SOMA
ENVIRONMENTAL ENGINEERING, INC.
6620 Owens Drive, Suite A • Pleasanton, CA 94588
TEL (925)734-6400 • FAX (925)734-6401
www.somaenv.com

April 17, 2017

Mr. Martin Musonge
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Subject: **File No. 01-0098 (MYM)**
Site Located at 2844 Mountain Boulevard, Oakland, California

Dear Mr. Musonge:

Enclosed for your review is SOMA's "Workplan to Define Downgradient Extent of Contamination" for the subject property. It has been uploaded to the State's GeoTracker database and Alameda County's FTP site.

Thank you for your time in reviewing our report. Please do not hesitate to call me at (925) 734-6400, if you have any questions or comments.

Sincerely,

Mansour Sepehr, Ph.D., PE
Principal Hydrogeologist


cc: Mr. Tejindar Singh w/enclosure
Ms Dilan Roe – Alameda County Env. Health

# Workplan to Define Downgradient Extent of Contamination

## 2844 Mountain Boulevard
## Oakland, California

**April 17, 2017**

**Project 5080**
**RB File No. 01-0098**

**Prepared for:**

**Mr. Tejindar P. Singh**
**6400 Dublin Blvd.**
**Dublin, California**

SOMA ENVIRONMENTAL ENGINEERING, INC.
6620 Owens Drive Suite A Pleasanton CA 94588 Ph: 925.734.6400 F: 925.734-6401 www.somaenv.com

# ACKNOWLEDGEMENT STATEMENT

**Site Location:** 2844 Mountain Boulevard, Oakland, California

"I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the SWRCB's Geotracker website."

Tejindar Singh
6400 Dublin Boulevard
Dublin, California 94568
Responsible Party

## CERTIFICATION

SOMA Environmental Engineering, Inc. has prepared this report on behalf of Mr. Tejindar P. Singh for the site located at 2844 Mountain Blvd., Oakland, California. The workplan was prepared in accordance with San Francisco Bay Regional Water Quality Control Board's email correspondence dated March 22 2017.

Mansour Sepehr, PhD, PE
Principal Hydrogeologist

# TABLE OF CONTENTS

## LIST OF FIGURES



## LIST OF TABLES



## LIST OF APPENDICES

# 1. INTRODUCTION

SOMA Environmental Engineering, Inc. has prepared this workplan on behalf of Mr. Tejindar P. Singh for the site located at 2844 Mountain Blvd., Oakland, California. This workplan was prepared in accordance with San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) email correspondence dated March 22, 2017 in order to define the downgradient extent of MtBE and TBA plume.

The subject property is located in Alameda County, California. Figure 1 shows the location of the site and vicinity. The site is located on the eastern corner of the intersection of Mountain Boulevard and Werner Court in a commercial/residential area (Figure 2). The Warren Freeway (freeway) is adjacent to Mountain Boulevard, and lies approximately 50 feet southwest of the site. Site history is summarized in Appendix A.

# 2. SCOPE OF WORK

Historical site data indicates that elevated levels of MtBE and TBA was detected in soil and groundwater samples (First Water Bearing Zone) collected at depth ranging up to 48 feet bgs (see Tables 1 and 2). The results of the First Quarter 2017 groundwater monitoring event also showed elevated levels of MtBE and TBA in the shallow perched zone (Table 3).

The results of the historical site investigation have shown elevated levels of MtBE and TBA in off-site area (in DPT-3, DPT-4, DPT-7, and DPT-8) in shallow and deeper water bearing zone. SOMA has conducted several remedial efforts at the site. At this time, SOMA is proposing to advance borings in order to define the downgradient extent of MtBE and TBA in the subsurface.

SOMA proposes to perform the following:

Task 1: Permit Acquisition, Notifications, and Health and Safety Plan Preparation

Task 2: Advancement of DP Borings

Task 3: Report Preparation

Task 4: Sensitive Receptor Survey

## 2.1 Permit Acquisition, Notifications, and Health and Safety Plan Preparation

Prior to initiating field activities, SOMA will obtain all required drilling permits from Alameda County Department of Public Works. For the borings to be advanced in the

public right-of-way, excavation and/or obstruction permits will be obtained from the City of Oakland. All required notifications will be submitted in advance of the field activities.

SOMA will prepare a site-specific Health and Safety Plan (HASP). The HASP will be prepared according to the Occupational Safety and Health Administration (OSHA), "Hazardous Waste Operation and Emergency Response" guidelines (29 CFR 1910.120) and the California Occupational Safety and Health Administration (Cal/OSHA) "Hazardous Waste Operation and Emergency Response" guidelines (CCR Title 8, section 5192). The HASP is designed to address safety provisions during field activities and protect the field crew from physical and chemical hazards resulting from drilling and sampling. The HASP establishes personnel responsibilities, general safe work practices, field procedures, personal protective equipment standards, decontamination procedures, and emergency action plans. The HASP will be reviewed and signed by field staff and contractors prior to beginning field operations.

SOMA will visit the site and mark boring locations using chalk-based white paint and then contact Underground Service Alert (USA) to verify that drilling areas are clear of underground utilities. Following USA clearance, SOMA will retain a private utility locator to survey proposed drilling areas and locate any additional subsurface conduits.

## 2.2 Proposed Soil Borings

SOMA proposes to advance four off-site borings (DPT-10, DPT-11, DPT-12, and DPT-13) downgradient of the site in order to delineate the extent of MtBE and TBA contamination. SOMA prepared a rose diagram utilizing historical groundwater flow directions in order to estimate the flow direction. Based on the rose diagram, the flow direction is predominantly southeasterly as shown in Figure 3. Therefore, boring locations as shown on Figure 3 were selected to follow the path of groundwater flow.

DPT-10 is being proposed at a location immediately southeast of DPT-9 (which was advanced in March 2016). Two borings (DPT-11 and DP-12) are being proposed alongside Mountain Blvd., either into the sidewalk or beyond the sidewalk into the unpaved/planter area right before the steep hillside that drops down to the Warren freeway. The final location of these borings will be decided in the field based on utility locations, accessibility into the unpaved/planter area, and approval from the City and AC Transit due to a bus stop being present within the proposed drilling area. DPT-13 is being prosed alongside the Joaquin Miller Rd in the small unpaved area right before the steep hillside that drops down to the Warren Freeway.

The borings will be hand cleared to 5 feet bgs, and drilled to total depth utilizing Direct Push Technology (DPT). DPT is an efficient method, proven to be effective at

this site, of collecting continuous soil cores while preventing cross-contamination. It involves hydraulically hammering a set of steel rods into the subsurface with the lead section consisting of a polyethylene-lined sampler. The proposed dual tube sampling uses two sets of probe rods to collect continuous soil cores. One set of rods is driven into the ground as an outer casing. These rods receive the driving force from the hammer and provide a sealed hole from which soil samples may be recovered without the threat of cross contamination.

During the drilling operation the soil borings will be cored to the maximum depth of 60 feet bgs, and cored soil will be described in accordance with the Unified Soil Classification System (USCS). In addition, cored soil will be checked for hydrocarbon odors, visual staining, and liquid phase hydrocarbons (free product), and screened using a photoionization detector (PID). PID readings will be noted on boring logs.

Soil samples for laboratory analysis will be collected from areas of elevated PID readings or where substantial staining or discoloration is observed during drilling. In the absence of visible soil contamination, one soil sample will be collected at each soil- groundwater interface. General Field procedures are summarized in Appendix B.

Each soil sample will be collected using a 4-foot-long by 2-inch-diameter sampling rod lined with a sleeve. The sampler will be advanced to the desired depth, the sampling point on the sampler tip disengaged, and the sampler driven 4 feet to fill the liner. The sampler is then retrieved and the liner removed. SOMA will use a handsaw to cut the retrieved plastic liner into small sections for laboratory submittal. The collected sleeves will be covered at both ends with Teflon sheeting, sealed at both ends with polyethylene end caps, labeled, logged on a chain-of-custody form, placed in an ice-filled cooler, and kept at $4^0$C for transport to a state-certified laboratory for analysis.

Dual-tube samplers are typically advanced to collect continuous soil cores; however, groundwater samples can be collected at the end of each core run (US EPA, 2005). Depth-discrete groundwater samples will be collected by driving a 4-foot-long Hydropunch tip attached to the end of the inner drive DP rod to the desired depth-discrete interval. The outer drive casing will be retracted, exposing the 4-foot-long screen interval of the Hydropunch tip. Groundwater samples will be collected with a stainless steel bailer lowered through and beneath the outer drive casing into the Hydropunch screen. Prior to downhole collection events and between borings, the Hydropunch and stainless steel bailer will be field decontaminated to avoid cross-contaminating groundwater samples. Depth to the first encountered and stabilized groundwater in each WBZ will be recorded along with the total boring depth at each groundwater sampling interval. Boring logs will be included in SOMA's report.

Each sample will be labeled with a unique sample identifier, date and time of sample collection, recorded on a chain-of-custody form, and placed in a cooled ice chest pending transport to a California state-certified environmental laboratory for analysis.

Following sampling, the borehole will be decommissioned according to Cal/EPA guidelines with a neat-cement grout mixture tremmied through the DPT rods and completed at the surface to match existing grade.

### 2.3 Laboratory Sample Analysis

Collected soil and groundwater samples will be submitted to a California state-certified environmental laboratory for chemical analysis of the following:

- Total petroleum hydrocarbons as gasoline and diesel (TPH-g and TPH-d)
- BTEX (Benzene, toluene, ethylbenzene, and total xylenes)
- Fuel oxygenates, additives and lead scavengers including MtBE, tertiary-butyl alcohol (TBA), ethyl tertiary-butyl ether (ETBE), diisopropyl ether (DIPE), tertiary-amyl methyl ether (TAME), 1,2-dichloroethane (1,2-DCA), 1,2-dibromomethane (EDB), naphthalene, and ethanol.

Analyses will employ USEPA Methods 8015 and 8260B.

### 2.4 Waste Disposal

Soil and wastewater generated during boring activities will be temporarily stored on-site in separate DOT-rated, 55-gallon steel drums pending characterization, profiling, and transport to an approved disposal-recycling facility.

## 3. SENSITVE RECEPTOR STUDY

This section describes the steps that will be taken during the proposed sensitive receptor survey, which will identify locations of sensitive receptors in order to evaluate the potential impact of the contamination on public health and the environment.

Sensitive receptors are people or other organisms and ecological receptors that may have a significantly increased sensitivity or exposure to contaminants by virtue of their age and health (e.g., schools, day care centers, hospitals, nursing homes), status (e.g., sensitive or endangered species), proximity to the contamination, dwelling construction (e.g., basement), or the facilities they use (e.g., water supply well). Locations of sensitive receptors should be identified in order to evaluate potential impact of the contamination on public health and the environment.

## 3.1 Survey

At the minimum SOMA will evaluate the potential existence of wells and sensitive groups and land use in detail within 1,000-feet of the site. DWR well records, local water district and City and County records will be reviewed for the presence of any wells, and all documented water bodies within 1,000 feet of the site.

The approximate 1,000-foot radius is shown in Figure 4. Furthermore, SOMA will visit the survey area to look for additional receptors and field-verify the sensitive receptor-related data.

## 3.2 Sampling

SOMA proposes to collect groundwater samples from any wells that are identified by the sensitive receptor survey. Based on the data received from the DWR and a field search, results of this survey will be tabulated. Subsequently, SOMA will attempt to collect groundwater samples from all identified wells.

## 3.3 Reporting

Once necessary information is gathered, SOMA will prepare a report documenting survey findings and conclusions. This report will include a base-10 scaled map showing: parcels within the detailed receptor survey area and locations and types of identified receptors.

The report will also include the following: 1) a table listing assessor parcel number, property owner name, site address, and survey results for each parcel in the survey; 2) a copy of each questionnaire received from property owners and tenants; 3) summary of use and construction of all identified wells; and 4) evaluation of potential impact of the contamination to identified receptors.

The report will detail field verification of well records including a drive-by survey of facilities/residences within 1,000-feet that were identified as having a well on their property, a canvas of any parks, and schools and water bodies within 1,000 feet. The report will also incorporate information regarding each receptor including: type of receptor (creek, river, irrigation well, domestic well, etc.), address or approximate location, well use, status, well construction, well owners, and results of any testing performed on identified wells.

## 4. PROJECTED SCHEDULE AND REPORT PREPARATION

The workplan will be implemented upon receipt of authorization from SFBRWQCB. We anticipate that the proposed work, can be completed in approximately eight weeks following receipt of authorization.

Upon completion of all field activities, SOMA will prepare and submit a report documenting description of field activities, results, conclusions and recommendations.

