using a product interface probe. Separate phase product was not observed in any of the wells. Groundwater depths and elevations for the 2008 annual monitoring are listed in Table 2, and historical data are included in Appendix B.

### 6.2 GROUNDWATER SAMPLING

Groundwater samples were collected from the wells after purging approximately three casing volumes of well water using a Grundfos RediFlo 2™ submersible pump. The wells were purged at a rate of approximately 0.25 to 1.5 gallons per minute (gpm). Groundwater purged from the wells was monitored for various field parameters including temperature, pH, electrical conductivity, dissolved oxygen (DO), oxidation reduction potential (ORP), ferrous iron concentration and turbidity using a YSI™ multi-parameter meter equipped with a flow-through cell. Measured field parameters are listed in Table 2. Purge logs are provided in Appendix F. The “post-purge” groundwater samples were collected from the disposable discharge tubing of the sampling pump following well purging.

The downhole pump was cleaned prior to use and between wells by washing in a solution of Alconox and tap water, rinsing in tap water, final rinsing in deionized water, and air drying. Pre-cleaned, disposable, polyethylene discharge tubing was attached to the pump following each decontamination procedure and was changed between each well purging event. A blind duplicate sample was also collected from well EW-1 and labeled DUP-1. One equipment blank sample, labeled EB-1, was collected by pumping deionized water from a clean container through the pump and clean, disposable, polyethylene tubing into sample containers following decontamination procedures.

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. 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 an ice chest packed with ice and transported to ASC. The ice chest temperature was recorded at 4 degrees centigrade by the laboratory upon sample receipt. Chain-of-custody records were maintained throughout the sampling program, a copy of which is included in Appendix G.

### 6.3 WELL HEAD MAINTENANCE

As part of the quarterly monitoring program, each well head is inspected to ensure that wells are properly sealed and secured. The routine well maintenance associated with the quarterly groundwater sampling consists of: inspection of water-tight well caps and locks on all monitoring wells and replacement as necessary; replacement of missing or damaged bolts on well box covers; and removal and replacement of damaged well boxes and associated concrete aprons. During this event, URS observed three damaged wells: MW-1 has one broken eyelet; MW-6 has three broken eyelets, and MW-7 has one missing bolt.

### 6.4 LABORATORY ANALYSES

Groundwater samples were submitted to ASC for analysis. The groundwater samples, duplicate and equipment blank samples were analyzed for TPHg, TPHd, and TPHo by modified EPA Method 8015M. The samples were also analyzed for VOCs including BTEX, the fuel oxygenates MTBE, DIPE< ETBE, TAME, and TBA, ethanol, and the lead scavengers 1,2-dibromoethane (EDB) and 1,2-dichloroethane (EDC or 1,2-DCA). The trip blank was analyzed for TPHg by EPA method 8015M and VOCs by EPA Method 8260B. Analyses results for the groundwater samples are summarized in Table 3. Copies of the laboratory reports are included in Appendix G.

### 6.5 WASTE MANAGEMENT

Purge water and decontamination water were collected and stored in two 55-gallon DOT-approved drums. Containers were numbered, labeled with the date, and contents to identify the source of the wastes. The containers were stored onsite in a designated area and properly disposed by a licensed waste transporter contracted to Sears following review of the chemical analysis data.

### 6.6 FINDINGS

#### 6.6.1 Shallow Groundwater Conditions

Historical groundwater measurements collected since June 1996 indicate that the potentiometric surface beneath the Site has fluctuated from approximately 9 feet to 14 feet bgs, or 12 feet to 18 feet above mean sea level (msl). The measured depth to water during the 2008 annual groundwater monitoring ranged from 10.37 feet (MW-5) to 12.22 feet (EW-1) bgs, and groundwater elevation ranged from approximately 12.73 (MW-9) feet to 16.54 feet (MW-5) above msl (Table 2). Groundwater elevation contours and groundwater flow vectors were generated by a geostatistical gridding method using SURFER™, a graphical, contouring software program. The resultant groundwater contours indicate a southerly groundwater flow direction with a gradient of approximately 0.02. A groundwater elevation contour map, based on the 2008 annual groundwater monitoring water level measurements, is provided as Figure 3.

#### 6.6.2 Laboratory Analytical Results

TPHg was detected in two of the ten groundwater samples (MW-3 and EW-1) with concentrations of 191 µg/L (MW-3) and 406 µg/L (EW-1), respectively. TPHd, TPHo, BTEX, the fuel oxygenates MTBE,



## Annual Groundwater Monitoring and Site Closure Assessment

---

DIPE, ETBE, TAME, and TBA, the lead scavengers EDB and EDC, and ethanol were not detected above their respective method detection limits in all groundwater samples.

Chemical analysis results of the 2008 annual groundwater monitoring event are presented in Table 3. Copies of the laboratory reports and chain-of-custody documents are included in Appendix G. A Site map showing TPHg, TPHd, TPHo concentrations for the 2008 annual groundwater monitoring is provided as Figure 4. URS conducted a check of data completeness for the analytical laboratory reports. Results indicate that “these data, as qualified are considered to be useable for meeting project objectives.” A copy of URS’s Data Validation Summary is included as Appendix H.

## 7.0 SITE CLOSURE ANALYSIS

A Site closure analysis was conducted utilizing the data collected from the 14 soil borings completed in February 2004, the two soil borings completed in December 2008, and the historical groundwater monitoring data collected since 1992. The Site was evaluated for closure in accordance with the City of Oakland Urban Land Redevelopment (ULR).

### 7.1 SITE CLOSURE ASSESSMENT

The purpose of the Site closure assessment was to further characterize the nature and extent of residual petroleum hydrocarbon impacted soil related to the removed USTs and associated fuel dispensing system. The Site closure assessment consisted of advancing 14 soil borings (CB-1 through CB-14) in February 2004, and two soil borings (SB-01 and SB-02) in December 2008, to collect and analyze soil samples in the vicinity of two former 10,000 gallon gasoline USTs and related fuel dispensing system, one former 1,000 gallon used oil UST, five former 1,000 gallon motor oil USTs, and one former 2,000 gallon motor oil UST.

A total of 58 soil samples collected from these borings were analyzed for TPHg, TPHd, and TPHo by EPA Method 8015M, VOCs by EPA Method 8260B, and total lead by EPA Method 7420 or EPA Method 6010B. A summary of the analytical results for the soil samples collected from current borings SB-01 and SB-02 are shown on Table 1. A summary of the results from the 58 soil samples collected during both the February 2004, and the December 2008, sampling events is included as Appendix I. The range of detected concentrations for Chemicals of Concern at the Site are provided in the table below.

**Range of Detected Chemicals of Concern Concentrations in Soil**

<b>Analyte</b>	<b>Number of Detections</b>	<b>Lowest Concentration Detected</b>	<b>Highest Concentration Detected</b>
TPHg	21	0.6 mg/kg	1,780 mg/kg
TPHd	7	16 mg/kg	202 mg/kg
TPHo	6	61 mg/kg	1,430 mg/kg
Benzene	1	--	5.8 µg/kg
Toluene	3	7.3 µg/kg	1,630 µg/kg
Ethylbenzene	5	21.4 µg/kg	39,000 µg/kg
Total Xylenes	5	18.4 µg/kg	160,000 µg/kg
1,1,2-Trichloroethane	2	102 µg/kg	394 µg/kg
Naphthalene	13	5 µg/kg	20,200 µg/kg
Total Lead	20	2.8 mg/kg	41 mg/kg

mg/kg – milligrams per kilogram  
 µg/kg – micrograms per kilogram

## Annual Groundwater Monitoring and Site Closure Assessment

---

The highest TPHg and VOC concentrations were present in sample CB8-5, collected from boring CB8 at a depth of five feet bgs. Boring CB8 was located on the west side of the property near the southern end of the former fuel dispenser islands (Figure 2). Analytical results indicate TPHg and VOC concentrations at this boring location decrease significantly by a depth of 10 feet bgs and are non-detect at 15 feet bgs. Analytical results from adjacent borings suggest the TPHg and VOC concentrations significantly decrease laterally within a radius of 20 feet. These data indicate that the elevated concentrations in CB8-5 are an isolated shallow hot spot which is unlikely to represent a significant groundwater or human health threat.

Detectable concentrations of total lead are within acceptable background levels for an urban environment.

### 7.2 GROUNDWATER MONITORING

Results of the 2008 annual groundwater monitoring indicate that detectable concentrations of TPHg of 191 µg/L (MW-3) and 406 µg/L (EW-1) are present in groundwater samples collected from two of the ten wells. The two wells with detectable concentrations of TPHg are located downgradient of the former gasoline and used oil USTs. VOCs commonly associated with TPHg, such as BTEX, MTBE, ETBE, DIPE, TAME, TBA, EDB, and EDC were not detected in any of the groundwater samples collected during this sampling event.

In addition, there have been no measurable separate phase petroleum hydrocarbons in well MW-3 for 15 consecutive monitoring events. Benzene has not been detected in any groundwater samples collected from the wells since May 1999. Toluene has not been detected in any groundwater samples collected from the wells since August 1999. Ethylbenzene and total xylenes have not been detected in any groundwater samples collected from the wells since October 1999. A summary of the historical analytical data including time versus concentration graphs are provided in Appendix I.

Groundwater flow is towards the south with a gradient of about 0.02 foot per foot (ft/ft). Groundwater flow direction and gradient are consistent with previous monitoring events. Rose diagrams for historical groundwater gradient and flow direction based on the last 17 of 18 (including this event) monitoring events are included as Appendix J.

Based on the analytical results for this and previous sampling events, the groundwater monitoring well network effectively defines the extent of dissolved phase hydrocarbons onsite. Ten consecutive groundwater sampling events have demonstrated that natural attenuation is occurring, the impacted plume is stable (i.e., not migrating), and the plume size and concentrations are significantly reduced.

### 7.3 PREFERENTIAL PATHWAY STUDY

In February 2004, URS completed a preferential pathway study for the Site which evaluated potential migration pathways and potential conduits for horizontal and vertical migration of hydrocarbons and VOCs in soil and groundwater (URS, June 2004). A detailed utility survey and well survey was conducted to evaluate the potential preferential pathways for migration.

URS contacted Underground Services Alert (USA) during February of 2004 to schedule a Site meeting with utility owners of record, or their designated agents, to evaluate the locations of underground utilities

## Annual Groundwater Monitoring and Site Closure Assessment

---

within the Site vicinity. In addition, URS reviewed available maps of underground public utilities at the City of Oakland Building Department. The approximate locations of underground public utilities in the Site vicinity are provided on Figure 2. Cross-sections showing the approximate depths of the utilities are provided on Figure 5.

Underground utilities border the Site to the north on 27<sup>th</sup> Street, to the west on Telegraph Avenue, and to the south on 26<sup>th</sup> Street (Figure 2). The nearest underground utility to boring CB6 where the highest residual concentrations of petroleum hydrocarbons and VOCs were found is a natural gas line located on the east side of Telegraph Avenue. The gas line is located approximately 25 feet west of boring CB8 beyond the estimated lateral limits of petroleum hydrocarbon and VOC affected soil.

Survey data for wells in the Site vicinity was requested from the County of Alameda Public Works Agency in February 2004. The survey data were provided in May 2004 and included information on wells in Township 1 south, Range 4 west, Section 26 of the Diablo Base and Meridian. The survey data provided covered a minimum radius of ¼-mile from the Site. A review of the data indicates there are no domestic, irrigation, municipal, or industrial groundwater wells in the Site vicinity. Numerous groundwater monitoring wells are located in the Site Vicinity. It is likely that most or all of these wells are completed in the shallow water bearing zones. A copy of the well survey data is provided in Appendix K.

The preferential pathway study shows there are minimal concerns for vertical or horizontal migration of residual hydrocarbons or VOCs to groundwater via underground utility trenches or groundwater wells. Available well data shows there are no domestic, irrigation, municipal, or industrial groundwater wells in the Site vicinity.

### 7.4 OAKLAND ULR PROGRAM

The Oakland ULR Program is a collaborative effort between the City of Oakland and environmental regulatory agencies including the Department of Toxic Substances Control (DTSC), the RWQCB, and the ACEHS to “facilitate cleanup and redevelopment of contaminated properties” within the City of Oakland (City of Oakland Public Works Agency, 2000). Sites can be evaluated using the Tier 1, Tier 2, or Tier 3 processes described in the Oakland ULR Program. A completed ULR eligibility checklist for the Site confirming Site eligibility is provided as Appendix L.

The Tier 1 and Tier 2 evaluation process consists of comparing existing concentrations of chemicals of concern in Site soil and groundwater to Tier 1 Risk-Based Screening Levels (RBSLs) or Tier 2 Site Specific Target Levels (SSTLs) provided in look-up tables included in the Oakland ULR Program Guidance Document. Copies of the Tier 1 RBSLs and Tier 2 SSTLs, last updated in January 2000, are provided in Appendix M. If chemicals of concern present on a site exceed the Tier 1 RBSLs, then the site may be evaluated under Tier 2 SSTLs which factors in specific soil types common to the Oakland area.

Soil data collected from the Site exceeded the Tier 1 RBSLs and therefore the site was evaluated using the Tier 2 SSTLs. The Tier 2 evaluation process consists of comparing existing concentrations of Chemicals of Concern in Site soil and groundwater to Tier 2 SSTLs provided in look-up tables included in the

## Annual Groundwater Monitoring and Site Closure Assessment

---

Oakland ULR Program Guidance Document (City of Oakland Public Works Agency, 2000). A copy of the Tier 2 SSTLs, last updated in January 2000, is provided in Appendix M. The Tier 2 SSTLs factors in specific soil types are common to the Oakland area.

Table 4 shows concentrations of detected Chemicals of Concern in soil and corresponding SSTL values for subsurface soil collected in February 2004 and December 2008. Residual Chemicals of Concern in soil samples collected and analyzed from the closure assessment borings are below residential and commercial/industrial Tier 2 SSTLs for Merritt Sands for inhalation of indoor air vapors and outdoor air vapors.

Three soil samples (CB1-10, CB10-10, and CB8-5) contained concentrations of Chemicals of Concern (1,1,2-trichloroethane, ethylbenzene, total xylenes, and naphthalene) that exceeded subsurface soil Tier 2 SSTLs for Merritt Sands for ingestion of groundwater impacted by leachate (Table 4). However, well survey data for the Site vicinity shows shallow groundwater is not used as a drinking water source, and historical groundwater monitoring results show low to ND results for Chemicals of Concern. In addition, there is a minimum of five feet of clean soil between the three soil samples that exceed subsurface soil Tier 2 SSTLs for Merritt Sands for ingestion of groundwater impacted by leachate and groundwater. Therefore, these detections do not represent a significant threat to groundwater or public health.

Petroleum hydrocarbons are not listed in the Tier 2 SSTLs, therefore the ACEHS requested that the petroleum hydrocarbons be evaluated using the San Francisco Bay Area RWQCB established Environmental Screening Levels (ESL) for shallow soil (ACEHS, 2005, and RWQCB, 2001). URS evaluated the detected petroleum hydrocarbons using the RWQCB ESLs and results were provided in the November 29, 2006 correspondence. In addition, results are summarized below as follows; three soil samples collected during the February 2004 closure assessment exceeded the ESL of 100 mg/kg for TPHg (CB3-5 [645 mg/kg], CB8-5 [1,780 mg/kg], and CB10-10 [172 mg/kg]). However, there were no detections of TPHg in any of the deeper samples (10 and 15 feet bgs) collected above groundwater in borehole CB-3, and in one deeper sample (15 feet bgs) in boreholes CB-8 and CB-10. Therefore, these detections do not represent a significant threat to groundwater or public health.

In addition, one soil sample (SB01-15) collected during the December 2008 closure assessment exceeded the ELS of 100 mg/kg for TPHd, and one soil sample (CB5-10) collected during the February 2008 closure assessment exceeded the ELS of 100 mg/kg for TPHd and 1,000 mg/kg for TPHo. However, there were no detections of TPHd or TPHo in the one deeper sample (15 feet bgs) collected above groundwater in the CB5 borehole, and only a low concentration of 16 mg/kg, detected in the deeper sample (SB01-20) collected from SB01. Furthermore, TPHd has not been detected above the laboratory reporting limit in nearby wells MW-3 and EW-1 (located approximately 5 to 10 feet from boring SB01) since June 2002, or in nearby well MW-4 (located within 10 feet of boring CB-5) since June 2002, and TPHo has not been detected above the laboratory reporting limit in nearby well MW-4 since October 1999 (Appendix B). Therefore, these detections do not represent a significant threat to groundwater or public health.

## 8.0 DISCUSSION

Based on the analytical results for this and previous sampling events, the groundwater monitoring well network effectively defines the extent of dissolved phase hydrocarbons onsite. Nine consecutive sampling events has demonstrated that natural attenuation is still occurring, the impacted plume is stable (i.e., not migrating), and the plume size and concentrations are significantly reduced. In addition, there have been no measurable separate phase petroleum hydrocarbons in well MW-3 for approximately eight years (15 sampling events).

During the closure assessment conducted in February 2004 and December 2008, there were only three soil samples that contained concentrations of 1,1,2-trichloroethane, ethylbenzene, total xylenes, and naphthalene that exceeded the subsurface soil Tier 2 SSTLs for Merritt Sands for ingestion of groundwater impacted by leachate (Table 4). However:

- These chemicals of concern were not detected in the groundwater samples collected from nearby well MW-5 (Table 3).
- Deeper soil samples in each boring did not exceed the Tier 2 SSTLs, indicating that there is a minimum of 5 feet of clean soil between the soil samples that exceed subsurface soil Tier 2 SSTLs and groundwater.

In addition, four soil samples contained concentrations of TPHg, TPHd, or TPHo that exceeded the RWQCB ESLs for shallow soil (<3 meters). However:

- There have been no detections of TPHg in groundwater samples collected from adjacent well MW-2 since June 1996.
- TPHg concentrations detected in EW-1 and MW-3 exceeded the groundwater screening level of 100 µg/L (for groundwater that is a potential drinking water resource) in wells EW-1 and MW-3, but did not exceed the screening level of 500 µg/L (for groundwater that is not a potential drinking water resource). However, due to the low well production rates (<0.5 gpm) at the Site, the shallow aquifer is unlikely to be a viable drinking water source.
- TPHd or TPHo concentrations in groundwater samples collected from well MW-2, MW-3, and EW-1, have not been detected above their respective laboratory reporting limits since September 2002, (Appendix B).
- Historical analytical results since the second quarter of 1996 indicate that TPHg and benzene concentrations in groundwater have, in general, shown a reduction in concentration (Appendix B).
- Soil sampling in December 2008 adjacent to the well MW-3, where free product was detected historically (below ESLs except for one TPHd detection) showed only low level impacts indicating that no significant smear zone exists around the well. This indicated that free product is unlikely to return.

Based on the results of the Site closure assessment, and historical groundwater monitoring data, URS recommends that no further action be required in relation to historical releases from the removed USTs and fuel dispensing system at the Site.

# Annual Groundwater Monitoring and Site Closure Assessment

## 9.0 SCHEDULE

No additional work is scheduled for this Site at this time, pending a response from the ACEHS regarding the recommendation for Site closure.

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

Respectfully Submitted,

URS CORPORATION



Joseph R. Liles, PG, CHG.  
Project Geologist



Jerome R. Zimmerle, Jr., PE  
Principal Engineer

## 10.0 REFERENCES

- Alameda County Health Care Services, 2005. January 19, 2005 *Correspondence, Fuel Leak Case No. R00000480*, Sears Auto Center #1058, 2600 Telegraph Ave., Oakland Ca
- Alameda County Health Care Services, 2006. May 10, 2006 *Correspondence, Fuel Leak Case No. R00000480*, Sears Auto Center #1058, 2600 Telegraph Ave., Oakland Ca
- Alameda County Health Care Services, 2006. December 20, 2006 *Correspondence, Fuel Leak Case No. R00000480*, Sears Auto Center #1058, 2600 Telegraph Ave., Oakland Ca
- Alameda County Health Care Services, 2008. September 11, 2008 *Correspondence, Fuel Leak Case No. R00000480*, Sears Auto Center #1058, 2600 Telegraph Ave., Oakland Ca
- American Environmental Management Corporation, 1990. *Underground Storage Tank Removal Sears, Roebuck and Co., Oakland California*, Sears Auto Center # 1058, 2600 Telegraph Avenue, Oakland, California, October 12.
- American Environmental Management Corporation, 1991. *Soil Contamination Assessment Report, Sears, Roebuck and Co., Oakland California*, Sears Auto Center # 1058, 2600 Telegraph Avenue, Oakland, California, January 23.
- American Environmental Management Corporation, 1991. *Phase I Site Contamination Assessment Report and Phase II Investigation Workplan, Sears, Roebuck and Co., Oakland California*, Sears Auto Center # 1058, 2600 Telegraph Avenue, Oakland, California, August.
- California Regional Water Quality Control Board – San Francisco Bay Region Groundwater Committee (RWQCB), 1999. *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*. June 1999, 106p.
- California Regional Water Quality Control Board—San Francisco Bay Region Groundwater Committee (RWQCB), 1995. *Water Quality Control Plan*. June 1995.
- California Regional Water Quality Control Board—San Francisco Bay Region Groundwater Committee (RWQCB), 2001. *Application of Risk-Based Screening Levels and Decision Making to Sites With Impacted Soil and Groundwater*. December 2001.
- City of Oakland Public Works Agency, 2000. *Oakland Urban Land Redevelopment Program: Guidance Document*, January 1.
- Muir, Kenneth S., 1993. *Geologic Framework of the East Bay Plain Groundwater Basin, Alameda, California. Prepared for the Alameda County Flood Control and Water Conservation District*, August 1993.
- URS Corporation, 2004. *Work Plan Addendum #2, Former Sears Auto Center #1058B*, 2600 Telegraph Avenue, Oakland, California, For Sears, Roebuck & Co., January 22.
- URS Corporation, 2004. *2004 First Quarter Groundwater Monitoring and Site Closure Assessment, Former Sears Auto Center #1058B*, 2600 Telegraph Avenue, Oakland, California, For Sears, Roebuck & Co., June 2004.



## Annual Groundwater Monitoring and Site Closure Assessment

---

URS Corporation, 2006. *Response to Comments, Former Sears Auto Center #1058B*, 2600 Telegraph Avenue, Oakland, California, For Sears, Roebuck & Co., November 26.

URS Corporation, 2006. *Response to Comments, Former Sears Auto Center #1058B*, 2600 Telegraph Avenue, Oakland, California, For Sears, Roebuck & Co., August 26.

## **TABLES**

**Table 1**  
**Summary of Soil Analytical Results (December 2008)**  
**Former Sears Auto Center #1058B**  
**2600 Telegraph Avenue**  
**Oakland, California**

Sample No.	Sample Date	Sample Depth (ft bgs)	LABORATORY ANALYTICAL RESULTS																	
			TPH by EPA 8015M			Volatile Organics by EPA 8260B														Lead by EPA 6010B
			TPHg (mg/kg)	TPHd (mg/kg)	TPHo (mg/kg)	Benzene (µg/kg)	1,1,2-Trichloroethane (µg/kg)	Isopropylbenzene (µg/kg)	Toluene (µg/kg)	Ethylbenzene (µg/kg)	Total Xylenes (µg/kg)	n-Propylbenzene (µg/kg)	1,3,5-Trimethylbenzene (µg/kg)	tert-Butylbenzene (µg/kg)	1,2,4-Trimethylbenzene (µg/kg)	Sec-Butylbenzene (µg/kg)	p-Isopropyltoluene (µg/kg)	n-Butylbenzene (µg/kg)	Naphthalene (µg/kg)	Total Lead (mg/kg)
SB-01-5	12/23/2008	5	< 0.2	< 5	< 25	< 1	< 2	< 2	< 1	< 1	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	8.7
SB-01-10	12/23/2008	10	< 0.2	< 5	< 25	< 1	< 2	< 2	< 1	< 1	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	8.0
SB-01-15	12/23/2008	15	78.7	<b>187</b>	891	< 5	< 10	< 10	< 5	< 5	< 10	< 10	8.4J	< 10	6.2J	94.1	< 10	304	< 10	7.4
SB-01-20	12/23/2008	20	< 0.2	16	61	< 1	< 2	< 2	< 1	< 1	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	6.7
SB-02-10	12/23/2008	10	< 0.2	< 5	< 25	< 1	< 2	< 2	< 1	< 1	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	6.7
SB-02-15	12/23/2008	15	5.1	54	313	< 2	< 4	< 4	< 2	< 2	< 4	< 4	< 4	58.4	< 4	5.2J	< 4	6.2J	< 4	7.4
SB-02-20	12/23/2008	20	< 0.2	< 5	< 25	< 1	< 2	< 2	< 1	< 1	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	6.1
<b>Environmental Screening Level (ESL)</b>			100	100	1,000	44	70	NE	2,900	3,300	1,500	NE	NE	NE	NE	NE	NE	NE	NE	750

Notes:  
TPHg- Total Petroleum Hydrocarbons, gasoline range  
TPHd- Total Petroleum Hydrocarbons, diesel range  
TPHo- Total Petroleum Hydrocarbons, oil range  
(µg/kg) = micrograms per kilogram  
(mg/kg) = milligrams per kilogram

Environmental Screening Level (ESL) for Shallow Soils, San Francisco, RWQCB revised 9/4/03 (Summary Table A)  
Bold Values exceed the respective ESL  
NE - ESL Not Established  
ft bgs = feet below ground surface  
< = Analyte not detected at or above indicated method detection limit

**Table 2**  
**2008 Annual Groundwater Levels and Field Parameters**  
**Former Sears Auto Center #1058B**  
**2600 Telegraph Avenue**  
**Oakland, California**

Monitoring Well ID	Sample Date	Notes	Product Thickness (feet)	GROUNDWATER LEVELS				GROUNDWATER SAMPLING FIELD PARAMETERS				
				Depth to Groundwater (feet bgs)	Casing Elevation (MSL)	Groundwater Elevation (MSL)	Temperature (Celsius)	pH	Electrical Conductivity (µS/cm)	O.R.P. (mV)	Turbidity (NTU)	Dissolved Oxygen (mg/L)
MW-1	11/13/2008	--	0.0	11.02	26.19	15.17	23.44	6.29	610	31.5	9.6	0.44
MW-2	11/13/2008	--	0.0	10.62	26.41	15.79	23.20	6.42	732	51.9	18.3	1.06
MW-3	11/13/2008	--	0.0	12.00	26.23	14.23	21.55	6.58	815	-132.7	5.6	0.35
MW-4	11/13/2008	--	0.0	11.33	26.07	14.74	23.14	6.39	765	27.0	25.9	0.53
MW-5	11/13/2008	--	0.0	10.37	26.91	16.54	23.00	6.35	718	45.6	52.9	0.59
MW-6	11/13/2008	--	0.0	10.57	24.29	13.72	21.75	6.21	601	79.1	41.8	1.25
MW-7	11/13/2008	--	0.0	11.15	24.84	13.69	22.11	6.26	830	14.4	28.9	0.50
MW-8	11/13/2008	--	0.0	12.07	26.00	13.93	22.84	6.31	750	-40.6	26.8	0.54
MW-9	11/13/2008	--	0.0	11.94	24.67	12.73	21.23	6.52	743	-66.9	10.5	0.60
EW-1	11/13/2008	--	0.0	12.22	26.39	14.17	21.75	6.57	881	-135.7	3.5	0.36

Notes: MSL - Mean Sea Level  
bgs - below ground surface  
Groundwater Elevation reference to MSL  
Groundwater Elevation = Casing Elevation - Depth to Groundwater.  
NA - Not analyzed/Not available.

µS/cm - microSiemens per centimeter  
mV - millivolt  
mg/L - milligrams per liter  
NTU - nephelometric turbidity units  
O.R.P. - Oxidation Reduction Potential

**Table 3**  
**2008 Annual Groundwater Analytical Results**  
**Former Sears Auto Center #1058B**  
**2600 Telegraph Avenue**  
**Oakland, California**

Monitoring Well ID	Sample Date	Notes	TPH (EPA Method 8015M)			Volatile Organics (EPA Method 8260B)											
			TPHg (µg/L)	TPHd (µg/L)	TPHo (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	ETBE (µg/L)	DIPE (µg/L)	TAME (µg/L)	TBA (µg/L)	EDB (µg/L)	EDC (µg/L)	Ethanol (µg/L)
MW-1	11/14/2008	1	< 50	< 500	< 2000	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 0.5	< 250
MW-2	11/13/2008	1	< 50	< 500	< 2000	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 0.5	< 250
MW-3	11/14/2008	1	<b>191</b>	< 500	< 2000	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 0.5	< 250
MW-4	11/13/2008	1	< 50	< 500	< 2000	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 0.5	< 250
MW-5	11/13/2008	1	< 50	< 500	< 2000	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 0.5	< 250
MW-6	11/13/2008	1	< 50	< 500	< 2000	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 0.5	< 250
MW-7	11/13/2008	1	< 50	< 500	< 2000	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 0.5	< 250
MW-8	11/13/2008	1	< 50	< 500	< 2000	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 0.5	< 250
MW-9	11/14/2008	1	< 50	< 500	< 2000	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 0.5	< 250
EW-1	11/14/2008	1	<b>406</b>	< 500	< 2000	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 0.5	< 250
EW-1	11/14/2008	1,2	<b>394</b>	< 500	< 2000	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 0.5	< 250
<b>Environmental Screening Level (ESL)</b>	3	100	100	100	1	40	30	20	5	NE	NE	NE	12	0.05	0.5	50,000	
	4	500	640	640	46	130	290	100	1,800	NE	NE	NE	18,000	150	200	50,000	

Notes: 1. "Post-purge" sample  
2. Duplicate sample analysis.  
3. Groundwater Screening Levels (groundwater is a current or potential drinking water resource)  
4. Groundwater Screening Levels (groundwater is NOT current or potential drinking water resource)  
NE - ESL Not Established  
Detected concentrations are depicted in bold  
< - Analytical result less than the method detection limit indicated.  
µg/L - micrograms per liter  
ESL - Environmental Screening Level (ESL) for groundwater, San Francisco, RWQCB interim final (February 2005)

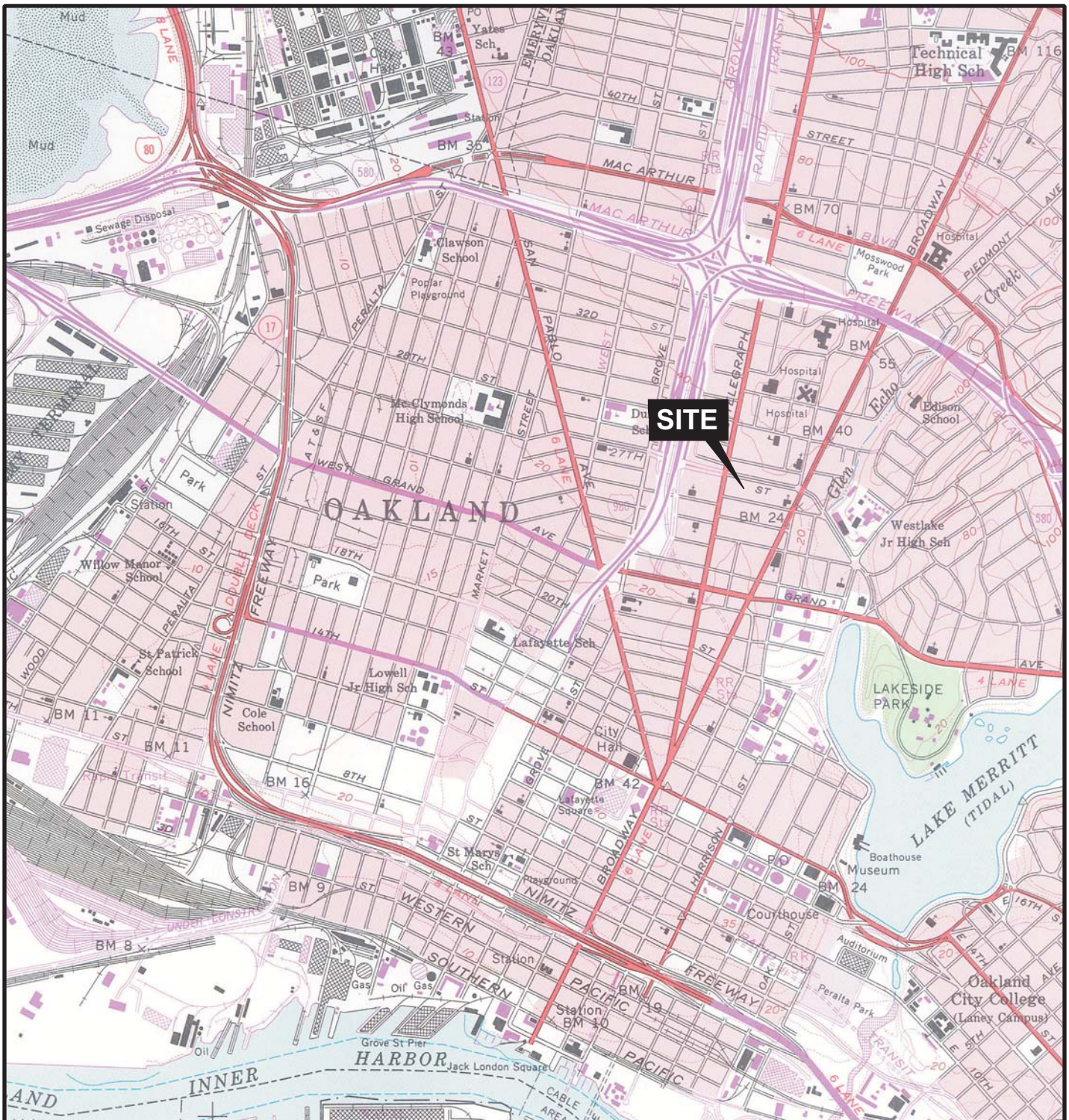
TPHg - Total Petroleum Hydrocarbons as gasoline range hydrocarbons by EPA Method 8015 (modified).  
TPHd - Total Petroleum Hydrocarbons as diesel range hydrocarbons by EPA Method 8015 (modified).  
TPHo - Total Petroleum Hydrocarbons as oil range hydrocarbons by EPA Method 8015 (modified)  
MTBE - Methyl Tertiary Butyl Ether  
DIPE - Di-isopropyl Ether  
TAME - Tertiary Amyl Methyl Ether  
TBA - Tertiary Butyl Alcohol  
ETBE - Ethyl Tertiary Butyl Ether  
EDB - 1,2-Dibromoethane  
EDC - 1,2-Dichloroethane

**Table 4**  
**Oakland Specific ULR Tier 2 SSTLs for Soil**  
**Former Sears Auto Center #1058B**  
**2600 Telegraph Avenue**  
**Oakland, California**

	Detected Concentration (mg/kg)	Location and Depth	Oakland-Specific Tier 2 SSTLs for Merritt Sands (mg/kg)											
			Inhalation of Indoor Air Vapors				Inhalation of Outdoor Air Vapors				Ingestion of Groundwater Impacted by Leachate			
			Residential		Commercial/ Industrial		Residential		Commercial/ Industrial		Residential		Commercial/ Industrial	
			Carcinogenic	Hazard	Carcinogenic	Hazard	Carcinogenic	Hazard	Carcinogenic	Hazard	Carcinogenic	Hazard	Carcinogenic	Hazard
<b>Benzene</b>	0.0058	CB7-20	0.7	2.3	11	67	3.9	16	15	91	0.01	0.01	0.01	0.01
<b>1,1,2-Trichloroethane</b>	0.102	CB1-10	5.6	32	90	920	32	210	120	1200	0.043	0.043	0.043	0.043
	0.394	CB10-10	5.6	32	90	920	32	210	120	1200	0.043	0.043	0.043	0.043
<b>Toluene</b>	0.0116	CB1-10		370		SAT		SAT		SAT	4.2	4.2	4.2	4.2
	0.0073	CB7-20		370		SAT		SAT		SAT	4.2	4.2	4.2	4.2
	1.63	CB8-5		370		SAT		SAT		SAT	4.2	4.2	4.2	4.2
<b>Ethylbenzene</b>	0.0214	CB1-10		SAT		SAT		SAT		SAT	38	38	38	38
	3.07	CB3-5		SAT		SAT		SAT		SAT	38	38	38	38
	39	CB8-5		SAT		SAT		SAT		SAT	38	38	38	38
	0.129	CB8-10		SAT		SAT		SAT		SAT	38	38	38	38
	0.34	CB13-10		SAT		SAT		SAT		SAT	38	38	38	38
<b>Total Xylenes</b>	0.022	CB1-10		SAT		SAT		SAT		SAT	64	64	64	64
	2.89	CB3-5		SAT		SAT		SAT		SAT	b	64	64	64
	0.0184	CB7-20		SAT		SAT		SAT		SAT	64	64	64	64
	160	CB8-5		SAT		SAT		SAT		SAT	64	64	64	64
	0.14	CB13-10		SAT		SAT		SAT		SAT	64	64	64	64
<b>Naphthalene</b>	0.0106	CB1-5		SAT		SAT		SAT		SAT	5.8	5.8	5.8	5.8
	0.0436	CB1-10		SAT		SAT		SAT		SAT	5.8	5.8	5.8	5.8
	0.0076	CB2-5		SAT		SAT		SAT		SAT	5.8	5.8	5.8	5.8
	3.8	CB3-5		SAT		SAT		SAT		SAT	5.8	5.8	5.8	5.8
	0.033	CB4-5		SAT		SAT		SAT		SAT	5.8	5.8	5.8	5.8
	0.0058	CB4-10		SAT		SAT		SAT		SAT	5.8	5.8	5.8	5.8
	0.363	CB5-10		SAT		SAT		SAT		SAT	5.8	5.8	5.8	5.8
	20.2	CB8-5		SAT		SAT		SAT		SAT	5.8	5.8	5.8	5.8
	0.204	CB8-10		SAT		SAT		SAT		SAT	5.8	5.8	5.8	5.8
	0.18	CB10-10		SAT		SAT		SAT		SAT	5.8	5.8	5.8	5.8
	0.0114	CB11-15		SAT		SAT		SAT		SAT	5.8	5.8	5.8	5.8
	0.135	CB13-10		SAT		SAT		SAT		SAT	5.8	5.8	5.8	5.8
	0.005	CB13-20		SAT		SAT		SAT		SAT	5.8	5.8	5.8	5.8

SAT = RBSL exceeds saturated soil concentration of chemical  
mg/Kg = milligrams per kilogram

## FIGURES



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

**FIGURE 1**  
**VICINITY MAP**  
 FORMER SEARS AUTO CENTER #1058B  
 2600 TELEGRAPH AVENUE  
 OAKLAND, CALIFORNIA  
 For Sears Holdings Management Corporation



Scale in Miles

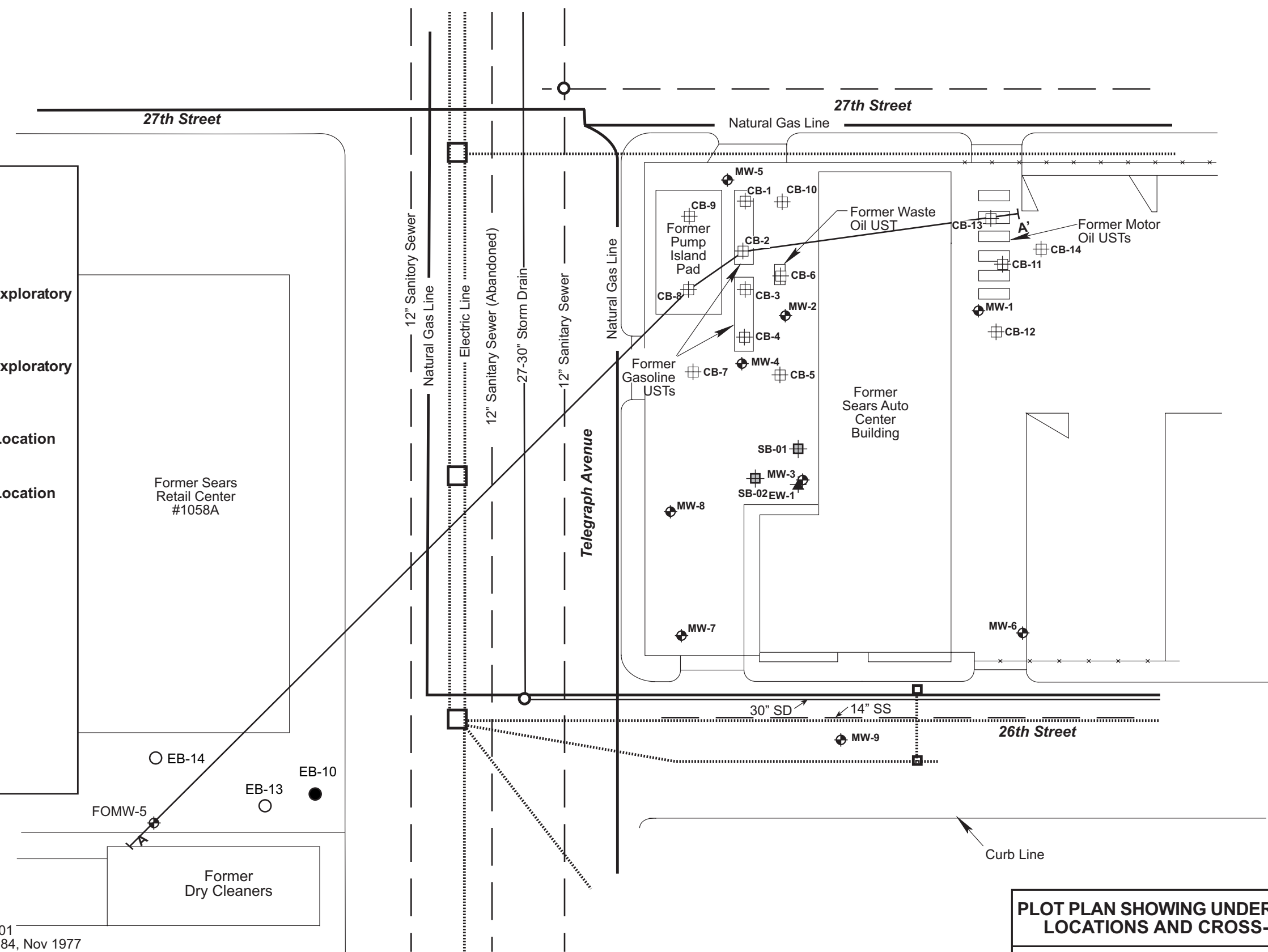




G:\128\Sears\_128\Oakland\2600 Telegraph Ave\2008\Figures\plot plan sears 1058.fn 11 2/09

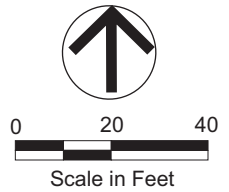
**LEGEND**

- MW-8 Monitoring Well Location
- EW-1 Extraction Well Location
- Approximate Location of Exploratory Boring (Secor, Nov. 1998)
- Approximate Location of Exploratory Boring (Lowney, May 1998)
- ⊕ Confirmation Soil Boring Location (URS, 2004)
- ⊕ Confirmation Soil Boring Location (URS, 2008)
- x—x— Chain Link Fence
- - - Sanitary Sewer
- Natural Gas Line
- ⋯ Electric Line
- Storm Drain
- Manhole (Electric)
- Manhole (Storm Drain)



**References**

- East Bay Municipal Utility Map 1488B484, Aug 2001
- Oakland Building Department Sewer Map 1488B484, Nov 1977
- Oakland Building Department Sewer Map 1488B482, Nov 1977
- Pacific Gas and Electric Utility Map F-5-17
- Pacific Gas and Electric Utility Map A-30152
- Site Reconnaissance by URS Feb 17-18, 2004
- Underground Service Alert Field Meeting Feb 17-18, 2004



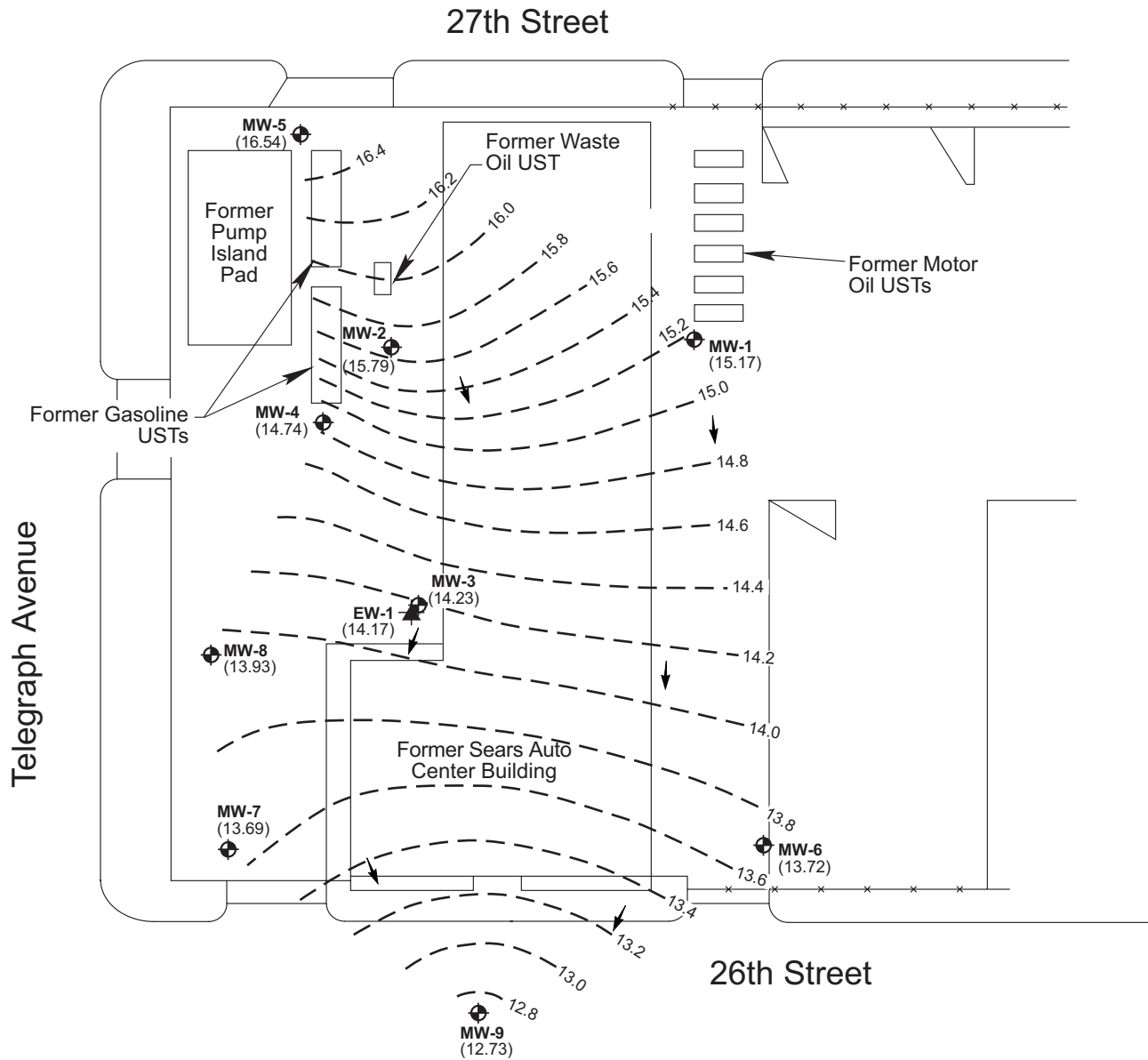
**PLOT PLAN SHOWING UNDERGROUND UTILITY LOCATIONS AND CROSS-SECTION LINE**

Project: Sears Auto Center #1058,  
2600 Telegraph Avenue, Oakland, CA




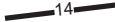

Project No.: 29863494

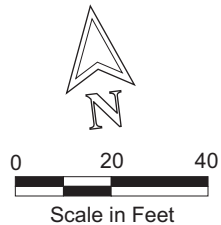
Figure 2



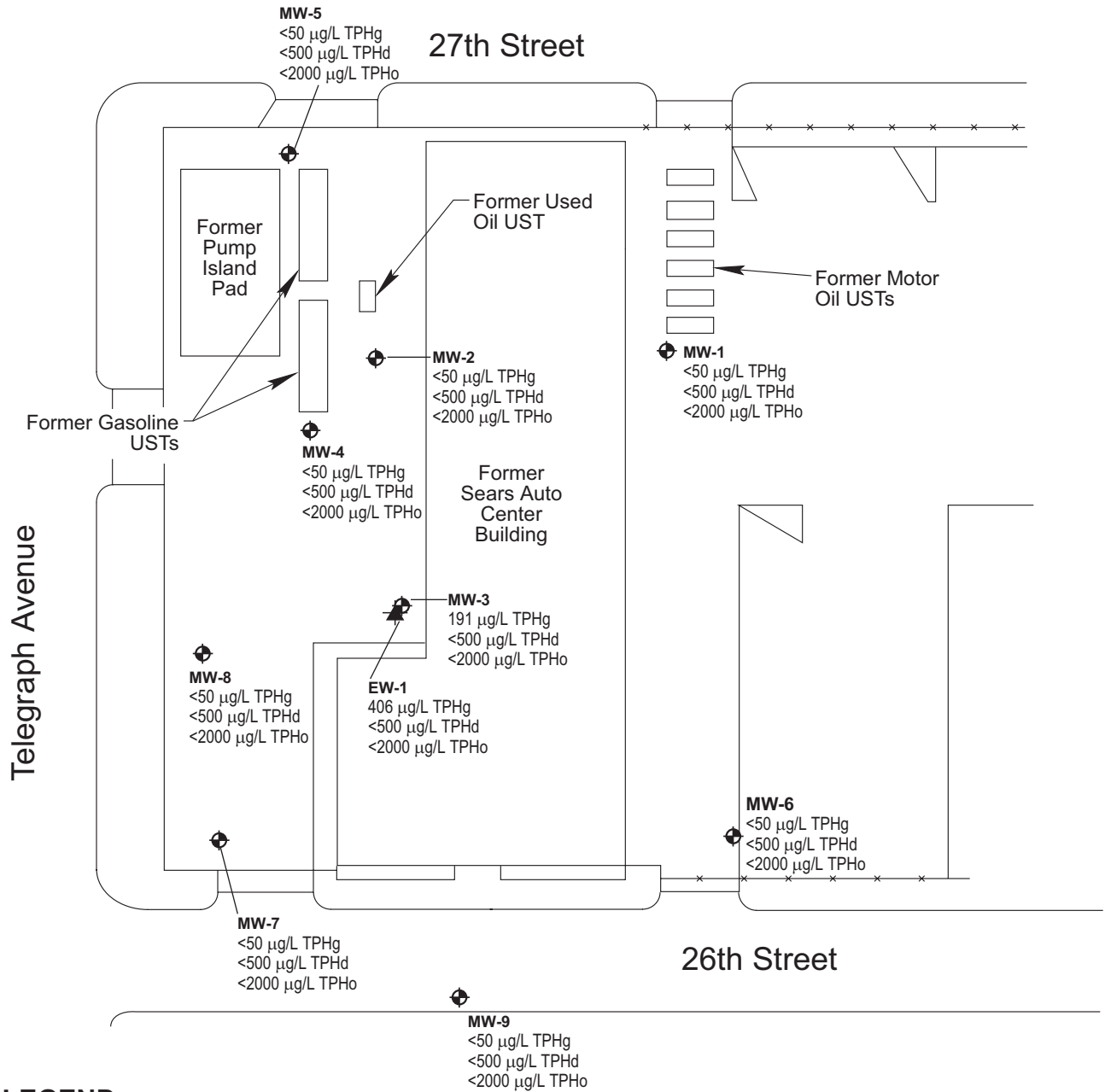


**LEGEND**




-  **MW-8** (13.93) MONITORING WELL LOCATION AND GROUNDWATER POTENTIOMETRIC ELEVATION
-  **EW-1** EXTRACTION WELL LOCATION
-  CHAIN LINK FENCE
-  **14** GROUNDWATER ELEVATION CONTOUR (MSL)
-  GROUNDWATER FLOW VECTOR

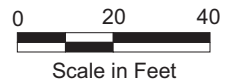


<b>GROUNDWATER CONTOUR MAP 2008 ANNUAL GROUNDWATER MONITORING</b>	
Project: Sears Auto Center #1058B, 2600 Telegraph Avenue, Oakland, CA	
Project No.: 29863494	Figure 3
Date Measured: NOVEMBER 13, 2008	

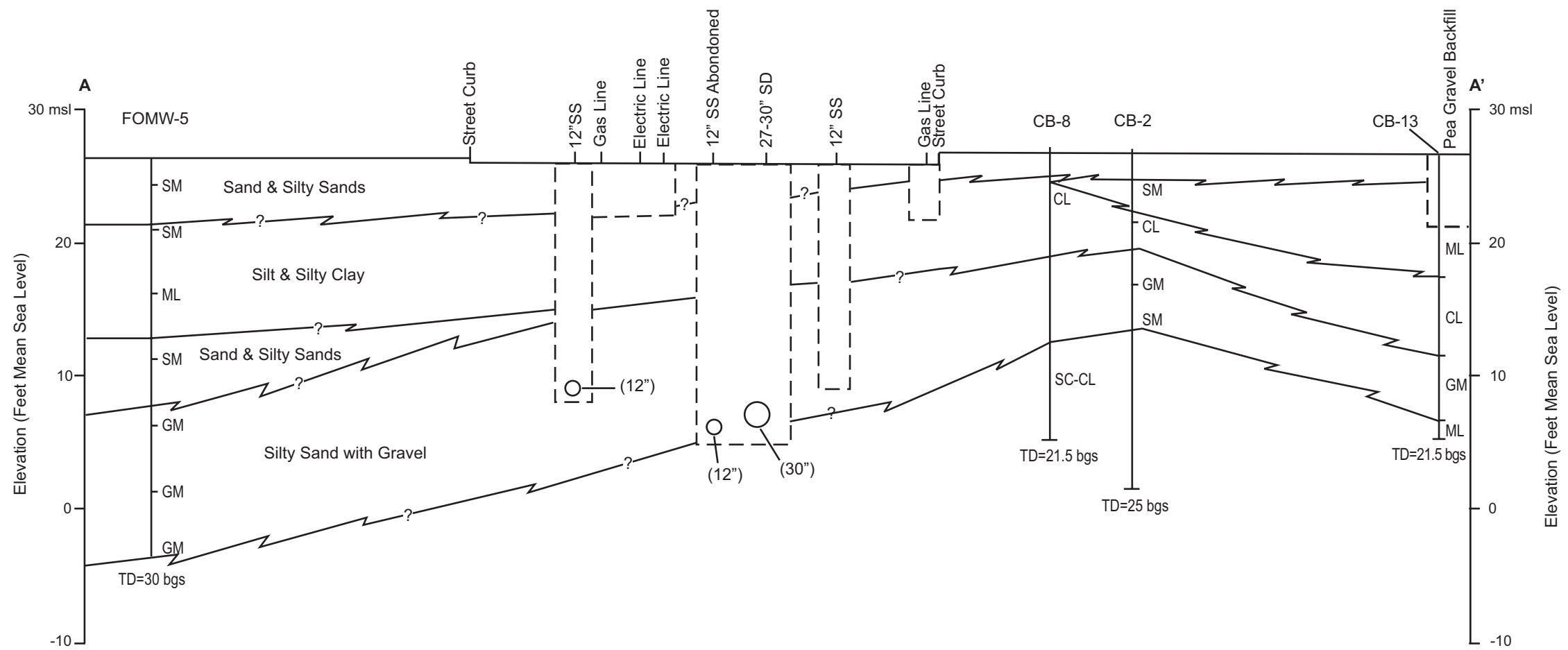


**LEGEND**

-  **MW-8** MONITORING WELL LOCATION
-  **EW-1** EXTRACTION WELL LOCATION
-  CHAIN LINK FENCE
- TPHg** TOTAL PETROLEUM HYDROCARBONS GASOLINE RANGE
- TPHd** TOTAL PETROLEUM HYDROCARBONS DIESEL FUEL RANGE
- TPHo** TOTAL PETROLEUM HYDROCARBONS MOTOR OIL RANGE
- µg/L** MICROGRAMS PER LITER



<b>TPH CONCENTRATION MAP 2008 ANNUAL GROUNDWATER MONITORING</b>	
Project: Sears Auto Center #1058B, 2600 Telegraph Avenue, Oakland, CA	
Project No.: 29863494	Figure 4
Sample Date: NOVEMBER 13-14, 2008	



**LEGEND**

- bgs Below Ground Surface
- TD Total Depth
- ≡ Groundwater Well Screen Interval
- SM USCS Soil Classification
- [ ] Approximate Limits of Trenching
- Underground Piping
- | SM Confirmed Boring with USCS Classification
- ? Inferred Contact

Horizontal Scale: 1" = 40'  
 Vertical Scale: 1" = 10'

**References**

East Bay Municipal Utility Map 1488B484, Aug 2001  
 Oakland Building Department Sewer Map 1488B484, Nov 1977  
 Oakland Building Department Sewer Map 1488B482, Nov 1977  
 Pacific Gas and Electric Utility Map F-5-17  
 Pacific Gas and Electric Utility Map A-30152  
 Site Reconnaissance by URS Feb 17-18, 2004  
 Underground Service Alert Field Meeting Feb 17-18, 2004

**GEOLOGIC CROSS SECTION A-A' SHOWING UNDERGROUND UTILITY LOCATIONS**

Project: FORMER SEARS AUTO CENTER #1058B  
 2600 TELEGRAPH AVE., OAKLAND, CA

Project No.: 29863494

Drill Dates: Feb. 17-18, 2004

Figure 5

**APPENDIX A**  
**ACEHS CORRESPONDENCE**



ENVIRONMENTAL HEALTH SERVICES  
ENVIRONMENTAL PROTECTION  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577  
(510) 567-6700  
FAX (510) 337-9335

September 11, 2008

Mr. Bruce Kaye  
Sears, Roebuck and Co.  
3333 Beverly Road, Dept. 824  
Hoffman Estates, IL 60179

Subject: Fuel Leak Case No. RO0000480 and Geotracker Global ID T06019793739, Sears Auto Center, 2600 Telegraph Avenue, Oakland, CA 94612

Dear Mr. Kaye:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the recently submitted document entitled, "Response to Comments," dated December 20, 2006, which was prepared by URS Corporation (URS) for the subject site. To address concerns outlined in our May 10, 2006 correspondence, URS proposes to install two borings in the vicinity of monitoring well MW-3 to obtain current data and address the data gap and conduct a Tier 2 or Tier 3 Risk-Based Corrective Action evaluation.

ACEH generally concurs with the proposed scope of work and requests that you address the following technical comments, perform the proposed work, and send us the technical reports described below.

#### **TECHNICAL COMMENTS**

1. **Groundwater Contaminant Plume Monitoring** – The most recent groundwater sampling event was conducted in February 2004. The reported laboratory analytical detection limits during that groundwater monitoring event were significantly elevated, above the respective Environmental Screening Levels (ESLs) for that chemical of concern. Therefore, it is difficult to determine whether the chemical of concern is present at a concentration that may require additional evaluation. At this time, please conduct one round of groundwater sampling not only to obtain current data, but to obtain laboratory detection limits below the ESLs or site-specific calculated Risk-Based Screening Levels. Please conduct the groundwater sampling and submit the results in the report due by the date specified below.

Based on the results of the pending subsurface investigation and justification that no additional data gaps exists and the site no longer poses a risk to human health or the environment, the Site can be reviewed for Case Closure.

#### **TECHNICAL REPORT REQUEST**

Please submit technical reports to Alameda County Environmental Health (Attention: Paresh Khatri), according to the following schedule:

- **December 10, 2008** – Soil and Water Investigation Report with Groundwater Monitoring

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

#### ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements ([http://www.swrcb.ca.gov/ust/electronic\\_submittal/report\\_rqmts.shtml](http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml)).

#### PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

#### PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature,

Mr. Kaye  
RO0000480  
September 11, 2008, Page 3

and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

**UNDERGROUND STORAGE TANK CLEANUP FUND**


Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

**AGENCY OVERSIGHT**

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.

If you have any questions, please call me at (510) 777-2478 or send me an electronic mail message at [paresh.khatri@acgov.org](mailto:paresh.khatri@acgov.org).

Sincerely,



Paresh C. Khatri  
Hazardous Materials Specialist



Donna L. Drogos, PE  
Supervising Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Joseph R. Liles, URS Corporation, 2020 East First Street, Suite 400, Santa Ana, CA 92705  
Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA  
94612-2032  
Donna Drogos, ACEH  
Paresh Khatri, ACEH  
File



<b>Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)</b>	<b>ISSUE DATE:</b> July 5, 2005
	<b>REVISION DATE:</b> December 16, 2005
	<b>PREVIOUS REVISIONS:</b> October 31, 2005
<b>SECTION:</b> Miscellaneous Administrative Topics & Procedures	<b>SUBJECT:</b> Electronic Report Upload (ftp) Instructions

Effective **January 31, 2006**, the Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

#### REQUIREMENTS

- Entire report including cover letter must be submitted to the ftp site as a **single portable document format (PDF) with no password protection**. (Please do not submit reports as attachments to electronic mail.)
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements **must** be included and have either original or electronic signature.
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted.**
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:  
RO#\_Report Name\_Year-Month-Date (e.g., RO#5555\_WorkPlan\_2005-06-14)

#### Additional Recommendations

- A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in **Excel** format. These are for use by assigned Caseworker only.

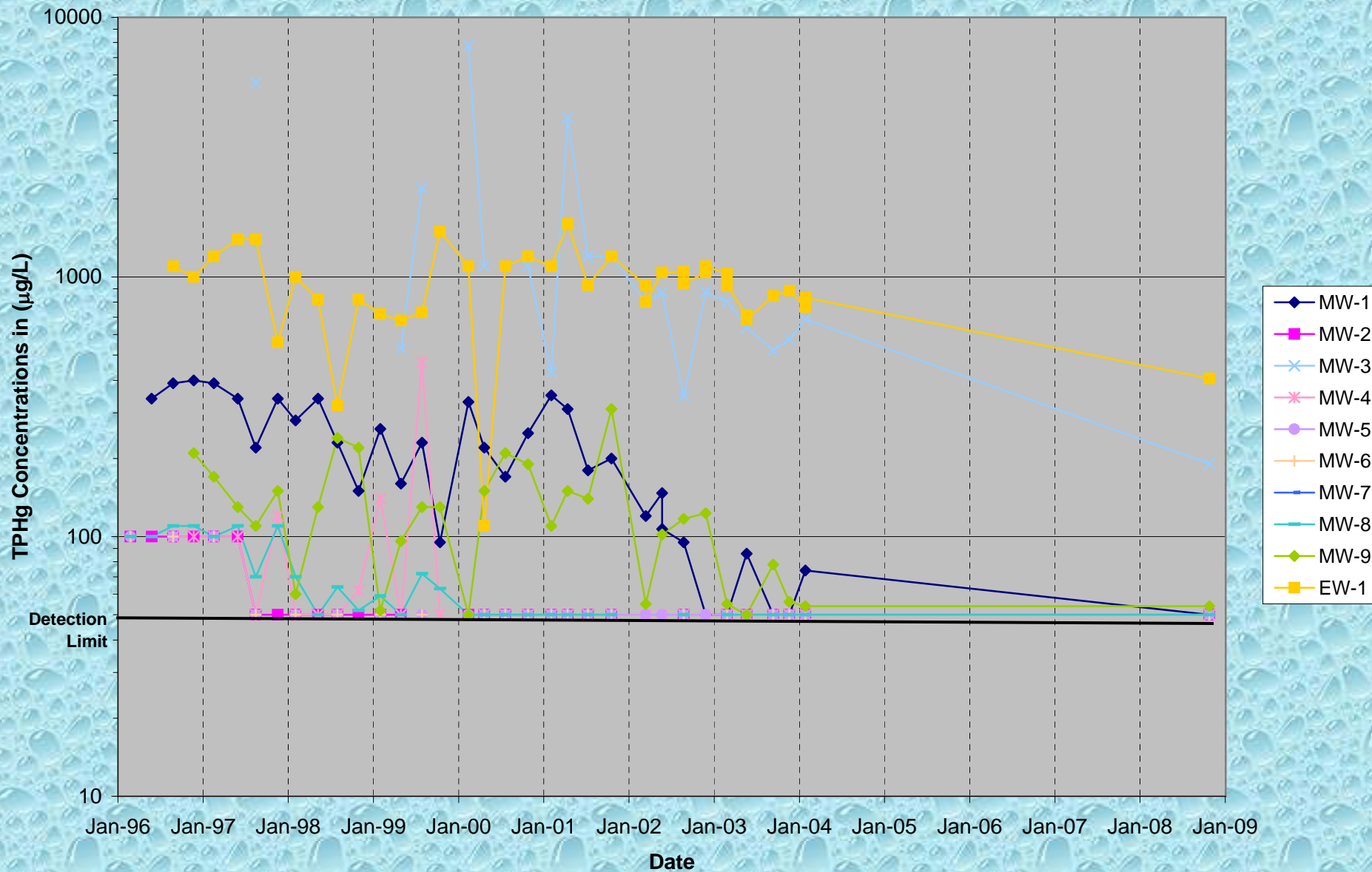
#### Submission Instructions

- 1) Obtain User Name and Password:
  - a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
    - i) Send an e-mail to [dehloptoxic@acgov.org](mailto:dehloptoxic@acgov.org)  
or
    - ii) Send a fax on company letterhead to (510) 337-9335, to the attention of Alicia Lam-Finneke.
  - b) In the subject line of your request, be sure to include "**ftp PASSWORD REQUEST**" and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.
- 2) Upload Files to the ftp Site
  - a) Using Internet Explorer (IE4+), go to <ftp://alcoftp1.acgov.org>
    - (i) Note: Netscape and Firefox browsers will not open the FTP site.
  - b) Click on File, then on Login As.
  - c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
  - d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
  - e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- 3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
  - a) Send email to [dehloptoxic@acgov.org](mailto:dehloptoxic@acgov.org) notify us that you have placed a report on our ftp site.
  - b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name at acgov.org. (e.g., [firstname.lastname@acgov.org](mailto:firstname.lastname@acgov.org))
  - c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload)

**APPENDIX B**  
**HISTORICAL GROUNDWATER MONITORING RESULTS**

# Historical TPHg Concentrations in Groundwater Monitoring Wells

Sears Auto Center #1058B - Oakland, California























**Appendix B**  
**Historical Groundwater Monitoring Results**  
**Former Sears Auto Center No. 1058B**  
**2600 Telegraph Avenue**  
**Oakland, California**

Well ID	Notes	Sample Period	GROUNDWATER LEVELS						LABORATORY ANALYTICAL RESULTS								
			Depth to Groundwater (ft bgs)	Depth to Product (ft bgs)	Stand Prod Thickness (ft)	Casing Elevation (ft MSL)	Groundwater Elevation (ft MSL)	TPH <sub>g</sub> (µg/L)	TPH <sub>d</sub> (µg/L)	TPH <sub>o</sub> (µg/L)	TRPH (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	Dissolved Metals
EW-1	2	02/12/04	11.94	--	0.00	26.39	14.45	766	< 500	< 2,000	---	< 1	< 1	< 1	< 2	< 2	---
EW-1	2,3	02/12/04	11.94	--	0.00	26.39	14.45	833	< 500	< 2,000	---	< 1	< 1	< 1	< 2	< 2	---
EW-1	2,3	11/13/08	12.22	--	0.00	26.39	14.17	406	< 500	< 2,000	---	< 0.5	< 0.5	< 0.5	< 1	< 1	---
EW-1	2,3	11/13/08	12.22	--	0.00	26.39	14.17	94	< 500	< 2,000	---	< 0.5	< 0.5	< 0.5	< 1	< 1	---

Notes: 1. "Pre-purge" sample (well not purged prior to sampling).  
2. "Post-purge" sample  
3. Duplicate sample analysis.  
4. Well inaccessible during sampling event and not sampled.  
5. Groundwater well not sampled  
-- = Either not present or not measured.  
sheen = Product sheen observed in field.  
SPH = Separate phase hydrocarbons  
ND = Non-detectable (Detection limits for each metal are listed in laboratory reports.)  
µg/l = Micrograms per liter  
mg/l = Milligrams per liter  
\* = Water samples were not filtered; analytical results represent total metals present, not dissolved concentrations.  
\*\* = Uncategorized hydrocarbon compound not included in this hydrocarbon concentration.  
\*\*\* = The carbon ranges reported under the TPH oil range analyses may have varied over the monitoring period