# FIGURES


*Source: Google (R) 2012*

N

approximate scale in feet

0 100 200

Figure 1: Site Vicinity Map

SOMA ENVIRONMENTAL ENGINEERING, INC.

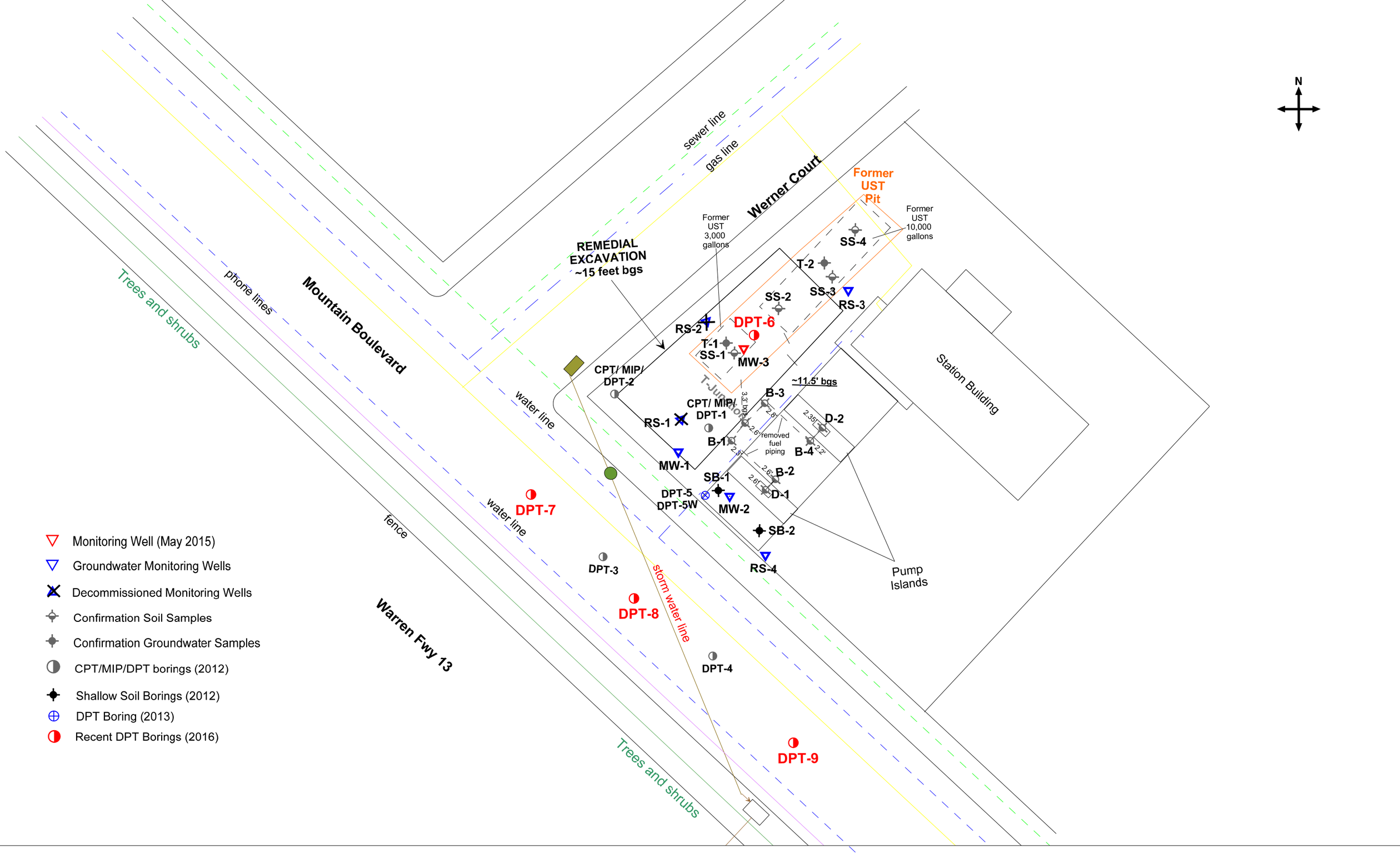



Figure 2: Site Map Showing Locations of Former USTs, Soil Borings, and Groundwater Monitoring Wells

ENVIRONMENTAL ENGINEERING, INC.

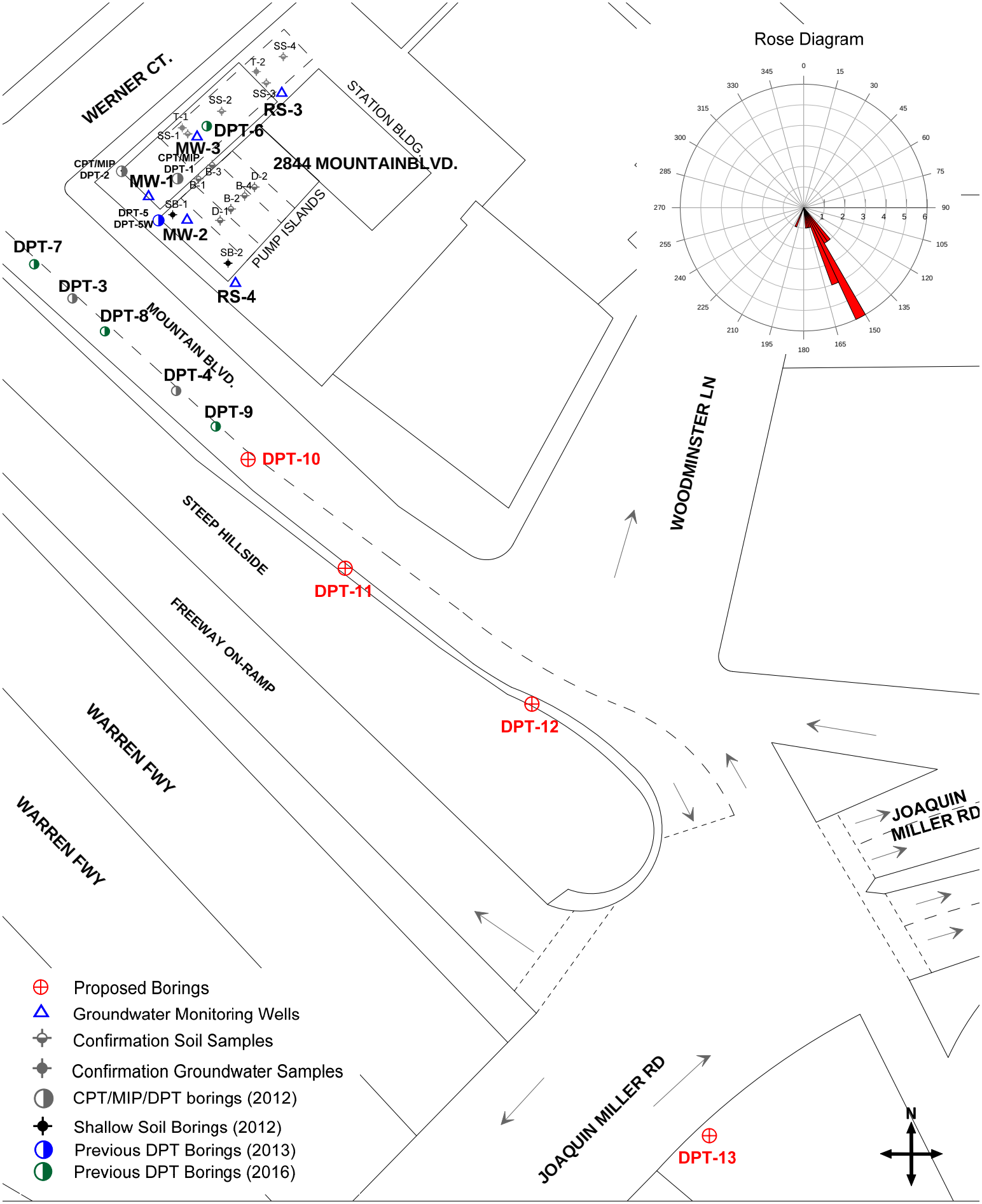
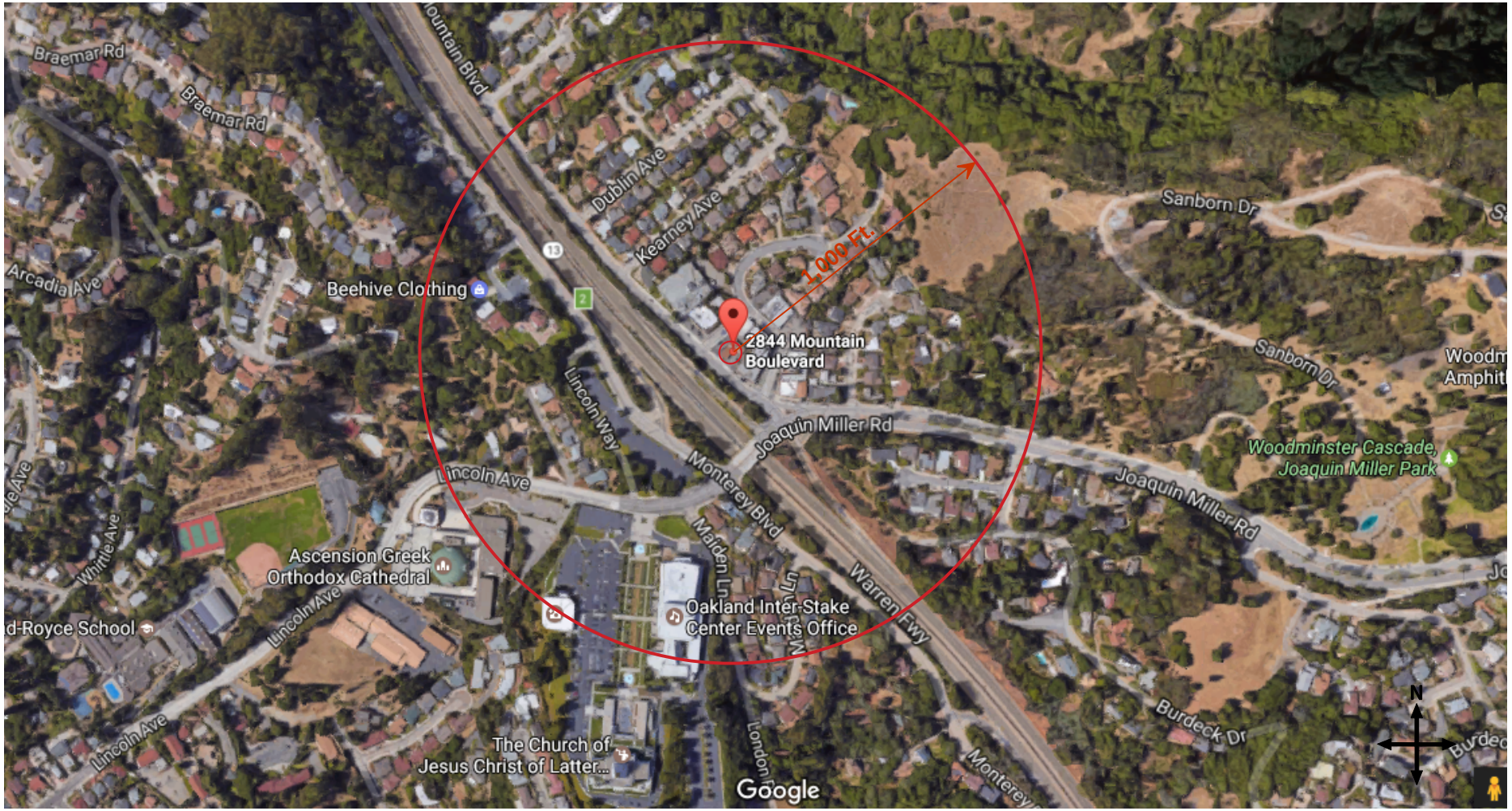



Figure 3: Site Map Showing Locations of Proposed Borings

ENVIRONMENTAL ENGINEERING, INC.




approximate scale in feet

0 500 1000

Figure 4: Site Vicinity Map Showing Search Radius for Sensitive Receptor Survey

SOMA ENVIRONMENTAL ENGINEERING, INC.