BTEX = Volatile aromatic constituents Benzene, Toluene, Ethylbenzene, and Xylenes by EPA Method 8020/8021B or 8260B  
TPH<sub>g</sub> = Total Petroleum Hydrocarbons as gasoline range hydrocarbons by EPA Method 8015 (modified)  
TPH<sub>d</sub> = Total Petroleum Hydrocarbons as diesel range hydrocarbons by EPA Method 8015 (modified)  
TPH<sub>o</sub> = Total Petroleum Hydrocarbons as oil range by EPA Method 8015 (modified)  
TRPH = Total Recoverable Petroleum Hydrocarbons by EPA Method 418.1  
MTBE = Methyl Tertiary Butyl Ether by CA LUFT/EPA Method 8021B/8260B  
< = Analytical result less than the detection limit indicated.  
-- = Either not sampled and/or not tested for given parameter  
J = Analyte detection is less than the Reporting Limit and greater than or equal to the Method Detection Limit  
a = Dissolved lead  
b = Dissolved lead only analyte detected  
c = Dissolved lead, cadmium, total chromium, nickel, and zinc  
d = Cadmium only analyte detected  
e = Hydrocarbon pattern not characteristic of motor oil  
f = Uncategorized compounds included in concentration  
z = Zinc only analyte detected  
h = Chromium only analyte detected  
i = Duplicate sample result from EPA Method 8260A

**APPENDIX C**  
**SOIL BORING LOGS**

Project: Former Sears Auto Center #1058B  
 Project Location: 2600 Telegraph Avenue, Oakland, CA  
 Project Number: 25363494

## Log of Boring SB-01

Sheet 1 of 1

Date(s) Drilled	12/23/08	Logged By	J. Henry	Checked By	J. Liles
Drilling Method	Direct Push	Drilling Contractor	Gregg Drilling	Total Depth of Borehole (feet)	20.0
Drill Rig Type	MARL 25	Borehole Diameter (inches)	2 1/4"	Approx. Surface Elevation (feet msl)	
Approximate Depth to Groundwater (ft bgs)	13 feet bgs	Sampler Type	Macrocore	Borehole Backfill	
Comments					

Elevation, feet MSL	Depth, feet	SAMPLES			MATERIAL DESCRIPTION	PID Headspace (ppm)	PID Background (ppm)	Sample Time	REMARKS
		Type	Number	Inches Recovered					
0					Asphalt Dark olive brown (2.5Y 3/3), Silty CLAY (CL), soft, dry, trace fine sand Increased silt, becomes black (2.5Y 2.5/1) Decreased silt, becomes dark olive brown (2.5Y 3/3), trace fine sand				Hand augered to 5 feet bgs
	5		SB-01-5		Grayish brown (2.5Y 5/2), Silty CLAY to Clayey SILT (CL-ML), firm, moist, trace fine sand	4.4		0800	
	10		SB-01-10			4.4		0820	
	15		SB-01-15		Very dark greenish gray (GLE Y 1 3/10Y), Silty CLAY (CL), firm, moist, trace fine sand Very dark greenish gray (GLE Y 1 3/10Y), Clayey fine GRAVEL with fine to coarse Sand (GC), dense, moist to wet, slight unusual odor, angular	100		0840	
	20		SB-01-20		Very dark greenish gray (GLE Y 1 3/10Y), Silty fine to medium SAND (SM), dense, moist, trace fine gravel Becomes saturated from 17 - 17.5', hydrocarbon odor Becomes very dense, increase coarse sand and fine gravel Increased fine gravel	651		0900	
					Completed boring to 20 feet bgs.				
	25								
	30								

Project: Former Sears Auto Center #1058B  
 Project Location: 2600 Telegraph Avenue, Oakland, CA  
 Project Number: 25363494

## Log of Boring SB-02

Sheet 1 of 1

Date(s) Drilled	12/23/08	Logged By	J. Henry	Checked By	J. Liles
Drilling Method	Direct Push	Drilling Contractor	Gregg Drilling	Total Depth of Borehole (feet)	20.0
Drill Rig Type	MARL 25	Borehole Diameter (inches)	2 1/4"	Approx. Surface Elevation (feet msl)	
Approximate Depth to Groundwater (ft bgs)	2 feet bgs	Sampler Type	Macrocore	Borehole Backfill	
Comments					

Elevation, feet MSL	Depth, feet	SAMPLES			MATERIAL DESCRIPTION	PID Headspace (ppm)	PID Background (ppm)	Sample Time	REMARKS
		Type	Number	Inches Recovered					
0					Asphalt GRAVEL, wet, Fill				Hand augered to 5 feet bgs
					Light olive brown (2.5Y 5/6), Silty CLAY (CL), soft, moist to wet, ∇ trace fine sand				
					Light olive brown (2.5Y 5/6), Silty fine SAND (SM), dense, moist to wet, rust mottling				
10			SB-02-10		Light olive brown (2.5Y 5/6), Clayey SILT to Silty CLAY with fine Sand (CL-ML), firm, wet, trace medium sand, rust mottling	0.0		0945	
15			SB-02-15		Very dark greenish gray (GLEY 1 10Y 3/1), Silty fine SAND (SM), dense, wet, trace medium to coarse sand, slight hydrocarbon odor	39.6		1000	
					Becomes light olive brown (2.5Y 5/6), moist to wet				
20			SB-02-20		Completed boring to 20 feet bgs.	4.4		1010	
25									
30									



**APPENDIX D**  
**LABORATORY REPORT AND CHAIN-OF-CUSTODY**  
**DOCUMENTS FOR SOIL**



**Alpha Scientific Corporation**  
Environmental Laboratories

---

12-30-2008

Mr. Joe Liles  
URS Corporation  
2020 E. First Street, Suite 400  
Santa Ana, CA 92705

Project: Sears 1058B  
Project Site: 2600 Telegraph Ave., Oakland, CA  
Sample Date: 12-23-2008  
Lab Job No.: UR812114

Dear Mr. Liles:

Enclosed please find the analytical report for the sample(s) received by Alpha Scientific Corporation on 12-24-2008 and analyzed by the following EPA methods:

EPA 8015M (Gasoline, Diesel & Oil Range TPH)  
EPA 8260B (VOCs & Oxygenates by GC/MS)  
EPA 6010B (Total Lead)

All analyses have met the QA/QC criteria of this laboratory.

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

Alpha Scientific Corporation is a CA DHS certified laboratory (Certificate Number 2633). Thank you for giving us the opportunity to serve you. Please feel free to call me at (562) 809-8880 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.



# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
 Project: Sears 1058B  
 Project Site: 2600 Telegraph Ave., Oakland, CA  
 Matrix: Soil  
 Prepared Method for TPH-g: EPA 5035  
 Batch No. for TPH-g: GML24-GS1  
 Batch No. for TPH-d: EL29-DS1

Lab Job No.: UR812114  
 Date Sampled: 12-23-2008  
 Date Received: 12-24-2008  
 Date Prepared: 12-23-2008  
 Date Analyzed: 12-24-2008  
 Date Analyzed: 12-29-2008  
 Date Reported: 12-30-2008

**EPA 8015M (Gasoline, Diesel & Oil Range TPH)**  
**Reporting Unit: mg/kg (ppm)**

Sample ID	Lab ID	DF for TPH-g	C4-C12 (Gasoline Range)*	Surrog Rec.% (TPH-g)	DF for TPHd&o	C13-C23 (Diesel Range)	C24-C40 (Oil Range)	Surrog Rec.% (TPHd&o)
MDL			0.2			5	25	
PQL			0.5			10	50	
Method Blank		1	ND	99	1	ND	ND	88
SB-01-5'	UR812114-1	1	ND	98	1	ND	ND	118
SB-01-10'	UR812114-2	1	ND	96	1	ND	ND	110
SB-01-15'	UR812114-3	50	78.7	87	1	187	891	120
SB-01-20'	UR812114-4	1	ND	98	1	16	61	110
SB-02-10'	UR812114-5	1	ND	91	1	ND	ND	114
SB-02-15'	UR812114-6	2	5.1	106	1	54	313	88
SB-02-20'	UR812114-7	1	ND	96	1	ND	ND	94

\*Gasoline Range TPH result is obtained from purge and trap analysis using LUFT-GCMS Method.

MDL:Method Detection Limit;

DF:Dilution Factor (DF × PQL = Reporting Limit for the sample);

J:Trace Value, result is below DF × PQL but above DF × MDL.

Note:Surrogate recovery acceptance limits are 70-130%.

PQL: Practical Quantitation Limit;

ND: Not Detected (below DF × MDL);

NA: Not Analyzed

m: Matrix interference.



# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
 Project: Sears 1058B  
 Project Site: 2600 Telegraph Ave., Oakland, CA  
 Matrix: Water  
 Batch No.: EML29-GW1

Lab Job No.: UR812114  
 Date Sampled: 12-23-2008  
 Date Received: 12-24-2008  
 Date Analyzed: 12-29-2008  
 Date Reported: 12-30-2008

### TPH-Gasoline by LUFT GC/MS

Reporting Unit:  $\mu\text{g/L}$  (ppb)

Sample ID	Lab ID	DF	C4-C12 (Gasoline Range)*	Surrog Rec.% (TPH-g)
MDL			50	
PQL			100	
Method Blank		1	ND	89
EB-SB-02	UR812114-8	1	ND	87

\*Gasoline Range TPH result is obtained from purge and trap analysis using LUFT-GCMS Method.

MDL:Method Detection Limit;

DF:Dilution Factor ( $DF \times PQL = \text{Reporting Limit for the sample}$ );

J:Trace Value, result is below  $DF \times PQL$  but above  $DF \times MDL$ .

Note:Surrogate recovery acceptance limits are 70-130%.

PQL:Practical Quantitation Limit;

ND: Not Detected (below  $DF \times MDL$ );

NA:Not Analyzed



# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
Project: Sears 1058B

Lab Job No.: UR812114  
Matrix: Soil

Date Reported: 12-30-2008  
Date Sampled: 12-23-2008

**EPA 8260B (VOCs by GC/MS, Page 1 of 2) Reporting Unit: µg/kg (ppb)**

Date ANALYZED			12-24-08	12-24-08	12-24-08	12-24-08	12-24-08	12-24-08
DILUTION FACTOR			1	1	1	5	1	1
LAB SAMPLE I.D.				UR812114-1	UR812114-2	UR812114-3	UR812114-4	UR812114-5
CLIENT SAMPLE I.D.				SB-01-5'	SB-01-10'	SB-01-15'	SB-01-20'	SB-02-10'
COMPOUND	MDL	PQL	MB					
Dichlorodifluoromethane	2	5	ND	ND	ND	ND	ND	ND
Chloromethane	2	5	ND	ND	ND	ND	ND	ND
Vinyl Chloride	1	2	ND	ND	ND	ND	ND	ND
Bromomethane	2	5	ND	ND	ND	ND	ND	ND
Chloroethane	2	5	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	2	5	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	2	5	ND	ND	ND	ND	ND	ND
Iodomethane	2	5	ND	ND	ND	ND	ND	ND
Methylene Chloride	5	5	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	2	5	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	2	5	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	2	5	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	2	5	ND	ND	ND	ND	ND	ND
Bromochloromethane	2	5	ND	ND	ND	ND	ND	ND
Chloroform	2	5	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	1	5	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	2	5	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	1	5	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	2	5	ND	ND	ND	ND	ND	ND
Benzene	1	2	ND	ND	ND	ND	ND	ND
Trichloroethene	2	5	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	2	5	ND	ND	ND	ND	ND	ND
Bromodichloromethane	2	5	ND	ND	ND	ND	ND	ND
Dibromomethane	2	5	ND	ND	ND	ND	ND	ND
Trans-1,3-Dichloropropene	2	5	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	2	5	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	2	5	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	1	5	ND	ND	ND	ND	ND	ND
Dibromochloromethane	2	5	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	2	5	ND	ND	ND	ND	ND	ND
Bromoform	2	5	ND	ND	ND	ND	ND	ND
Isopropylbenzene	2	5	ND	ND	ND	ND	ND	ND
Bromobenzene	2	5	ND	ND	ND	ND	ND	ND
Toluene	1	2	ND	ND	ND	ND	ND	ND
Tetrachloroethene	2	4	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane(EDB)	2	5	ND	ND	ND	ND	ND	ND



# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
Project: Sears 1058B

Lab Job No.: UR812114  
Matrix: Soil

Date Reported: 12-30-2008  
Date Sampled: 12-23-2008

**EPA 8260B (VOCs by GC/MS, Page 2 of 2) Reporting Unit: ppb**

COMPOUND	MDL	PQL	MB	SB-01-5'	SB-01-10'	SB-01-15'	SB-01-20'	SB-02-10'
Chlorobenzene	2	5	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethan	2	5	ND	ND	ND	ND	ND	ND
Ethylbenzene	1	2	ND	ND	ND	ND	ND	ND
Total Xylenes	2	4	ND	ND	ND	ND	ND	ND
Styrene	2	5	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethan	2	5	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	2	5	ND	ND	ND	ND	ND	ND
n-Propylbenzene	2	5	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	2	5	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	2	5	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	2	5	ND	ND	ND	8.4J	ND	ND
tert-Butylbenzene	2	5	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	2	5	ND	ND	ND	6.2J	ND	ND
Sec-Butylbenzene	2	5	ND	ND	ND	94.1	ND	ND
1,3-Dichlorobenzene	2	5	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	2	5	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	2	5	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	2	5	ND	ND	ND	ND	ND	ND
n-Butylbenzene	2	5	ND	ND	ND	304*	ND	ND
1,2,4-Trichlorobenzene	2	5	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	2	5	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	2	5	ND	ND	ND	ND	ND	ND
Naphthalene	2	5	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	2	5	ND	ND	ND	ND	ND	ND
Acetone	50	100	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	35	50	ND	ND	ND	ND	ND	ND
Carbon disulfide	35	50	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	35	50	ND	ND	ND	ND	ND	ND
2-Hexanone	35	50	ND	ND	ND	ND	ND	ND
Vinyl Acetate	35	50	ND	ND	ND	ND	ND	ND
Ethanol	500	1000	ND	ND	ND	ND	ND	ND
MTBE	2	5	ND	ND	ND	ND	ND	ND
ETBE	2	5	ND	ND	ND	ND	ND	ND
DIPE	2	5	ND	ND	ND	ND	ND	ND
TAME	2	5	ND	ND	ND	ND	ND	ND
t-Butyl Alcohol	20	50	ND	ND	ND	ND	ND	ND
SURROGATE	Accept Limit%	%RC	%RC	%RC	%RC	%RC	%RC	%RC
Dibromofluoro-methane	79-126	90	97	89	94	98	93	
Toluene-d8	79-121	102	104	101	112	100	101	
Bromofluoro-benzene	71-131	107	105	103	112	105	98	

MDL=Method Detection Limit, PQL= Practical Quantitation Limit;DF=Dilution Factor (DF × PQL = Reporting Limit for the sample);

ND=Not Detected (below DF × MDL),J=Trace Value, result is below DF × PQL but above DF × MDL;

%RC=Percent Recovery; MB=Method Blank; \* obtained from a higher dilution analysis.

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



# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
Project: Sears 1058B

Lab Job No.: UR812114  
Matrix: Soil

Date Reported: 12-30-2008  
Date Sampled: 12-23-2008

**EPA 8260B (VOCs by GC/MS, Page 1 of 2) Reporting Unit: µg/kg (ppb)**

Date ANALYZED			12-24-08	12-24-08	12-24-08			
DILUTION FACTOR			1	2	1			
LAB SAMPLE I.D.				UR812114-6	UR812114-7			
CLIENT SAMPLE I.D.				SB-02-15'	SB-02-20'			
COMPOUND	MDL	PQL	MB					
Dichlorodifluoromethane	2	5	ND	ND	ND			
Chloromethane	2	5	ND	ND	ND			
Vinyl Chloride	1	2	ND	ND	ND			
Bromomethane	2	5	ND	ND	ND			
Chloroethane	2	5	ND	ND	ND			
Trichlorofluoromethane	2	5	ND	ND	ND			
1,1-Dichloroethene	2	5	ND	ND	ND			
Iodomethane	2	5	ND	ND	ND			
Methylene Chloride	5	5	ND	ND	ND			
trans-1,2-Dichloroethene	2	5	ND	ND	ND			
1,1-Dichloroethane	2	5	ND	ND	ND			
2,2-Dichloropropane	2	5	ND	ND	ND			
cis-1,2-Dichloroethene	2	5	ND	ND	ND			
Bromochloromethane	2	5	ND	ND	ND			
Chloroform	2	5	ND	ND	ND			
1,2-Dichloroethane	1	5	ND	ND	ND			
1,1,1-Trichloroethane	2	5	ND	ND	ND			
Carbon tetrachloride	1	5	ND	ND	ND			
1,1-Dichloropropene	2	5	ND	ND	ND			
Benzene	1	2	ND	ND	ND			
Trichloroethene	2	5	ND	ND	ND			
1,2-Dichloropropane	2	5	ND	ND	ND			
Bromodichloromethane	2	5	ND	ND	ND			
Dibromomethane	2	5	ND	ND	ND			
Trans-1,3-Dichloropropene	2	5	ND	ND	ND			
cis-1,3-Dichloropropene	2	5	ND	ND	ND			
1,1,2-Trichloroethane	2	5	ND	ND	ND			
1,3-Dichloropropane	1	5	ND	ND	ND			
Dibromochloromethane	2	5	ND	ND	ND			
2-Chloroethylvinyl ether	2	5	ND	ND	ND			
Bromoform	2	5	ND	ND	ND			
Isopropylbenzene	2	5	ND	ND	ND			
Bromobenzene	2	5	ND	ND	ND			
Toluene	1	2	ND	ND	ND			
Tetrachloroethene	2	4	ND	ND	ND			
1,2-Dibromoethane(EDB)	2	5	ND	ND	ND			



# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
Project: Sears 1058B

Lab Job No.: UR812114  
Matrix: Soil

Date Reported: 12-30-2008  
Date Sampled: 12-23-2008

**EPA 8260B (VOCs by GC/MS, Page 2 of 2) Reporting Unit: ppb**

COMPOUND	MDL	PQL	MB	SB-02-15'	SB-02-20'			
Chlorobenzene	2	5	ND	ND	ND			
1,1,1,2-Tetrachloroethan	2	5	ND	ND	ND			
Ethylbenzene	1	2	ND	ND	ND			
Total Xylenes	2	4	ND	ND	ND			
Styrene	2	5	ND	ND	ND			
1,1,2,2-Tetrachloroethan	2	5	ND	ND	ND			
1,2,3-Trichloropropane	2	5	ND	ND	ND			
n-Propylbenzene	2	5	ND	ND	ND			
2-Chlorotoluene	2	5	ND	ND	ND			
4-Chlorotoluene	2	5	ND	ND	ND			
1,3,5-Trimethylbenzene	2	5	ND	ND	ND			
tert-Butylbenzene	2	5	ND	58.4	ND			
1,2,4-Trimethylbenzene	2	5	ND	ND	ND			
Sec-Butylbenzene	2	5	ND	5.2J	ND			
1,3-Dichlorobenzene	2	5	ND	ND	ND			
p-Isopropyltoluene	2	5	ND	ND	ND			
1,4-Dichlorobenzene	2	5	ND	ND	ND			
1,2-Dichlorobenzene	2	5	ND	ND	ND			
n-Butylbenzene	2	5	ND	6.2J	ND			
1,2,4-Trichlorobenzene	2	5	ND	ND	ND			
1,2-Dibromo-3-Chloropropane	2	5	ND	ND	ND			
Hexachlorobutadiene	2	5	ND	ND	ND			
Naphthalene	2	5	ND	ND	ND			
1,2,3-Trichlorobenzene	2	5	ND	ND	ND			
Acetone	50	100	ND	ND	ND			
2-Butanone (MEK)	35	50	ND	ND	ND			
Carbon disulfide	35	50	ND	ND	ND			
4-Methyl-2-pentanone	35	50	ND	ND	ND			
2-Hexanone	35	50	ND	ND	ND			
Vinyl Acetate	35	50	ND	ND	ND			
Ethanol	500	1000	ND	ND	ND			
MTBE	2	5	ND	ND	ND			
ETBE	2	5	ND	ND	ND			
DIPE	2	5	ND	ND	ND			
TAME	2	5	ND	ND	ND			
t-Butyl Alcohol	20	50	ND	ND	ND			
SURROGATE	Accept Limit%	%RC	%RC	%RC				
Dibromofluoro-methane	79-126	90	93	90				
Toluene-d8	79-121	102	109	100				
Bromofluoro-benzene	71-131	107	117	103				

MDL=Method Detection Limit, PQL= Practical Quantitation Limit;DF=Dilution Factor (DF × PQL = Reporting Limit for the sample);

ND=Not Detected (below DF × MDL),J=Trace Value, result is below DF × PQL but above DF × MDL;

%RC=Percent Recovery; MB=Method Blank; \* obtained from a higher dilution analysis.

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





# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
Project: Sears 1058B

Lab Job No.: UR812114  
Matrix: Water

Date Reported: 12-30-2008  
Date Sampled: 12-23-2008

**EPA 8260B (VOCs by GC/MS, Page 1 of 2) Reporting Unit: µg/L(ppb)**

Date ANALYZED			12-29-08	12-29-08				
DILUTION FACTOR			1	1				
LAB SAMPLE I.D.				UR812114-8				
CLIENT SAMPLE I.D.				EB-SB-02				
COMPOUND	MDL	PQL	MB					
Dichlorodifluoromethane	1	5	ND	ND				
Chloromethane	1	5	ND	ND				
Vinyl Chloride	0.5	1	ND	ND				
Bromomethane	1	5	ND	ND				
Chloroethane	1	5	ND	ND				
Trichlorofluoromethane	1	5	ND	ND				
1,1-Dichloroethene	1	5	ND	ND				
Iodomethane	1	5	ND	ND				
Methylene Chloride	2	10	ND	ND				
trans-1,2-Dichloroethene	1	5	ND	ND				
1,1-Dichloroethane	1	5	ND	ND				
2,2-Dichloropropane	1	5	ND	ND				
cis-1,2-Dichloroethene	1	5	ND	ND				
Bromochloromethane	1	5	ND	ND				
Chloroform	1	5	ND	ND				
1,2-Dichloroethane	0.5	5	ND	ND				
1,1,1-Trichloroethane	1	5	ND	ND				
Carbon tetrachloride	0.5	5	ND	ND				
1,1-Dichloropropene	1	5	ND	ND				
Benzene	0.5	1	ND	ND				
Trichloroethene	1	2	ND	ND				
1,2-Dichloropropane	1	5	ND	ND				
Bromodichloromethane	1	5	ND	ND				
Dibromomethane	1	5	ND	ND				
Trans-1,3-Dichloropropene	1	5	ND	ND				
cis-1,3-Dichloropropene	1	5	ND	ND				
1,1,2-Trichloroethane	1	5	ND	ND				
1,3-Dichloropropane	0.5	5	ND	ND				
Dibromochloromethane	1	5	ND	ND				
2-Chloroethylvinyl ether	1	10	ND	ND				
Bromoform	1	5	ND	ND				
Isopropylbenzene	1	5	ND	ND				
Bromobenzene	1	5	ND	ND				
Toluene	0.5	1.0	ND	ND				
Tetrachloroethene	1	2	ND	ND				
1,2-Dibromoethane(EDB)	1	5	ND	ND				



# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
Project: Sears 1058B

Lab Job No.: UR812114  
Matrix: Water

Date Reported: 12-30-2008  
Date Sampled: 12-23-2008

**EPA 8260B (VOCs by GC/MS, Page 2 of 2) Reporting Unit: ppb**

COMPOUND	MDL	PQL	MB	EB-SB-02				
Chlorobenzene	1	5	ND	ND				
1,1,1,2-Tetrachloroethan	1	5	ND	ND				
Ethylbenzene	0.5	1	ND	ND				
Total Xylenes	1	2	ND	ND				
Styrene	1	5	ND	ND				
1,1,2,2-Tetrachloroethan	1	5	ND	ND				
1,2,3-Trichloropropane	1	5	ND	ND				
n-Propylbenzene	1	5	ND	ND				
2-Chlorotoluene	1	5	ND	ND				
4-Chlorotoluene	1	5	ND	ND				
1,3,5-Trimethylbenzene	1	2	ND	ND				
tert-Butylbenzene	1	5	ND	ND				
1,2,4-Trimethylbenzene	1	5	ND	ND				
Sec-Butylbenzene	1	5	ND	ND				
1,3-Dichlorobenzene	1	5	ND	ND				
p-Isopropyltoluene	1	5	ND	ND				
1,4-Dichlorobenzene	1	2	ND	ND				
1,2-Dichlorobenzene	1	2	ND	ND				
n-Butylbenzene	1	5	ND	ND				
1,2,4-Trichlorobenzene	1	5	ND	ND				
1,2-Dibromo-3-Chloropropane	1	5	ND	ND				
Hexachlorobutadiene	1	5	ND	ND				
Naphthalene	1	5	ND	ND				
1,2,3-Trichlorobenzene	1	5	ND	ND				
Acetone	25	50	ND	ND				
2-Butanone (MEK)	25	50	ND	ND				
Carbon disulfide	25	50	ND	ND				
4-Methyl-2-pentanone	25	50	ND	ND				
2-Hexanone	25	50	ND	ND				
Vinyl Acetate	25	50	ND	ND				
Ethanol	250	500	ND	ND				
MTBE	1	2	ND	ND				
ETBE	1	2	ND	ND				
DIPE	1	2	ND	ND				
TAME	1	2	ND	ND				
t-Butyl Alcohol	10	20	ND	ND				
SURROGATE	Accept Limit%	%RC	%RC					
Dibromofluoro-methane	79-126	120	107					
Toluene-d8	79-121	99	98					
Bromofluoro-benzene	71-131	88	86					

MDL=Method Detection Limit, PQL= Practical Quantitation Limit;DF=Dilution Factor (DF × PQL = Reporting Limit for the sample);

ND=Not Detected (below DF × MDL),J=Trace Value, result is below DF × PQL but above DF × MDL;

%RC=Percent Recovery; MB=Method Blank; \* obtained from a higher dilution analysis.

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



# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
Project: Sears 1058B  
Project Site: 2600 Telegraph Ave., Oakland, CA  
Matrix: Soil  
Digestion Method: EPA 3050B  
Batch No. for 6010B: 1226-MS1

Lab Job No.: UR812114  
Date Sampled: 12-23-2008  
Date Received: 12-24-2008  
Date Digested: 12-26-2008  
Date Analyzed: 12-26-2008  
Date Reported: 12-30-2008

**EPA 6010B for Total Lead**  
**Reporting Unit: mg/kg (ppm)**

Sample ID	Lab ID	Total Lead	Reporting Limit
Method Blank		ND	2
SB-01-5'	UR812114-1	8.7	2
SB-01-10'	UR812114-2	8.0	2
SB-01-15'	UR812114-3	7.4	2
SB-01-20'	UR812114-4	6.7	2
SB-02-10'	UR812114-5	6.7	2
SB-02-15'	UR812114-6	7.4	2
SB-02-20'	UR812114-7	6.1	2

ND: Not Detected (at the specified limit).



12-30-2008

**TPH-Gasoline  
Batch QA/QC Report**

Client: URS Corporation  
Project: Sears 1058B  
Matrix: Soil  
Batch No.: GML24-GS1

Lab Job No.: UR812114  
Lab Sample ID: UR812113-2  
Date Analyzed: 12-24-2008

**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	929	860	92.9	86.0	7.7	30	70-130

**II. LCS Result  
Unit: ppb**

Analyte	LCS Report Value	True Value	Rec.%	%Rec Accept. Limit
TPH-G	860	1000	86.0	80-120

ND: Not Detected (at the specified limit).



12-30-2008

**TPH-Gasoline  
Batch QA/QC Report**

Client: URS Corporation  
Project: Sears 1058B  
Matrix: Water  
Batch No.: EML29-GW1

Lab Job No.: UR812114  
Lab Sample ID: G812117-6  
Date Analyzed: 12-29-2008

**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	998	932	99.8	93.2	6.8	30	70-130

**II. LCS Result  
Unit: ppb**

Analyte	LCS Report Value	True Value	Rec.%	Accept. Limit
TPH-g	907	1,000	90.7	80-120

ND: Not Detected (at the specified limit).



12-30-2008

**EPA 8015M (TPH)  
Batch QA/QC Report**

Client: URS Corporation  
Project: Sears 1058B  
Matrix: Soil  
Batch No. for TPH-d: EL29-DS1

Lab Job No.: UR812114  
Lab Sample ID: UR812114-1  
Date Analyzed: 12-29-2008

**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	200	230	230	115.0	115.0	0.0	30	70-130

**II. LCS Result  
Unit: ppm**

Analyte	LCS Value	True Value	Rec.%	Accept. Limit
TPH-d	518	500	103.6	80-120

ND: Not Detected (at the specified limit)



**EPA 8260B**  
**Batch QA/QC Report**

Client: URS Corporation  
Project: Sears 1058B  
Matrix: Soil  
Batch No: 1224-VOGS1

Lab Job No.: UR812114  
Sample ID: UR812113-2  
Date Analyzed: 12-24-2008

**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	17.3	18.3	86.5	91.5	5.6	30	70-130
Benzene	ND	20	19.5	19.1	97.5	95.5	2.1	30	70-130
Trichloro-ethene	ND	20	17.5	17.6	87.5	88.0	0.6	30	70-130
Toluene	ND	20	19.7	18.9	98.5	94.5	4.1	30	70-130
Chlorobenzene	ND	20	19.9	19.0	99.5	95.0	4.6	30	70-130

**II. LCS Result**  
**Unit: ppb**

Analyte	LCS Value	True Value	Rec.%	Accept. Limit
1,1-Dichloroethene	21.1	20.0	105.5	80-120
Benzene	23.1	20.0	115.5	80-120
Trichloro-ethene	20.2	20.0	101.0	80-120
Toluene	22.1	20.0	110.5	80-120
Chlorobenzene	22.8	20.0	114.0	80-120

ND: Not Detected.



**EPA 8260B  
Batch QA/QC Report**

Client: URS Corporation  
Project: Sears 1058B  
Matrix: Water  
Batch No: 1229-VOEW1

Lab Job No.: UR812114  
Lab Sample ID: G812117-6  
Date Analyzed: 12-29-2008

**I. MS/MSD Report  
Unit: ppb**

Analyte	Sample Conc.	Spike Conc.	MS	MSD	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
1,1-Dichloroethene	ND	20	17.8	17.0	89.0	85.0	4.6	30	70-130
Benzene	ND	20	19.1	18.2	95.5	91.0	4.8	30	70-130
Trichloro-ethene	ND	20	20.1	17.3	100.5	86.5	15.0	30	70-130
Toluene	ND	20	18.1	17.6	90.5	88.0	2.8	30	70-130
Chlorobenzene	ND	20	18.0	17.6	90.0	88.0	2.2	30	70-130

**II. LCS Result  
Unit: ppb**

Analyte	LCS Report Value	True Value	Rec.%	Accept. Limit
1,1-Dichloroethene	22.5	20	112.5	80-120
Benzene	19.6	20	98.0	80-120
Trichloro-ethene	17.1	20	85.5	80-120
Toluene	19.4	20	97.0	80-120
Chlorobenzene	18.7	20	93.5	80-120

ND: Not Detected (at the specified limit).





# Alpha Scientific Corporation

## Environmental Laboratories

12-30-2008

### EPA 6010B(Lead) Batch QA/QC Report

Client: URS Corporation  
Project: Sears 1058B  
Matrix: Soil  
Batch No. for 6010B: 1226-MS1

Lab Job No.: UR812114  
Lab Sample I.D.: SS1226-1  
Date Analyzed: ur12-26-2008

### MS/MSD Report

Analyte	EPA Method	MB Conc.	Spike Conc.	LCS	LCSD	LCS %Rec.	LCSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
Lead (Pb)	6010B	ND	0.1	0.096	0.098	96.0	98.0	2.1	30	70-130

ND: Not Detected.



CHAIN OF CUSTODY RECORD

Lab Job Number WR812114

Client Sample ID	Lab Sample ID	Sample Collect		Matrix Type	Sample Preserv	No., type & size of container	Analyses Requested						T.A.T. Requested
		Date	Time				8015M (Gasoline)	8015M (Diesel)	8260B (BTEX, Oxygenates)	8260B (VOCs)	8270C (SVOCs)	CAM Metals	
SB-01-5	WR812114-1	12/23/06	0800	So. 1	N.C. HD4	2-VOCs 1-6" tube	X	X	X	X	X	X	Rush 8 12 24 hrs 2-3 days <input checked="" type="checkbox"/> Normal
SB-01-10	-2		0920										Sample Condition <input checked="" type="checkbox"/> Chilled <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Sample seals
SB-01-15	-3		0940										Remark
SB-01-20	-4		0900										
SB-02-10	-5		0145										
SB-02-15	-6		1000										
SB-02-20	-7		1010										
EB-SB-02	-8		1030	H <sub>2</sub> O	HCL	6 VOCs	X						
Relinquished by <u>Jacob Henry</u> Company <u>URS</u>							Date	12/23/06	Time	1630	Received by <u>Jacob Henry</u>	Company	ASC
Relinquished by <u>Jacob Henry</u> Company <u>URS</u>							Date	12/23/06	Time	1630	Received by <u>Jacob Henry</u>	Company	ASC
							Date	12/24/06	Time	12:30 PM	Container types: M=Metal Tube A=Air Bag G=Glass bottle V=VOA vial		

Alpha Scientific Corporation  
 16760 Gridley Road  
 Cerritos, CA 90703

Email: [ascorp@verizon.net](mailto:ascorp@verizon.net)  
 Tel: (562) 809-8880  
 Fax: (562) 809-8801

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.

**APPENDIX E**

**URS DATA VALIDATION REPORT FOR SOIL**

### Level III Data Validation Summary

**PROJECT:** Sears Oakland 1058B  
**LABORATORY:** Alpha Scientific Corporation  
**MATRIX:** Soil  
**LAB PROJECT #:** UR812114  
**SAMPLES:** See table below

Field ID	QC Designations	Lab ID	TPH-Gasoline	TPH-Diesel/ Oil	Total Lead	VOCs/ Fuel Oxygenates
SB-01-5'		UR812114-1	X	X	X	X
SB-01-10'		UR812114-2	X	X	X	X
SB-01-15'		UR812114-3	X	X	X	X
SB-01-20'		UR812114-4	X	X	X	X
SB-02-10'		UR812114-5	X	X	X	X
SB-02-15'		UR812114-6	X	X	X	X
SB-02-20'		UR812114-7	X	X	X	X
EB-SB-02	Equipment blank	UR812114-8	X			X

Date Sampled = 12/23/08

TPH-Gasoline= Total petroleum hydrocarbon – gasoline range (C4-C12), TPH-Diesel= Total petroleum hydrocarbon – diesel range (C13-C23)

TPH-Oil= Total petroleum hydrocarbon – oil range (C24-C40) VOCs = Volatile organic compounds

Fuel Oxygenates = t-butyl alcohol (TBA), t-amyl methyl ether (TAME), di - isopropyl ether (DIPE), ethyl-t-butyl ether (ETBE), Methyl tertiary butyl ether (MTBE).

Alpha Scientific Corporation is certified by California Department of Health Services (Certificate Number 2633)

### DATA REVIEW MATRIX

QC Parameter	TPH-Gasoline EPA 8015M	TPH-Diesel/ TPH-Oil EPA 8015M	Total Lead EPA 6010B	VOCs/ Fuel Oxygenates EPA 8260B
Chain-of-custody (COC)	✓	✓	✓	✓
Sample Receipt	✓	✓	✓	✓
Holding Times	✓	✓	✓	✓
Method Blank	✓	✓	✓	✓
Surrogate Recovery	✓	✓	✓	✓
Laboratory Control Sample	✓	✓	✓	✓
Matrix Spike	NPS	✓(1)	NPS	NPS
Duplicate or Spike Duplicate	NPS	✓(1)	NPS	NPS
Equipment Blank	✓	NA	NA	✓

✓ = Quality control evaluation criteria met

NA = Not Applicable or not analyzed

NPS = Non-project sample

Notes:

1. MS/MSD was conducted on sample SB-01-5'. The results were within acceptance criterion.

**Summary:** Based on the Limited validation covering the QC parameters listed in the table above, these data are considered to be useable for meeting project objectives. 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.

<b>Analyte</b>	<b>MDL</b>	<b>PQL</b>
TPH-Gasoline	0.2	0.5
TPH-Diesel	5	10
TPH-Oil	25	50
Total Lead	--	2
VOCs	0.001 to 5	0.002 to 10
MTBE	0.002	0.005
TBA	0.02	0.05
TAME, DIPE, ETBE	0.002	0.005

Soil units for VOCs are in milligrams per kilograms (mg/kg)

MDL = Method Detection limit

PQL = Practical Quantitation Limit

Two samples (SB-01-15' and SB-02-15') required dilution for the EPA 8260B analyses in order to quantitate detected target analytes. For these samples, there are also non-detect VOCs and fuel oxygenates results with elevated reporting limits. The data user must evaluate the utility of non-detect VOCs and fuel oxygenates results with elevated reporting limits.

**APPENDIX F**  
**GROUNDWATER PURGE LOGS**



## Groundwater Monitoring Program Gauging Log & Development / Sampling Log

Well Number: MW-1	Date: 11-14-08	Project: Sears Auto Center #1058B	Project No. : 29863494.06012								
<b>-Gauging Data from Top of Casing (Reference Point)</b>											
Depth to Water: 11.02'	Total Well Depth: 21.47'	Water Column Height (H): 10.45'	Top of Casing Elevation:								
Gauging Time: 1144	Casing diameter (D)= 2 in.	1 casing volume= (D <sup>2</sup> )(H)(0.0408)= 1.71 gal. 3 casing volumes= 5.13 gal.									
<b>Groundwater Purge Data</b>											
Purge Method: <u>Standard Purge</u>		Low-Flow/Micro-Purge	Purge Equipment: Redi Flo 2" w/ disposable tubing								
			Pump Set @ 19 1/2 BGS								
Depth to Water (ft)	Time	Purge Rate (gpm)	Hz	Volume Removed (gallons)	pH (Units)	Specific Conductivity (µS/cm)	Turbidity (NTU)	Temp. (°C)	DO (mg/L)	ORP (mV)	Remarks
11.06	0831										Pump started.
11.69	0834	0.5	111.2	1.5	6.24	666	19.2	22.61	0.71	6.4	Water Clear
11.83	0837	0.5	111.2	3.0	6.24	654	10.2	23.23	0.52	24.7	
11.94	0840	0.5	111.2	4.5	6.27	630	12.2	23.37	0.46	32.3	
12.10	0843	0.5	112.7	6.0	6.29	610	9.6	23.44	0.44	31.5	
	0845										Sampled
Gallons = ml's/3781											
Sample Rate: 10.16 gpm											
Total Casing Volumes Removed: 3.51											
Total Gallons Removed: 6.0											

Sample ID. (time): MW-1 (0845) Dup ID.: \_\_\_\_\_ ( ) Rinsate ID.: \_\_\_\_\_ ( )

Analytical Methods: TPHg (8015M); VOCs (8260B), TPHd, TPHo, Fe<sup>2+</sup> Sampler: SF



## Groundwater Monitoring Program Gauging Log & Development / Sampling Log

Well Number: <u>MW-2</u>		Date: <u>11-13-08</u>		Project: <u>Sears Auto Center #1058B</u>		Project No. : <u>29863494.06012</u>					
<b>-Gauging Data from Top of Casing (Reference Point)</b>											
Depth to Water: <u>10.62'</u>		Total Well Depth: <u>21.75'</u>		Water Column Height (H): <u>11.13'</u>		Top of Casing Elevation:					
Gauging Time: <u>0817</u>		Casing diameter (D)= <u>2</u> in.		1 casing volume= $(D^2)(H)(0.0408)=$ <u>1.82</u> gal		3 casing volumes= <u>5.46</u> gal.					
<b>Groundwater Purge Data</b>											
Purge Method: <u>Standard Purge</u>		Low-Flow/Micro-Purge		Purge Equipment: <u>Redi Flo 2" w/ disposable tubing</u>			Pump Set @ <u>Bottom</u> BGS				
Depth to Water (ft)	Time	Purge Rate (gpm)	Hz	Volume Removed (gallons)	pH (Units)	Specific Conductivity ( $\mu$ S/cm)	Turbidity (NTU)	Temp. ( $^{\circ}$ C)	DO (mg/L)	ORP (mV)	Remarks
<u>10.43</u>	<u>1232</u>										<u>Pump started</u>
<u>14.74</u>	<u>1235</u>	<u>0.25</u>	<u>109.7</u>	<u>0.75</u>	<u>6.42</u>	<u>680</u>	<u>28.6</u>	<u>22.12</u>	<u>1.92</u>	<u>76.6</u>	<u>Water clear</u>
<u>15.36</u>	<u>1238</u>	<u>0.25</u>	<u>109.2</u>	<u>1.5</u>	<u>6.36</u>	<u>697</u>	<u>36.6</u>	<u>22.43</u>	<u>0.91</u>	<u>95.6</u>	
<u>17.61</u>	<u>1241</u>	<u>0.25</u>	<u>109.7</u>	<u>2.25</u>	<u>6.38</u>	<u>720</u>	<u>24.0</u>	<u>22.75</u>	<u>0.74</u>	<u>100.6</u>	
<u>&gt;20.49</u>	<u>1244</u>	<u>0.25</u>	<u>111.2</u>	<u>3.0</u>	<u>6.40</u>	<u>726</u>	<u>15.0</u>	<u>22.74</u>	<u>0.74</u>	<u>89.6</u>	<u>water level @ top of</u>
<u>&gt;20.49</u>	<u>1247</u>	<u>0.25</u>	<u>111.2</u>	<u>3.75</u>	<u>6.40</u>	<u>731</u>	<u>20.0</u>	<u>22.88</u>	<u>0.64</u>	<u>52.7</u>	<u>ground for pump</u>
	<u>1250</u>	<u>0.25</u>	<u>111.2</u>	<u>4.50</u>	<u>6.41</u>	<u>733</u>	<u>22.0</u>	<u>22.99</u>	<u>0.72</u>	<u>35.6</u>	
	<u>1254</u>	<u>0.25</u>	<u>111.2</u>	<u>5.50</u>	<u>6.42</u>	<u>732</u>	<u>18.3</u>	<u>23.20</u>	<u>1.06</u>	<u>51.9</u>	
	<u>1256</u>										<u>Sampled</u>
Gallons = ml's/3781											
Sample Rate: <u>40.168m</u>											
Total Casing Volumes Removed: <u>3.02</u>											
Total Gallons Removed: <u>5.5</u>											

Sample ID.(time): MW-2 ( 1256 ) Dup ID.: \_\_\_\_\_ ( ) Rinsate ID.: \_\_\_\_\_ ( )

Analytical Methods: TPHg (8015M); VOCs (8260B); TPHd; TPHo; Fe<sup>++</sup> (SP) Sampler: [Signature]





## Groundwater Monitoring Program Gauging Log & Development / Sampling Log

Well Number: <u>MW-3</u>		Date: <u>11-14-08</u>		Project: <u>Sears Auto Center #1058B</u>		Project No.: <u>29863494.06012</u>					
<b>-Gauging Data from Top of Casing (Reference Point)</b>											
Depth to Water: <u>12.00</u>		Total Well Depth: <u>24.70'</u>		Water Column Height (H): <u>12.70'</u>		Top of Casing Elevation:					
Gauging Time: <u>1342</u>		Casing diameter (D)= <u>2</u> in.		1 casing volume= $(D^2)(H)(0.0408) = $ <u>2.07</u> gal		3 casing volumes= <u>6.21</u> gal.					
<b>Groundwater Purge Data</b>											
Purge Method: <u>Standard Purge</u>		Low-Flow/Micro-Purge		Purge Equipment: <u>Redi Flo 2" w/ disposable tubing</u>			Pump Set @ <u>13.5'</u> BGS				
Depth to Water (ft)	Time	Purge Rate (gpm)	Hz	Volume Removed (gallons)	pH (Units)	Specific Conductivity (µS/cm)	Turbidity (NTU)	Temp. (°C)	DO (mg/L)	ORP (mV)	Remarks
<u>11.98</u>	<u>0933</u>										<u>Pump started</u>
<u>12.66</u>	<u>0936</u>	<u>0.5</u>	<u>114.1</u>	<u>1.5</u>	<u>6.46</u>	<u>773</u>	<u>19.7</u>	<u>20.93</u>	<u>0.69</u>	<u>-108.4</u>	<u>Water Clear</u>
<u>12.80</u>	<u>0939</u>	<u>0.5</u>	<u>114.1</u>	<u>3.0</u>	<u>6.49</u>	<u>795</u>	<u>8.1</u>	<u>21.35</u>	<u>0.52</u>	<u>-117.5</u>	
<u>12.89</u>	<u>0942</u>	<u>0.5</u>	<u>114.1</u>	<u>4.5</u>	<u>6.56</u>	<u>811</u>	<u>5.9</u>	<u>21.50</u>	<u>0.36</u>	<u>-127.3</u>	
<u>12.98</u>	<u>0946</u>	<u>0.5</u>	<u>114.1</u>	<u>6.5</u>	<u>6.58</u>	<u>815</u>	<u>5.6</u>	<u>21.55</u>	<u>0.35</u>	<u>-132.7</u>	
	<u>0947</u>										<u>Sampled</u>
Gallons = ml's/3781											
Sample Rate: <u>10.16 gpm</u>											
Total Casing Volumes Removed: <u>3.14</u>											
Total Gallons Removed: <u>6.5</u>											

Sample ID.(time): MW-3 (0947) Dup ID.: \_\_\_\_\_ ( ) Rinsate ID.: EB-1 (1018)

Analytical Methods: TPHg (8015M); VOCs (8260B); TPHd, TPHo, Fe, Mn Sampler: SB



# Groundwater Monitoring Program

## Gauging Log & Development / Sampling Log

Well Number: MW-4     Date: 11-13-08     Project: Sears Auto Center #1058B     Project No. : 29863494.06012

### -Gauging Data from Top of Casing (Reference Point)

Depth to Water: 11.33     Total Well Depth: 22.66'     Water Column Height (H): 11.33'     Top of Casing Elevation:

Gauging Time: 1057     Casing diameter (D)= 2 in.     1 casing volume=  $(D^2)(H)(0.0408)=$  1.85 gal     3 casing volumes= 5.55 gal.

### Groundwater Purge Data

Purge Method: Standard Purge     Low-Flow/Micro-Purge     Purge Equipment: Redi Flo 2" w/ disposable tubing     Pump Set @ Bottom BGS

Depth to Water (ft)	Time	Purge Rate (gpm)	Hz	Volume Removed (gallons)	pH (Units)	Specific Conductivity ( $\mu$ S/cm)	Turbidity (NTU)	Temp. ( $^{\circ}$ C)	DO (mg/L)	ORP (mV)	Remarks
<u>11.18</u>	<u>1716</u>										<u>Pump started</u>
<u>12.88</u>	<u>1719</u>	<u>0.5</u>	<u>112.3</u>	<u>1.5</u>	<u>6.36</u>	<u>759</u>	<u>53.4</u>	<u>22.59</u>	<u>0.75</u>	<u>4.7</u>	
<u>13.67</u>	<u>1722</u>	<u>0.5</u>	<u>113.8</u>	<u>3.0</u>	<u>6.38</u>	<u>769</u>	<u>40.1</u>	<u>23.21</u>	<u>0.55</u>	<u>12.5</u>	
<u>14.36</u>	<u>1725</u>	<u>0.5</u>	<u>116.7</u>	<u>4.5</u>	<u>6.39</u>	<u>767</u>	<u>27.7</u>	<u>23.23</u>	<u>0.55</u>	<u>21.9</u>	<u>Water clear</u>
<u>14.98</u>	<u>1728</u>	<u>0.5</u>	<u>116.8</u>	<u>6.0</u>	<u>6.39</u>	<u>765</u>	<u>25.9</u>	<u>23.14</u>	<u>0.53</u>	<u>27.0</u>	
	<u>1730</u>										<u>Sampled</u>
Gallons = ml's/3781											
Sample Rate: <u>20.16 gpm</u>											
Total Casing Volumes Removed: <u>3.24</u>											
Total Gallons Removed: <u>6.0</u>											

Sample ID.(time): MW-4 (1730) Dup ID.: \_\_\_\_\_ ( ) Rinsate ID.: \_\_\_\_\_ ( )

Analytical Methods: TPHg (8015M); VOCs (8260B); TPHd, TPHo, Fe     Sampler: JL



## Groundwater Monitoring Program Gauging Log & Development / Sampling Log

Well Number: <u>MW-5</u>		Date: <u>11-13-08</u>		Project: <u>Sears Auto Center #1058B</u>		Project No.: <u>29863494.06012</u>					
<b>-Gauging Data from Top of Casing (Reference Point)</b>											
Depth to Water: <u>10.37'</u>		Total Well Depth: <u>24.98'</u>		Water Column Height (H): <u>14.61'</u>		Top of Casing Elevation:					
Gauging Time: <u>0837</u>		Casing diameter (D)= <u>2</u> in.		1 casing volume= $(D^2)(H)(0.0408) = $ <u>2.38</u> gal 3 casing volumes= <u>7.14</u> gal.							
<b>Groundwater Purge Data</b>											
Purge Method: <u>Standard Purge</u>		Low-Flow/Micro-Purge		Purge Equipment: <u>Redi Flo 2" w/ disposable tubing</u>			Pump Set @ <u>Bottom</u> BGS				
Depth to Water (ft)	Time	Purge Rate (gpm)	Hz	Volume Removed (gallons)	pH (Units)	Specific Conductivity ( $\mu$ S/cm)	Turbidity (NTU)	Temp. ( $^{\circ}$ C)	DO (mg/L)	ORP (mV)	Remarks
<u>10.19</u>	<u>1417</u>										<u>Pump started</u>
<u>11.63</u>	<u>1420</u>	<u>0.5</u>	<u>109.7</u>	<u>1.5</u>	<u>6.35</u>	<u>694</u>	<u>71.6</u>	<u>21.81</u>	<u>1.47</u>	<u>90.1</u>	<u>Water turbid.</u>
<u>12.19</u>	<u>1423</u>	<u>0.5</u>	<u>112.0</u>	<u>3.0</u>	<u>6.33</u>	<u>685</u>	<u>57.7</u>	<u>22.34</u>	<u>1.26</u>	<u>86.4</u>	
<u>12.56</u>	<u>1426</u>	<u>0.5</u>	<u>112.0</u>	<u>4.5</u>	<u>6.34</u>	<u>696</u>	<u>48.8</u>	<u>22.68</u>	<u>0.86</u>	<u>75.6</u>	<u>Water clear.</u>
<u>12.79</u>	<u>1429</u>	<u>0.5</u>	<u>112.0</u>	<u>6.0</u>	<u>6.35</u>	<u>709</u>	<u>46.9</u>	<u>22.88</u>	<u>0.62</u>	<u>58.4</u>	
<u>13.01</u>	<u>1432</u>	<u>0.5</u>	<u>113.3</u>	<u>7.5</u>	<u>6.35</u>	<u>718</u>	<u>52.9</u>	<u>23.00</u>	<u>0.59</u>	<u>45.6</u>	
	<u>1434</u>										<u>Sampled</u>
Gallons = ml's/3781											
Sample Rate: <u>40.16 gpm</u>											
Total Casing Volumes Removed: <u>3.15</u>											
Total Gallons Removed: <u>7.5</u>											

Sample ID. (time): MW-5 ( 1434 ) Dup ID.: \_\_\_\_\_ ( ) Rinsate ID.: \_\_\_\_\_ ( )

Analytical Methods: TPHg (8015M); VOCs (8260B); TPHd, TPHo, Fe<sup>2+</sup> Sampler: SP



# Groundwater Monitoring Program Gauging Log & Development / Sampling Log

Well Number: MW-6 Date: 11-13-08 Project: Sears Auto Center #1058B Project No. : 29863494.06012

### -Gauging Data from Top of Casing (Reference Point)

Depth to Water: 10.57 Total Well Depth: 21.43' Water Column Height (H): 10.86' Top of Casing Elevation:

Gauging Time: 0903 Casing diameter (D)= 2 in. 1 casing volume=  $(D^2)(H)(0.0408)=$  1.77 gal 3 casing volumes= 5.31 gal.

### Groundwater Purge Data

Purge Method: Standard Purge Low-Flow/Micro-Purge Purge Equipment: Redi Flo 2" w/ disposable tubing Pump Set @ 20.5 BGS

Depth to Water (ft)	Time	Purge Rate (gpm)	Hz	Volume Removed (gallons)	pH (Units)	Specific Conductivity ( $\mu$ S/cm)	Turbidity (NTU)	Temp. ( $^{\circ}$ C)	DO (mg/L)	ORP (mV)	Remarks
<u>10.54</u>	<u>1504</u>										<u>Pump started</u>
<u>11.22</u>	<u>1508</u>	<u>0.75</u>	<u>118.3</u>	<u>2.25</u>	<u>6.21</u>	<u>607</u>	<u>49.6</u>	<u>21.52</u>	<u>1.03</u>	<u>54.6</u>	<u>Water clear</u>
<u>11.36</u>	<u>1510</u>	<u>0.75</u>	<u>118.3</u>	<u>4.50</u>	<u>6.20</u>	<u>605</u>	<u>42.7</u>	<u>21.69</u>	<u>1.29</u>	<u>69.9</u>	
<u>11.43</u>	<u>1513</u>	<u>0.75</u>	<u>118.3</u>	<u>6.75</u>	<u>6.21</u>	<u>601</u>	<u>41.8</u>	<u>21.75</u>	<u>1.25</u>	<u>79.1</u>	
	<u>1515</u>										<u>Sampled</u>
Gallons = ml's/3781											
Sample Rate: <u>20.6 gpm</u>											
Total Casing Volumes Removed: <u>3.81</u>											
Total Gallons Removed: <u>6.75</u>											

Sample ID.(time): MW-6 ( 1515 ) Dup ID.: \_\_\_\_\_ ( ) Rinsate ID.: \_\_\_\_\_ ( )

Analytical Methods: TPHg (8015M); VOCs (8260B), TPHd, TPHo, Fe, ~~SP~~ Sampler: SP



## Groundwater Monitoring Program Gauging Log & Development / Sampling Log

Well Number: <u>MW-7</u>		Date: <u>11-13-08</u>		Project: <u>Sears Auto Center #1058B</u>			Project No. : <u>29863494.06012</u>				
<b>-Gauging Data from Top of Casing (Reference Point)</b>											
Depth to Water: <u>11.15</u>		Total Well Depth: <u>21.72'</u>		Water Column Height (H): <u>10.57'</u>			Top of Casing Elevation:				
Gauging Time: <u>1014</u>		Casing diameter (D)= <u>2</u> in.		1 casing volume= (D <sup>2</sup> )(H)(0.0408)= <u>1.73</u> gal			3 casing volumes= <u>5.25</u> gal.				
<b>Groundwater Purge Data</b>											
Purge Method: <u>Standard Purge</u>		Low-Flow/Micro-Purge		Purge Equipment: <u>Redi Flo 2" w/ disposable tubing</u>				Pump Set @ <u>20.5</u> BGS			
Depth to Water (ft)	Time	Purge Rate (gpm)	Hz	Volume Removed (gallons)	pH (Units)	Specific Conductivity (µS/cm)	Turbidity (NTU)	Temp. (°C)	DO (mg/L)	ORP (mV)	Remarks
<u>11.11</u>	<u>1546</u>										<u>Pump started</u>
<u>12.42</u>	<u>1549</u>	<u>0.5</u>	<u>113.1</u>	<u>1.5</u>	<u>6.26</u>	<u>735</u>	<u>112.2</u>	<u>21.58</u>	<u>1.13</u>	<u>47.9</u>	<u>Water turbid</u>
<u>12.85</u>	<u>1552</u>	<u>0.5</u>	<u>115.0</u>	<u>3.0</u>	<u>6.23</u>	<u>782</u>	<u>45.9</u>	<u>21.99</u>	<u>0.99</u>	<u>36.2</u>	<u>Water clearing up.</u>
<u>13.09</u>	<u>1555</u>	<u>0.5</u>	<u>116.1</u>	<u>4.5</u>	<u>6.26</u>	<u>818</u>	<u>32.8</u>	<u>22.10</u>	<u>0.66</u>	<u>23.4</u>	
<u>13.23</u>	<u>1558</u>	<u>0.5</u>	<u>116.1</u>	<u>6.0</u>	<u>6.26</u>	<u>830</u>	<u>28.9</u>	<u>22.11</u>	<u>0.50</u>	<u>14.4</u>	
	<u>1600</u>										<u>Sampled</u>
										Gallons = ml's/3781	
										Sample Rate: <u>40.1 GPM</u>	
										Total Casing Volumes Removed: <u>3.47</u>	
										Total Gallons Removed: <u>6.0</u>	

Sample ID.(time): MW-7 ( 1600 ) Dup ID.: \_\_\_\_\_ ( ) Rinsate ID.: \_\_\_\_\_ ( )

Analytical Methods: TPHg (8015M); VOCs (8260B); TPHd, TPHo, Fe SP Sampler: SP



## Groundwater Monitoring Program Gauging Log & Development / Sampling Log

Well Number: MW-8      Date: 11-13-08      Project: Sears Auto Center #1058B      Project No. : 29863494.06012

### -Gauging Data from Top of Casing (Reference Point)

Depth to Water: 12.07      Total Well Depth: 21.92'      Water Column Height (H): 9.85'      Top of Casing Elevation:

Gauging Time: 1039      Casing diameter (D)= 2 in.      1 casing volume=  $(D^2)(H)(0.0408)$  = 1.61 gal      3 casing volumes= 4.83 gal.

### Groundwater Purge Data

Purge Method: Standard Purge      Low-Flow/Micro-Purge      Purge Equipment: Redi Flo 2" w/ disposable tubing      Pump Set @ 21' BGS

Depth to Water (ft)	Time	Purge Rate (gpm)	Hz	Volume Removed (gallons)	pH (Units)	Specific Conductivity ( $\mu\text{S/cm}$ )	Turbidity (NTU)	Temp. ( $^{\circ}\text{C}$ )	DO (mg/L)	ORP (mV)	Remarks
<u>12.04</u>	<u>1638</u>										<u>Pump started</u>
<u>12.71</u>	<u>1641</u>	<u>0.5</u>	<u>110.8</u>	<u>1.5</u>	<u>6.30</u>	<u>740</u>	<u>118.7</u>	<u>22.33</u>	<u>1.00</u>	<u>-47.0</u>	<u>Water turbid.</u>
<u>12.76</u>	<u>1644</u>	<u>0.5</u>	<u>110.8</u>	<u>3.0</u>	<u>6.32</u>	<u>748</u>	<u>32.2</u>	<u>22.68</u>	<u>0.65</u>	<u>-49.1</u>	<u>Water clear.</u>
<u>12.79</u>	<u>1647</u>	<u>0.5</u>	<u>110.8</u>	<u>4.5</u>	<u>6.32</u>	<u>749</u>	<u>27.1</u>	<u>22.80</u>	<u>0.56</u>	<u>-43.3</u>	
<u>12.81</u>	<u>1650</u>	<u>0.5</u>	<u>110.8</u>	<u>6.0</u>	<u>6.31</u>	<u>750</u>	<u>26.8</u>	<u>22.84</u>	<u>0.54</u>	<u>-40.6</u>	
	<u>1652</u>										<u>Sampled</u>
											Gallons = ml's/3781
											Sample Rate: <u>10.1 GPM</u>
											Total Casing Volumes Removed: <u>273</u>
											Total Gallons Removed: <u>6.0</u>

Sample ID. (time): MW-8 (1652) Dup ID.: \_\_\_\_\_ ( ) Rinsate ID.: \_\_\_\_\_ ( )

Analytical Methods: TPHg (8015M); VOCs (8260B), TPHd, TPHo, Fe (58)      Sampler: JB



## Groundwater Monitoring Program Gauging Log & Development / Sampling Log

Well Number: MW-9		Date: 11-14-08		Project: Sears Auto Center #1058B		Project No.: 29863494.06012					
<b>-Gauging Data from Top of Casing (Reference Point)</b>											
Depth to Water: 11.94'		Total Well Depth: 19.64'		Water Column Height (H): 7.70'		Top of Casing Elevation:					
Gauging Time: 1124		Casing diameter (D)= 2 in.		1 casing volume= (D <sup>2</sup> )(H)(0.0408)= 1.26 gal		3 casing volumes= 3.78 gal.					
<b>Groundwater Purge Data</b>											
Purge Method: <u>Standard Purge</u>		Low-Flow/Micro-Purge		Purge Equipment: Redi Flo 2" w/ disposable tubing			Pump Set @ 19' BGS				
Depth to Water (ft)	Time	Purge Rate (gpm)	Hz	Volume Removed (gallons)	pH (Units)	Specific Conductivity (µS/cm)	Turbidity (NTU)	Temp. (°C)	DO (mg/L)	ORP (mV)	Remarks
<del>0734</del> <sup>SD</sup>	0734										Pump started
12.17	0737	0.5	109.7	1.5	6.52	686	1,241.6	20.68	2.20	-29.6	Water turbid.
12.18	0740	0.5	109.6	3.0	6.53	700	1,243.3	20.97	0.34	-45.7	
12.19	0743	0.5	109.7	4.5	6.53	706	1,243.5	21.03	0.48	-59.5	
12.20	0746	0.5	109.7	6.0	6.52	707	1,244.1	21.10	0.48	-65.3	
	0747										Pump stopped to check YSI b/c turbidity still high. Cleaned cell & raised pump to 17' BGS.
	0756										Pump started
12.17	0759	0.5	109.7	7.5	6.45	745	45.2	21.06	1.57	-53.1	
12.19	0802	0.5	109.7	9.0	6.52	743	10.5	21.23	0.60	-66.9	Water clear
	0804										Sampled
											Gallons = ml's/3781
											Sample Rate: 2.1 GPM
											Total Casing Volumes Removed: 7.14
											Total Gallons Removed: 9.0

Sample ID.(time): MW-9 ( 0804 ) Dup ID.: \_\_\_\_\_ ( ) Rinsate ID.: \_\_\_\_\_ ( )

Analytical Methods: TPHg (8015M); VOCs (8260B); TPHd, TPHo, Fe Sampler: SB



## Groundwater Monitoring Program Gauging Log & Development / Sampling Log

Well Number: <u>EW-1</u>		Date: <u>11-14-08</u>		Project: <u>Sears Auto Center #1058B</u>			Project No.: <u>29863494.06012</u>				
-Gauging Data from Top of Casing (Reference Point)											
Depth to Water: <u>12.22</u>		Total Well Depth: <u>22.39'</u>		Water Column Height (H): <u>10.17'</u>			Top of Casing Elevation:				
Gauging Time: <u>1349</u>		Casing diameter (D)= <u>4</u> in.		1 casing volume= $(D^2)(H)(0.0408)=$ <u>6.64</u> gal			3 casing volumes= <u>19.92</u> gal.				
Groundwater Purge Data											
Purge Method: <u>Standard Purge</u>		Low-Flow/Micro-Purge		Purge Equipment: <u>Redi Flo 2" w/ disposable tubing</u>					Pump Set @ <u>21.5'</u> BGS		
Depth to Water (ft)	Time	Purge Rate (gpm)	Hz	Volume Removed (gallons)	pH (Units)	Specific Conductivity ( $\mu\text{S/cm}$ )	Turbidity (NTU)	Temp. ( $^{\circ}\text{C}$ )	DO (mg/L)	ORP (mV)	Remarks
<u>12.28</u>	<u>1031</u>										<u>Pump started.</u>
<u>12.91</u>	<u>1034</u>	<u>1.0</u>	<u>133.7</u>	<u>3.0</u>	<u>6.58</u>	<u>865</u>	<u>7.8</u>	<u>21.44</u>	<u>0.58</u>	<u>-129.5</u>	<u>Water clear</u>
<u>13.11</u>	<u>1037</u>	<u>1.0</u>	<u>133.7</u>	<u>6.0</u>	<u>6.59</u>	<u>855</u>	<u>9.0</u>	<u>21.74</u>	<u>0.38</u>	<u>-132.0</u>	
<u>13.50</u>	<u>1040</u>	<u>1.5</u>	<u>161.5</u>	<u>10.5</u>	<u>6.57</u>	<u>874</u>	<u>5.0</u>	<u>21.76</u>	<u>0.33</u>	<u>-131.7</u>	
<u>13.85</u>	<u>1044</u>	<u>1.5</u>	<u>163.3</u>	<u>16.5</u>	<u>6.57</u>	<u>878</u>	<u>3.7</u>	<u>21.77</u>	<u>0.33</u>	<u>-132.3</u>	
<u>14.07</u>	<u>1047</u>	<u>1.5</u>	<u>163.5</u>	<u>21.0</u>	<u>6.57</u>	<u>881</u>	<u>3.5</u>	<u>21.75</u>	<u>0.36</u>	<u>-135.7</u>	
	<u>1049</u>										<u>Sampled</u>
Gallons = ml's/3781											
Sample Rate: <u>0.16 gpm</u>											
Total Casing Volumes Removed: <u>3.16</u>											
Total Gallons Removed: <u>21.0</u>											

Sample ID. (time): EW-1 ( 1049 ) Dup ID.: Dup-1 ( 1049 ) Rinsate ID.: ( )

Analytical Methods: TPHg (8015M); VOCs (8260B); TPHd, TPHo, Fe<sup>2+</sup> (58) Sampler: SB



**APPENDIX G**  
**LABORATORY REPORT AND CHAIN-OF-CUSTODY**  
**DOCUMENTS FOR GROUNDWATER**



**Alpha Scientific Corporation**  
Environmental Laboratories

---

11-24-2008

Mr. Joe Liles  
URS Corporation  
2020 E. First Street, Suite 400  
Santa Ana, CA 92705

Project: 29863494  
Project Site: Sears Oakland 1058B  
Sample Date: 11-13/14-2008  
Lab Job No.: UR811056

Dear Mr. Liles:

Enclosed please find the analytical report for the sample(s) received by Alpha Scientific Corporation on 11-17-2008 and analyzed by the following EPA methods:

EPA 8015M (Gasoline, Diesel & Oil Range TPH)  
EPA 8260B (VOCs, Ethanol & Oxygenates by GC/MS)

All analyses have met the QA/QC criteria of this laboratory.

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

Alpha Scientific Corporation is a CA DHS certified laboratory (Certificate Number 2633). Thank you for giving us the opportunity to serve you. Please feel free to call me at (562) 809-8880 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.



# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
 Project: 29863494  
 Project Site: Sears Oakland 1058B  
 Matrix: Water  
 Batch No. for TPH-g: EMK19-GW1  
 Batch No. for TPH-d & o:EK18-DW1

Lab Job No.: UR811056  
 Date Sampled: 11-13/14-2008  
 Date Received: 11-17-2008  
 Date Analyzed: 11-19-2008  
 Date Analyzed: 11-18-2008  
 Date Reported: 11-24-2008

**EPA 8015M (Gasoline, Diesel & Oil Range TPH)**  
**Reporting Unit: µg/L (ppb)**

Sample ID	Lab ID	DF for TPH-g	C4-C12 (Gasoline Range)*	Surrog Rec.% (TPH-g)	DF for TPHd&o	C13-C23 (Diesel Range)	C24-C40 (Oil Range)	Surrog Rec.% (TPHd&o)
MDL			50			500	2000	
PQL			100			750	3000	
Method Blank		1	ND	91	1	ND	ND	118
MW-1	UR811056-1	1	ND	94	1	ND	ND	110
MW-2	UR811056-2	1	ND	90	1	ND	ND	114
MW-3	UR811056-3	1	191	94	1	ND	ND	114
MW-4	UR811056-4	1	ND	95	1	ND	ND	112
MW-5	UR811056-5	1	ND	92	1	ND	ND	116
MW-6	UR811056-6	1	ND	94	1	ND	ND	112
MW-7	UR811056-7	1	ND	91	1	ND	ND	116
MW-8	UR811056-8	1	ND	94	1	ND	ND	118
MW-9	UR811056-9	1	ND	93	1	ND	ND	116
EW-1	UR811056-10	1	406	94	1	ND	ND	112
DUP-1	UR811056-11	1	394	91	1	ND	ND	118
EB-1	UR811056-12	1	ND	94	NA	NA	NA	NA
TB-1	UR811056-13	1	ND	93	NA	NA	NA	NA

\*Gasoline Range TPH result is obtained from purge and trap analysis using LUFT-GCMS Method.  
 MDL:Method Detection Limit; PQL:Practical Quantitation Limit;  
 DF:Dilution Factor (DF × PQL = Reporting Limit for the sample); ND: Not Detected (below DF × MDL);  
 J:Trace Value, result is below DF × PQL but above DF × MDL. NA:Not Analyzed  
 Note:Surrogate recovery acceptance limits are 70-130%.



# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
Project: 29863494

Lab Job No.: UR811056  
Matrix: Water

Date Reported: 11-24-2008  
Date Sampled: 11-13/14-2008

**EPA 8260B (VOCs by GC/MS, Page 1 of 2) Reporting Unit: µg/L(ppb)**

Date ANALYZED			11-19-08	11-19-08	11-19-08	11-19-08	11-19-08	11-19-08
DILUTION FACTOR			1	1	1	1	1	1
LAB SAMPLE I.D.				UR811056-1	UR811056-2	UR811056-3	UR811056-4	UR811056-5
CLIENT SAMPLE I.D.				MW-1	MW-2	MW-3	MW-4	MW-5
COMPOUND	MDL	PQL	MB					
Dichlorodifluoromethane	1	5	ND	ND	ND	ND	ND	ND
Chloromethane	1	5	ND	ND	ND	ND	ND	ND
Vinyl Chloride	0.5	1	ND	ND	ND	ND	ND	ND
Bromomethane	1	5	ND	ND	ND	ND	ND	ND
Chloroethane	1	5	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	1	5	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	1	5	ND	ND	ND	ND	ND	ND
Iodomethane	1	5	ND	ND	ND	ND	ND	ND
Methylene Chloride	2	10	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	1	5	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	1	5	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	1	5	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	1	5	ND	ND	ND	ND	ND	ND
Bromochloromethane	1	5	ND	ND	ND	ND	ND	ND
Chloroform	1	5	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.5	5	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	1	5	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	0.5	5	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	1	5	ND	ND	ND	ND	ND	ND
Benzene	0.5	1	ND	ND	ND	ND	ND	ND
Trichloroethene	1	2	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	1	5	ND	ND	ND	ND	ND	ND
Bromodichloromethane	1	5	ND	ND	ND	ND	ND	ND
Dibromomethane	1	5	ND	ND	ND	ND	ND	ND
Trans-1,3-Dichloropropene	1	5	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	1	5	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	1	5	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	0.5	5	ND	ND	ND	ND	ND	ND
Dibromochloromethane	1	5	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	1	10	ND	ND	ND	ND	ND	ND
Bromoform	1	5	ND	ND	ND	ND	ND	ND
Isopropylbenzene	1	5	ND	ND	ND	ND	ND	ND
Bromobenzene	1	5	ND	ND	ND	ND	ND	ND
Toluene	0.5	1.0	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	2	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane(EDB)	1	5	ND	ND	ND	ND	ND	ND



# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
Project: 29863494

Lab Job No.: UR811056  
Matrix: Water

Date Reported: 11-24-2008  
Date Sampled: 11-13/14-2008

**EPA 8260B (VOCs by GC/MS, Page 2 of 2) Reporting Unit: ppb**

COMPOUND	MDL	PQL	MB	MW-1	MW-2	MW-3	MW-4	MW-5
Chlorobenzene	1	5	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethan	1	5	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.5	1	ND	ND	ND	ND	ND	ND
Total Xylenes	1	2	ND	ND	ND	ND	ND	ND
Styrene	1	5	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethan	1	5	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	1	5	ND	ND	ND	ND	ND	ND
n-Propylbenzene	1	5	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	1	5	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	1	5	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	1	2	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	1	5	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	1	5	ND	ND	ND	ND	ND	ND
Sec-Butylbenzene	1	5	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	1	5	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	1	5	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	1	2	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1	2	ND	ND	ND	ND	ND	ND
n-Butylbenzene	1	5	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	1	5	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	1	5	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	1	5	ND	ND	ND	ND	ND	ND
Naphthalene	1	5	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	1	5	ND	ND	ND	ND	ND	ND
Acetone	25	50	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	25	50	ND	ND	ND	ND	ND	ND
Carbon disulfide	25	50	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	25	50	ND	ND	ND	ND	ND	ND
2-Hexanone	25	50	ND	ND	ND	ND	ND	ND
Vinyl Acetate	25	50	ND	ND	ND	ND	ND	ND
Ethanol	250	500	ND	ND	ND	ND	ND	ND
MTBE	1	2	ND	ND	ND	ND	ND	ND
ETBE	1	2	ND	ND	ND	ND	ND	ND
DIPE	1	2	ND	ND	ND	ND	ND	ND
TAME	1	2	ND	ND	ND	ND	ND	ND
t-Butyl Alcohol	10	20	ND	ND	ND	ND	ND	ND
SURROGATE	Accept Limit%	%RC	%RC	%RC	%RC	%RC	%RC	%RC
Dibromofluoro-methane	79-126	101	99	96	96	98	95	
Toluene-d8	79-121	100	100	100	100	100	98	
Bromofluoro-benzene	71-131	97	99	95	99	100	97	

MDL=Method Detection Limit, PQL= Practical Quantitation Limit;DF=Dilution Factor (DF × PQL = Reporting Limit for the sample);

ND=Not Detected (below DF × MDL),J=Trace Value, result is below DF × PQL but above DF × MDL;

%RC=Percent Recovery; MB=Method Blank; \* obtained from a higher dilution analysis.

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

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



# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
Project: 29863494

Lab Job No.: UR811056  
Matrix: Water

Date Reported: 11-24-2008  
Date Sampled: 11-13/14-2008

**EPA 8260B (VOCs by GC/MS, Page 1 of 2) Reporting Unit: µg/L(ppb)**

Date ANALYZED			11-19-08	11-19-08	11-19-08	11-19-08	11-19-08	11-19-08
DILUTION FACTOR			1	1	1	1	1	1
LAB SAMPLE I.D.				UR811056-6	UR811056-7	UR811056-8	UR811056-9	UR811056-10
CLIENT SAMPLE I.D.				MW-6	MW-7	MW-8	MW-9	EW-1
COMPOUND	MDL	PQL	MB					
Dichlorodifluoromethane	1	5	ND	ND	ND	ND	ND	ND
Chloromethane	1	5	ND	ND	ND	ND	ND	ND
Vinyl Chloride	0.5	1	ND	ND	ND	ND	ND	ND
Bromomethane	1	5	ND	ND	ND	ND	ND	ND
Chloroethane	1	5	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	1	5	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	1	5	ND	ND	ND	ND	ND	ND
Iodomethane	1	5	ND	ND	ND	ND	ND	ND
Methylene Chloride	2	10	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	1	5	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	1	5	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	1	5	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	1	5	ND	ND	ND	ND	ND	ND
Bromochloromethane	1	5	ND	ND	ND	ND	ND	ND
Chloroform	1	5	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.5	5	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	1	5	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	0.5	5	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	1	5	ND	ND	ND	ND	ND	ND
Benzene	0.5	1	ND	ND	ND	ND	ND	ND
Trichloroethene	1	2	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	1	5	ND	ND	ND	ND	ND	ND
Bromodichloromethane	1	5	ND	ND	ND	ND	ND	ND
Dibromomethane	1	5	ND	ND	ND	ND	ND	ND
Trans-1,3-Dichloropropene	1	5	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	1	5	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	1	5	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	0.5	5	ND	ND	ND	ND	ND	ND
Dibromochloromethane	1	5	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	1	10	ND	ND	ND	ND	ND	ND
Bromoform	1	5	ND	ND	ND	ND	ND	ND
Isopropylbenzene	1	5	ND	ND	ND	ND	ND	ND
Bromobenzene	1	5	ND	ND	ND	ND	ND	ND
Toluene	0.5	1.0	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	2	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane(EDB)	1	5	ND	ND	ND	ND	ND	ND



# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
Project: 29863494

Lab Job No.: UR811056  
Matrix: Water

Date Reported: 11-24-2008  
Date Sampled: 11-13/14-2008

**EPA 8260B (VOCs by GC/MS, Page 2 of 2) Reporting Unit: ppb**

COMPOUND	MDL	PQL	MB	MW-6	MW-7	MW-8	MW-9	EW-1
Chlorobenzene	1	5	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethan	1	5	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.5	1	ND	ND	ND	ND	ND	ND
Total Xylenes	1	2	ND	ND	ND	ND	ND	ND
Styrene	1	5	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethan	1	5	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	1	5	ND	ND	ND	ND	ND	ND
n-Propylbenzene	1	5	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	1	5	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	1	5	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	1	2	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	1	5	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	1	5	ND	ND	ND	ND	ND	ND
Sec-Butylbenzene	1	5	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	1	5	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	1	5	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	1	2	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1	2	ND	ND	ND	ND	ND	ND
n-Butylbenzene	1	5	ND	ND	ND	ND	ND	1.6J
1,2,4-Trichlorobenzene	1	5	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	1	5	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	1	5	ND	ND	ND	ND	ND	ND
Naphthalene	1	5	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	1	5	ND	ND	ND	ND	ND	ND
Acetone	25	50	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	25	50	ND	ND	ND	ND	ND	ND
Carbon disulfide	25	50	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	25	50	ND	ND	ND	ND	ND	ND
2-Hexanone	25	50	ND	ND	ND	ND	ND	ND
Vinyl Acetate	25	50	ND	ND	ND	ND	ND	ND
Ethanol	250	500	ND	ND	ND	ND	ND	ND
MTBE	1	2	ND	ND	ND	ND	ND	ND
ETBE	1	2	ND	ND	ND	ND	ND	ND
DIPE	1	2	ND	ND	ND	ND	ND	ND
TAME	1	2	ND	ND	ND	ND	ND	ND
t-Butyl Alcohol	10	20	ND	ND	ND	ND	ND	ND
SURROGATE	Accept Limit%	%RC	%RC	%RC	%RC	%RC	%RC	%RC
Dibromofluoro-methane	79-126	101	97	96	102	103	98	
Toluene-d8	79-121	100	100	101	99	99	102	
Bromofluoro-benzene	71-131	97	99	96	99	99	100	

MDL=Method Detection Limit, PQL= Practical Quantitation Limit;DF=Dilution Factor (DF × PQL = Reporting Limit for the sample);  
 ND=Not Detected (below DF × MDL),J=Trace Value, result is below DF × PQL but above DF × MDL;  
 %RC=Percent Recovery; MB=Method Blank; \* obtained from a higher dilution analysis.  
 Note: Surrogate spike concentrations are 25 µg/L for all the compounds.



# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
Project: 29863494

Lab Job No.: UR811056  
Matrix: Water

Date Reported: 11-24-2008  
Date Sampled: 11-13/14-2008

**EPA 8260B (VOCs by GC/MS, Page 1 of 2) Reporting Unit: µg/L(ppb)**

Date ANALYZED			11-19-08	11-19-08	11-19-08	11-19-08		
DILUTION FACTOR			1	1	1	1		
LAB SAMPLE I.D.				UR811056-11	UR811056-12	UR811056-13		
CLIENT SAMPLE I.D.				DUP-1	EB-1	TB-1		
COMPOUND	MDL	PQL	MB					
Dichlorodifluoromethane	1	5	ND	ND	ND	ND		
Chloromethane	1	5	ND	ND	ND	ND		
Vinyl Chloride	0.5	1	ND	ND	ND	ND		
Bromomethane	1	5	ND	ND	ND	ND		
Chloroethane	1	5	ND	ND	ND	ND		
Trichlorofluoromethane	1	5	ND	ND	ND	ND		
1,1-Dichloroethene	1	5	ND	ND	ND	ND		
Iodomethane	1	5	ND	ND	ND	ND		
Methylene Chloride	2	10	ND	ND	ND	ND		
trans-1,2-Dichloroethene	1	5	ND	ND	ND	ND		
1,1-Dichloroethane	1	5	ND	ND	ND	ND		
2,2-Dichloropropane	1	5	ND	ND	ND	ND		
cis-1,2-Dichloroethene	1	5	ND	ND	ND	ND		
Bromochloromethane	1	5	ND	ND	ND	ND		
Chloroform	1	5	ND	ND	ND	ND		
1,2-Dichloroethane	0.5	5	ND	ND	ND	ND		
1,1,1-Trichloroethane	1	5	ND	ND	ND	ND		
Carbon tetrachloride	0.5	5	ND	ND	ND	ND		
1,1-Dichloropropene	1	5	ND	ND	ND	ND		
Benzene	0.5	1	ND	ND	ND	ND		
Trichloroethene	1	2	ND	ND	ND	ND		
1,2-Dichloropropane	1	5	ND	ND	ND	ND		
Bromodichloromethane	1	5	ND	ND	ND	ND		
Dibromomethane	1	5	ND	ND	ND	ND		
Trans-1,3-Dichloropropene	1	5	ND	ND	ND	ND		
cis-1,3-Dichloropropene	1	5	ND	ND	ND	ND		
1,1,2-Trichloroethane	1	5	ND	ND	ND	ND		
1,3-Dichloropropane	0.5	5	ND	ND	ND	ND		
Dibromochloromethane	1	5	ND	ND	ND	ND		
2-Chloroethylvinyl ether	1	10	ND	ND	ND	ND		
Bromoform	1	5	ND	ND	ND	ND		
Isopropylbenzene	1	5	ND	ND	ND	ND		
Bromobenzene	1	5	ND	ND	ND	ND		
Toluene	0.5	1.0	ND	ND	ND	ND		
Tetrachloroethene	1	2	ND	ND	ND	ND		
1,2-Dibromoethane(EDB)	1	5	ND	ND	ND	ND		





# Alpha Scientific Corporation

## Environmental Laboratories

Client: URS Corporation  
Project: 29863494

Lab Job No.: UR811056  
Matrix: Water

Date Reported: 11-24-2008  
Date Sampled: 11-13/14-2008

**EPA 8260B (VOCs by GC/MS, Page 2 of 2) Reporting Unit: ppb**

COMPOUND	MDL	PQL	MB	DUP-1	EB-1	TB-1		
Chlorobenzene	1	5	ND	ND	ND	ND		
1,1,1,2-Tetrachloroethan	1	5	ND	ND	ND	ND		
Ethylbenzene	0.5	1	ND	ND	ND	ND		
Total Xylenes	1	2	ND	ND	ND	ND		
Styrene	1	5	ND	ND	ND	ND		
1,1,2,2-Tetrachloroethan	1	5	ND	ND	ND	ND		
1,2,3-Trichloropropane	1	5	ND	ND	ND	ND		
n-Propylbenzene	1	5	ND	ND	ND	ND		
2-Chlorotoluene	1	5	ND	ND	ND	ND		
4-Chlorotoluene	1	5	ND	ND	ND	ND		
1,3,5-Trimethylbenzene	1	2	ND	ND	ND	ND		
tert-Butylbenzene	1	5	ND	ND	ND	ND		
1,2,4-Trimethylbenzene	1	5	ND	ND	ND	ND		
Sec-Butylbenzene	1	5	ND	ND	ND	ND		
1,3-Dichlorobenzene	1	5	ND	ND	ND	ND		
p-Isopropyltoluene	1	5	ND	ND	ND	ND		
1,4-Dichlorobenzene	1	2	ND	ND	ND	ND		
1,2-Dichlorobenzene	1	2	ND	ND	ND	ND		
n-Butylbenzene	1	5	ND	1.6J	ND	ND		
1,2,4-Trichlorobenzene	1	5	ND	ND	ND	ND		
1,2-Dibromo-3-Chloropropane	1	5	ND	ND	ND	ND		
Hexachlorobutadiene	1	5	ND	ND	ND	ND		
Naphthalene	1	5	ND	ND	ND	ND		
1,2,3-Trichlorobenzene	1	5	ND	ND	ND	ND		
Acetone	25	50	ND	ND	ND	ND		
2-Butanone (MEK)	25	50	ND	ND	ND	ND		
Carbon disulfide	25	50	ND	ND	ND	ND		
4-Methyl-2-pentanone	25	50	ND	ND	ND	ND		
2-Hexanone	25	50	ND	ND	ND	ND		
Vinyl Acetate	25	50	ND	ND	ND	ND		
Ethanol	250	500	ND	ND	ND	ND		
MTBE	1	2	ND	ND	ND	ND		
ETBE	1	2	ND	ND	ND	ND		
DIPE	1	2	ND	ND	ND	ND		
TAME	1	2	ND	ND	ND	ND		
t-Butyl Alcohol	10	20	ND	ND	ND	ND		
SURROGATE	Accept Limit%	%RC	%RC	%RC	%RC			
Dibromofluoro-methane	79-126	101	98	98	100			
Toluene-d8	79-121	100	98	98	99			
Bromofluoro-benzene	71-131	97	96	99	98			

MDL=Method Detection Limit, PQL= Practical Quantitation Limit;DF=Dilution Factor (DF × PQL = Reporting Limit for the sample);  
 ND=Not Detected (below DF × MDL),J=Trace Value, result is below DF × PQL but above DF × MDL;  
 %RC=Percent Recovery; MB=Method Blank; \* obtained from a higher dilution analysis.  
 Note: Surrogate spike concentrations are 25 µg/L for all the compounds.



11-24-2008

**TPH-Gasoline  
Batch QA/QC Report**

Client: URS Corporation  
Project: 29863494  
Matrix: Water  
Batch No.: EMK19-GW1

Lab Job No.: UR811056  
Lab Sample ID: UR811056-1  
Date Analyzed: 11-19-2008

**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	949	920	94.9	92.0	3.1	30	70-130

**II. LCS Result  
Unit: ppb**

Analyte	LCS Report Value	True Value	Rec.%	%Rec Accept. Limit
TPH-G	944	1000	94.4	80-120

ND: Not Detected (at the specified limit).



11-24-2008

**EPA 8015M (TPH)  
Batch QA/QC Report**

Client: URS Corporation  
Project: 29863494  
Matrix: Water  
Batch No.: EK18-DW1

Lab Job No.: UR811056  
Lab Sample ID: UR811056-2  
Date Analyzed: 11-18-2008

**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	18.7	18.5	93.5	92.5	1.1	30	70-130

**II. LCS Result  
Unit: ppm**

Analyte	LCS Report Value	True Value	Rec.%	%Rec Accept. Limit
TPH-d	57.3	50	114.6	80-120

ND: Not Detected (at the specified limit).



11-24-2008

**EPA 8260B  
Batch QA/QC Report**

Client: URS Corporation  
Project: 29863494  
Matrix: Water  
Batch No: 1119-VOEW1

Lab Job No.: UR811056  
Sample ID: UR811056-1  
Date Analyzed: 11-19-2008

**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	15.6	16.3	78.0	81.5	4.4	30	70-130
Benzene	ND	20	19.3	16.6	96.5	83.0	15.0	30	70-130
Trichloro-ethene	ND	20	18.0	16.4	90.0	82.0	9.3	30	70-130
Toluene	ND	20	17.6	17.0	88.0	85.0	3.5	30	70-130
Chlorobenzene	ND	20	17.7	16.8	88.5	84.0	5.2	30	70-130

**II. LCS Result  
Unit: ppb**

Analyte	LCS Value	True Value	Rec.%	Accept. Limit
1,1-Dichloroethene	49.5	50.0	99.0	80-120
Benzene	53.0	50.0	106.0	80-120
Trichloro-ethene	53.0	50.0	106.0	80-120
Toluene	52.8	50.0	105.6	80-120
Chlorobenzene	52.6	50.0	105.2	80-120

ND: Not Detected.

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

Date: 11/13/08  
 Page 1 of 2

**CHAIN OF CUSTODY RECORD**

MR 811056

Data Requested in GISKey Format

Lab Name:	URS Project/PO Number:	Global ID:	Requested Analyses:	Special Instructions:			
Alpha Scientific	29863494						
Client Name/Project Name/Location:	Sears Oakland 6058B						
URS Project Manager:	Joe Liles						
Sampler Name and Signature:	Stavros Pilafas						
Sample Name	Sample Date	Sample Time	Matrix:	Container Type:	# of Cont.:	Requested Analyses:	Special Instructions:
MW-2-811056-2	11/13/08	1256	S D	Acetate SS, Brass Jar Encore 500 ml (Amb) Plas. Glass (OA)	4	TPH-8015m TPHd-8015m TPHg-8015m	
MW-5		1434	S D	Acetate SS, Brass Jar Encore 500 ml (Amb) Plas. Glass (OA)	4	X	
MW-6		1515	S D	Acetate SS, Brass Jar Encore 500 ml (Amb) Plas. Glass (OA)	4	X	
MW-7		1600	S D	Acetate SS, Brass Jar Encore 500 ml (Amb) Plas. Glass (OA)	4	X	
MW-8		1652	S D	Acetate SS, Brass Jar Encore 500 ml (Amb) Plas. Glass (OA)	4	X	
MW-4		1730	S D	Acetate SS, Brass Jar Encore 500 ml (Amb) Plas. Glass (OA)	4	X	
TB-1	11/13/08	-	S D	Acetate SS, Brass Jar Encore ml Amb. Plas. Glass (OA)	2	X	
Date: 11/17/08 Received By: <i>[Signature]</i> Date: 11/17/08 Received By: <i>[Signature]</i> Date: _____ Received By: _____							
Date/Time: 11.17.08 Date/Time: _____ Date/Time: _____						Turnaround Time: (Check) Same Day: _____ 24 Hour: _____ 48 Hour: _____ 72 Hour: _____ 5 Day: _____ Standard: _____	
Lab Use Only Cooler Temperature*: _____ *Record upon arrival						<b>URS</b>	

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: 11/17/08  
 Page 2 of 2

NR 811056

Data Requested in GISKey Format

Lab Name:	URS Project/PO Number:	Geo Tracker Information:	EDF Reporting:	Global ID:	COE/ELT Log Number:	Sample Name	Sample Date:	Sample Time:	Preserved:	Matrix:	Container type:	# of Cont.:	Requested Analyses:	Special Instructions:
Alpha Scientific	29863494		Y	N		MW-9 811056-9	11/14/08	0804	Y	S L G	Acetate SS, Brass Jar Encore 500 ml (Amb) Plas. Glass VOA	4	TRH-8015m TRH-8015m TRH-8015m BTEX+Fuel/Oxy	HOLD
Sears Oakland 1058B						MW-1		0845	N	S D G	Acetate SS, Brass Jar Encore 500 ml (Amb) Plas. Glass VOA	4		
Joe Liles						MW-3		0947	N	S D G	Acetate SS, Brass Jar Encore 500 ml (Amb) Plas. Glass VOA	4		
Stavros Pilafas						EW-1		1049	N	S D G	Acetate SS, Brass Jar Encore 500 ml (Amb) Plas. Glass VOA	4		
						DUP-1			Y	S D G	Acetate SS, Brass Jar Encore 500 ml (Amb) Plas. Glass VOA	4		
						EB-1			N	S D G	Acetate SS, Brass Jar Encore 500 ml (Amb) Plas. Glass VOA	3		
									Y	S L G	Acetate SS, Brass Jar Encore ml Amb. Plas. Glass VOA			
									N	S L G	Acetate SS, Brass Jar Encore ml Amb. Plas. Glass VOA			
									Y	S L G	Acetate SS, Brass Jar Encore ml Amb. Plas. Glass VOA			
									N	S L G	Acetate SS, Brass Jar Encore ml Amb. Plas. Glass VOA			
Requisitioned By:	Date:	11/17/08	Received By:	Date:	11/17/08	Received By:	Date:	11/17/08	Received By:	Date:	11/17/08	Received By:	Date:	11/17/08
AS			AS			AS					AS			
Turnaround Time: (Check)	Same Day:	24 Hour:	48 Hour:	72 Hour:	5 Day:	Standard:								
Lab Use Only	Cooler Temperature*: _____ *Record upon arrival													
<b>URS</b>														

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

## **APPENDIX H**

### **URS DATA VALIDATION REPORT FOR GROUNDWATER**

## Level III Data Validation Summary

**PROJECT:** Sears Oakland 1058B  
**LABORATORY:** Alpha Scientific Corporation  
**MATRIX:** Water  
**LAB PROJECT #:** UR811056  
**SAMPLES:** See table below

Field ID	QC Designations	Lab ID	TPH-Gasoline	TPH-Diesel TPH-Oil	VOCs (including Fuel Oxygenates)
MW-2		UR811056-2	X	X	X
MW-5		UR811056-5	X	X	X
MW-6		UR811056-6	X	X	X
MW-7		UR811056-7	X	X	X
MW-8		UR811056-8	X	X	X
MW-4		UR811056-4	X	X	X
TB-1	Trip blank	UR811056-3	X		X
MW-9		UR811056-9	X	X	X
MW-1		UR811056-1	X	X	X
MW-3		UR811056-3	X	X	X
EW-1		UR811056-10	X	X	X
DUP-1	Field duplicate of EW-1	UR811056-11	X	X	X
EB-1	Equipment blank	UR811056-12	X		X

Date Sampled: 11/13-14/08

TPH-Gasoline= Total petroleum hydrocarbon – gasoline range (C4-C12), TPH-Diesel= Total petroleum hydrocarbon – diesel range (C13-C23)

TPH-Oil= Total petroleum hydrocarbon – oil range (C24-C40) VOCs = Volatile organic compounds

Fuel Oxygenates = t-butyl alcohol (TBA), t-amyl methyl ether (TAME), di - isopropyl ether (DIPE), ethyl-t-butyl ether (ETBE), Methyl tertiary butyl ether (MTBE).

Alpha Scientific Corporation is certified by California Department of Health Services (Certificate Number 2633)

### DATA REVIEW MATRIX

QC Parameter	TPH-Gasoline EPA 8015M	TPH-Diesel/ TPH-Oil EPA 8015M	VOCs EPA 8260B
Chain-of-custody (COC)	✓	✓	✓
Sample Receipt	✓	✓	✓
Holding Times	✓	✓	✓
Method Blank	✓	✓	✓
Surrogate Recovery	✓	✓	✓
Laboratory Control Sample	✓	✓	✓
Matrix Spike	✓(1)	✓(2)	✓(1)
Duplicate or Spike Duplicate	✓(1)	✓(2)	✓(1)
Field Duplicate	(3)	✓	✓
Trip Blank	✓	NA	✓
Equipment Blank	✓	NA	✓

✓ = Quality control evaluation criteria met

NA = Not Applicable or not analyzed

**Notes:**

- MS/MSD was conducted on sample MW-1. The results were within acceptance criterion.
- MS/MSD was conducted on sample MW-2. The results were within acceptance criterion.
- Due to field duplicate imprecision, the results for TPH-gasoline for samples EW-1 and Dup-1 were qualified as estimated (J).



**Summary:** Based on this Limited validation covering the QC parameters listed in the table above, these data, as qualified are considered to be useable for meeting project objectives. 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.

<b>Analyte</b>	<b>Method Detection Limits (MDLs)</b>	<b>Practical Quantitation Limits (PQLs)</b>
TPH-Diesel	500	2000
TPH-Oil	2000	3000
TPH-Gasoline	50	100
VOCs	0.5 to 25	1 to 50
MTBE	1	2
TBA	10	20
Other Oxygenates	1	2

Aqueous units are microgram per Liter ( $\mu\text{g/L}$ ).

**APPENDIX I**  
**SUMMARY OF SOIL ANALYTICAL RESULTS**



**Appendix I**  
**Summary of Soil Analytical Results**  
**Former Sears Auto Center #1058**  
**2600 Telegraph Avenue**  
**Oakland California**

Sample No.	Sample Date	Sample Depth (ft bgs)	LABORATORY ANALYTICAL RESULTS																	
			TPH by EPA 8015M			Volatile Organics by EPA 8260B														Lead by EPA 7420 or 6010B(*)
			TPH <sub>g</sub> (mg/kg)	TPH <sub>d</sub> (mg/kg)	TPH <sub>o</sub> (mg/kg)	Benzene (µg/kg)	1,1,2-Trichloroethane (µg/kg)	Isopropylbenzene (µg/kg)	Toluene (µg/kg)	Ethylbenzene (µg/kg)	Total Xylenes (µg/kg)	n-Propylbenzene (µg/kg)	1,3,5-Trimethylbenzene (µg/kg)	tert-Butylbenzene (µg/kg)	1,2,4-Trimethylbenzene (µg/kg)	Sec-Butylbenzene (µg/kg)	p-Isopropyltoluene (µg/kg)	n-Butylbenzene (µg/kg)	Naphthalene (µg/kg)	Total Lead (mg/kg)
CB11-10	2/18/2004	10	< 0.5	< 5	< 50	< 2	< 5	< 5	< 2	< 2	< 4	< 5	< 5	< 5	< 5	< 5	< 5	< 5	4.2	
CB11-15	2/18/2004	15	11.0	< 5	< 50	< 2	< 5	< 5	< 2	< 2	< 4	< 5	< 5	< 5	< 5	< 5	< 5	11.4	< 2.5	
CB12-10	2/18/2004	10	< 0.5	< 5	< 50	< 2	< 5	< 5	< 2	< 2	< 4	< 5	< 5	< 5	< 5	< 5	< 5	< 5	2.5	
CB13-5	2/18/2004	5	< 0.5	< 5	< 50	< 2	< 5	< 5	< 2	< 2	< 4	< 5	< 5	< 5	< 5	< 5	< 5	< 5	41	
CB13-10	2/18/2004	10	51.8	< 5	< 50	< 2	< 5	< 5	< 2	340	140	< 5	110	< 5	250	< 5	< 5	< 5	135	< 2.5
CB13-15	2/18/2004	15	5.3	< 5	< 50	< 2	< 5	< 5	< 2	< 2	< 4	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	2.5
CB13-20	2/18/2004	20	0.7	< 5	< 50	< 2	< 5	< 5	< 2	< 2	< 4	< 5	< 5	< 5	< 5	< 5	< 5	< 5	5	< 2.5
CB14-5	2/18/2004	5	< 0.5	< 5	< 50	< 2	< 5	< 5	< 2	< 2	< 4	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	2.5
CB14-10	2/18/2004	10	< 0.5	< 5	< 50	< 2	< 5	< 5	< 2	< 2	< 4	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	2.5
CB14-15	2/18/2004	15	< 0.5	< 5	< 50	< 2	< 5	< 5	< 2	< 2	< 4	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	2.5
CB14-20	2/18/2004	20	< 0.5	< 5	< 50	< 2	< 5	< 5	< 2	< 2	< 4	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	2.5
SB01-5	12/23/2008	5	< 0.5	< 10	< 50	< 2	< 5	< 5	< 2	< 2	< 4	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	8.7*
SB01-10	12/23/2008	10	< 0.5	< 10	< 50	< 2	< 5	< 5	< 2	< 2	< 4	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	8.0*
SB01-15	12/23/2008	15	78.7	187	891	< 10	< 25	< 25	< 10	< 10	< 20	< 25	8.4J	< 25	6.2J	94.1	< 25	304	< 25	7.4*
SB01-20	12/23/2008	20	< 0.5	16	61	< 2	< 5	< 5	< 2	< 2	< 4	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	6.7*
SB02-10	12/23/2008	10	< 0.5	< 10	< 50	< 2	< 5	< 5	< 2	< 2	< 4	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	6.7*
SB02-15	12/23/2008	15	5.1	54	313	< 4	< 10	< 10	< 4	< 4	< 8	< 10	< 10	58.4	< 10	5.2J	< 10	6.2J	< 10	7.4*
SB02-20	12/23/2008	20	< 0.5	< 10	< 50	< 2	< 5	< 5	< 2	< 2	< 4	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	6.1*
<b>Environmental Screening Level (ESL)</b>			100	100	1,000	44	70	NE	2900	3300	1500	NE	NE	NE	NE	NE	NE	NE	NE	750

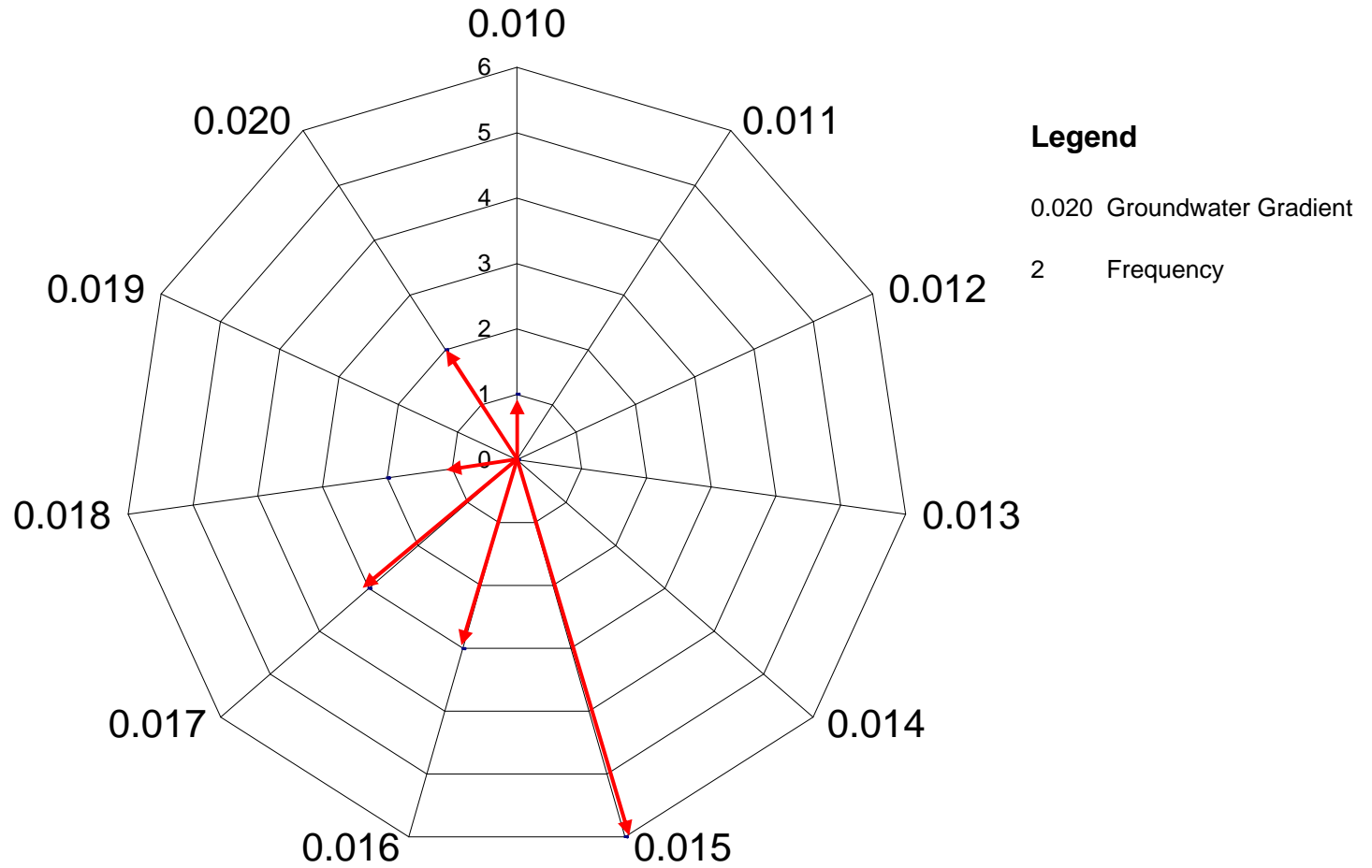
Notes:  
TPH<sub>g</sub>- Total Petroleum Hydrocarbons, gasoline range (C4-C-12)  
TPH<sub>d</sub>- Total Petroleum Hydrocarbons, diesel range (C13-C-13)  
TPH<sub>o</sub>- Total Petroleum Hydrocarbons, oil range (C24-C-40)  
(µg/kg) = micrograms per kilogram  
(mg/kg) = milligrams per kilogram  
ft bgs = feet below ground surface  
< = Analyte not detected at or above indicated method detection limit

Environmental Screening Level (ESL) for Shallow Soils, San Francisco, RWQCB revised 9/4/03 (Summary Table /  
NE - ESL Not Established

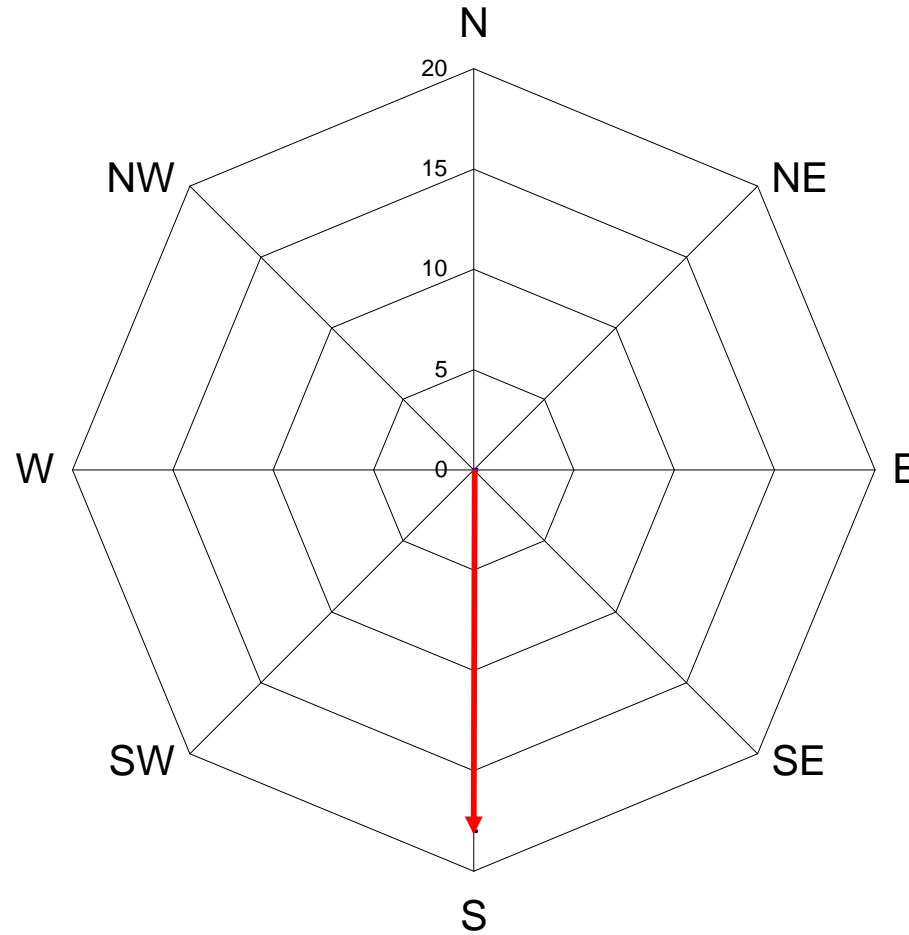
**APPENDIX J**

**ROSE DIAGRAMS FOR HISTORICAL GROUNDWATER GRADIENT  
AND FLOW DIRECTION**

Appendix J  
Historic Hydraulic Gradient Diagram  
Sears Auto Center #1058B  
2600 Telegraph Avenue, Oakland, CA  
February 25, 2000 - November 13, 2008



Appendix J  
Historic Hydraulic Flow Direction Diagram  
Sears Auto Center #1058B  
2600 Telegraph Avenue, Oakland, CA  
February 25, 2000 - November 13, 2008



**Legend**

- S Groundwater FlowDirection
- 18 Frequency

**APPENDIX K**  
**WELL SURVEY DATA**



## **Well Legend**

DOM=Domestic well

IRR=Irrigation well

MUN= Municipal well

IND=Industrial well

CAT=Cathodic well

DES=well destroyed (through permit)

ABN=Abandoned and not being used (but has not been destroyed through permit process)

TES=Test well

BOR= Geotechnical investigation

MON= Monitoring well

EXT=Extraction/ Vapor wells

PIE=Piezometers

REC=Recovery well (extraction/ vapor)

? = Unknown or no information found or given







**County** where the well is located.

**Assessor's Parcel Number** or APN Book, Page and Parcel numbers. While this information is useful, it is not an adequate substitute for Township and Range or a location determined by GPS.