# TABLES

**Table 1**
**Historical Soil Analytical Data**
**2844 Mountain Blvd, Oakland, CA**

| Sample ID | Date | Sample Depth (feet) | TPH-g (mg/kg) | TPH-d (mg/kg) | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Xylenes (mg/kg) | MtBE (mg/kg) | TBA (mg/kg) | TAME (mg/kg) | Methanol (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sampling Beneath USTs** | | | | | | | | | | | | |
| ~~**SS-1**~~ | ~~8/9/2011~~ | ~~11.50~~ | ~~**2,300**~~ | ~~**630 Y**~~ | ~~<2.5~~ | ~~**15**~~ | ~~**17**~~ | ~~**123**~~ | ~~**3.3**~~ | ~~<50~~ | ~~<2.5~~ | ~~1.5 C~~ |
| ~~**SS-2**~~ | ~~8/9/2011~~ | ~~11.50~~ | ~~**690 Y**~~ | ~~**800**~~ | ~~<2.0~~ | ~~<2.0~~ | ~~<2.0~~ | ~~<2.0~~ | ~~<2.0~~ | ~~<40~~ | ~~<2.0~~ | ~~<1.0~~ |
| **SS-3** | 8/9/2011 | 11.50 | <0.91 | <1.0 | 0.0053 | 0.06 | 0.0078 | 0.0430 | **0.54** | **0.11** | 0.14 | <1.0 |
| **SS-4** | 8/9/2011 | 11.50 | 30 Y | 51 Y | 0.0054 | 0.055 | 0.011 | 0.054 | **0.310** | <0.1 | 0.064 | <1.0 |
| **CS-1-CS-4 Composite** | 8/9/2011 | NA | **570 Y** | **180 Y** | <1.3 | 2.1 | **4.8** | **35** | <1.3 | <25 | <1.3 | <1.0 |
| **Sampling Beneath Fuel Piping** | | | | | | | | | | | | |
| **T-Junction** | 8/18/2011 | 2.6-3.3 | <0.99 | 11 Y | <0.0047 | <0.0047 | <0.0047 | <0.0047 | **0.5** | **0.82** | 0.031 | <0.98 |
| **B-1** | 8/18/2011 | 2.30 | <0.91 | 1.4 Y | <0.005 | <0.005 | <0.005 | <0.005 | 0.013 | <0.1 | <5 | <1 |
| **B-2** | 8/18/2011 | 2.60 | 29 Y | **160** | <0.033 | <0.033 | <0.033 | <0.033 | **0.410** | **1.6** | 0.044 | <1 |
| **B-3** | 8/18/2011 | 2.80 | <1.1 | 25 Y | <0.0045 | <0.0045 | <0.0045 | <0.0045 | <0.0045 | <0.091 | <0.0045 | <0.99 |
| **B-4** | 8/18/2011 | 2.20 | <0.92 | 18 Y | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.097 | <0.0049 | <0.98 |
| **D-1** | 8/18/2011 | 2.60 | 2 | 4.0 Y | <0.026 | <0.026 | <0.026 | 0.050 | **0.96** | **3.1** | 0.140 | 1.4 C |
| **D-2** | 8/18/2011 | 2.35 | 1.4 Y | 2.7 Y | <0.0048 | <0.0048 | <0.0048 | <0.0048 | **0.095** | **0.57** | <0.0048 | <0.99 |
| | | | | | | | | | | | | |
| ~~**CPT/DPT-1**~~ | ~~3/16/2012~~ | ~~8~~ | ~~**1,300**~~ | ~~99 Y~~ | ~~<1.0~~ | ~~<1.0~~ | ~~**16**~~ | ~~**58**~~ | ~~**16**~~ | ~~<20~~ | ~~1.6~~ | ~~NA~~ |
| ~~**CPT/DPT-1**~~ | ~~3/16/2012~~ | ~~15~~ | ~~1.9~~ | ~~1.6 Y~~ | ~~<1.0~~ | ~~<1.0~~ | ~~<1.0~~ | ~~<1.0~~ | ~~**13**~~ | ~~**38**~~ | ~~<1.0~~ | ~~NA~~ |
| **CPT/DPT-1** | 3/16/2012 | 42 | <0.93 | 2.2 Y | <0.0049 | <0.0049 | <0.0049 | <0.0049 | **0.50** | **0.27** | 0.020 | NA |
| ~~**CPT/DPT-2**~~ | ~~3/16/2012~~ | ~~10~~ | ~~28~~ | ~~21 Y~~ | ~~<0.25~~ | ~~<0.25~~ | ~~<0.25~~ | ~~0.260~~ | ~~**1.7**~~ | ~~**7.10**~~ | ~~<0.25~~ | ~~NA~~ |
| **CPT/DPT-2** | 3/16/2012 | 16 | <0.98 | <1.0 | <0.046 | <0.046 | <0.046 | <0.046 | **0.084** | **14.00** | <0.046 | NA |
| **CPT/DPT-2** | 3/16/2012 | 48 | <1.0 | 1.1 Y | <0.0049 | <0.0049 | <0.0049 | <0.0049 | **0.200** | <0.098 | 0.013 | NA |
| **DPT-3** | 3/15/2012 | 8 | <1.1 | <0.99 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | **0.490** | <0.099 | 0.027 | NA |
| **DPT-3** | 3/15/2012 | 15 | <0.97 | <1.0 | <0.0047 | <0.0047 | <0.0047 | <0.0047 | **1.200** | <0.094 | 0.026 | NA |
| **DPT-4** | 3/15/2012 | 8 | <1.1 | <1.0 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.098 | <0.0049 | NA |
| **DPT-4** | 3/15/2012 | 16 | 7.1 Y | 9.0 Y | <0.0049 | <0.0049 | <0.0049 | <0.0049 | **0.061** | <0.098 | <0.0049 | NA |
| **DPT-4** | 3/15/2012 | 43 | <1.1 | <1.0 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | **0.025** | <0.098 | <0.0049 | NA |
| **Aug-12** | | | | | | | | | | | | |
| **SB-1** | 8/31/2012 | 6 | <1.1 | <1.0 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | 0.0051 | NA | NA | NA |
| **SB-1** | 8/31/2012 | 10 | **440 Y** | **210 Y** | <0.63 | <0.63 | **6.50** | **9.70** | **1.60** | NA | NA | NA |
| **SB-1** | 8/31/2012 | 13 | 11 Y | <1.0 | <0.02 | <0.02 | <0.02 | <0.02 | **0.39** | NA | NA | NA |
| **SB-2** | 8/31/2012 | 6 | <0.93 | 63 Y | <0.0048 | <0.0048 | <0.0048 | <0.0048 | <0.0048 | NA | NA | NA |
| **SB-2** | 8/31/2012 | 10 | 60 Y | 3.4 Y | <0.01 | <0.01 | <0.01 | 0.016 | 0.015 | NA | NA | NA |
| **SB-2** | 8/31/2012 | 13 | 4.4 Y | 2.8 Y | <0.0048 | <0.0048 | <0.0048 | <0.0048 | 0.022 | NA | NA | NA |
| **Oct-12** | | | | | | | | | | | | |
| **CS-1** | 10/4/2012 | 15 | <1.0 | <1.0 | <0.049 | <0.049 | <0.049 | <0.049 | **1.50** | <0.98 | <0.049 | NA |
| **CS-2** | 10/4/2012 | 15 | <1.1 | <0.99 | <0.0047 | <0.0047 | <0.0047 | <0.0047 | **0.97** | **0.78** | 0.045 | NA |
| **CS-3** | 10/4/2012 | 15 | <1.1 | <1.0 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | **0.65** | **5.50** | 0.031 | NA |
| **CS-4** | 10/4/2012 | 15 | <1.1 | <1.0 | <0.024 | <0.024 | <0.024 | <0.024 | **1.30** | **6.50** | 0.110 | NA |
| **CS-5** | 10/5/2012 | 15 | <1.1 | <1.0 | <0.049 | <0.049 | <0.049 | <0.049 | **4.40** | **20** | 0.58 | NA |
| **WCS-1** | 10/8/2012 | 10 | 3.3 | 20 Y | <0.047 | <0.047 | <0.047 | 0.560 | **2.60** | **6.50** | 0.53 | NA |
| **WCS-2** | 10/8/2012 | 10 | <0.94 | 9.4 Y | <0.01 | <0.01 | <0.01 | <0.01 | **0.13** | **30** | <0.01 | NA |
| **WCS-3** | 10/8/2012 | 10 | 3.6 Y | 18 Y | <0.049 | <0.049 | <0.049 | <0.049 | <0.049 | **4.50** | <0.049 | NA |

**Table 1**
**Historical Soil Analytical Data**
**2844 Mountain Blvd, Oakland, CA**

| Sample ID | Date | Sample Depth (feet) | TPH-g (mg/kg) | TPH-d (mg/kg) | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Xylenes (mg/kg) | MtBE (mg/kg) | TBA (mg/kg) | TAME (mg/kg) | Methanol( mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **May-13** | | | | | | | | | | | | |
| **DPT-5** | 5/9/2013 | 4 b | 3.7 Y | 16 Y | <0.25 | <0.25 | <0.25 | <0.25 | **2.6** | <5.0 | 1.0 | NA |
| **DPT-5** | 5/9/2013 | 10 | 90 Y | 47 | <0.25 | <0.25 | 0.77 | <0.25 | **1.5** | <5.0 | <0.25 | NA |
| **DPT-5** | 5/9/2013 | 12 | 56 Y | 17 | <0.25 | <0.25 | 0.87 | 0.53 | **3.10** | <5.0 | 0.36 | NA |
| **DPT-5** | 5/9/2013 | 15 | <0.98 | <1.0 | <0.025 | <0.025 | <0.025 | <0.025 | **0.073** | **9.10** | <0.025 | NA |
| **DPT-5** | 5/9/2013 | 30 | <0.96 | 1.1 Y | <0.0047 | <0.0047 | <0.0047 | <0.0047 | 0.0063 | <0.094 | <0.0047 | NA |
| **DPT-5** | 5/9/2013 | 50 | <1.1 | <1.0 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.098 | <0.0049 | NA |
| **MW-1** | 5/9/2013 | 5 b | 3.9 | 11 Y | <0.25 | <0.25 | <0.25 | <0.25 | **7.6** | **6.20** | 0.45 | NA |
| **MW-1** | 5/9/2013 | 10 | **750** | **130** | <1.0 | <1.0 | **22** | **108** | **14** | <20 | 2.1 | NA |
| **MW-1** | 5/9/2013 | 12 | **910** | **140** | <2.0 | **5.6** | **19** | **124** | **7.7** | <40 | <2.0 | NA |
| **MW-1** | 5/9/2013 | 15 b | **460** | 91 b | <0.5 | 1.7 b | **6.8 b** | **42 b** | **3.7 b** | <10 | <0.5 | NA |
| **MW-1** | 5/9/2013 | 25 | 2 | 1.3 Y | <0.5 | <0.5 | <0.5 | <0.5 | **11** | <10 | 0.60 | NA |
| **MW-2** | 5/9/2013 | 7 b | 7.2 Y | 21 Y | <0.25 | <0.25 | <0.25 | <0.25 | **0.39 b** | <5.0 | <0.25 | NA |
| **MW-2** | 5/9/2013 | 10 | **960** | **400** | <1.3 | <1.3 | **18** | **64.5** | **14** | <25 | 3 | NA |
| **MW-2** | 5/9/2013 | 12 | **270** | 95 | <1.0 | <1.0 | **5** | **27** | **27** | <20 | 4.8 | NA |
| **MW-2** | 5/9/2013 | 17 | <0.99 | <1.0 | <0.25 | <0.25 | <0.25 | <0.25 | **2.2** | **14** | <0.25 | NA |
| **May-15** | | | | | | | | | | | | |
| **MW-3** | **5/1/2015** | 20 | <1.1 | <1.0 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | **0.16** | <0.099 | 0.0056 | NA |
| **MW-3** | **5/1/2015** | 24 | <1.1 | <1.0 | <0.0048 | <0.0048 | <0.0048 | <0.0048 | **0.79** | <0.096 | 0.0320 | NA |
| **Mar-16** | | | | | | | | | | | | |
| **DPT-6** | 3/16/2016 | 16 | <0.95 | <1.0 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | **0.040** | <0.099 | <0.0049 | NA |
| **DPT-6** | 3/16/2016 | 44 | <1.1 | 5.5 Y | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.098 | <0.0049 | NA |
| **DPT-7** | 3/14/2016 | 20 | <1.1 | 6.3 Y | <0.0047 | <0.0047 | <0.0047 | <0.0047 | **3.3** | **6.0** | **0.29** | NA |
| **DPT-7** | 3/14/2016 | 48 | <1.0 | 1.7 Y | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.099 | <0.005 | NA |
| **DPT-8** | 3/15/2016 | 24 | <1.0 | <1.0 | <0.0046 | <0.0046 | <0.0046 | <0.0046 | **0.50** | <0.96 | **0.045** | NA |
| **DPT-8** | 3/15/2016 | 36 | <0.97 | <1.0 | <0.0048 | <0.0048 | <0.0048 | <0.0048 | <0.0048 | <0.096 | <0.0048 | NA |
| **DPT-8** | 3/15/2016 | 45 | <1.1 | <1.0 | <0.0045 | <0.0045 | <0.0045 | <0.0045 | 0.0082 | <0.091 | <0.0045 | NA |
| **DPT-9** | 3/15/2016 | 24 | <1.1 | 2.4 Y | <0.0046 | <0.0046 | <0.0046 | <0.0046 | <0.0046 | <0.091 | <0.0046 | NA |
| **DPT-9** | 3/15/2016 | 48 | <0.94 | <1.0 | <0.0047 | <0.0047 | <0.0047 | <0.0047 | <0.0047 | <0.094 | <0.0047 | NA |
| **ESL - Shallow Soil Residential, Potential Drinking** | | | **100** | **240** | **0.044** | **2.9** | **1.4** | **2.3** | **0.023** | **0.075** | NA | NA |
| **ESL-Deep Soil Residential, Potential Drinking** | | | **500** | **240** | **0.044** | **2.9** | **1.4** | **2.3** | **0.023** | **0.075** | NA | NA |

**Table 1**
**Historical Soil Analytical Data**
**2844 Mountain Blvd, Oakland, CA**

| Sample ID | Date | Sample Depth (feet) | Acetone (mg/kg) | Methylene chloride (mg/kg) | Isopropylbenzene (mg/kg) | Propylbenzene (mg/kg) | 1,3,5-Trimethylbenzene (mg/kg) | 1,2,4-Trimethylbenzene (mg/kg) | sec-Butylbenzene (mg/kg) | n-Butylbenzene (mg/kg) | Naphthalene (mg/kg) | Ethanol (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sampling Beneath USTs** | | | | | | | | | | | | |
| ~~**SS-1**~~ | ~~8/9/2011~~ | ~~11.50~~ | ~~<10~~ | ~~<10~~ | ~~2.7~~ | ~~12~~ | ~~29~~ | ~~93~~ | ~~<2.5~~ | ~~7.5~~ | ~~**19**~~ | ~~2~~ |
| ~~**SS-2**~~ | ~~8/9/2011~~ | ~~11.50~~ | ~~<8.0~~ | ~~<8.0~~ | ~~<2.0~~ | ~~<2.0~~ | ~~<2.0~~ | ~~<2.0~~ | ~~<2.0~~ | ~~2.4~~ | ~~**3.8**~~ | ~~<1.0~~ |
| **SS-3** | 8/9/2011 | 11.50 | 0.057 | 0.026 | <0.0046 | <0.0046 | <0.0046 | 0.0059 | <0.0046 | <0.0046 | <0.0046 | <1.0 |
| **SS-4** | 8/9/2011 | 11.50 | 0.045 | <0.02 | <0.005 | 0.005 | <0.005 | <0.005 | 0.0066 | 0.011 | <0.005 | <1.0 |
| **CS-1-CS-4 Composite** | 8/9/2011 | NA | <5.0 | <5.0 | <1.3 | 3.3 | 9.8 | 30 | <1.3 | 1.8 | **4.5** | <1.0 |
| **Sampling Beneath Fuel Piping** | | | | | | | | | | | | |
| **T-Junction** | 8/18/2011 | 2.6-3.3 | 0.087 | <0.019 | <0.0047 | <0.0047 | <0.0047 | <0.0047 | <0.0047 | <0.0047 | <0.0047 | <0.98 |
| **B-1** | 8/18/2011 | 2.30 | 0.025 | <0.02 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <1 |
| **B-2** | 8/18/2011 | 2.60 | 0.320 | <0.130 | 0.048 | 0.250 | <0.033 | <0.033 | 0.055 | 0.250 | 0.670 | 1.4 |
| **B-3** | 8/18/2011 | 2.80 | <0.018 | <0.018 | <0.0045 | <0.0045 | <0.0045 | <0.0045 | <0.0045 | <0.0045 | <0.0045 | <0.99 |
| **B-4** | 8/18/2011 | 2.20 | <0.019 | <0.019 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.98 |
| **D-1** | 8/18/2011 | 2.60 | **0.710** | **<0.1** | <0.26 | 0.038 | <0.026 | 0.099 | <0.026 | <0.026 | <0.026 | <0.98 |
| **D-2** | 8/18/2011 | 2.35 | 0.170 | <0.019 | <0.0048 | 0.0072 | 0.0054 | 0.029 | <0.0048 | <0.0048 | <0.0048 | <0.99 |
| **Oct-12** | | | | | | | | | | | | |
| **CS-1** | 10/4/2012 | 15 | <0.20 | <0.20 | <0.049 | <0.049 | <0.049 | <0.049 | <0.049 | <0.049 | <0.049 | <9.80 |
| **CS-2** | 10/4/2012 | 15 | <0.019 | <0.019 | <0.0047 | <0.0047 | <0.0047 | <0.0047 | <0.0047 | <0.0047 | <0.0047 | <0.94 |
| **CS-3** | 10/4/2012 | 15 | <0.019 | <0.019 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.0049 | <0.97 |
| **CS-4** | 10/4/2012 | 15 | <0.097 | <0.097 | <0.024 | <0.024 | <0.024 | <0.024 | <0.024 | <0.024 | <0.024 | <4.90 |
| **CS-5** | 10/5/2012 | 15 | 0.25 | <0.20 | <0.049 | <0.049 | <0.049 | <0.049 | <0.049 | <0.049 | <0.049 | <9.80 |
| **WCS-1** | 10/8/2012 | 10 | **1.70** | <0.19 | <0.047 | <0.047 | 0.15 | 0.24 | <0.047 | <0.047 | <0.047 | <9.4 |
| **WCS-2** | 10/8/2012 | 10 | **2.90** | <0.041 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.013 | <2.0 |
| **WCS-3** | 10/8/2012 | 10 | **0.91** | <0.20 | <0.049 | <0.049 | <0.049 | <0.049 | <0.049 | <0.049 | 0.077 | <9.8 |
| **May-13** | | | | | | | | | | | | |
| **DPT-5** | 5/9/2013 | 4 | NA | NA | NA | NA | NA | NA | NA | NA | <0.25 | <50 |
| **DPT-5** | 5/9/2013 | 10 | NA | NA | NA | NA | NA | NA | NA | NA | **1.40** | <50 |
| **DPT-5** | 5/9/2013 | 12 | NA | NA | NA | NA | NA | NA | NA | NA | 0.58 | <50 |
| **DPT-5** | 5/9/2013 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | <0.048 | <5.0 |
| **DPT-5** | 5/9/2013 | 30 | NA | NA | NA | NA | NA | NA | NA | NA | <0.0047 | <0.94 |
| **DPT-5** | 5/9/2013 | 50 | NA | NA | NA | NA | NA | NA | NA | NA | <0.0049 | <0.98 |
| **MW-1** | 5/9/2013 | 5 | NA | NA | NA | NA | NA | NA | NA | NA | <0.25 | <50 |
| **MW-1** | 5/9/2013 | 10 | NA | NA | NA | NA | NA | NA | NA | NA | **5.2** | <200 |
| **MW-1** | 5/9/2013 | 12 | NA | NA | NA | NA | NA | NA | NA | NA | **5.3** | <400 |
| **MW-1** | 5/9/2013 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | **3.2** | <100 |
| **MW-1** | 5/9/2013 | 25 | NA | NA | NA | NA | NA | NA | NA | NA | <0.5 | <100 |
| **MW-2** | 5/9/2013 | 7 | NA | NA | NA | NA | NA | NA | NA | NA | <0.25 | <50 |
| **MW-2** | 5/9/2013 | 10 | NA | NA | NA | NA | NA | NA | NA | NA | **5.9** | <250 |
| **MW-2** | 5/9/2013 | 12 | NA | NA | NA | NA | NA | NA | NA | NA | **2.4** | <200 |
| **MW-2** | 5/9/2013 | 17 | NA | NA | NA | NA | NA | NA | NA | NA | <0.25 | <50 |

# Table 1
## Historical Soil Analytical Data
### 2844 Mountain Blvd, Oakland, CA

| Sample ID | Date | Sample Depth (feet) | Acetone (mg/kg) | Methylene chloride (mg/kg) | Isopropylbenzene (mg/kg) | Propylbenzene (mg/kg) | 1,3,5-Trimethylbenzene (mg/kg) | 1,2,4-Trimethylbenzene (mg/kg) | sec-Butylbenzene (mg/kg) | n-Butylbenzene (mg/kg) | Naphthalene (mg/kg) | Ethanol (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mar-16** | | | | | | | | | | | | |
| **DPT-6** | 3/16/2016 | 16 | NA | NA | NA | NA | NA | NA | NA | NA | <0.0049 | NA |
| **DPT-6** | 3/16/2016 | 44 | NA | NA | NA | NA | NA | NA | NA | NA | <0.0049 | NA |
| **DPT-7** | 3/14/2016 | 20 | NA | NA | NA | NA | NA | NA | NA | NA | <0.0047 | NA |
| **DPT-7** | 3/14/2016 | 48 | NA | NA | NA | NA | NA | NA | NA | NA | <0.005 | NA |
| **DPT-8** | 3/15/2016 | 24 | NA | NA | NA | NA | NA | NA | NA | NA | <0.0046 | NA |
| **DPT-8** | 3/15/2016 | 36 | NA | NA | NA | NA | NA | NA | NA | NA | <0.0048 | NA |
| **DPT-8** | 3/15/2016 | 45 | NA | NA | NA | NA | NA | NA | NA | NA | <0.0045 | NA |
| **DPT-9** | 3/15/2016 | 24 | NA | NA | NA | NA | NA | NA | NA | NA | <0.0046 | NA |
| **DPT-9** | 3/15/2016 | 48 | NA | NA | NA | NA | NA | NA | NA | NA | <0.0047 | NA |
| | | | | | | | | | | | | |
| **ESL - Shallow Soil Residential, Potential Drinking** | | | 0.500 | 0.077 | NA | NA | NA | NA | NA | NA | 0.023 | NA |
| **ESL-Deep Soil Residential, Potential Drinking** | | | 0.500 | 0.077 | NA | NA | NA | NA | NA | NA | 0.023 | NA |

Note:

C: Presence confirmed, but RPD between columns exceeds 40%

Y: Sample exhibits chromatographic pattern which does not resemble standard

<: Below laboratory-reporting limit

ESL: California Regional Water Quality Control Board, Environmental Screening Levels, Shallow/Deep Soil, Commercial, Groundwater is a current or potential source of drinking water, February 2016

NA: Not Applicable

**~~CPT/DPT-2~~** Excavated locations

**Table 2:**
**Historical Grab Groundwater Analytical Data**
**2844 Mountain Blvd, Oakland, CA**

| Sample ID | Date | Depth of Boring at the time of sampling (feet) | Depth to water at the time of sampling (feet) | TPH-d (µg/L) | TPH-g (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | MtBE (µg/L) | TBA (µg/L) | TAME (µg/L) | Naphthalene (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Perched Discontinuous Water Bearing Zone** | | | | | | | | | | | | | |
| T-1 | 8/9/2011 | NA | 11.50 | **14,000** | **76,000** | **1,600** | **11,000** | **2,000** | **10,000** | **5,700** | <1,700 | 5,600 | **530** |
| T-2 | 8/9/2011 | NA | 11.50 | **1,500** | **890** | **8** | 7.3 | <0.5 | **157** | **12** | **650** | <0.5 | **7.6** |
| **2012** | | | | | | | | | | | | | |
| CPT/DPT-1-1 | 3/16/2012 | 24 | 23.1 | **140** [Y] | <6,300 | **94** | **64** | <63 | <63 | **36,000** | **2,800** | 2,300 | NA |
| CPT/DPT-2-1 | 3/16/2012 | 24 | 21.9 | **820** | <13,000 | <130 | <130 | <130 | <130 | **52,000** | **92,000** | 3,000 | NA |
| DPT-4-1 | 3/15/2012 | 32 | 29 | **150** [Y] | <50 | <0.5 | <0.5 | <0.5 | <0.5 | **2,600** | **28** | 210 | NA |
| **2013** | | | | | | | | | | | | | |
| DPT-5W-1 | 5/9/2013 | 15 | 14 | **4,300** | **2,100** | **10** | <6.3 | 23 | <6.3 | **640** | **16,000** | 54 | <25 |
| DPT-5W-2 | 5/10/2013 | 25 | 10 | **630 Y** | <2,000 | <20 | <20 | <20 | <20 | **40,000** | **59,000** | 2,200 | <80 |
| **2016** | | | | | | | | | | | | | |
| **DPT-6A** | **3/16/2016** | 16 | 13 | **230 Y** | <100 | <1.0 | <1.0 | <1.0 | <1.0 | **770** | **140** | **27** | <4.0 |
| **DPT-7A** | **3/14/2016** | 24 | 21 | 83 Y | <1,000 | <10 | <10 | <10 | <10 | **5,900** | **40,000** | **730** | <40 |
| **DPT-8A** | **3/15/2016** | 19 | 16 | **210 Y** | <3,100 | <31 | <31 | <31 | 70 | **30,000** | **4,500** | **2,200** | <130 |
| **First Water Bearing Zone** | | | | | | | | | | | | | |
| **2012** | | | | | | | | | | | | | |
| CPT/DPT-2-2 | 3/16/2012 | 48 | 41.9 | **300** [Y] | **4,500** | **160** | **390** | **170** | **800** | **11,000** | **6,100** | 1,500 | NA |
| DPT-3-2 | 3/15/2012 | 49 | 39 | 53 [Y] | <1,700 | <17 | <17 | <17 | <17 | **9,800** | **1,000** | 690 | NA |
| **2013** | | | | | | | | | | | | | |
| DPT-5W-3 | 5/9/2013 | 50 | 39 | **320 Y** | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 2.8 | <10 | <0.5 | <2.0 |
| **2016** | | | | | | | | | | | | | |
| **DPT-6B** | **3/16/2016** | 56 | 51 | <61 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | **7.7** | <10 | <0.5 | <2.0 |
| **DPT-7B** | **3/14/2016** | 54 | 46 | 78 Y | <130 | <1.3 | <1.3 | <1.3 | <1.3 | **780** | **310** | **56** | <5.0 |
| **DPT-8B** | **3/15/2016** | 56 | 46 | <71 | <50 | 3.50 | 0.50 | 1.90 | 3.41 | **310** | **48** | **27** | <2.0 |
| **DPT-9B** | **3/15/2016** | 54 | 46 | <59 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <10 | <0.50 | <2.0 |
| **ESL - Potential Drinking Water** | | | | **100** | **100** | **1** | **40** | **30** | **20** | **5** | **12** | **NA** | **0.12** |