**Township, Range and Section.** This information is available from U.S. Geological

Survey topographic maps, which can be purchased from dealers throughout California. Check the USGS Web site at [mapping.usgs.gov/esic/map\\_dealers/ca.html](http://mapping.usgs.gov/esic/map_dealers/ca.html) for a list of dealers.

DWR, USGS and other agencies use a system for numbering wells which is an extension of the system for the Public Lands Survey. Each well is assigned a unique

---

### **Township, Range and Section**

Much of California is divided according to a rectangular coordinate system called the United States System of Surveying the Public Lands, or more commonly, the Public Lands Survey. Through a system of land subdivision based on east-west and north-south lines, land in California is divided into squares called townships, ranges and sections.

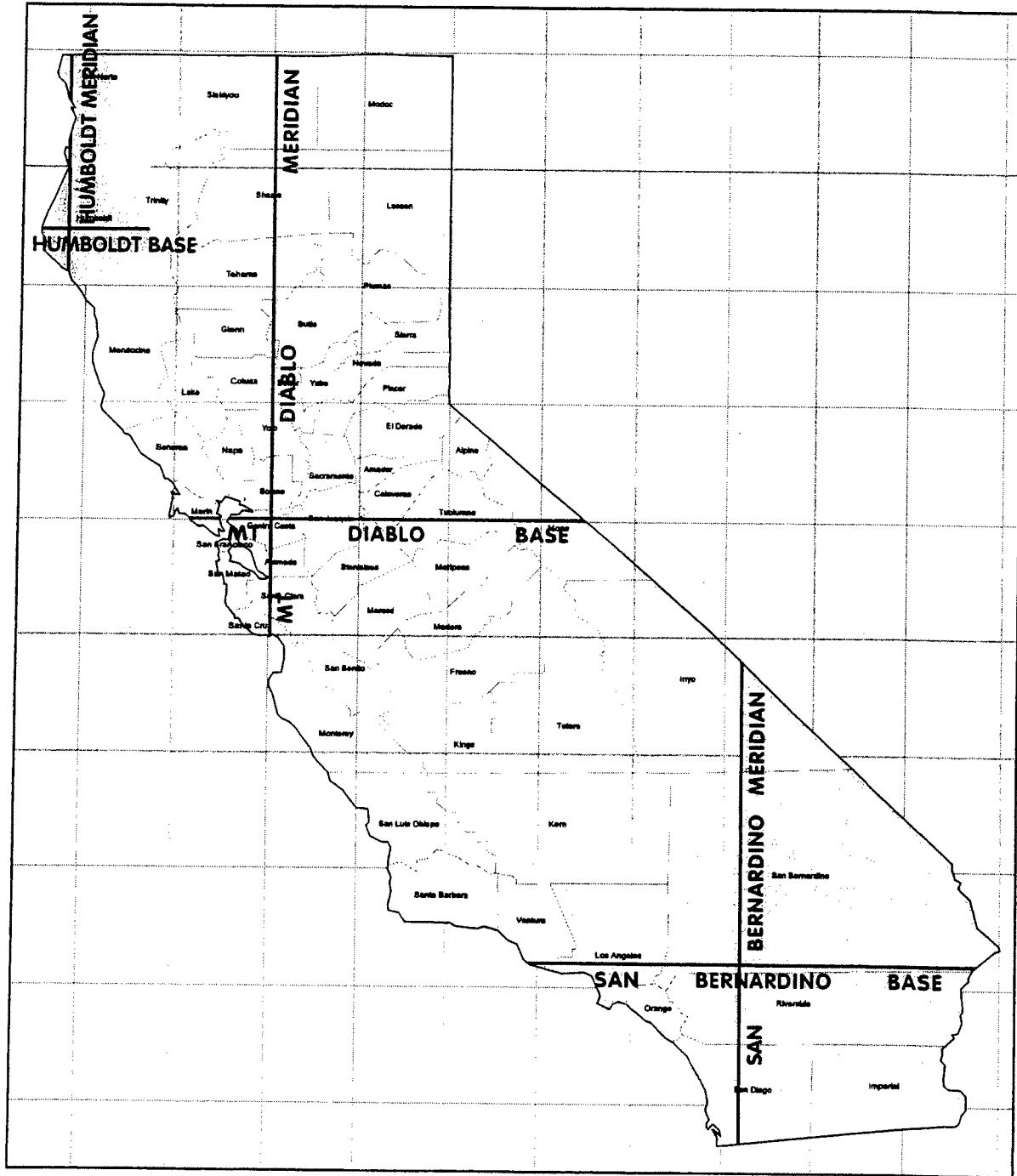
Under the Public Lands Survey, all tracts of land are related to one of three "points" in California (see map on page 21). These points are the intersection of an eastwest "baseline" and a north-south "meridian." The three baselines and meridians in California are Humboldt Base and Meridian (Humboldt County), Mt. Diablo Base and Meridian (Contra Costa County) and San Bernardino Base and Meridian (San Bernardino County).

The Public Lands Survey divides the land into "townships." A township is a square parcel of land that is six miles on each side. Its location is established as being so many six-mile units called a Township, north or south of its baseline, and so many six-mile units called a Range, east or west of its meridian.

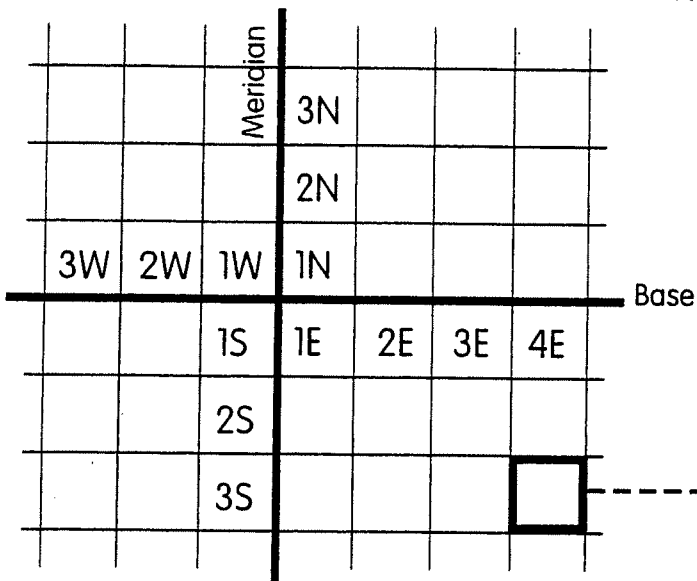
Each township is further divided into 36 parts called "sections." Each section contains 640 acres or one square mile. Because of the Earth's curvature, not all townships are square, not all townships contain 36 sections and not all sections contain 640 acres.

Since Spanish land grants predate the Public Lands Survey, they are not subdivided by the Public Lands Survey. Similarly, reclaimed lands were not included in the Public Lands Survey. However, DWR, in cooperation with the State Water Resources Control Board and the U.S. Geological Survey, has drawn section lines on 7-1/2 -minute topographic maps showing land grant boundaries.

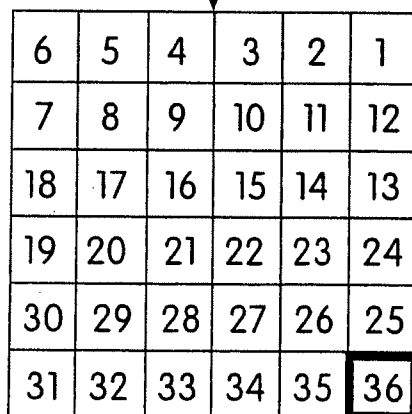
## The 3 Baselines and Meridians in California



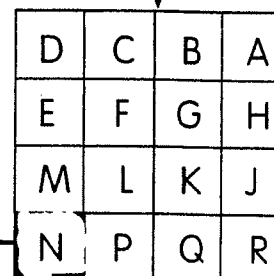
# State Well Number T3S/R4E-36N04S



San Bernardino Base  
and Meridian  
Township and Range  
Numbering System

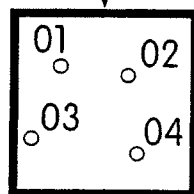


Township 03 South,  
Range 04 East  
Section Numbering System

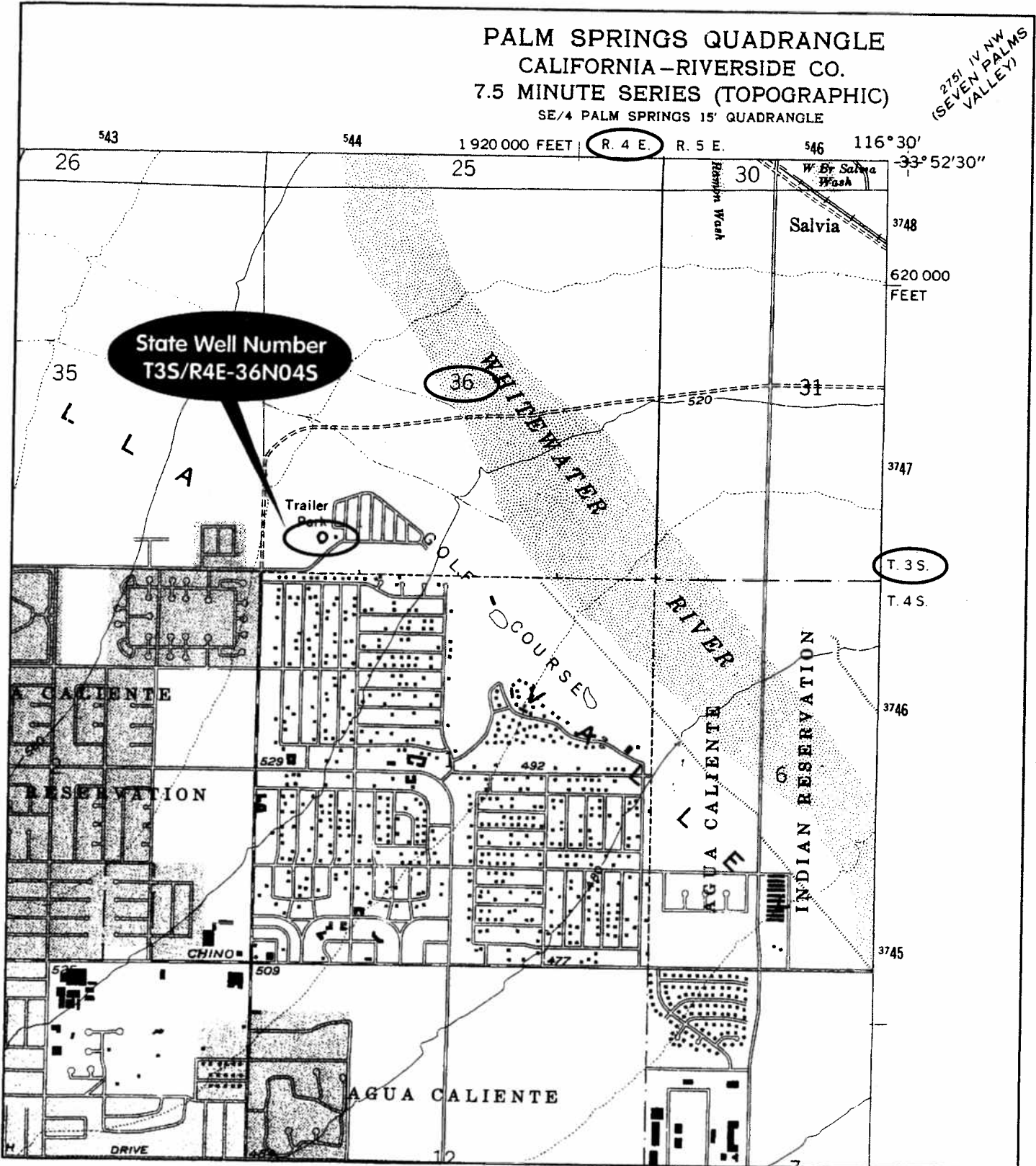


Section 36  
Tract Numbering  
System

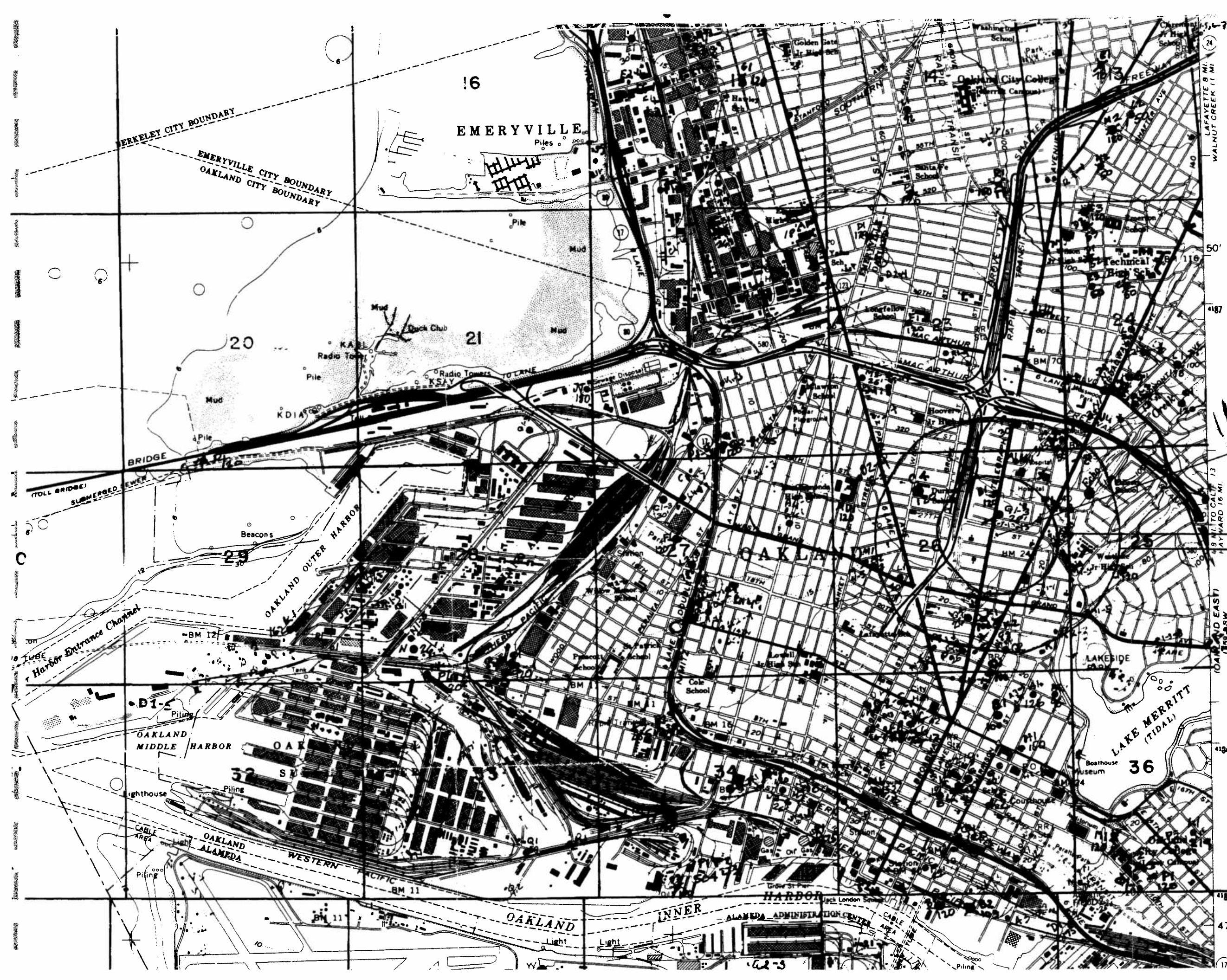
Tract "N"  
Well Numbering  
System and Location



# Section of USGS Quadrangle Map for State Well Number T3S/R4E-36N04S







SEARS Oakland #1058B  
2600 Telegraph Ave.  
Oakland, Ca

1/4 mile RADIUS  
1/2 mile RADIUS

T. 1S.  
T. 2S.

47'30"

**APPENDIX L**  
**OAKLAND ULR ELIGIBILITY CHECKLIST**

## Oakland RBCA Eligibility Checklist



The Oakland Tier 1 RBSLs and Tier 2 SSTLs are intended to address human health concerns at the majority of sites in Oakland where commonly-found contaminants are present. Complicated sites—especially those with continuing releases, ecological concerns or unusual subsurface conditions—will likely require a Tier 3 analysis. The following checklist is designed to assist you in determining your site’s eligibility for the Oakland RBCA levels.

CRITERIA	YES	NO
1. Is there a continuing, <i>primary</i> source of a chemical of concern, such as a leaking container, tank or pipe? (This does <i>not</i> include residual sources.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Is there any mobile or potentially-mobile free product?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Are there more than five chemicals of concern at the site at a concentration greater than the lowest applicable Oakland RBCA level?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Are there any preferential vapor migration pathways—such as gravel channels or utility corridors—that are potential conduits for the migration, on-site or off-site, of a volatilized chemical of concern?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Do both of the following conditions exist?		
(a) Groundwater is at depths less than 300 cm (10 feet)		
(b) Inhalation of volatilized chemicals of concern from groundwater in indoor or outdoor air is a pathway of concern but groundwater ingestion is <i>not</i> *	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Are there any existing on-site or off-site structures intended for future use where exposure to indoor air vapors from either soil or groundwater is of concern <i>and</i> one of the following three conditions is present?		
(a) A slab-on-grade foundation that is less than 15 cm (6 inches) thick		
(b) An enclosed, below-grade space (e.g., a basement) that has floors or walls less than 15 cm (6 inches) thick		
(c) A crawl space that is not ventilated	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Are there any immediate, acute health risks to humans associated with contamination at the site, including explosive levels of a chemical?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Are there any complete exposure pathways to nearby ecological receptors, such as endangered species, wildlife refuge areas, wetlands, surface water bodies or other protected areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

\*If groundwater ingestion *is* a pathway of concern, the associated Oakland RBCA levels will be more stringent than those for any groundwater-related inhalation scenario, rendering depth to groundwater irrelevant in the risk analysis.

If you answer “no” to all questions, your site is eligible for the Oakland RBCA levels. If you answer “yes” to any of the questions, your site is *not* eligible for the Oakland RBCA levels at this time.

**APPENDIX M**  
**OAKLAND ULR TIER 2 SSTLs**

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Arsenic	Barium	Benz(a)-anthracene	Benzene		
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic					3.8E+00		3.7E+00	3.7E+01		
			Hazard	3.9E+03	3.9E+03	5.8E+03	1.9E+04	2.2E+01	5.3E+03		9.9E+01		
		Commercial/ Industrial	Carcinogenic					2.4E+01		1.6E+01	1.5E+02		
			Hazard	4.0E+04	4.0E+04	5.4E+04	2.0E+05	3.8E+02	1.2E+05		9.2E+02		
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							SAT	7.0E-01		
			Hazard	SAT	SAT	1.8E+03	SAT				2.3E+00		
		Commercial/ Industrial	Carcinogenic							SAT	1.1E+01		
			Hazard	SAT	SAT	5.3E+04	SAT				6.7E+01		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							SAT	3.9E+00		
			Hazard	SAT	SAT	1.2E+04	SAT				1.6E+01		
		Commercial/ Industrial	Carcinogenic							SAT	1.5E+01		
			Hazard	SAT	SAT	7.0E+04	SAT				9.1E+01		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic						2.1E+01	6.0E+02	3.2E+01	1.0E-02	
			Hazard	SAT	SAT	2.1E+00	SAT	2.1E+01	6.0E+02		1.0E-02		
		Commercial/ Industrial	Carcinogenic							2.1E+01	6.0E+02	SAT	1.0E-02
			Hazard	SAT	SAT	1.4E+01	SAT	2.1E+01	6.0E+02		1.0E-02		
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							>SOL	1.4E+00		
			Hazard	>SOL	>SOL	2.0E+04	>SOL				4.7E+00		
		Commercial/ Industrial	Carcinogenic							>SOL	2.2E+01		
			Hazard	>SOL	>SOL	5.9E+05	>SOL				1.4E+02		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							>SOL	1.8E+02		
			Hazard	>SOL	>SOL	4.2E+05	>SOL				7.2E+02		
		Commercial/ Industrial	Carcinogenic							>SOL	6.9E+02		
			Hazard	>SOL	>SOL	>SOL	>SOL				>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic						5.0E-02	1.0E+00	5.6E-04	1.0E-03	
			Hazard	9.4E-01	9.4E-01	1.6E+00	>SOL	5.0E-02	1.0E+00		1.0E-03		
		Commercial/ Industrial	Carcinogenic					5.0E-02	1.0E+00	2.4E-03	1.0E-03		
			Hazard	>SOL	>SOL	1.0E+01	>SOL	5.0E-02	1.0E+00		1.0E-03		
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic					2.0E-02		1.6E-04	6.3E-02		
			Hazard	1.1E+00	1.7E+00	4.2E+01	>SOL	1.2E-01	2.8E+01		1.8E-01		

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(g,h,i)-perylene	Benzo(k)-fluoranthene	Beryllium	Bis (2-ethylhexyl) phthalate	Butyl benzyl phthalate
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	3.7E-01	3.7E+00		3.7E+00	4.5E+04	5.3E+02	
			Hazard			2.6E+02		3.8E+02	1.3E+03	1.3E+04
		Commercial/ Industrial	Carcinogenic	1.6E+00	1.6E+01		1.6E+01	1.7E+05	2.3E+03	
			Hazard			2.7E+03		8.5E+03	1.4E+04	1.4E+05
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
		Commercial/ Industrial	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
		Commercial/ Industrial	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	SAT	SAT		SAT	4.6E+01	SAT	
			Hazard	SAT		SAT		4.6E+01	SAT	SAT
		Commercial/ Industrial	Carcinogenic	SAT	SAT		SAT	4.6E+01	SAT	
			Hazard	SAT		SAT		4.6E+01	SAT	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	2.0E-04	5.6E-04		5.6E-04	4.0E-03	8.0E-02	
			Hazard	2.0E-04		>SOL		4.0E-03	3.1E-01	>SOL
		Commercial/ Industrial	Carcinogenic	2.0E-04	>SOL		>SOL	4.0E-03	>SOL	
			Hazard	2.0E-04		>SOL		4.0E-03	>SOL	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	1.1E-05	1.1E-04		1.2E-04		>SOL	
			Hazard			>SOL		2.0E+00	>SOL	>SOL

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Cadmium	Carbon Disulfide	Carbon Tetrachloride	Chloro-benzene	Chloroform	Chromium (III)	Chromium (VI)	
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.1E+04		2.5E+01		1.3E+02		1.4E+01	
			Hazard	3.8E+01	1.3E+03	4.0E+01	9.2E+02	5.8E+02	7.7E+04	3.8E+02	
		Commercial/ Industrial	Carcinogenic	7.9E+04		1.0E+02		5.3E+02		1.1E+02	
			Hazard	8.5E+02	7.0E+03	3.6E+02	7.2E+03	5.4E+03	1.7E+06	8.5E+03	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			2.7E-01		3.4E+00			
			Hazard		1.1E+00	4.5E-01	6.5E-01	1.3E+01			
		Commercial/ Industrial	Carcinogenic			4.3E+00		5.4E+01			
			Hazard		3.3E+01	1.3E+01	1.9E+01	3.7E+02			
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			1.5E+00		1.9E+01			
			Hazard		7.6E+00	3.0E+00	4.4E+00	8.5E+01			
		Commercial/ Industrial	Carcinogenic			5.8E+00		7.2E+01			
			Hazard		4.4E+01	1.8E+01	2.5E+01	4.9E+02			
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	<i>5.5E+00</i>			1.4E-02	3.3E-01	7.3E-01		1.4E+01
			Hazard	<i>5.5E+00</i>	1.4E+01	1.4E-02	3.3E-01	7.3E-01	4.1E+08	1.4E+01	
		Commercial/ Industrial	Carcinogenic	<i>5.5E+00</i>			1.4E-02	3.3E-01	7.3E-01		1.4E+01
			Hazard	<i>5.5E+00</i>	9.1E+01	1.4E-02	3.3E-01	7.3E-01	2.7E+09	1.4E+01	
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			2.7E-01		9.1E+00			
			Hazard		3.3E+00	4.5E-01	4.0E+00	3.4E+01			
		Commercial/ Industrial	Carcinogenic			4.3E+00		1.4E+02			
			Hazard		9.5E+01	1.3E+01	1.2E+02	9.8E+02			
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			5.6E+01		1.0E+03			
			Hazard		7.3E+02	1.1E+02	>SOL	4.5E+03			
		Commercial/ Industrial	Carcinogenic			2.1E+02		3.9E+03			
			Hazard		>SOL	6.5E+02	>SOL	>SOL			
	Ingestion of Groundwater	Residential	Carcinogenic	<i>5.0E-03</i>			5.0E-04	7.0E-02	1.0E-01		5.0E-02
			Hazard	<i>5.0E-03</i>	1.6E+00	5.0E-04	7.0E-02	1.0E-01	1.6E+01	5.0E-02	
		Commercial/ Industrial	Carcinogenic	<i>5.0E-03</i>			5.0E-04	7.0E-02	1.0E-01		5.0E-02
			Hazard	<i>5.0E-03</i>	1.0E+01	5.0E-04	7.0E-02	1.0E-01	1.0E+02	5.0E-02	
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			4.1E-02		3.9E-01		6.8E-02	
			Hazard	2.0E-01	9.4E+00	7.1E-02	1.2E+00	1.9E+00	3.8E+02	1.9E+00	

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Chrysene	Copper	Cresol(-m)	Cresol(-o)	Cresol(-p)	Cyanide	Dibenz(a,h)-anthracene	
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	3.7E+01						1.1E+00	
			Hazard		2.8E+03	3.2E+03	3.2E+03	3.2E+02	3.1E+03		
		Commercial/ Industrial	Carcinogenic	1.6E+02							4.7E+00
			Hazard		6.3E+04	3.3E+04	3.3E+04	3.3E+03	6.8E+04		
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT						SAT	
			Hazard			SAT	SAT	SAT			
		Commercial/ Industrial	Carcinogenic	SAT							SAT
			Hazard			SAT	SAT	SAT			
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT							SAT
			Hazard			SAT	SAT	SAT			
		Commercial/ Industrial	Carcinogenic	SAT							SAT
			Hazard			SAT	SAT	SAT			
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	SAT	1.7E+00					2.9E+01	9.1E+01
			Hazard		1.7E+00	1.1E+01	1.1E+01	1.0E+00	2.9E+01		
		Commercial/ Industrial	Carcinogenic	SAT	1.7E+00					2.9E+01	SAT
			Hazard		1.7E+00	7.1E+01	7.4E+01	6.7E+00	2.9E+01		
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL						>SOL	
			Hazard			>SOL	>SOL	>SOL			
		Commercial/ Industrial	Carcinogenic	>SOL							>SOL
			Hazard			>SOL	>SOL	>SOL			
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL							>SOL
			Hazard			>SOL	>SOL	>SOL			
		Commercial/ Industrial	Carcinogenic	>SOL							>SOL
			Hazard			>SOL	>SOL	>SOL			
	Ingestion of Groundwater	Residential	Carcinogenic	>SOL	1.3E+00					2.0E-01	1.6E-04
			Hazard		1.3E+00	7.8E-01	7.8E-01	7.8E-02	2.0E-01		
		Commercial/ Industrial	Carcinogenic	>SOL	1.3E+00					2.0E-01	7.0E-04
			Hazard		1.3E+00	5.1E+00	5.1E+00	5.1E-01	2.0E-01		
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	>SOL						1.4E-05	
			Hazard		1.5E+01	6.7E+00	6.4E+00	5.9E-01	7.0E+00		

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water



Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Dichloro-ethane (1,1-)	Dichloro-ethane (1,2-) (EDC)	Dichloro-ethylene (1,1-)	Dichloro-ethylene (cis 1,2-)	Dichloro-ethene (trans 1,2)	Dimethylbenz(a)anthracene (7,12)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	6.6E+02	5.3E+01	7.0E+00			
			Hazard	6.0E+03	1.7E+02	5.2E+02	5.8E+02	1.2E+03	2.0E+03
		Commercial/ Industrial	Carcinogenic	2.7E+03	2.2E+02	3.0E+01			
			Hazard	5.8E+04	1.6E+03	4.9E+03	5.4E+03	1.1E+04	2.0E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	8.8E+00	1.8E+00	9.2E-02			
			Hazard	1.4E+02	7.2E+00	2.9E+00	1.5E+01	1.9E+01	
		Commercial/ Industrial	Carcinogenic	1.4E+02	2.9E+01	1.5E+00			
			Hazard	SAT	2.1E+02	8.5E+01	4.3E+02	5.5E+02	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	5.0E+01	1.0E+01	5.2E-01			
			Hazard	9.3E+02	4.8E+01	2.0E+01	9.9E+01	1.3E+02	
		Commercial/ Industrial	Carcinogenic	1.9E+02	3.9E+01	2.0E+00			
			Hazard	SAT	2.8E+02	1.1E+02	5.7E+02	7.4E+02	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	3.1E-02	1.9E-03	7.0E-02	4.0E-02	9.6E-02	
			Hazard	3.1E-02	1.9E-03	7.0E-02	4.0E-02	9.6E-02	SAT
		Commercial/ Industrial	Carcinogenic	3.1E-02	1.9E-03	7.0E-02	4.0E-02	9.6E-02	
			Hazard	3.1E-02	1.9E-03	7.0E-02	4.0E-02	9.6E-02	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	2.8E+01	7.7E+00	2.2E-01			
			Hazard	4.3E+02	3.1E+01	7.0E+00	4.0E+01	4.2E+01	
		Commercial/ Industrial	Carcinogenic	4.4E+02	1.2E+02	3.5E+00			
			Hazard	>SOL	8.9E+02	2.0E+02	1.2E+03	1.2E+03	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	3.2E+03	4.1E+02	4.5E+01			
			Hazard	>SOL	2.0E+03	1.7E+03	>SOL	>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	1.6E+03	1.7E+02			
			Hazard	>SOL	>SOL	>SOL	>SOL	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	5.0E-03	5.0E-04	6.0E-03	6.0E-03	1.0E-02	
			Hazard	5.0E-03	5.0E-04	6.0E-03	6.0E-03	1.0E-02	>SOL
		Commercial/ Industrial	Carcinogenic	5.0E-03	5.0E-04	6.0E-03	6.0E-03	1.0E-02	
			Hazard	5.0E-03	5.0E-04	6.0E-03	6.0E-03	1.0E-02	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	2.1E+00	2.4E-01	1.3E-02			
			Hazard	1.9E+01	7.2E-01	1.2E+00	1.8E+00	3.5E+00	>SOL