Notes:
< : below Laboratory Detection Limits
NA- Not Applicable

ESL: California Regional Water Quality Control Board, Environmental Screening Levels, Shallow/Deep Soil, Commercial, Groundwater is a current or potential source of drinking water, Feb 2016

**Table 3**
**Historical Groundwater Analytical Results**
**2844 Mountain Boulevard, Oakland, CA**

| Monitoring Well | Date | Casing Elevation (Ft.) | Depth to Top Fluid (Ft.) | Depth to Groundwater (Ft.) | Free-Product Thickness | Groundwater Elevation | TPH-g µg/L | TPH-d µg/L | TPH-mo µg/L | Benzene µg/L | Toluene µg/L | Ethylbenzene µg/L | Xylenes µg/L | MtBE µg/L | TBA µg/L | TAME µg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RS-1** | 5/1/90 | 675.63 | 7.20 | 7.20 | 0.00 | 668.43 | 2,700 | - | - | 370 | 420 | 40 | 320 | - | - | - |
| | 5/1/91 | 675.63 | 8.35 | 8.35 | 0.00 | 667.28 | 1,300 | - | - | 580 | 130 | 62 | 240 | - | - | - |
| | 10/1/91 | 675.63 | 10.22 | 10.22 | 0.00 | 665.41 | 1,100 | - | - | 140 | 100 | 45 | 210 | - | - | - |
| | 1/1/92 | 675.63 | 8.06 | 8.06 | 0.00 | 667.57 | 1,700 | - | - | 9.9 | 31 | 9.7 | 170 | - | - | - |
| | 1/1/93 | 675.63 | 5.30 | 5.30 | 0.00 | 670.33 | 3,700 | - | - | 650 | 9.2 | 51 | 170 | - | - | - |
| | 8/1/93 | 675.63 | 8.56 | 8.56 | 0.00 | 667.07 | 900 | - | - | 14 | 0.6 | 2.1 | 8 | - | - | - |
| | 11/1/93 | 675.63 | 8.44 | 8.44 | 0.00 | 667.19 | 1,400 | - | - | 9.6 | ND | 0.9 | 5 | - | - | - |
| | 1/1/94 | 675.63 | 6.88 | 6.88 | 0.00 | 668.75 | 4,200 | - | - | 95 | 3.1 | 58 | 130 | - | - | - |
| | 5/1/94 | 675.63 | 7.87 | 7.87 | 0.00 | 667.76 | 7,500 | - | - | 270 | 11 | 37 | 96 | - | - | - |
| | 8/1/94 | 675.63 | 16.28 | 16.28 | 0.00 | 659.35 | 130 | - | - | 12 | 0.5 | 2.6 | 5 | - | - | - |
| | 11/1/94 | 675.63 | 8.02 | 8.02 | 0.00 | 667.61 | 270 | - | - | 4.7 | 0.7 | 0.6 | 15 | - | - | - |
| | 2/1/95 | 675.63 | 6.51 | 6.51 | 0.00 | 669.12 | 12,000 | - | - | 81 | 2.3 | 1 | 12 | - | - | - |
| | 6/1/95 | 675.63 | 7.34 | 7.34 | 0.00 | 668.29 | 37,000 | - | - | 460 | ND | ND | ND | 63,000 | - | - |
| | 11/1/95 | 675.63 | 8.71 | 8.71 | 0.00 | 666.92 | ND | - | - | 660 | 16 | 140 | 330 | 31,000 | - | - |
| | 2/1/96 | 675.63 | 6.95 | 6.95 | 0.00 | 668.68 | 66,000 | - | - | 110 | ND | 12 | 21 | 84,000 | - | - |
| | 9/18/96 | 675.63 | 8.44 | 8.52 | 0.08 | 667.17 | 1 INCH FLOATING PRODUCT | | | - | - | - | - | - | - | - |
| | 12/11/96 | 675.63 | 6.42 | 6.62 | 0.20 | 669.17 | 79,000 | - | - | 4,000 | 37,000 | 8,000 | 45,000 | 220,000 | - | - |
| | 2/21/97 | 675.63 | 6.88 | 6.92 | 0.04 | 668.74 | 1/2 INCH FLOATING PRODUCT | | | - | - | - | - | - | - | - |
| | 5/28/97 | 675.63 | 7.88 | 7.96 | 0.08 | 667.73 | 156,000 | - | - | 9,400 | 51,000 | 7,000 | 45,000 | 112,000 | - | - |
| | 9/2/97 | 675.63 | 8.34 | 8.38 | 0.04 | 667.28 | 1/2 INCH FLOATING PRODUCT | | | - | - | - | - | - | - | - |
| | 11/24/97 | 675.63 | 6.98 | 7.00 | 0.02 | 668.65 | 1/4 INCH FLOATING PRODUCT | | | - | - | - | - | - | - | - |
| | 2/25/98 | 675.63 | 3.51 | 3.52 | 0.01 | 672.12 | 1/8 INCH FLOATING PRODUCT | | | - | - | - | - | - | - | - |
| | 5/27/98 | 675.63 | 7.31 | 7.31 | 0.00 | 668.32 | 40,000 | - | - | 2,200 | 4,000 | 2,300 | 19,000 | 350,000 | - | - |
| | 9/16/98 | 675.63 | 8.10 | 8.10 | 0.00 | 667.53 | 62,000 | - | - | 2,400 | 2,300 | 2,100 | 14,000 | 250,000 | - | - |
| | 11/23/98 | 675.63 | 7.10 | 7.10 | 0.00 | 668.53 | 99,000 | - | - | 2,600 | 5,800 | 2,500 | 18,000 | 130,000 | - | - |
| | 2/23/99 | 675.67 | 4.82 | 4.87 | 0.05 | 670.84 | 5/8 INCH FLOATING PRODUCT | | | - | - | - | - | - | - | - |
| | 5/5/99 | 675.67 | 6.86 | 6.90 | 0.04 | 668.80 | FLOATING PRODUCT | | - | - | - | - | - | - | - | - |
| | 8/24/99 | 675.67 | 7.87 | 7.90 | 0.03 | 667.80 | FLOATING PRODUCT | | - | - | - | - | - | - | - | - |
| | 2/8/12 | 675.67 | 6.80 | 6.80 | 0.00 | 668.87 | 60,000 x | 8,200 x | <936 | 790 | <6.4 | 2,000 | 430 | 65,000 | 41,000 | 5,100 |
| | 5/4/12 | 675.67 | 6.57 | 6.57 | 0.00 | 669.10 | 18,000 | 10,000 | NA | 600 | <36 | 2,000 | 870 | 22,000 | 11,000 | 1,800 |
| | 8/6/12 | 675.67 | 7.61 | 7.61 | 0.00 | 668.06 | 16,000 | 12,000 | NA | 940 | <130 | 2,000 | 560 | 42,000 | 35,000 | 3,400 |
| | **Well Destroyed October 1, 2012** | | | | | | | | | | | | | | | |
| **RS-2** | 5/1/90 | 689.00 | 7.06 | 7.06 | 0.00 | 681.94 | 23,000 | - | - | 7,200 | 4,800 | 300 | 3,300 | - | - | - |
| | 5/1/91 | 689.00 | 7.14 | 7.14 | 0.00 | 681.86 | 26,000 | - | - | 14,000 | 1,800 | 750 | 2,900 | - | - | - |
| | 10/1/91 | 688.89 | 8.84 | 8.84 | 0.00 | 680.05 | 13,000 | - | - | 4,300 | 910 | 300 | 2,300 | - | - | - |
| | 1/1/92 | 688.89 | 7.34 | 7.34 | 0.00 | 681.55 | 8,300 | - | - | 1,800 | 920 | 140 | 1,700 | - | - | - |
| | 1/1/93 | 688.89 | 4.10 | 4.10 | 0.00 | 684.79 | 41,000 | - | - | 7,000 | 210 | 1,200 | 4,200 | - | - | - |
| | 8/1/93 | 688.89 | 7.32 | 7.32 | 0.00 | 681.57 | 19,000 | - | - | 5,300 | 62 | 810 | 1,600 | - | - | - |
| | 11/1/93 | 688.89 | 7.34 | 7.34 | 0.00 | 681.55 | 9,300 | - | - | 2,400 | 3.90 | 46 | 800 | - | - | - |
| | 1/1/94 | 688.89 | 5.52 | 5.52 | 0.00 | 683.37 | 30,000 | - | - | 4,900 | ND | 880 | 2,600 | - | - | - |
| | 5/1/94 | 675.25 | 6.40 | 6.40 | 0.00 | 668.85 | 120,000 | - | - | 3,300 | 330 | ND | 2,200 | - | - | - |
| | 8/1/94 | 675.25 | | | 0.00 | 675.25 | 510 | - | - | 7.30 | 3.80 | 3.50 | 32 | - | - | - |
| | 11/1/94 | 675.25 | 9.82 | 9.82 | 0.00 | 665.43 | 620 | - | - | 6.60 | 3.90 | 1.10 | 47 | - | - | - |

**Table 3**
**Historical Groundwater Analytical Results**
**2844 Mountain Boulevard, Oakland, CA**

| Monitoring Well | Date | Casing Elevation (Ft.) | Depth to Top Fluid (Ft.) | Depth to Groundwater (Ft.) | Free-Product Thickness | Groundwater Elevation | TPH-g µg/L | TPH-d µg/L | TPH-mo µg/L | Benzene µg/L | Toluene µg/L | Ethylbenzene µg/L | Xylenes µg/L | MtBE µg/L | TBA µg/L | TAME µg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RS-2** cont. | 2/1/95 | 675.25 | 4.81 | 4.81 | 0.00 | 670.44 | 22,000 | - | - | 228 | 80 | 2 | 463 | - | - | - |
| | 6/1/95 | 675.25 | 5.80 | 5.80 | 0.00 | 669.45 | 49,000 | - | - | 1,300 | 160 | 200 | 1,600 | 71,000 | - | - |
| | 11/1/95 | 675.25 | 7.64 | 7.64 | 0.00 | 667.61 | ND | - | - | 670 | 25 | 150 | 360 | 65,000 | - | - |
| | 2/1/96 | 675.25 | 4.69 | 4.69 | 0.00 | 670.56 | 75,000 | - | - | 1,400 | 170 | 59 | 460 | 71,000 | - | - |
| | 9/18/96 | 675.25 | 7.34 | 7.34 | 0.00 | 667.91 | 6,300 | - | - | 2,000 | 48 | 350 | 570 | 160,000 | - | - |
| | 12/11/96 | 675.25 | 5.08 | 5.08 | 0.00 | 670.17 | 16,000 | - | - | 2,000 | 840 | 200 | 3,200 | 180,000 | - | - |
| | 2/21/97 | 675.25 | 5.42 | 5.42 | 0.00 | 669.83 | 22,000 | - | - | 2,100 | 1,300 | 600 | 5,100 | 56,000 | - | - |
| | 5/28/97 | 675.25 | 6.40 | 6.40 | 0.00 | 668.85 | 156,000 | - | - | 4,200 | 89 | 1,000 | 6,900 | 390,000 | - | - |
| | 9/2/97 | 675.25 | 6.93 | 6.93 | 0.00 | 668.32 | <50 | - | - | 1,300 | 25 | 360 | 1,400 | 180,000 | - | - |
| | 11/24/97 | 675.25 | 5.93 | 5.93 | 0.00 | 669.32 | <50 | - | - | 600 | ND | ND | ND | 610,000 | - | - |
| | 2/25/98 | 675.25 | 4.59 | 4.59 | 0.00 | 670.66 | 11,000 | - | - | 1,100 | <50 | 320 | 2,400 | 330,000 | - | - |
| | 5/27/98 | 675.25 | 5.61 | 5.61 | 0.00 | 669.64 | 13,000 | - | - | 2,000 | 150 | 600 | 2,700 | 380,000 | - | - |
| | 9/16/98 | 675.25 | 6.84 | 6.84 | 0.00 | 668.41 | 11,000 | - | - | 1,600 | 20 | 1,600 | 1,600 | 280,000 | - | - |
| | 11/23/98 | 675.25 | 6.24 | 6.24 | 0.00 | 669.01 | 12,000 | - | - | 1,200 | 84 | <5 | 960 | 140,000 | - | - |
| | 2/23/99 | 675.28 | 4.62 | 4.62 | 0.00 | 670.66 | 8,800 | - | - | 1,500 | 650 | 640 | 1,500 | 450,000 | - | - |
| | 5/5/99 | 675.28 | 7.55 | 7.55 | 0.00 | 667.73 | 29,000 | - | - | 2,000 | 1,300 | 500 | 3,700 | 270,000 | - | - |
| | 8/24/99 | 675.28 | 6.62 | 6.62 | 0.00 | 668.66 | 12,000 | - | - | 1,900 | 20 | 370 | 980 | 340,000 | - | - |
| | 2/8/12 | 675.28 | 5.52 | 5.52 | 0.00 | 669.76 | 18,000 x | 6,800 x | <378 | 540 | <6.4 | 120 | 710 | 2,800 | 64,000 | 420 |
| | 5/4/12 | 675.28 | 5.18 | 5.18 | 0.00 | 670.10 | 16,000 | 13,000 | NA | 690 | 23 | 460 | 1,140 | 6,800 | 21,000 | 960 |
| | 8/6/12 | 675.28 | 6.33 | 6.33 | 0.00 | 668.95 | 11,000 | 10,000 | NA | 810 | <25 | 210 | 473 | 3,300 | 18,000 | 580 |
| | **Well Destroyed October 1, 2012** | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| **RS-3** | 5/1/90 | 670.00 | 6.00 | 6.00 | 0.00 | 664.00 | 330 | - | - | 2 | 1 | 1 | 150 | - | - | - |
| | 5/1/91 | 670.00 | 6.76 | 6.76 | 0.00 | 663.24 | ND | - | - | 0.40 | ND | 0.80 | 8 | - | - | - |
| | 10/1/91 | 670.00 | 8.98 | 8.98 | 0.00 | 661.02 | ND | - | - | ND | ND | ND | ND | - | - | - |
| | 1/1/92 | 670.00 | 6.81 | 6.81 | 0.00 | 663.19 | ND | - | - | 2.20 | 7.20 | 0.60 | 4 | - | - | - |
| | 1/1/93 | 670.00 | 4.05 | 4.05 | 0.00 | 665.95 | ND | - | - | ND | ND | ND | ND | - | - | - |
| | 8/1/93 | 670.00 | 7.19 | 7.19 | 0.00 | 662.81 | ND | - | - | 30 | 6 | 2.40 | 5 | - | - | - |
| | 11/1/93 | 670.00 | 7.12 | 7.12 | 0.00 | 662.88 | ND | - | - | 4.80 | 0.40 | 0.60 | 2 | - | - | - |
| | 1/1/94 | 670.00 | 5.42 | 5.42 | 0.00 | 664.58 | 330 | - | - | 25 | 3.20 | 3.90 | 12 | - | - | - |
| | 5/1/94 | 676.20 | 5.78 | 5.78 | 0.00 | 670.42 | 670 | - | - | 34 | 4 | 28 | 70 | - | - | - |
| | 8/1/94 | 676.20 | 5.86 | 5.86 | 0.00 | 670.34 | ND | - | - | ND | ND | ND | ND | - | - | - |
| | 11/1/94 | 676.20 | 5.08 | 5.08 | 0.00 | 671.12 | 69 | - | - | 2.50 | 3.10 | 1 | 4 | - | - | - |
| | 2/1/95 | 676.20 | 4.51 | 4.51 | 0.00 | 671.69 | ND | - | - | 0.30 | 0.40 | ND | 1 | - | - | - |
| | 6/1/95 | 676.20 | 5.29 | 5.29 | 0.00 | 670.91 | ND | - | - | ND | ND | ND | ND | 66 | - | - |
| | 11/1/95 | 676.20 | 7.10 | 7.10 | 0.00 | 669.10 | ND | - | - | ND | ND | ND | ND | 44 | - | - |
| | 2/1/96 | 676.20 | 4.48 | 4.48 | 0.00 | 671.72 | 120 | - | - | ND | ND | ND | ND | 110 | - | - |
| | 9/18/96 | 676.20 | 6.92 | 6.92 | 0.00 | 669.28 | 1,000 | - | - | 13 | 8.60 | 10 | 17 | 33 | - | - |
| | 12/11/96 | 676.20 | 4.90 | 4.90 | 0.00 | 671.30 | 85 | - | - | 20 | 2 | <0.5 | 14 | 4,700 | - | - |
| | 2/21/97 | 676.20 | 4.94 | 4.94 | 0.00 | 671.26 | 120 | - | - | 5 | 2 | 2 | 6 | 850 | - | - |
| | 5/28/97 | 676.20 | 7.92 | 7.92 | 0.00 | 668.28 | <50 | - | - | 6 | <0.5 | <0.5 | <2 | 2,400 | - | - |
| | 9/2/97 | 676.20 | 6.60 | 6.60 | 0.00 | 669.60 | <50 | - | - | 0.90 | <0.5 | <0.5 | <2 | 8,600 | - | - |
| | 11/24/97 | 676.20 | 5.89 | 5.89 | 0.00 | 670.31 | 140 | - | - | 13 | 2 | 1 | 12 | 3,600 | - | - |
| | 2/25/98 | 676.20 | 4.29 | 4.29 | 0.00 | 671.91 | <50 | - | - | <0.5 | <0.5 | <0.5 | 4 | 850 | - | - |
| | 5/27/98 | 676.20 | 5.01 | 5.01 | 0.00 | 671.19 | <50 | - | - | 7 | <0.5 | <0.5 | 11 | 940 | - | - |

**Table 3**
**Historical Groundwater Analytical Results**
**2844 Mountain Boulevard, Oakland, CA**

| Monitoring Well | Date | Casing Elevation (Ft.) | Depth to Top Fluid (Ft.) | Depth to Groundwater (Ft.) | Free-Product Thickness | Groundwater Elevation | TPH-g µg/L | TPH-d µg/L | TPH-mo µg/L | Benzene µg/L | Toluene µg/L | Ethylbenzene µg/L | Xylenes µg/L | MtBE µg/L | TBA µg/L | TAME µg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RS-3** cont. | 9/16/98 | 676.20 | 6.21 | 6.21 | 0.00 | 669.99 | <50 | - | - | 2 | 2 | 2 | 10 | 670 | - | - |
| | 11/24/98 | 676.20 | 5.58 | 5.58 | 0.00 | 670.62 | 85 | - | - | 9 | 23 | <0.5 | 19 | 180 | - | - |
| | 2/24/99 | 676.23 | 4.30 | 4.30 | 0.00 | 671.93 | <50 | - | - | <0.5 | 0.90 | <0.5 | <1.0 | 150 | - | - |
| | 5/5/99 | 676.23 | 4.92 | 4.92 | 0.00 | 671.31 | <50 | - | - | 1 | 2 | 1 | 6 | 130 | - | - |
| | 8/24/99 | 676.23 | 6.64 | 6.64 | 0.00 | 669.59 | 80 | - | - | 0.80 | <0.5 | 0.60 | <1 | 300 | - | - |
| | 2/8/12 | 676.23 | 5.72 | 5.72 | 0.00 | 670.51 | 130 x | <42 | <94 | <0.13 | 0.59 | 2.90 | 18.1 | 7.9 | <1.5 | <0.17 |
| | 5/4/12 | 676.23 | 5.25 | 5.25 | 0.00 | 670.98 | <50 | 330 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 10 | 18 | 2.4 |
| | 8/6/12 | 676.23 | 6.65 | 6.65 | 0.00 | 669.58 | <50 | 390 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 13 | <10 | 3.2 |
| | 3/29/13 | 676.23 | 6.01 | 6.01 | 0.00 | 670.22 | <50 | 90 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 3.6 | <10 | <0.5 |
| | 6/6/13 | 676.08 | 6.45 | 6.45 | 0.00 | 669.63 | <50 | 66 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 1.5 | <10 | <0.5 |
| | 9/4/13 | 676.08 | 6.91 | 6.91 | 0.00 | 669.17 | <50 | 170 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <10 | <0.5 |
| | 12/30/13 | 676.08 | 7.21 | 7.21 | 0.00 | 668.87 | <50 | 61 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 21 | 680 | 0.64 |
| | 3/10/14 | 676.08 | 5.68 | 5.68 | 0.00 | 670.40 | <50 | <50 | NA | <0.5 | <0.5 | <0.5 | <0.5 | 14 | 320 | 0.61 |
| | 6/3/14 | 676.08 | 6.72 | 6.72 | 0.00 | 669.36 | <50 | <50 | NA | <0.5 | <0.5 | <0.5 | <0.5 | 41 | 490 | 1.70 |
| | 8/27/14 | 676.08 | 7.10 | 7.10 | 0.00 | 668.98 | <50 | 120 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 27 | <10 | 1.20 |
| | 11/13/14 | 676.08 | 6.53 | 6.53 | 0.00 | 669.55 | <50* | 58 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 19 | <10 | 0.60 |
| | 2/12/15 | 676.08 | 5.95 | 5.95 | 0.00 | 670.13 | <50 | 56 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 19 | <10 | <0.5 |
| | 5/13/15 | 676.08 | 6.93 | 6.93 | 0.00 | 669.15 | <50 | <50 | NA | <0.5 | <0.5 | <0.5 | <0.5 | 4.6 | <10 | <0.5 |
| post-MPE | 6/22/15 | 676.08 | 8.87 | 8.87 | 0.00 | 667.21 | <50 | <50 | NA | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <10 | <0.5 |
| | 8/12/15 | 676.08 | 7.79 | 7.79 | 0.00 | 668.29 | <50 | <52 | NA | <0.5 | <0.5 | <0.5 | <0.5 | 0.57 | <10 | <0.5 |
| | 11/12/15 | 676.08 | 7.85 | 7.85 | 0.00 | 668.23 | <50 | <49 | NA | <0.5 | <0.5 | <0.5 | <0.5 | 1.10 | <10 | <0.5 |
| | 2/15/16 | 676.08 | 5.88 | 5.88 | 0.00 | 670.20 | <50 | <49 | NA | <0.5 | <0.5 | <0.5 | <0.5 | 5.40 | <10 | <0.5 |
| | 5/6/16 | 676.08 | 5.93 | 5.93 | 0.00 | 670.15 | <50 | <50 | NA | <0.5 | <0.5 | <0.5 | <0.5 | 4.80 | <10 | <0.5 |
| | 8/17/16 | 676.08 | 6.70 | 6.70 | 0.00 | 669.38 | <50 | 81Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 0.51 | <10 | <0.5 |
| | 11/18/16 | 676.08 | 6.18 | 6.18 | 0.00 | 669.90 | <50 | 62Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <10 | <0.5 |
| | **3/18/17** | **676.08** | **4.65** | **4.65** | **0.00** | **671.43** | **<50** | **NA** | **NA** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **<10** | **<0.5** |
| | | | | | | | | | | | | | | | | |
| **RS-4** | 5/1/90 | 675.38 | 8.34 | 8.34 | 0.00 | 667.04 | 440 | - | - | 9 | 11 | 9 | 49 | - | - | - |
| | 5/1/91 | 675.38 | 9.50 | 9.50 | 0.00 | 665.88 | ND | - | - | 8 | 4 | 3 | 5 | - | - | - |
| | 10/1/91 | 675.38 | 10.82 | 10.82 | 0.00 | 664.56 | 830 | - | - | 280 | 120 | 24 | 170 | - | - | - |
| | 1/1/92 | 675.38 | 9.31 | 9.31 | 0.00 | 666.07 | 620 | - | - | 34 | 8.30 | 2.10 | 21 | - | - | - |
| | 1/1/93 | 675.38 | 6.89 | 6.89 | 0.00 | 668.49 | 150 | - | - | 32 | 1.70 | 5.80 | 13 | - | - | - |
| | 8/1/93 | 675.38 | 9.68 | 9.68 | 0.00 | 665.70 | ND | - | - | 0.90 | 0.70 | ND | 0 | - | - | - |
| | 11/1/93 | 675.38 | 9.83 | 9.83 | 0.00 | 665.55 | ND | - | - | ND | ND | ND | ND | - | - | - |
| | 1/1/94 | 675.38 | 8.17 | 8.17 | 0.00 | 667.21 | ND | - | - | 1.70 | ND | 0.81 | 2 | - | - | - |
| | 5/1/94 | 675.38 | 8.69 | 8.69 | 0.00 | 666.69 | ND | - | - | ND | ND | ND | 1 | - | - | - |
| | 8/1/94 | 675.38 | 9.04 | 9.04 | 0.00 | 666.34 | 420 | - | - | 6.50 | 4.10 | 1.90 | 40 | - | - | - |
| | 11/1/94 | 675.38 | 8.00 | 8.00 | 0.00 | 667.38 | 130 | - | - | 4.10 | 0.70 | 1.70 | 8 | - | - | - |
| | 2/1/95 | 675.38 | 7.93 | 7.93 | 0.00 | 667.45 | ND | - | - | 6 | 1.20 | 3.50 | 13 | - | - | - |
| | 6/1/95 | 675.38 | 8.61 | 8.61 | 0.00 | 666.77 | ND | - | - | ND | ND | ND | ND | 69 | - | - |
| | 11/1/95 | 675.38 | 10.43 | 10.43 | 0.00 | 664.95 | ND | - | - | ND | ND | ND | ND | 47 | - | - |
| | 2/1/96 | 675.38 | 7.44 | 7.44 | 0.00 | 667.94 | 960 | - | - | ND | ND | 0.60 | ND | 80 | - | - |
| | 9/18/96 | 675.38 | 9.58 | 9.58 | 0.00 | 665.80 | <50 | - | - | <0.5 | <0.5 | <0.5 | <2 | 200 | - | - |
| | 12/11/96 | 675.38 | 7.50 | 7.50 | 0.00 | 667.88 | 75 | - | - | <0.5 | 0.60 | <0.5 | <0.5 | 104 | - | - |