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Dimethyl-phenol (2,4)	di-n-Butyl-phthalate	di-n-octyl phthalate	Dinitro-toluene (2,4)	Dioxane (1,4)	Ethyl-benzene	Ethylene Dibromide	Flouran-thene	
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic				1.4E+01	1.4E+02		1.2E+00		
			Hazard	1.3E+03	6.5E+03	1.3E+03			6.3E+03	3.3E+00	2.6E+03	
		Commercial/ Industrial	Carcinogenic				6.0E+01	5.6E+02			5.2E+00	
			Hazard	1.3E+04	6.8E+04	1.4E+04			6.3E+04	3.1E+01	2.7E+04	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic				SAT	SAT		2.9E+00		
			Hazard	SAT	SAT	SAT			SAT	8.1E-01	SAT	
		Commercial/ Industrial	Carcinogenic				SAT	SAT			4.6E+01	
			Hazard	SAT	SAT	SAT			SAT	2.4E+01	SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic				SAT	SAT			1.6E+01	
			Hazard	SAT	SAT	SAT			SAT	5.4E+00	SAT	
		Commercial/ Industrial	Carcinogenic				SAT	SAT			6.2E+01	
			Hazard	SAT	SAT	SAT			SAT	3.2E+01	SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic				3.3E-02	SAT	3.8E+01	3.8E-04		
			Hazard	9.9E+00	SAT	SAT			3.8E+01	3.8E-04	SAT	
		Commercial/ Industrial	Carcinogenic				1.4E-01	SAT	3.8E+01	3.8E-04		
			Hazard	6.5E+01	SAT	SAT			3.8E+01	3.8E-04	SAT	
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic				>SOL	>SOL		5.9E+00		
			Hazard	>SOL	>SOL	>SOL			>SOL	1.6E+00	>SOL	
		Commercial/ Industrial	Carcinogenic				>SOL	>SOL			9.3E+01	
			Hazard	>SOL	>SOL	>SOL			>SOL	4.8E+01	>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic				>SOL	>SOL		1.8E+02		
			Hazard	>SOL	>SOL	>SOL			>SOL	6.0E+01	>SOL	
		Commercial/ Industrial	Carcinogenic				>SOL	>SOL			6.9E+02	
			Hazard	>SOL	>SOL	>SOL			>SOL	3.5E+02	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic				2.2E-03	>SOL	7.0E-01	5.0E-05		
			Hazard	3.1E-01	1.6E+00	>SOL			7.0E-01	5.0E-05	>SOL	
		Commercial/ Industrial	Carcinogenic				9.2E-03	>SOL	7.0E-01	5.0E-05		
			Hazard	2.0E+00	1.0E+01	>SOL			7.0E-01	5.0E-05	>SOL	
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic				6.4E-02	>SOL		5.9E-03		
			Hazard	2.7E+00	7.3E+00	2.1E-03			3.6E+00	1.7E-02	>SOL	

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Fluorene	Indeno-(1,2,3-CD)-pyrene	Mercury	Methanol	Methyl ethyl ketone	Methylene Chloride	Methyl-naphthalene (2-)	MTBE	
Surficial Soil [mg/kg]	Ingestion/Dermal/Inhalation	Residential	Carcinogenic		3.7E+00				3.0E+02			
			Hazard	2.6E+03		5.8E+00	2.9E+04	3.1E+04	3.9E+03	2.5E+03	3.3E+02	
		Commercial/Industrial	Carcinogenic		1.6E+01					1.3E+03		
			Hazard	2.7E+04		5.5E+01	2.7E+05	2.7E+05	4.0E+04	2.6E+04	3.4E+03	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		SAT				1.3E+01			
			Hazard	SAT		1.2E+01	5.6E+04	7.9E+03	8.0E+02	SAT	4.8E+03	
		Commercial/Industrial	Carcinogenic		SAT					2.1E+02		
			Hazard	SAT			SAT	SAT	SAT	SAT	SAT	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		SAT				7.6E+01			
			Hazard	SAT		8.2E+01	SAT	SAT	SAT	SAT	SAT	
		Commercial/Industrial	Carcinogenic		SAT					2.9E+02		
			Hazard	SAT		4.7E+02	SAT	SAT	SAT	SAT	SAT	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic		SAT	1.5E+00				1.6E-02		4.0E-02
			Hazard	SAT		1.5E+00	9.9E+00	1.8E+01	1.6E-02	7.7E+02	4.0E-02	
		Commercial/Industrial	Carcinogenic		SAT	1.5E+00				1.6E-02		4.0E-02
			Hazard	SAT		1.5E+00	6.5E+01	1.2E+02	1.6E-02	SAT	4.0E-02	
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		>SOL				7.6E+01			
			Hazard	>SOL		3.4E-01	6.6E+05	6.2E+04	4.5E+03	>SOL	2.5E+04	
		Commercial/Industrial	Carcinogenic		>SOL					1.2E+03		
			Hazard	>SOL		9.8E+00	>SOL	>SOL	>SOL	>SOL	>SOL	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		>SOL					5.8E+03		
			Hazard	>SOL		5.4E+01	>SOL	>SOL	>SOL	>SOL	>SOL	>SOL
		Commercial/Industrial	Carcinogenic		>SOL					>SOL		
			Hazard	>SOL		3.1E+02	>SOL	>SOL	>SOL	>SOL	>SOL	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic		>SOL	2.0E-03				5.0E-03		1.3E-02
			Hazard	6.3E-01		2.0E-03	7.8E+00	9.4E+00	5.0E-03	6.3E-01	1.3E-02	
		Commercial/Industrial	Carcinogenic		>SOL	2.0E-03				5.0E-03		1.3E-02
			Hazard	>SOL		2.0E-03	5.1E+01	6.1E+01	5.0E-03	4.1E+00	1.3E-02	
Water Used for Recreation [mg/l]	Ingestion/Dermal	Residential	Carcinogenic		>SOL				1.3E+00			
			Hazard	3.1E-01		3.6E-02	2.2E+02	1.5E+02	1.6E+01	6.1E-01	1.5E+00	

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Naphthalene	Nickel	Nitrobenzene	PCBs	Phenanthrene	Phenol	Pyrene	Pyridine	Selenium	
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		3.4E+05	7.8E+03	6.5E-01				4.1E+03		
			Hazard	2.5E+03	1.5E+03		1.4E+00	1.9E+04	3.8E+04	2.0E+03		3.8E+02	
		Commercial/ Industrial	Carcinogenic		1.3E+06	3.3E+04	3.3E+00					1.7E+04	
			Hazard	2.5E+04	3.4E+04		1.8E+01	2.0E+05	3.9E+05	2.0E+04			8.5E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			SAT	6.9E+02				3.0E+04		
			Hazard	SAT			SAT	SAT	SAT	SAT			
		Commercial/ Industrial	Carcinogenic			SAT	SAT					4.8E+05	
			Hazard	SAT			SAT	SAT	SAT	SAT			
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			SAT	SAT					1.6E+05	
			Hazard	SAT			SAT	SAT	SAT	SAT			
		Commercial/ Industrial	Carcinogenic			SAT	SAT					6.1E+05	
			Hazard	SAT			SAT	SAT	SAT	SAT			
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	<i>5.8E+00</i>	<i>9.5E+01</i>	1.4E+01	2.2E+01					6.1E+00	3.7E+00
			Hazard	<i>5.8E+00</i>	<i>9.5E+01</i>		2.2E+01	SAT	5.1E+01	SAT			3.7E+00
		Commercial/ Industrial	Carcinogenic	<i>5.8E+00</i>	<i>9.5E+01</i>	6.1E+01	2.2E+01					2.6E+01	3.7E+00
			Hazard	<i>5.8E+00</i>	<i>9.5E+01</i>		2.2E+01	SAT	3.3E+02	SAT			3.7E+00
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			>SOL	2.4E-01				4.9E+04		
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL					7.8E+05	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL	>SOL		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			>SOL	>SOL					7.7E+05	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL					>SOL	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	<i>2.0E-02</i>	<i>1.0E-01</i>	1.3E+00	5.0E-04					6.7E-01	5.0E-02
			Hazard	<i>2.0E-02</i>	<i>1.0E-01</i>		5.0E-04	>SOL	9.4E+00	>SOL			5.0E-02
		Commercial/ Industrial	Carcinogenic	<i>2.0E-02</i>	<i>1.0E-01</i>	5.7E+00	5.0E-04					2.9E+00	5.0E-02
			Hazard	<i>2.0E-02</i>	<i>1.0E-01</i>		5.0E-04	>SOL	6.1E+01	>SOL			5.0E-02
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			2.8E+01	1.6E-05				2.6E+01		
			Hazard	1.5E+00	7.9E+00		4.4E-05	>SOL	1.5E+02	>SOL		2.0E+00	

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Silver	Stryene	Tetrachloro-ethane (1,1,2,2-)	Tetrachloro-ethylene (PCE)	Tetraethyl Lead	Toluene	Trichloro-ethane (1,1,1-)	Trichloro-ethane (1,1,2-)	
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic			1.4E+01	8.1E+01				5.2E+01	
			Hazard	3.8E+02	1.2E+04	1.5E+03	5.8E+02	6.5E-03	1.1E+04	2.2E+03	2.3E+02	
		Commercial/ Industrial	Carcinogenic			5.6E+01	3.4E+02					2.1E+02
			Hazard	8.5E+03	1.2E+05	1.4E+04	5.4E+03	6.8E-02	9.4E+04	2.3E+04	2.2E+03	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			7.5E+00	3.0E+00				5.6E+00	
			Hazard		SAT	1.0E+03	1.2E+01		3.7E+02	2.6E+02	3.2E+01	
		Commercial/ Industrial	Carcinogenic			1.2E+02	4.8E+01					9.0E+01
			Hazard		SAT	SAT	SAT		SAT	SAT		9.2E+02
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			4.3E+01	1.7E+01					3.2E+01
			Hazard		SAT	SAT	8.3E+01		SAT	SAT		2.1E+02
		Commercial/ Industrial	Carcinogenic			1.6E+02	6.5E+01					1.2E+02
			Hazard		SAT	SAT	SAT		SAT	SAT		1.2E+03
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	<i>1.2E+01</i>	<i>1.1E+01</i>	1.5E-02	1.3E-01	SAT	4.2E+00	3.7E+00	4.3E-02	
			Hazard	<i>1.2E+01</i>	<i>1.1E+01</i>	1.5E-02	1.3E-01	SAT	4.2E+00	3.7E+00	4.3E-02	
		Commercial/ Industrial	Carcinogenic	<i>1.2E+01</i>	<i>1.1E+01</i>	1.5E-02	1.3E-01	SAT	4.2E+00	3.7E+00	4.3E-02	
			Hazard	<i>1.2E+01</i>	<i>1.1E+01</i>	1.5E-02	1.3E-01	SAT	4.2E+00	3.7E+00	4.3E-02	
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			7.8E+00	3.1E+00				1.1E+01	
			Hazard		>SOL	1.1E+03	1.3E+01		2.8E+02	3.7E+02	5.9E+01	
		Commercial/ Industrial	Carcinogenic			1.2E+02	5.0E+01					1.7E+02
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL		1.7E+03
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			2.2E+02	>SOL					4.9E+02
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL		3.3E+03
		Commercial/ Industrial	Carcinogenic			8.5E+02	>SOL					1.9E+03
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL		>SOL
	Ingestion of Groundwater	Residential	Carcinogenic	<i>1.0E-01</i>	<i>1.0E-01</i>	1.0E-03	5.0E-03	1.5E-02	1.5E-01	2.0E-01	5.0E-03	
			Hazard	<i>1.0E-01</i>	<i>1.0E-01</i>	1.0E-03	5.0E-03	1.5E-02	1.5E-01	2.0E-01	5.0E-03	
		Commercial/ Industrial	Carcinogenic	<i>1.0E-01</i>	<i>1.0E-01</i>	1.0E-03	5.0E-03	1.5E-02	1.5E-01	2.0E-01	5.0E-03	
			Hazard	<i>1.0E-01</i>	<i>1.0E-01</i>	1.0E-03	5.0E-03	1.5E-02	1.5E-01	2.0E-01	5.0E-03	
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			4.5E-02	6.0E-02				1.8E-01	
			Hazard	2.1E+00	9.3E+00	4.9E+00	5.3E-01	6.7E-06	1.1E+01	4.3E+00	7.8E-01	

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Trichloroethylene (TCE)	Vanadium	Vinyl Chloride	Xylenes	Zinc
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.6E+02		6.9E+00		
			Hazard	3.5E+02	5.4E+02	6.0E+04	2.3E+04	
		Commercial/ Industrial	Carcinogenic	1.1E+03		2.8E+01		
			Hazard	3.3E+03	1.2E+04	3.8E+05	5.1E+05	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	1.1E+01		1.3E-02		
			Hazard	1.3E+01		SAT		
		Commercial/ Industrial	Carcinogenic	1.7E+02		2.0E-01		
			Hazard	3.7E+02		SAT		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	6.1E+01		7.1E-02		
			Hazard	8.5E+01		SAT		
		Commercial/ Industrial	Carcinogenic	2.3E+02		2.7E-01		
			Hazard	4.9E+02		SAT		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	1.3E-01		2.9E-03	6.4E+01	
			Hazard	1.3E-01	1.6E+03	2.9E-03	6.4E+01	4.2E+03
		Commercial/ Industrial	Carcinogenic	1.3E-01		2.9E-03	6.4E+01	
			Hazard	1.3E-01	1.0E+04	2.9E-03	6.4E+01	2.8E+04
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	9.6E+00		6.0E-02		
			Hazard	1.1E+01		>SOL		
		Commercial/ Industrial	Carcinogenic	1.5E+02		9.6E-01		
			Hazard	3.3E+02		>SOL		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL		1.2E+01		
			Hazard	>SOL		>SOL		
		Commercial/ Industrial	Carcinogenic	>SOL		4.7E+01		
			Hazard	>SOL		>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	5.0E-03		5.0E-04	1.8E+00	
			Hazard	5.0E-03	1.1E-01	5.0E-04	1.8E+00	4.7E+00
		Commercial/ Industrial	Carcinogenic	5.0E-03		5.0E-04	1.8E+00	
			Hazard	5.0E-03	7.2E-01	5.0E-04	1.8E+00	3.1E+01
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	4.6E-02		2.6E-02		
			Hazard	7.2E-02	2.8E+00	6.6E+01	1.2E+02	

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Acenaph-thene	Acenaph-thylene	Acetone	Anthracene	Arsenic	Barium	Benz(a)-anthracene	Benzene	
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic					3.2E+00		2.5E+00	2.7E+01	
			Hazard	3.1E+03	3.1E+03	4.8E+03	1.6E+04	2.0E+01	5.2E+03		8.2E+01	
		Commercial/ Industrial	Carcinogenic					1.5E+01		7.9E+00	8.5E+01	
			Hazard	2.0E+04	2.0E+04	3.0E+04	1.0E+05	2.5E+02	9.4E+04		5.2E+02	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							SAT	1.1E+00	
			Hazard	SAT	SAT	3.3E+03	SAT				3.6E+00	
		Commercial/ Industrial	Carcinogenic							SAT	1.7E+01	
			Hazard	SAT	SAT	9.7E+04	SAT				1.1E+02	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							SAT	2.0E+01	
			Hazard	SAT	SAT	5.7E+04	SAT				8.0E+01	
		Commercial/ Industrial	Carcinogenic							SAT	7.7E+01	
			Hazard	SAT	SAT	SAT	SAT				4.7E+02	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic						8.9E+00	2.5E+02	2.0E+01	6.5E-03
			Hazard	SAT	SAT	1.6E+00	SAT	8.9E+00	2.5E+02		6.5E-03	
		Commercial/ Industrial	Carcinogenic					8.9E+00	2.5E+02	SAT	6.5E-03	
			Hazard	SAT	SAT	1.0E+01	SAT	8.9E+00	2.5E+02		6.5E-03	
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							>SOL	3.4E+00	
			Hazard	>SOL	>SOL	2.2E+04	>SOL				1.1E+01	
		Commercial/ Industrial	Carcinogenic							>SOL	5.3E+01	
			Hazard	>SOL	>SOL	6.2E+05	>SOL				3.2E+02	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							>SOL	1.0E+03	
			Hazard	>SOL	>SOL	>SOL	>SOL			>SOL		
		Commercial/ Industrial	Carcinogenic							>SOL	>SOL	
			Hazard	>SOL	>SOL	>SOL	>SOL				>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic						5.0E-02	1.0E+00	5.6E-04	1.0E-03
			Hazard	9.4E-01	9.4E-01	1.6E+00	>SOL	5.0E-02	1.0E+00		1.0E-03	
		Commercial/ Industrial	Carcinogenic					5.0E-02	1.0E+00	2.4E-03	1.0E-03	
			Hazard	>SOL	>SOL	1.0E+01	>SOL	5.0E-02	1.0E+00		1.0E-03	
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic					2.0E-02		1.6E-04	6.3E-02	
			Hazard	1.1E+00	1.7E+00	4.2E+01	>SOL	1.2E-01	2.8E+01		1.8E-01	

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(g,h,i)-perylene	Benzo(k)-fluoranthene	Beryllium	Bis (2-ethylhexyl) phthalate	Butyl benzyl phthalate
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.5E-01	2.5E+00		2.5E+00	4.5E+04	3.6E+02	
			Hazard			2.1E+02		3.7E+02	1.0E+03	1.0E+04
		Commercial/ Industrial	Carcinogenic	7.9E-01	7.9E+00		7.9E+00	1.7E+05	1.1E+03	
			Hazard			1.4E+03		6.8E+03	6.8E+03	6.8E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
		Commercial/ Industrial	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
		Commercial/ Industrial	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	1.9E+01	SAT		SAT	1.9E+01	SAT	
			Hazard	1.9E+01		SAT		1.9E+01	SAT	SAT
		Commercial/ Industrial	Carcinogenic	1.9E+01	SAT		SAT	1.9E+01	SAT	
			Hazard	1.9E+01		SAT		1.9E+01	SAT	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	2.0E-04	5.6E-04		5.6E-04	4.0E-03	8.0E-02	
			Hazard	2.0E-04		>SOL		4.0E-03	3.1E-01	>SOL
		Commercial/ Industrial	Carcinogenic	2.0E-04	>SOL		>SOL	4.0E-03	>SOL	
			Hazard	2.0E-04		>SOL		4.0E-03	>SOL	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	1.1E-05	1.1E-04		1.2E-04		>SOL	
			Hazard			>SOL		2.0E+00	>SOL	>SOL

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water



Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Cadmium	Carbon Disulfide	Carbon Tetrachloride	Chloro-benzene	Chloroform	Chromium (III)	Chromium (VI)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.1E+04		1.8E+01		9.1E+01		1.3E+01
			Hazard	3.7E+01	1.3E+03	3.3E+01	8.0E+02	4.8E+02	7.4E+04	3.7E+02
		Commercial/ Industrial	Carcinogenic	7.9E+04		5.7E+01		2.9E+02		8.7E+01
			Hazard	6.8E+02	6.7E+03	2.1E+02	4.8E+03	3.0E+03	1.4E+06	6.8E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			4.1E-01		5.3E+00		
			Hazard		1.7E+00	6.8E-01	1.0E+00	2.0E+01		
		Commercial/ Industrial	Carcinogenic			6.5E+00		8.5E+01		
			Hazard		5.0E+01	2.0E+01	3.0E+01	5.8E+02		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			7.6E+00		9.9E+01		
			Hazard		3.8E+01	1.5E+01	2.3E+01	4.4E+02		
		Commercial/ Industrial	Carcinogenic			2.9E+01		3.8E+02		
			Hazard		2.2E+02	8.8E+01	1.3E+02	2.5E+03		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	<i>2.3E+00</i>		<i>8.8E-03</i>	<i>2.1E-01</i>	<i>4.7E-01</i>		5.8E+00
			Hazard	<i>2.3E+00</i>	8.5E+00	<i>8.8E-03</i>	<i>2.1E-01</i>	<i>4.7E-01</i>	1.7E+08	5.8E+00
		Commercial/ Industrial	Carcinogenic	<i>2.3E+00</i>		<i>8.8E-03</i>	<i>2.1E-01</i>	<i>4.7E-01</i>		5.8E+00
			Hazard	<i>2.3E+00</i>	5.6E+01	<i>8.8E-03</i>	<i>2.1E-01</i>	<i>4.7E-01</i>	1.1E+09	5.8E+00
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			1.3E+00		1.9E+01		
			Hazard		1.2E+01	2.2E+00	2.1E+01	7.2E+01		
		Commercial/ Industrial	Carcinogenic			2.1E+01		3.1E+02		
			Hazard		3.6E+02	6.4E+01	>SOL	2.1E+03		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			5.0E+02		5.4E+03		
			Hazard		>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic			>SOL		>SOL		
			Hazard		>SOL	>SOL	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	<i>5.0E-03</i>		<i>5.0E-04</i>	<i>7.0E-02</i>	<i>1.0E-01</i>		5.0E-02
			Hazard	<i>5.0E-03</i>	1.6E+00	<i>5.0E-04</i>	<i>7.0E-02</i>	<i>1.0E-01</i>	1.6E+01	5.0E-02
		Commercial/ Industrial	Carcinogenic	<i>5.0E-03</i>		<i>5.0E-04</i>	<i>7.0E-02</i>	<i>1.0E-01</i>		5.0E-02
			Hazard	<i>5.0E-03</i>	1.0E+01	<i>5.0E-04</i>	<i>7.0E-02</i>	<i>1.0E-01</i>	1.0E+02	5.0E-02
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			4.1E-02		3.9E-01		6.8E-02
			Hazard	2.0E-01	9.4E+00	7.1E-02	1.2E+00	1.9E+00	3.8E+02	1.9E+00

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Chrysene	Copper	Cresol(-m)	Cresol(-o)	Cresol(-p)	Cyanide	Dibenz(a,h)-anthracene	
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.5E+01						7.4E-01	
			Hazard		2.8E+03	2.6E+03	2.6E+03	2.6E+02	3.0E+03		
		Commercial/ Industrial	Carcinogenic	7.9E+01							2.3E+00
			Hazard		5.0E+04	1.7E+04	1.7E+04	1.7E+03	5.5E+04		
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT						SAT	
			Hazard			SAT	SAT	SAT			
		Commercial/ Industrial	Carcinogenic	SAT							SAT
			Hazard			SAT	SAT	SAT			
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT							SAT
			Hazard			SAT	SAT	SAT			
		Commercial/ Industrial	Carcinogenic	SAT							SAT
			Hazard			SAT	SAT	SAT			
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	SAT	1.2E+00					1.2E+01	5.7E+01
			Hazard		1.2E+00	7.0E+00	7.3E+00	6.5E-01	1.2E+01		
		Commercial/ Industrial	Carcinogenic	SAT	1.2E+00					1.2E+01	SAT
			Hazard		1.2E+00	4.5E+01	4.7E+01	4.3E+00	1.2E+01		
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL						>SOL	
			Hazard			>SOL	>SOL	>SOL			
		Commercial/ Industrial	Carcinogenic	>SOL							>SOL
			Hazard			>SOL	>SOL	>SOL			
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL							>SOL
			Hazard			>SOL	>SOL	>SOL			
		Commercial/ Industrial	Carcinogenic	>SOL							>SOL
			Hazard			>SOL	>SOL	>SOL			
	Ingestion of Groundwater	Residential	Carcinogenic	>SOL	1.3E+00					2.0E-01	1.6E-04
			Hazard		1.3E+00	7.8E-01	7.8E-01	7.8E-02	2.0E-01		
		Commercial/ Industrial	Carcinogenic	>SOL	1.3E+00					2.0E-01	7.0E-04
			Hazard		1.3E+00	5.1E+00	5.1E+00	5.1E-01	2.0E-01		
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	>SOL						1.4E-05	
			Hazard		1.5E+01	6.7E+00	6.4E+00	5.9E-01	7.0E+00		

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Dichloro-ethane (1,1-)	Dichloro-ethane (1,2-) (EDC)	Dichloro-ethylene (1,1-)	Dichloro-ethylene (cis 1,2-)	Dichloro-ethene (trans 1,2)	Dimethylbenz(a)anthracene (7,12)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	4.8E+02	3.9E+01	4.9E+00			
			Hazard	4.9E+03	1.4E+02	4.3E+02	4.8E+02	9.6E+02	1.6E+03
		Commercial/ Industrial	Carcinogenic	1.5E+03	1.2E+02	1.5E+01			
			Hazard	3.1E+04	8.8E+02	2.7E+03	3.0E+03	6.1E+03	1.0E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	1.4E+01	3.0E+00	1.4E-01			
			Hazard	2.2E+02	1.2E+01	4.3E+00	2.3E+01	2.9E+01	
		Commercial/ Industrial	Carcinogenic	2.2E+02	4.7E+01	2.2E+00			
			Hazard	SAT	3.4E+02	1.2E+02	6.7E+02	8.4E+02	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	2.6E+02	5.5E+01	2.5E+00			
			Hazard	SAT	2.6E+02	9.5E+01	5.1E+02	6.4E+02	
		Commercial/ Industrial	Carcinogenic	9.7E+02	2.1E+02	9.6E+00			
			Hazard	SAT	1.5E+03	5.5E+02	SAT	3.7E+03	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	2.0E-02	1.3E-03	4.2E-02	2.6E-02	6.0E-02	
			Hazard	2.0E-02	1.3E-03	4.2E-02	2.6E-02	6.0E-02	SAT
		Commercial/ Industrial	Carcinogenic	2.0E-02	1.3E-03	4.2E-02	2.6E-02	6.0E-02	
			Hazard	2.0E-02	1.3E-03	4.2E-02	2.6E-02	6.0E-02	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	6.0E+01	1.1E+01	1.0E+00			
			Hazard	9.4E+02	4.4E+01	3.2E+01	7.5E+01	1.0E+02	
		Commercial/ Industrial	Carcinogenic	9.6E+02	1.7E+02	1.6E+01			
			Hazard	>SOL	1.3E+03	9.2E+02	2.2E+03	3.0E+03	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL	1.8E+03	3.7E+02			
			Hazard	>SOL	8.4E+03	>SOL	>SOL	>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	6.7E+03	1.4E+03			
			Hazard	>SOL	>SOL	>SOL	>SOL	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	5.0E-03	5.0E-04	6.0E-03	6.0E-03	1.0E-02	
			Hazard	5.0E-03	5.0E-04	6.0E-03	6.0E-03	1.0E-02	>SOL
		Commercial/ Industrial	Carcinogenic	5.0E-03	5.0E-04	6.0E-03	6.0E-03	1.0E-02	
			Hazard	5.0E-03	5.0E-04	6.0E-03	6.0E-03	1.0E-02	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	2.1E+00	2.4E-01	1.3E-02			
			Hazard	1.9E+01	7.2E-01	1.2E+00	1.8E+00	3.5E+00	>SOL

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Dimethyl-phenol (2,4)	di-n-Butyl-phthalate	di-n-octyl phthalate	Dinitro-toluene (2,4)	Dioxane (1,4)	Ethyl-benzene	Ethylene Dibromide	Flouran-thene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic				9.6E+00	1.0E+02		8.4E-01	
			Hazard	1.0E+03	5.2E+03	1.0E+03		5.1E+03	2.7E+00	2.1E+03	
		Commercial/ Industrial	Carcinogenic				3.0E+01	3.2E+02		2.6E+00	
			Hazard	6.7E+03	3.4E+04	6.8E+03		3.3E+04	1.7E+01	1.4E+04	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic				SAT	SAT		4.6E+00	
			Hazard	SAT	SAT	SAT		SAT	1.3E+00	SAT	
		Commercial/ Industrial	Carcinogenic				SAT	SAT		7.4E+01	
			Hazard	SAT	SAT	SAT		SAT	3.8E+01	SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic				SAT	SAT		8.4E+01	
			Hazard	SAT	SAT	SAT		SAT	2.8E+01	SAT	
		Commercial/ Industrial	Carcinogenic				SAT	SAT		3.2E+02	
			Hazard	SAT	SAT	SAT		SAT	1.6E+02	SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic				2.1E-02	SAT	2.4E+01	2.5E-04	
			Hazard	6.3E+00	1.2E+07	SAT		2.4E+01	2.5E-04	SAT	
		Commercial/ Industrial	Carcinogenic				8.9E-02	SAT	2.4E+01	2.5E-04	
			Hazard	4.1E+01	SAT	SAT		2.4E+01	2.5E-04	SAT	
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic				>SOL	>SOL		7.0E+00	
			Hazard	>SOL	>SOL	>SOL		>SOL	2.0E+00	>SOL	
		Commercial/ Industrial	Carcinogenic				>SOL	>SOL		1.1E+02	
			Hazard	>SOL	>SOL	>SOL		>SOL	5.7E+01	>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic				>SOL	>SOL		6.8E+02	
			Hazard	>SOL	>SOL	>SOL		>SOL	2.2E+02	>SOL	
		Commercial/ Industrial	Carcinogenic				>SOL	>SOL		2.6E+03	
			Hazard	>SOL	>SOL	>SOL		>SOL	1.3E+03	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic				2.2E-03	>SOL	7.0E-01	5.0E-05	
			Hazard	3.1E-01	1.6E+00	>SOL		7.0E-01	5.0E-05	>SOL	
		Commercial/ Industrial	Carcinogenic				9.2E-03	>SOL	7.0E-01	5.0E-05	
			Hazard	2.0E+00	1.0E+01	>SOL		7.0E-01	5.0E-05	>SOL	
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic				6.4E-02	>SOL		5.9E-03	
			Hazard	2.7E+00	7.3E+00	2.1E-03		3.6E+00	1.7E-02	>SOL	

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Fluorene	Indeno-(1,2,3-CD)-pyrene	Mercury	Methanol	Methyl ethyl ketone	Methylene Chloride	Methyl-naphthalene (2-)	MTBE	
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		2.5E+00				2.1E+02			
			Hazard	2.1E+03		5.0E+00	2.4E+04	2.7E+04	3.1E+03	2.1E+03	2.6E+02	
		Commercial/ Industrial	Carcinogenic		7.9E+00				6.6E+02			
			Hazard	1.4E+04		3.2E+01	1.6E+05	1.7E+05	2.0E+04	1.3E+04	1.7E+03	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		SAT				2.2E+01			
			Hazard	SAT		1.3E+01	1.0E+05	1.4E+04	1.3E+03	SAT	8.1E+03	
		Commercial/ Industrial	Carcinogenic		SAT				3.5E+02			
			Hazard	SAT		SAT	SAT	SAT	SAT	SAT	SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		SAT				4.1E+02			
			Hazard	SAT		2.8E+02	SAT	SAT	SAT	SAT	SAT	
		Commercial/ Industrial	Carcinogenic		SAT				1.6E+03			
			Hazard	SAT		1.6E+03	SAT	SAT	SAT	SAT	SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic		SAT	<i>6.3E-01</i>			1.0E-02		<i>2.7E-02</i>	
			Hazard	SAT		<i>6.3E-01</i>	7.5E+00	1.3E+01	1.0E-02	4.9E+02	<i>2.7E-02</i>	
		Commercial/ Industrial	Carcinogenic		SAT	<i>6.3E-01</i>			1.0E-02		<i>2.7E-02</i>	
			Hazard	SAT		<i>6.3E-01</i>	4.9E+01	8.4E+01	1.0E-02	SAT	<i>2.7E-02</i>	
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		>SOL				1.3E+02			
			Hazard	>SOL		8.4E-01	6.6E+05	6.6E+04	7.5E+03	>SOL	3.0E+04	
		Commercial/ Industrial	Carcinogenic		>SOL				2.0E+03			
			Hazard	>SOL		2.4E+01	>SOL	>SOL	>SOL	>SOL	>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		>SOL				>SOL			
			Hazard	>SOL		3.1E+02	>SOL	>SOL	>SOL	>SOL	>SOL	
		Commercial/ Industrial	Carcinogenic		>SOL				>SOL			
			Hazard	>SOL		1.8E+03	>SOL	>SOL	>SOL	>SOL	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic		>SOL	<i>2.0E-03</i>			5.0E-03		<i>1.3E-02</i>	
			Hazard	<i>6.3E-01</i>		<i>2.0E-03</i>	7.8E+00	9.4E+00	5.0E-03	6.3E-01	<i>1.3E-02</i>	
		Commercial/ Industrial	Carcinogenic		>SOL	<i>2.0E-03</i>			5.0E-03		<i>1.3E-02</i>	
			Hazard	>SOL		<i>2.0E-03</i>	5.1E+01	6.1E+01	5.0E-03	4.1E+00	<i>1.3E-02</i>	
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic		>SOL				1.3E+00			
			Hazard	3.1E-01		3.6E-02	2.2E+02	1.5E+02	1.6E+01	6.1E-01	1.5E+00	

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Naphthalene	Nickel	Nitro-benzene	PCBs	Phenanthrene	Phenol	Pyrene	Pyridine	Selenium		
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		3.4E+05	5.6E+03	5.0E-01				2.9E+03			
			Hazard	2.1E+03	1.5E+03		1.2E+00	1.6E+04	3.1E+04	1.6E+03		3.7E+02		
		Commercial/ Industrial	Carcinogenic		1.3E+06	1.8E+04	1.9E+00					9.3E+03		
			Hazard	1.3E+04	2.7E+04		1.0E+01	1.0E+05	2.0E+05	1.0E+04			6.8E+03	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			SAT	1.1E+03					4.7E+04		
			Hazard	SAT			SAT	SAT	SAT	SAT				
		Commercial/ Industrial	Carcinogenic			SAT	SAT					7.4E+05		
			Hazard	SAT			SAT	SAT	SAT	SAT	SAT			
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic				SAT	SAT					4.5E+05	
			Hazard	SAT			SAT	SAT	SAT	SAT				
		Commercial/ Industrial	Carcinogenic				SAT	SAT					SAT	
			Hazard	SAT			SAT	SAT	SAT	SAT				
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	3.7E+00	4.0E+01	9.2E+00	1.4E+01					3.9E+00	1.6E+00	
			Hazard	3.7E+00	4.0E+01		1.4E+01	SAT	3.4E+01	SAT			1.6E+00	
		Commercial/ Industrial	Carcinogenic	3.7E+00	4.0E+01	3.9E+01	1.4E+01						1.7E+01	1.6E+00
			Hazard	3.7E+00	4.0E+01		1.4E+01	SAT	2.2E+02	SAT				1.6E+00
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			>SOL	2.8E-01					5.0E+04		
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL				
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL						8.0E+05	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL				
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			>SOL	>SOL						>SOL	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL				
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL						>SOL	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL				
	Ingestion of Groundwater	Residential	Carcinogenic	2.0E-02	1.0E-01	1.3E+00	5.0E-04					6.7E-01	5.0E-02	
			Hazard	2.0E-02	1.0E-01		5.0E-04	>SOL	9.4E+00	>SOL			5.0E-02	
		Commercial/ Industrial	Carcinogenic	2.0E-02	1.0E-01	5.7E+00	5.0E-04						2.9E+00	5.0E-02
			Hazard	2.0E-02	1.0E-01		5.0E-04	>SOL	6.1E+01	>SOL				5.0E-02
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			2.8E+01	1.6E-05					2.6E+01		
			Hazard	1.5E+00	7.9E+00		4.4E-05	>SOL	1.5E+02	>SOL		2.0E+00		