**Table 3**
**Historical Groundwater Analytical Results**
**2844 Mountain Boulevard, Oakland, CA**

| Monitoring Well | Date | Casing Elevation (Ft.) | Depth to Top Fluid (Ft.) | Depth to Groundwater (Ft.) | Free-Product Thickness | Groundwater Elevation | TPH-g µg/L | TPH-d µg/L | TPH-mo µg/L | Benzene µg/L | Toluene µg/L | Ethylbenzene µg/L | Xylenes µg/L | MtBE µg/L | TBA µg/L | TAME µg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RS-4** cont. | 2/21/97 | 675.38 | 8.26 | 8.26 | 0.00 | 667.12 | <50 | - | - | 1 | 1 | <0.5 | 1 | 190 | - | - |
| | 5/28/97 | 675.38 | 8.92 | 8.92 | 0.00 | 666.46 | <50 | - | - | 6 | <0.5 | <0.5 | <2 | 110 | - | - |
| | 9/2/97 | 675.38 | 9.39 | 9.39 | 0.00 | 665.99 | 100 | - | - | 3 | <0.5 | <0.5 | <2 | 39 | - | - |
| | 11/24/97 | 675.38 | 8.22 | 8.22 | 0.00 | 667.16 | 41 | - | - | <0.5 | 2 | <0.5 | <2 | 210 | - | - |
| | 2/25/98 | 675.38 | 7.19 | 7.19 | 0.00 | 668.19 | <50 | - | - | 3 | <0.5 | <0.5 | <1 | 5,600 | - | - |
| | 5/27/98 | 675.38 | 8.40 | 8.40 | 0.00 | 666.98 | <50 | - | - | <0.5 | <0.5 | <0.5 | <1 | 2,400 | - | - |
| | 9/16/98 | 675.38 | 9.26 | 9.26 | 0.00 | 666.12 | <50 | - | - | <0.5 | <0.5 | <0.5 | <1 | 230 | - | - |
| | 11/24/98 | 675.38 | 8.50 | 8.50 | 0.00 | 666.88 | <50 | - | - | 2 | <0.5 | <0.5 | <1 | 100 | - | - |
| | 2/24/99 | 675.42 | 7.20 | 7.20 | 0.00 | 668.22 | <50 | - | - | 2 | 3 | 0.80 | 5 | 670 | - | - |
| | 5/5/99 | 675.42 | 8.37 | 8.37 | 0.00 | 667.05 | 100 | - | - | <0.5 | <0.5 | <0.5 | <1 | 440 | - | - |
| | 8/24/99 | 675.42 | 8.36 | 8.36 | 0.00 | 667.06 | <50 | - | - | <0.5 | <0.5 | <0.5 | <1 | <500 | - | - |
| | 2/8/12 | 675.42 | 8.11 | 8.11 | 0.00 | 667.31 | 140,000 | 130,000 x | <9,360 | 120 | 2,600 | 4,700 | 28,200 | 28,000 | 100,000 | 1,800 |
| | 5/4/12 | 675.42 | 8.31 | 8.31 | 0.00 | 667.11 | 67,000 | 12,000 Y | NA | 61 | 900 | 2,100 | 9,700 | 32,000 | 69,000 | 1,700 |
| | 8/6/12 | 675.42 | 9.01 | 9.01 | 0.00 | 666.41 | 49,000 | 8,900 | NA | <130 | 350 | 1,700 | 8,100 | 19,000 | 90,000 | 1,300 |
| | 3/29/13 | 675.42 | 8.49 | 8.49 | 0.00 | 666.93 | 14,000 | 14,000 | NA | <100 | <100 | 440 | 1,340 | 14,000 | 110,000 | 590 |
| | 6/6/13 | 675.27 | 8.48 | 8.48 | 0.00 | 666.79 | 12,000 | 7,200 | NA | 11 | <3.6 | 420 | 886 | 16,000 | 66,000 | 970 |
| | 9/4/13 | 675.27 | 9.39 | 9.39 | 0.00 | 665.88 | 20,000 | 5,100 | NA | <100 | <100 | 660 | 2,830 | 18,000 | 75,000 | 1,200 |
| | 12/30/13 | 675.27 | 9.57 | 9.57 | 0.00 | 665.70 | <13,000 | 9,900 | NA | <130 | <130 | <130 | 150 | 16,000 | 37,000 | 1,100 |
| | 3/10/14 | 675.27 | 7.65 | 7.65 | 0.00 | 667.62 | <10,000 | 3,700 | NA | <100 | <100 | <100 | <100 | 11,000 | 38,000 | 640 |
| | 6/3/14 | 675.27 | 9.27 | 9.27 | 0.00 | 666.00 | <3,600 | 4,400 | NA | <36 | <36 | 40 | <36 | 3,700 | 27,000 | 260 |
| | 8/27/14 | 675.27 | 9.43 | 9.43 | 0.00 | 665.84 | 2,500 | 4,700 | NA | <20 | <20 | 40 | <20 | 2,100 | 28,000 | 150 |
| | 11/13/14 | 675.27 | 9.56 | 9.56 | 0.00 | 665.71 | 2,200* | 3,500 | NA | <20 | <20 | <20 | 36 | 11,000 | 15,000 | 910 |
| | 2/12/15 | 675.27 | 8.03 | 8.03 | 0.00 | 667.24 | <1,300 | 1,900 | NA | <13 | <13 | <13 | <13 | 500 | 14,000 | 25 |
| | 5/13/15 | 675.27 | 9.05 | 9.05 | 0.00 | 666.22 | <1,300 | 1,100 | NA | <13 | <13 | <13 | <13 | 460 | 25,000 | 21 |
| Post-MPE | 6/22/15 | 675.27 | 10.62 | 10.62 | 0.00 | 664.65 | <1,300 | 770 | NA | <13 | <13 | <13 | <13 | 5,900 | 7,900 | 500 |
| | 8/12/15 | 675.27 | 9.93 | 9.93 | 0.00 | 665.34 | 320 | 1,300 | NA | <1.3 | <1.3 | 1.3 | 1.7 | 230 | 6,400 | 18 |
| | 11/12/15 | 675.27 | 9.58 | 9.58 | 0.00 | 665.69 | 170 | 440 | NA | <0.5 | <0.5 | 1.4 | 0.55 | 12 | 1,400 | 0.66 |
| | 2/15/16 | 675.27 | 8.43 | 8.43 | 0.00 | 666.84 | <100 | 350 Y | NA | <1.0 | <1.0 | <1.0 | <1.0 | 8.80 | 270 | <1.0 |
| | 5/6/16 | 675.27 | 6.47 | 6.47 | 0.00 | 668.80 | <50 | 850 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 160 | 21 | 5.60 |
| | 8/17/16 | 675.27 | 9.38 | 9.38 | 0.00 | 665.89 | 100 | 710 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 47 | 8,100 | 2.80 |
| | 11/18/16 | 675.27 | 8.80 | 8.80 | 0.00 | 666.47 | <100 | 690 | NA | <1.0 | <1.0 | <1.0 | <1.0 | 190 | 5,400 | 13 |
| | **3/18/17** | **675.27** | **7.63** | **7.63** | **0.00** | **667.64** | **<710** | **NA** | **NA** | **<7.1** | **<7.1** | **<7.1** | **<7.1** | **820** | **33,000** | **45** |
| | | | | | | | | | | | | | | | | |
| **MW-1** | 6/6/13 | 674.92 | 6.03 | 6.03 | 0.00 | 668.89 | <17,000 | 13,000 | NA | 930 | 370 | 470 | 1,760 | 55,000 | 32,000 | 7,200 |
| | 9/4/13 | 674.92 | 7.10 | 7.10 | 0.00 | 667.82 | <50,000 | 13,000 | NA | 2,000 | <500 | 1,400 | 4,200 | 70,000 | 48,000 | 7,700 |
| | 12/30/13 | 674.92 | 7.27 | 7.27 | 0.00 | 667.65 | 34,000 | 13,000 | NA | 920 | 1,000 | 1,300 | 4,900 | 43,000 | 43,000 | 4,500 |
| | 3/10/14 | 674.92 | 5.51 | 5.51 | 0.00 | 669.41 | <20,000 | 11,000 | NA | 720 | <200 | 890 | 1,970 | 25,000 | 30,000 | 2,600 |
| | 6/3/14 | 674.92 | 6.74 | 6.74 | 0.00 | 668.18 | 8,900 | 7,400 | NA | 350 | <83 | 550 | 1,420 | 11,000 | 28,000 | 1,300 |
| | 8/27/14 | 674.92 | 7.23 | 7.23 | 0.00 | 667.69 | 8,100 | 12,000 | NA | 640 | <63 | 610 | 720 | 8,400 | 23,000 | 1,500 |
| | 11/13/14 | 674.92 | 7.36 | 7.36 | 0.00 | 667.56 | 7,400* | 7,900 | NA | 270 | <63 | 360 | 880 | 6,100 | 12,000 | 910 |
| | 2/12/15 | 674.92 | 5.80 | 5.80 | 0.00 | 669.12 | 4,300 | 11,000 | NA | 200 | <25 | 200 | 350 | 3,400 | 18,000 | 500 |
| | 5/13/15 | 674.92 | 7.00 | 7.00 | 0.00 | 667.92 | 2,700 | 7,100 | NA | 150 | <8.3 | 170 | 76 | 1,000 | 12,000 | 150 |
| Post-MPE | 6/22/15 | 674.92 | 12.11 | 12.11 | 0.00 | 662.81 | <1,300 | 2,600 | NA | <13 | <13 | <13 | <13 | 4,800 | 17,000 | 450 |
| | 8/12/15 | 674.92 | 8.25 | 8.25 | 0.00 | 666.67 | 2,000 | 8,100 | NA | 31 | <8.3 | 27 | 46 | 530 | 10,000 | 57 |
| | 11/12/15 | 674.92 | 7.79 | 7.79 | 0.00 | 667.13 | 2,500 | 5,100 | NA | 16 | <5.0 | 34 | 6.9 | 120 | 6,200 | 13 |