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Silver	Stryene	Tetrachloro-ethane (1,1,2,2-)	Tetrachloro-ethylene (PCE)	Tetraethyl Lead	Toluene	Trichloro-ethane (1,1,1-)	Trichloro-ethane (1,1,2-)	
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic			1.0E+01	5.7E+01				3.8E+01	
			Hazard	3.7E+02	1.0E+04	1.3E+03	4.8E+02	5.2E-03	9.0E+03	1.8E+03	1.9E+02	
		Commercial/ Industrial	Carcinogenic			3.3E+01	1.8E+02					1.2E+02
			Hazard	6.8E+03	6.4E+04	8.2E+03	3.0E+03	3.4E-02	5.6E+04	1.2E+04	1.2E+03	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			1.2E+01	4.6E+00				8.9E+00	
			Hazard		SAT	1.6E+03	1.9E+01		5.7E+02	4.0E+02	5.0E+01	
		Commercial/ Industrial	Carcinogenic			1.9E+02	7.3E+01					1.4E+02
			Hazard		SAT	SAT	SAT		SAT	SAT	1.5E+03	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			2.1E+02	8.6E+01					1.6E+02
			Hazard		SAT	SAT	4.2E+02		SAT	SAT	1.1E+03	
		Commercial/ Industrial	Carcinogenic			8.0E+02	3.3E+02					6.2E+02
			Hazard		SAT	SAT	SAT		SAT	SAT	SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	<i>5.1E+00</i>	<i>7.2E+00</i>	9.5E-03	<i>7.8E-02</i>	<i>6.9E+00</i>	<i>2.7E+00</i>	<i>2.3E+00</i>	<i>2.8E-02</i>	
			Hazard	<i>5.1E+00</i>	<i>7.2E+00</i>	9.5E-03	<i>7.8E-02</i>	<i>6.9E+00</i>	<i>2.7E+00</i>	<i>2.3E+00</i>	<i>2.8E-02</i>	
		Commercial/ Industrial	Carcinogenic	<i>5.1E+00</i>	<i>7.2E+00</i>	9.5E-03	<i>7.8E-02</i>	<i>6.9E+00</i>	<i>2.7E+00</i>	<i>2.3E+00</i>	<i>2.8E-02</i>	
			Hazard	<i>5.1E+00</i>	<i>7.2E+00</i>	9.5E-03	<i>7.8E-02</i>	<i>6.9E+00</i>	<i>2.7E+00</i>	<i>2.3E+00</i>	<i>2.8E-02</i>	
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			9.2E+00	1.2E+01				1.4E+01	
			Hazard		>SOL	1.3E+03	5.1E+01		>SOL	>SOL	8.0E+01	
		Commercial/ Industrial	Carcinogenic			1.5E+02	2.0E+02					2.3E+02
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL	2.3E+03	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			8.1E+02	>SOL					2.0E+03
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL	>SOL	
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL					>SOL
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	<i>1.0E-01</i>	<i>1.0E-01</i>	1.0E-03	<i>5.0E-03</i>	<i>1.5E-02</i>	<i>1.5E-01</i>	<i>2.0E-01</i>	<i>5.0E-03</i>	
			Hazard	<i>1.0E-01</i>	<i>1.0E-01</i>	1.0E-03	<i>5.0E-03</i>	<i>1.5E-02</i>	<i>1.5E-01</i>	<i>2.0E-01</i>	<i>5.0E-03</i>	
		Commercial/ Industrial	Carcinogenic	<i>1.0E-01</i>	<i>1.0E-01</i>	1.0E-03	<i>5.0E-03</i>	<i>1.5E-02</i>	<i>1.5E-01</i>	<i>2.0E-01</i>	<i>5.0E-03</i>	
			Hazard	<i>1.0E-01</i>	<i>1.0E-01</i>	1.0E-03	<i>5.0E-03</i>	<i>1.5E-02</i>	<i>1.5E-01</i>	<i>2.0E-01</i>	<i>5.0E-03</i>	
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			4.5E-02	6.0E-02				1.8E-01	
			Hazard	2.1E+00	9.3E+00	4.9E+00	5.3E-01	6.7E-06	1.1E+01	4.3E+00	7.8E-01	

\*Italicized concentrations based on California MCLs  
 SAT = RBSL exceeds saturated soil concentration of chemical  
 >SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Trichloroethylene (TCE)	Vanadium	Vinyl Chloride	Xylenes	Zinc
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	1.9E+02		5.0E+00		
			Hazard	2.9E+02	5.2E+02		5.6E+04	2.2E+04
		Commercial/ Industrial	Carcinogenic	5.9E+02		1.6E+01		
			Hazard	1.8E+03	9.5E+03		3.1E+05	4.1E+05
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	1.7E+01		1.8E-02		
			Hazard	2.0E+01			SAT	
		Commercial/ Industrial	Carcinogenic	2.6E+02		2.8E-01		
			Hazard	5.7E+02				SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	3.1E+02		3.3E-01		
			Hazard	4.3E+02				SAT
		Commercial/ Industrial	Carcinogenic	1.2E+03		1.2E+00		
			Hazard	2.5E+03				SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	8.2E-02		1.6E-03	4.0E+01	
			Hazard	8.2E-02	6.7E+02	1.6E-03	4.0E+01	1.8E+03
		Commercial/ Industrial	Carcinogenic	8.2E-02		1.6E-03	4.0E+01	
			Hazard	8.2E-02	4.4E+03	1.6E-03	4.0E+01	1.2E+04
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	2.9E+01		2.8E-01		
			Hazard	3.4E+01			>SOL	
		Commercial/ Industrial	Carcinogenic	4.6E+02		4.4E+00		
			Hazard	9.9E+02				>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL		1.0E+02		
			Hazard	>SOL				>SOL
		Commercial/ Industrial	Carcinogenic	>SOL		3.9E+02		
			Hazard	>SOL				>SOL
	Ingestion of Groundwater	Residential	Carcinogenic	5.0E-03		5.0E-04	1.8E+00	
			Hazard	5.0E-03	1.1E-01	5.0E-04	1.8E+00	4.7E+00
		Commercial/ Industrial	Carcinogenic	5.0E-03		5.0E-04	1.8E+00	
			Hazard	5.0E-03	7.2E-01	5.0E-04	1.8E+00	3.1E+01
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	4.6E-02		2.6E-02		
			Hazard	7.2E-02	2.8E+00		6.6E+01	1.2E+02

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water



Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Arsenic	Barium	Benz(a)-anthracene	Benzene	
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic					2.6E+00		1.7E+00	1.9E+01	
			Hazard	2.3E+03	2.3E+03	3.7E+03	1.2E+04	1.8E+01	5.0E+03		6.3E+01	
		Commercial/ Industrial	Carcinogenic					9.5E+00		4.3E+00	4.9E+01	
			Hazard	1.1E+04	1.1E+04	1.8E+04	5.6E+04	1.5E+02	7.1E+04		3.0E+02	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							SAT	1.9E+00	
			Hazard	SAT	SAT	6.3E+03	SAT				6.2E+00	
		Commercial/ Industrial	Carcinogenic							SAT	3.0E+01	
			Hazard	SAT	SAT	1.8E+05	SAT				1.8E+02	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							SAT	1.6E+02	
			Hazard	SAT	SAT	1.2E+05	SAT				6.5E+02	
		Commercial/ Industrial	Carcinogenic							SAT	6.2E+02	
			Hazard	SAT	SAT	SAT	SAT				SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic						4.4E+00	1.3E+02	1.4E+01	4.5E-03
			Hazard	4.0E+02	2.7E+02	1.5E+00	SAT	4.4E+00	1.3E+02		4.5E-03	
		Commercial/ Industrial	Carcinogenic					4.4E+00	1.3E+02	5.8E+01	4.5E-03	
			Hazard	SAT	SAT	9.7E+00	SAT	4.4E+00	1.3E+02		4.5E-03	
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							>SOL	5.6E+00	
			Hazard	>SOL	>SOL	2.1E+04	>SOL				1.9E+01	
		Commercial/ Industrial	Carcinogenic							>SOL	8.9E+01	
			Hazard	>SOL	>SOL	6.2E+05	>SOL				5.4E+02	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							>SOL	>SOL	
			Hazard	>SOL	>SOL	9.5E+05	>SOL				>SOL	
		Commercial/ Industrial	Carcinogenic							>SOL	>SOL	
			Hazard	>SOL	>SOL	>SOL	>SOL				>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic						5.0E-02	1.0E+00	5.6E-04	1.0E-03
			Hazard	9.4E-01	9.4E-01	1.6E+00	>SOL	5.0E-02	1.0E+00		1.0E-03	
		Commercial/ Industrial	Carcinogenic					5.0E-02	1.0E+00	2.4E-03	1.0E-03	
			Hazard	>SOL	>SOL	1.0E+01	>SOL	5.0E-02	1.0E+00		1.0E-03	
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic					2.0E-02		1.6E-04	6.3E-02	
			Hazard	1.1E+00	1.7E+00	4.2E+01	>SOL	1.2E-01	2.8E+01		1.8E-01	

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(g,h,i)-perylene	Benzo(k)-fluoranthene	Beryllium	Bis (2-ethylhexyl) phthalate	Butyl benzyl phthalate
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	1.7E-01	1.7E+00		1.7E+00	4.5E+04	2.4E+02	
			Hazard			1.6E+02		3.6E+02	7.8E+02	7.8E+03
		Commercial/ Industrial	Carcinogenic	4.3E-01	4.3E+00		4.3E+00	1.7E+05	6.2E+02	
			Hazard			7.4E+02		5.1E+03	3.7E+03	3.7E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT		SAT		
		Commercial/ Industrial	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT		SAT		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT		SAT		
		Commercial/ Industrial	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT		SAT		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	1.2E+01	SAT		SAT	9.6E+00	7.3E+04	
			Hazard	1.2E+01		SAT		9.6E+00	SAT	SAT
		Commercial/ Industrial	Carcinogenic	1.2E+01	SAT		SAT	9.6E+00	SAT	
			Hazard	1.2E+01		SAT		9.6E+00	SAT	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL		>SOL		
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL		>SOL		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL		>SOL		
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL		>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	2.0E-04	5.6E-04		5.6E-04	4.0E-03	8.0E-02	
			Hazard	2.0E-04		>SOL		4.0E-03	3.1E-01	>SOL
		Commercial/ Industrial	Carcinogenic	2.0E-04	>SOL		>SOL	4.0E-03	>SOL	
			Hazard	2.0E-04		>SOL		4.0E-03	>SOL	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	1.1E-05	1.1E-04		1.2E-04		>SOL	
			Hazard			>SOL		2.0E+00	>SOL	>SOL

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Cadmium	Carbon Disulfide	Carbon Tetrachloride	Chloro-benzene	Chloroform	Chromium (III)	Chromium (VI)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.1E+04		1.2E+01		6.2E+01		1.2E+01
			Hazard	3.6E+01	1.4E+03	2.6E+01	6.6E+02	3.7E+02	7.1E+04	3.6E+02
		Commercial/ Industrial	Carcinogenic	7.9E+04		3.3E+01		1.6E+02		6.6E+01
			Hazard	5.1E+02	6.5E+03	1.2E+02	3.1E+03	1.8E+03	1.0E+06	5.1E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			6.7E-01		9.3E+00		
			Hazard		2.9E+00	1.1E+00	1.9E+00	3.5E+01		
		Commercial/ Industrial	Carcinogenic			1.1E+01		1.5E+02		
			Hazard		8.4E+01	3.2E+01	5.5E+01	1.0E+03		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			6.1E+01		8.1E+02		
			Hazard		3.1E+02	1.2E+02	2.1E+02	3.6E+03		
		Commercial/ Industrial	Carcinogenic			2.3E+02		3.1E+03		
			Hazard		SAT	7.0E+02	SAT	SAT		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	<i>1.1E+00</i>		<i>5.9E-03</i>	<i>1.6E-01</i>	<i>3.4E-01</i>		2.9E+00
			Hazard	<i>1.1E+00</i>	6.0E+00	<i>5.9E-03</i>	<i>1.6E-01</i>	<i>3.4E-01</i>	8.5E+07	2.9E+00
		Commercial/ Industrial	Carcinogenic	<i>1.1E+00</i>		<i>5.9E-03</i>	<i>1.6E-01</i>	<i>3.4E-01</i>		2.9E+00
			Hazard	<i>1.1E+00</i>	3.9E+01	<i>5.9E-03</i>	<i>1.6E-01</i>	<i>3.4E-01</i>	5.6E+08	2.9E+00
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			3.3E+00		3.1E+01		
			Hazard		2.6E+01	5.5E+00	5.5E+01	1.2E+02		
		Commercial/ Industrial	Carcinogenic			5.2E+01		5.0E+02		
			Hazard		7.5E+02	1.6E+02	>SOL	3.4E+03		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			>SOL		>SOL		
			Hazard		>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic			>SOL		>SOL		
			Hazard		>SOL	>SOL	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	<i>5.0E-03</i>		<i>5.0E-04</i>	<i>7.0E-02</i>	<i>1.0E-01</i>		5.0E-02
			Hazard	<i>5.0E-03</i>	1.6E+00	<i>5.0E-04</i>	<i>7.0E-02</i>	<i>1.0E-01</i>	1.6E+01	5.0E-02
Commercial/ Industrial		Carcinogenic	<i>5.0E-03</i>		<i>5.0E-04</i>	<i>7.0E-02</i>	<i>1.0E-01</i>		5.0E-02	
		Hazard	<i>5.0E-03</i>	1.0E+01	<i>5.0E-04</i>	<i>7.0E-02</i>	<i>1.0E-01</i>	1.0E+02	5.0E-02	
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			4.1E-02		3.9E-01		6.8E-02
			Hazard	2.0E-01	9.4E+00	7.1E-02	1.2E+00	1.9E+00	3.8E+02	1.9E+00

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Chrysene	Copper	Cresol(-m)	Cresol(-o)	Cresol(-p)	Cyanide	Dibenz(a,h)-anthracene	
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	1.7E+01						4.9E-01	
			Hazard		2.6E+03	1.9E+03	1.9E+03	1.9E+02	2.8E+03		
		Commercial/ Industrial	Carcinogenic	4.3E+01							1.3E+00
			Hazard		3.8E+04	9.2E+03	9.2E+03	9.2E+02	4.1E+04		
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT						SAT	
			Hazard			SAT	SAT	SAT			
		Commercial/ Industrial	Carcinogenic	SAT							SAT
			Hazard			SAT	SAT	SAT			
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT							SAT
			Hazard			SAT	SAT	5.1E+04			
		Commercial/ Industrial	Carcinogenic	SAT							SAT
			Hazard			SAT	SAT	SAT			
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	SAT	1.2E+00					6.2E+00	3.8E+01
			Hazard		1.2E+00	4.8E+00	5.0E+00	4.6E-01	6.2E+00		
		Commercial/ Industrial	Carcinogenic	SAT	1.2E+00					6.2E+00	1.6E+02
			Hazard		1.2E+00	3.2E+01	3.3E+01	3.0E+00	6.2E+00		
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL						>SOL	
			Hazard			>SOL	>SOL	>SOL			
		Commercial/ Industrial	Carcinogenic	>SOL							>SOL
			Hazard			>SOL	>SOL	>SOL			
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL							>SOL
			Hazard			>SOL	>SOL	>SOL			
		Commercial/ Industrial	Carcinogenic	>SOL							>SOL
			Hazard			>SOL	>SOL	>SOL			
	Ingestion of Groundwater	Residential	Carcinogenic	>SOL	1.3E+00					2.0E-01	1.6E-04
			Hazard		1.3E+00	7.8E-01	7.8E-01	7.8E-02	2.0E-01		
		Commercial/ Industrial	Carcinogenic	>SOL	1.3E+00					2.0E-01	7.0E-04
			Hazard		1.3E+00	5.1E+00	5.1E+00	5.1E-01	2.0E-01		
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	>SOL						1.4E-05	
			Hazard		1.5E+01	6.7E+00	6.4E+00	5.9E-01	7.0E+00		

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Dichloro- ethane (1,1-)	Dichloro- ethane (1,2-) (EDC)	Dichloro- ethylene (1,1-)	Dichloro- ethylene (cis 1,2-)	Dichloro- ethene (trans 1,2)	Dimethylbenza- (a)anthracene (7,12)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	3.3E+02	2.7E+01	3.3E+00			
			Hazard	3.8E+03	1.1E+02	3.3E+02	3.7E+02	7.4E+02	1.2E+03
		Commercial/ Industrial	Carcinogenic	8.7E+02	7.1E+01	8.5E+00			
			Hazard	1.8E+04	5.1E+02	1.6E+03	1.8E+03	3.5E+03	5.6E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	2.4E+01	5.4E+00	2.3E-01			
			Hazard	3.8E+02	2.1E+01	7.2E+00	4.0E+01	4.9E+01	
		Commercial/ Industrial	Carcinogenic	3.9E+02	8.6E+01	3.6E+00			
			Hazard	SAT	6.2E+02	2.1E+02	1.2E+03	1.4E+03	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	2.1E+03	4.2E+02	2.1E+01			
			Hazard	SAT	2.0E+03	7.8E+02	SAT	5.2E+03	
		Commercial/ Industrial	Carcinogenic	SAT	1.6E+03	7.8E+01			
			Hazard	SAT	SAT	SAT	SAT	SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	1.4E-02	9.9E-04	2.8E-02	1.9E-02	4.2E-02	
			Hazard	1.4E-02	9.9E-04	2.8E-02	1.9E-02	4.2E-02	SAT
		Commercial/ Industrial	Carcinogenic	1.4E-02	9.9E-04	2.8E-02	1.9E-02	4.2E-02	
			Hazard	1.4E-02	9.9E-04	2.8E-02	1.9E-02	4.2E-02	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	9.8E+01	1.5E+01	2.3E+00			
			Hazard	1.5E+03	6.0E+01	7.5E+01	1.2E+02	1.8E+02	
		Commercial/ Industrial	Carcinogenic	1.6E+03	2.4E+02	3.7E+01			
			Hazard	>SOL	1.7E+03	2.2E+03	3.4E+03	5.1E+03	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL	3.5E+03	9.4E+02			
			Hazard	>SOL	>SOL	>SOL	>SOL	>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL	>SOL			
			Hazard	>SOL	>SOL	>SOL	>SOL	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	5.0E-03	5.0E-04	6.0E-03	6.0E-03	1.0E-02	
			Hazard	5.0E-03	5.0E-04	6.0E-03	6.0E-03	1.0E-02	>SOL
		Commercial/ Industrial	Carcinogenic	5.0E-03	5.0E-04	6.0E-03	6.0E-03	1.0E-02	
			Hazard	5.0E-03	5.0E-04	6.0E-03	6.0E-03	1.0E-02	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	2.1E+00	2.4E-01	1.3E-02			
			Hazard	1.9E+01	7.2E-01	1.2E+00	1.8E+00	3.5E+00	>SOL

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Dimethyl-phenol (2,4)	di-n-Butyl-phthalate	di-n-octyl phthalate	Dinitro-toluene (2,4)	Dioxane (1,4)	Ethyl-benzene	Ethylene Dibromide	Flouran-thene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic				6.3E+00	7.0E+01		5.5E-01	
			Hazard	7.7E+02	3.9E+03	7.8E+02			3.9E+03	2.2E+00	1.6E+03
		Commercial/ Industrial	Carcinogenic				1.7E+01	1.8E+02		1.4E+00	
			Hazard	3.7E+03	1.9E+04	3.7E+03			1.8E+04	1.0E+01	7.4E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic				SAT	SAT		7.5E+00	
			Hazard	SAT	SAT	SAT			SAT	2.1E+00	SAT
		Commercial/ Industrial	Carcinogenic				SAT	SAT		1.2E+02	
			Hazard	SAT	SAT	SAT			SAT	6.1E+01	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic				SAT	SAT		4.5E+02	
			Hazard	SAT	SAT	SAT			SAT	1.5E+02	SAT
		Commercial/ Industrial	Carcinogenic				SAT	SAT		1.7E+03	
			Hazard	SAT	SAT	SAT			SAT	8.7E+02	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic				1.5E-02	SAT	1.6E+01	1.8E-04	
			Hazard	4.3E+00	7.9E+06	SAT			1.6E+01	1.8E-04	SAT
		Commercial/ Industrial	Carcinogenic				6.2E-02	SAT	1.6E+01	1.8E-04	
			Hazard	2.8E+01	SAT	SAT			1.6E+01	1.8E-04	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic				>SOL	>SOL		8.5E+00	
			Hazard	>SOL	>SOL	>SOL			>SOL	2.4E+00	>SOL
		Commercial/ Industrial	Carcinogenic				>SOL	>SOL		1.4E+02	
			Hazard	>SOL	>SOL	>SOL			>SOL	6.9E+01	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic				>SOL	>SOL		1.3E+03	
			Hazard	>SOL	>SOL	>SOL			>SOL	4.3E+02	>SOL
		Commercial/ Industrial	Carcinogenic				>SOL	>SOL		>SOL	
			Hazard	>SOL	>SOL	>SOL			>SOL	2.5E+03	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic				2.2E-03	>SOL	7.0E-01	5.0E-05	
			Hazard	3.1E-01	1.6E+00	>SOL			7.0E-01	5.0E-05	>SOL
		Commercial/ Industrial	Carcinogenic				9.2E-03	>SOL	7.0E-01	5.0E-05	
			Hazard	2.0E+00	1.0E+01	>SOL			7.0E-01	5.0E-05	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic				6.4E-02	>SOL		5.9E-03	
			Hazard	2.7E+00	7.3E+00	2.1E-03			3.6E+00	1.7E-02	>SOL

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Fluorene	Indeno-(1,2,3-CD)-pyrene	Mercury	Methanol	Methyl ethyl ketone	Methylene Chloride	Methyl-naphthalene (2-)	MTBE	
Surficial Soil [mg/kg]	Ingestion/Dermal/Inhalation	Residential	Carcinogenic		1.7E+00				1.4E+02			
			Hazard	1.6E+03		3.9E+00	1.9E+04	2.2E+04	2.3E+03	1.6E+03	2.0E+02	
		Commercial/Industrial	Carcinogenic		4.3E+00					3.7E+02		
			Hazard	7.4E+03		1.8E+01	8.9E+04	1.0E+05	1.1E+04	7.4E+03	9.3E+02	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		SAT				4.2E+01			
			Hazard	SAT		1.5E+01	1.9E+05	2.4E+04	2.5E+03	SAT	1.4E+04	
		Commercial/Industrial	Carcinogenic		SAT					6.7E+02		
			Hazard	SAT			SAT	SAT	SAT	SAT	SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		SAT					3.5E+03		
			Hazard	SAT		1.6E+03	SAT	SAT	SAT	SAT	SAT	
		Commercial/Industrial	Carcinogenic		SAT					SAT		
			Hazard	SAT		9.4E+03	SAT	SAT	SAT	SAT	SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic		SAT	<i>3.2E-01</i>				8.2E-03		<i>2.1E-02</i>
			Hazard	5.2E+02		<i>3.2E-01</i>	7.1E+00	1.1E+01	8.2E-03	3.2E+02	<i>2.1E-02</i>	
		Commercial/Industrial	Carcinogenic		SAT	<i>3.2E-01</i>				8.2E-03		<i>2.1E-02</i>
			Hazard	SAT		<i>3.2E-01</i>	4.7E+01	7.3E+01	8.2E-03	2.1E+03	<i>2.1E-02</i>	
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		>SOL				1.9E+02			
			Hazard	>SOL		1.4E+00	6.4E+05	6.5E+04	1.1E+04	>SOL	3.6E+04	
		Commercial/Industrial	Carcinogenic		>SOL					3.0E+03		
			Hazard	>SOL		4.1E+01	>SOL	>SOL	>SOL	>SOL	>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		>SOL					>SOL		
			Hazard	>SOL		6.0E+02	>SOL	>SOL	>SOL	>SOL	>SOL	
		Commercial/Industrial	Carcinogenic		>SOL					>SOL		
			Hazard	>SOL		3.5E+03	>SOL	>SOL	>SOL	>SOL	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic		>SOL	<i>2.0E-03</i>				5.0E-03		<i>1.3E-02</i>
			Hazard	6.3E-01		<i>2.0E-03</i>	7.8E+00	9.4E+00	5.0E-03	6.3E-01	<i>1.3E-02</i>	
		Commercial/Industrial	Carcinogenic		>SOL	<i>2.0E-03</i>				5.0E-03		<i>1.3E-02</i>
			Hazard	>SOL		<i>2.0E-03</i>	5.1E+01	6.1E+01	5.0E-03	4.1E+00	<i>1.3E-02</i>	
Water Used for Recreation [mg/l]	Ingestion/Dermal	Residential	Carcinogenic		>SOL				1.3E+00			
			Hazard	3.1E-01		3.6E-02	2.2E+02	1.5E+02	1.6E+01	6.1E-01	1.5E+00	

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Naphthalene	Nickel	Nitrobenzene	PCBs	Phenanthrene	Phenol	Pyrene	Pyridine	Selenium
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		3.4E+05	3.7E+03	3.6E-01				2.0E+03	
			Hazard	1.6E+03	1.4E+03	9.8E-01	1.2E+04	2.3E+04	1.2E+03		3.6E+02	
		Commercial/ Industrial	Carcinogenic		1.3E+06	9.9E+03	1.1E+00				5.1E+03	
			Hazard	7.4E+03	2.0E+04	5.8E+00	5.6E+04	1.1E+05	5.6E+03		5.1E+03	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			SAT	1.6E+03				6.6E+04	
			Hazard	SAT		SAT	SAT	SAT	SAT			
		Commercial/ Industrial	Carcinogenic			SAT	SAT				1.1E+06	
			Hazard	SAT		SAT	SAT	SAT	SAT			
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			SAT	SAT				3.9E+05	
			Hazard	SAT		SAT	SAT	SAT	SAT			
		Commercial/ Industrial	Carcinogenic			SAT	SAT				SAT	
			Hazard	SAT		SAT	SAT	SAT	SAT			
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	<i>2.4E+00</i>	<i>2.0E+01</i>	6.5E+00	<i>9.4E+00</i>				2.8E+00	<i>8.0E-01</i>
			Hazard	<i>2.4E+00</i>	<i>2.0E+01</i>		<i>9.4E+00</i>	SAT	2.5E+01	SAT		<i>8.0E-01</i>
		Commercial/ Industrial	Carcinogenic	<i>2.4E+00</i>	<i>2.0E+01</i>	2.8E+01	<i>9.4E+00</i>				1.2E+01	<i>8.0E-01</i>
			Hazard	<i>2.4E+00</i>	<i>2.0E+01</i>		<i>9.4E+00</i>	SAT	1.6E+02	SAT		<i>8.0E-01</i>
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			>SOL	3.2E-01				4.9E+04	
			Hazard	>SOL		>SOL	>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL				7.8E+05	
			Hazard	>SOL		>SOL	>SOL	>SOL	>SOL	>SOL		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			>SOL	>SOL				6.6E+05	
			Hazard	>SOL		>SOL	>SOL	>SOL	>SOL			
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL				>SOL	
			Hazard	>SOL		>SOL	>SOL	>SOL	>SOL			
	Ingestion of Groundwater	Residential	Carcinogenic	<i>2.0E-02</i>	<i>1.0E-01</i>	1.3E+00	<i>5.0E-04</i>				6.7E-01	<i>5.0E-02</i>
			Hazard	<i>2.0E-02</i>	<i>1.0E-01</i>		<i>5.0E-04</i>	>SOL	9.4E+00	>SOL		<i>5.0E-02</i>
		Commercial/ Industrial	Carcinogenic	<i>2.0E-02</i>	<i>1.0E-01</i>	5.7E+00	<i>5.0E-04</i>				2.9E+00	<i>5.0E-02</i>
			Hazard	<i>2.0E-02</i>	<i>1.0E-01</i>		<i>5.0E-04</i>	>SOL	6.1E+01	>SOL		<i>5.0E-02</i>
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			2.8E+01	1.6E-05				2.6E+01	
			Hazard	1.5E+00	7.9E+00		4.4E-05	>SOL	1.5E+02	>SOL		2.0E+00

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water



Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Silver	Stryene	Tetrachloro-ethane (1,1,2,2 -)	Tetrachloro-ethylene (PCE)	Tetraethyl Lead	Toluene	Trichloro-ethane (1,1,1-)	Trichloro-ethane (1,1,2-)	
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic			7.2E+00	3.8E+01				2.7E+01	
			Hazard	3.6E+02	7.7E+03	1.0E+03	3.7E+02	3.9E-03	7.1E+03	1.4E+03	1.5E+02	
		Commercial/ Industrial	Carcinogenic			1.9E+01	1.0E+02					7.0E+01
			Hazard	5.1E+03	3.7E+04	4.7E+03	1.8E+03	1.9E-02	3.4E+04	6.5E+03	7.2E+02	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			1.8E+01	7.6E+00				1.5E+01	
			Hazard		SAT	2.5E+03	3.1E+01		9.3E+02	6.6E+02	8.4E+01	
		Commercial/ Industrial	Carcinogenic			2.9E+02	1.2E+02					2.4E+02
			Hazard		SAT	SAT	SAT		SAT	SAT	2.4E+03	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			1.0E+03	6.9E+02					1.1E+03
			Hazard		SAT	SAT	SAT		SAT	SAT	SAT	
		Commercial/ Industrial	Carcinogenic			3.9E+03	SAT					4.2E+03
			Hazard		SAT	SAT	SAT		SAT	SAT	SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Residential	Carcinogenic	<i>2.6E+00</i>	<i>4.8E+00</i>	6.6E-03	5.2E-02	4.6E+00	1.8E+00	1.5E+00	2.0E-02
				Hazard	<i>2.6E+00</i>	<i>4.8E+00</i>	6.6E-03	5.2E-02	4.6E+00	1.8E+00	1.5E+00	2.0E-02
			Commercial/ Industrial	Carcinogenic	<i>2.6E+00</i>	<i>4.8E+00</i>	6.6E-03	5.2E-02	4.6E+00	1.8E+00	1.5E+00	2.0E-02
				Hazard	<i>2.6E+00</i>	<i>4.8E+00</i>	6.6E-03	5.2E-02	4.6E+00	1.8E+00	1.5E+00	2.0E-02
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			1.1E+01	2.6E+01				1.9E+01	
			Hazard		>SOL	1.5E+03	1.1E+02		>SOL	>SOL	1.1E+02	
		Commercial/ Industrial	Carcinogenic			1.7E+02	>SOL				3.0E+02	
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL	3.1E+03	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			1.5E+03	>SOL				4.0E+03	
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL	>SOL	
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL				>SOL	
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	<i>1.0E-01</i>	<i>1.0E-01</i>	1.0E-03	5.0E-03	1.5E-02	1.5E-01	2.0E-01	5.0E-03	
			Hazard	<i>1.0E-01</i>	<i>1.0E-01</i>	1.0E-03	5.0E-03	1.5E-02	1.5E-01	2.0E-01	5.0E-03	
		Commercial/ Industrial	Carcinogenic	<i>1.0E-01</i>	<i>1.0E-01</i>	1.0E-03	5.0E-03	1.5E-02	1.5E-01	2.0E-01	5.0E-03	
			Hazard	<i>1.0E-01</i>	<i>1.0E-01</i>	1.0E-03	5.0E-03	1.5E-02	1.5E-01	2.0E-01	5.0E-03	
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			4.5E-02	6.0E-02				1.8E-01	
			Hazard	2.1E+00	9.3E+00	4.9E+00	5.3E-01	6.7E-06	1.1E+01	4.3E+00	7.8E-01	

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Trichloroethylene (TCE)	Vanadium	Vinyl Chloride	Xylenes	Zinc
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	1.3E+02		3.5E+00		
			Hazard	2.2E+02	5.0E+02	5.3E+04	2.1E+04	
		Commercial/ Industrial	Carcinogenic	3.3E+02		9.1E+00		
			Hazard	1.1E+03	7.2E+03	2.6E+05	3.1E+05	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	2.7E+01		3.0E-02		
			Hazard	3.2E+01		SAT		
		Commercial/ Industrial	Carcinogenic	4.4E+02		4.8E-01		
			Hazard	9.3E+02		SAT		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	2.5E+03		2.7E+00		
			Hazard	3.4E+03		SAT		
		Commercial/ Industrial	Carcinogenic	SAT		1.0E+01		
			Hazard	SAT		SAT		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	5.5E-02		1.1E-03	2.7E+01	
			Hazard	5.5E-02	3.3E+02	1.1E-03	2.7E+01	8.9E+02
		Commercial/ Industrial	Carcinogenic	5.5E-02		1.1E-03	2.7E+01	
			Hazard	5.5E-02	2.2E+03	1.1E-03	2.7E+01	5.8E+03
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	5.4E+01		6.6E-01		
			Hazard	6.3E+01		>SOL		
		Commercial/ Industrial	Carcinogenic	8.6E+02		1.0E+01		
			Hazard	>SOL		>SOL		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL		2.7E+02		
			Hazard	>SOL		>SOL		
		Commercial/ Industrial	Carcinogenic	>SOL		1.0E+03		
			Hazard	>SOL		>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	5.0E-03		5.0E-04	1.8E+00	
			Hazard	5.0E-03	1.1E-01	5.0E-04	1.8E+00	4.7E+00
		Commercial/ Industrial	Carcinogenic	5.0E-03		5.0E-04	1.8E+00	
			Hazard	5.0E-03	7.2E-01	5.0E-04	1.8E+00	3.1E+01
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	4.6E-02		2.8E-02		
			Hazard	7.2E-02	2.8E+00	6.6E+01	1.2E+02	

\*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water