**Table 3**
**Historical Groundwater Analytical Results**
**2844 Mountain Boulevard, Oakland, CA**

| Monitoring Well | Date | Casing Elevation (Ft.) | Depth to Top Fluid (Ft.) | Depth to Groundwater (Ft.) | Free-Product Thickness | Groundwater Elevation | TPH-g µg/L | TPH-d µg/L | TPH-mo µg/L | Benzene µg/L | Toluene µg/L | Ethylbenzene µg/L | Xylenes µg/L | MtBE µg/L | TBA µg/L | TAME µg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MW-1** cont. | 2/15/16 | 674.92 | 5.94 | 5.94 | 0.00 | 668.98 | 970 | 3,700 | NA | 3.20 | <2.5 | 27 | 11 | 75 | 4,100 | 7.40 |
| | 5/6/16 | 674.92 | 5.92 | 5.92 | 0.00 | 669.00 | 690 | 2,900 | NA | 1.80 | <1.7 | <1.7 | <1.7 | 26 | 2,900 | 2.50 |
| | 8/17/16 | 674.92 | 6.62 | 6.62 | 0.00 | 668.30 | 940 | 5,000 Y | NA | <1.7 | <1.7 | <1.7 | <1.7 | 17 | 2,300 | <1.7 |
| | 11/18/16 | 674.92 | 6.08 | 6.08 | 0.00 | 668.84 | 340 | 3,900 | NA | <2.0 | <2.0 | <2.0 | <2.0 | 12 | 1,800 | <2.0 |
| | **3/18/17** | **674.92** | **4.73** | **4.73** | **0.00** | **670.19** | **920** | **NA** | **NA** | **<2.0** | **<2.0** | **<2.0** | **<2.0** | **34** | **2,300** | **2.40** |
| | | | | | | | | | | | | | | | | |
| **MW-2** | 6/6/13 | 675.02 | 6.70 | 6.70 | 0.00 | 668.32 | 16,000 | 5,400 | NA | 910 | <130 | 610 | 2,290 | 59,000 | 64,000 | 7,700 |
| | 9/4/13 | 675.02 | 7.79 | 7.79 | 0.00 | 667.23 | <25,000 | 3,900 | NA | 860 | <250 | 710 | 1,580 | 32,000 | 31,000 | 4,600 |
| | 12/30/13 | 675.02 | 8.05 | 8.05 | 0.00 | 666.97 | <13,000 | 6,300 | NA | 180 | <130 | <130 | 330 | 18,000 | 53,000 | 1,800 |
| | 3/10/14 | 675.02 | 6.08 | 6.08 | 0.00 | 668.94 | 14,000 | 11,000 | NA | 210 | <130 | 360 | 700 | 15,000 | 40,000 | 1,800 |
| | 6/3/14 | 675.02 | 7.54 | 7.54 | 0.00 | 667.48 | <7,100 | 6,200 | NA | 170 | <71 | 310 | 150 | 8,000 | 29,000 | 920 |
| | 8/27/14 | 675.02 | 7.90 | 7.90 | 0.00 | 667.12 | 3,400 | 5,000 | NA | 100 | <8.3 | 120 | 88 | 2,300 | 25,000 | 310 |
| | 11/13/14 | 675.02 | 8.12 | 8.12 | 0.00 | 666.90 | 1,000* | 4,700 | NA | 120 | <8.3 | 11 | <8.3 | 4,000 | 22,000 | 460 |
| | 2/12/15 | 675.02 | 6.33 | 6.33 | 0.00 | 668.69 | <4,200 | 5,400 | NA | 98 | <42 | 58 | <42 | 6,300 | 42,000 | 610 |
| | 5/13/15 | 675.02 | 7.72 | 7.72 | 0.00 | 667.30 | <2,000 | 4,900 | NA | 86 | <20 | 45 | <20 | 870 | 34,000 | 96 |
| Post-MPE | 6/22/15 | 675.02 | 11.30 | 11.30 | 0.00 | 663.72 | <2,000 | 3,300 | NA | <20 | <20 | <20 | <20 | 3,400 | 18,000 | 460 |
| | 8/12/15 | 675.02 | 8.86 | 8.86 | 0.00 | 666.16 | <2,000 | 2,800 Y | NA | <20 | <20 | <20 | <20 | 470 | 23,000 | 31 |
| | 11/12/15 | 675.02 | 8.30 | 8.30 | 0.00 | 666.72 | <2,000 | 1,800 | NA | <20 | <20 | <20 | <20 | 340 | 37,000 | 25 |
| | 2/15/16 | 675.02 | 6.67 | 6.67 | 0.00 | 668.35 | 620 | 1,900 | NA | 32 | <2.0 | 8.2 | <2.0 | 180 | 26,000 | 15 |
| | 5/6/16 | 675.02 | 5.72 | 5.72 | 0.00 | 669.30 | 1,200 | 1,700 | NA | 43 | <2.5 | 14 | <2.5 | 220 | 19,000 | 20 |
| | 8/17/16 | 675.02 | 7.67 | 7.67 | 0.00 | 667.35 | <710 | 1,100 | NA | 20 | <7.1 | <7.1 | <7.1 | 140 | 10,000 | 10 |
| | 11/18/16 | 675.02 | 6.95 | 6.95 | 0.00 | 668.07 | <710 | 1,100 | NA | 9.80 | <7.1 | <7.1 | <7.1 | 40 | 6,400 | <7.1 |
| | **3/18/17** | **675.02** | **5.68** | **5.68** | **0.00** | **669.34** | **<50** | **NA** | **NA** | **10** | **<7.1** | **<7.1** | **<7.1** | **88** | **12,000** | **<7.1** |
| | | | | | | | | | | | | | | | | |
| **MW-3** | 5/13/15 | 675.58 | 6.60 | 6.60 | 0.00 | 668.98 | <50 | 7,000 | NA | <0.5 | <0.5 | <0.5 | 0.75 | 160 | 380 | 8.4 |
| Post-MPE | 6/22/15 | 675.58 | 14.31 | 14.31 | 0.00 | 661.27 | <100 | 650 Y | NA | <1.0 | <1.0 | <1.0 | <1.0 | 190 | 17 | 6.3 |
| | 8/12/15 | 675.58 | 7.80 | 7.80 | 0.00 | 667.78 | <170 | 410 Y | NA | <1.7 | <1.7 | <1.7 | <1.7 | 590 | 41 | 20 |
| | 11/12/15 | 675.58 | 7.78 | 7.78 | 0.00 | 667.80 | <50 | 220 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 67 | <10 | 1.70 |
| | 2/15/16 | 675.58 | 5.40 | 5.40 | 0.00 | 670.18 | <50 | 370 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 140 | <10 | 3.20 |
| | 5/6/16 | 675.58 | 5.68 | 5.68 | 0.00 | 669.90 | 140 | 490 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 190 | 9,000 | 10 |
| | 8/17/16 | 675.58 | 6.37 | 6.37 | 0.00 | 669.21 | <50 | 870 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 30 | 19 | 1.30 |
| | 11/18/16 | 675.58 | 5.71 | 5.71 | 0.00 | 669.87 | <50 | 460 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 2.10 | <10 | <0.5 |
| | **3/18/17** | **675.58** | **4.11** | **4.11** | **0.00** | **671.47** | **<50** | **NA** | **NA** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **160** | **140** | **10** |
| **ESLs (µg/L)** | **Ground-water** | | | | | | 100 | 100 | NA | 1.00 | 40 | 13 | 20 | 5.00 | 12 | NL |
| | **Vapor Intrusion** | | | | | | NV | NV | NV | 1.10 | 3,600 | 13 | 1,300 | 1,200 | NV | NL |

Note:

< : Below Laboratory Reporting Limit (Method Detection Limit)

x : Does not match pattern of reference Gasoline standard/ Not typical of diesel standard pattern (possibly fuel lighter than diesel)

* : Laboratory instruments for EPA8260 were down. Therefore, TPH-g was analyzed by EPA8015B instead of EPA8260 for samples collected on 11/13/2014

ESL: Environmental Screening Level by California Regional Water Quality Control Board San Francisco Bay Region, February 2016

NL: Not Listed

NV: No Value

# APPENDIX A

## SITE HISTORY

## Site History and Use

Soil contamination was initially identified at the site in March 1989, during the replacement of the product lines by Diablo Tank and Equipment. Up to 8,400 mg/kg of total PHCs as gasoline (TPH-g) were identified in soil samples collected from the southern edge of the USTs.

In July 1989, On-Site Technologies excavated and disposed of between 90 and 150 cubic yards of contaminated soil from the southern end of the UST that then contained premium unleaded fuel. Up to 3,300 mg/kg of total PHCs as gasoline (TPH-g) were detected in samples collected from excavation sidewalls.

In May 1990, Remediation Service International (RSI) conducted a soil and groundwater assessment at the site including installation of four groundwater monitoring wells (RS-1 through RS-4). Hydrocarbons were detected in both soil and groundwater during this assessment.

In June 1991, soil remediation began at the site using soil vapor extraction (SVE). In October 1991, groundwater remediation began at the site using RSI's remedial system. Remediation was suspended in 1992, apparently due to Desert Petroleum's financial problems.

In 1994 a 280-gallon waste oil UST was removed along with approximately 40 cubic yards of contaminated soil and in 1998 the 4,000-gallon gasoline UST was removed along with approximately 40 cubic yards of contaminated soil.

Reportedly the site has been monitored on a quarterly basis since May 1990, monitoring was discontinued in 1999. A Corrective Action Plan for the site was prepared in February 1995.

Beginning in 1995, hydrocarbon concentrations started to rise and free hydrocarbons appeared in monitoring well RS-1. During interim free-product removal, between October and December 1996, 30.4 gallons of gasoline and 1,077 gallons of contaminated groundwater were removed from monitoring well RS-1.

In March 1999, Western Geo-Engineers of Woodland, California prepared a quarterly groundwater monitoring report and subsurface conduit study for the site. This subsurface conduit study identified a sewer line that was partially submerged below the typical depth to groundwater at the site. This sewer line could potentially act as a conduit for migration of groundwater contamination.

A Report for Soil and Groundwater Assessment was prepared by Agua Science Engineers, Inc in May 24, 2000 which documented further delineation of the soil and groundwater contamination extent in the off-site area.

"Out-of-compliance" correspondence dated June 18, 2009, was issued by Alameda County Environmental Health Services (ACEHS) for the site; this letter was related to a workplan dated December 7, 2000 for installation of five monitoring wells in both on- and off-site areas where elevated concentrations of fuel hydrocarbons had been detected.

Between July 29 and August 18, 2011 two underground storage tanks (USTs), one 10,000-gallon and one 3,000-gallon capacity, were excavated and disposed of off-site. During this event, associated fuel piping was also excavated and disposed of off-site. Depth to the bottom of excavation pit was recorded at 11.5 feet bgs. The UST pit and trenches were not backfilled to grade with clean (imported) fill material or resurfaced because the owner indicated he intends to install new USTs and piping in the near future. The UST pit was lined and backfilled with existing material and concrete rubble. The site is currently fenced in, which limits public access to the property. Confirmation soil samples were collected from beneath removed USTs and associated piping. Two groundwater samples were collected from the UST pit. It appeared that soil and groundwater contamination still exists in the area of removed USTs, as illustrated by levels of chemicals of concern (COCs) in excess of Environmental Screening Levels (ESLs). Lesser soil contamination exists in the area beneath the removed fuel piping.

On March 15 and 16, 2012, under SOMA's oversight, Fisch Drilling (Fisch) advanced on-site borings CPT/MIP-1 and CPT/MIP-2, and borings DPT-1 through DPT-4. Borings DPT-1 and DPT-2 were advanced adjacent to CPT/MIP-1 and CPT/MIP-2. Boring DPT-1 was renamed CPT/DPT-1 and was continuously logged to verify the CPT obtained data. Based on results of this sampling it appeared that soil and groundwater contamination still exists in the area of removed USTs and in the explored downgradient (off-site) areas. In order to address residual soil contamination, SOMA proposed conducting a shallow soil excavation in the vicinity of former USTs.

In October 2012, based on chemical concentrations in soil, an interim remedial excavation to address the residual contamination in the area of the former USTs was implemented. As part of this remedial excavation an area of approximately 1,200 square feet was excavated to approximately 12 feet bgs and then deepened to approximately 15 feet bgs based on soil discoloration and field PID readings. Approximately 788.65 tons of excavated soils were disposed of at an approved disposal facility and excavation pit was backfilled with clean fill material. Prior to backfill placement confirmation soil samples were collected from the bottom and sidewalls of excavation (where feasible); once backfilled the area was resurfaced with asphalt and concrete, as appropriate. Two groundwater monitoring wells RS-1 and RS-2 were located near or inside the footprint of the excavation, and as required were decommissioned prior to the initiation of excavation activities at the site

In December 2012, SOMA submitted a workplan for additional investigation, well replacement and (multi-phase extraction) MPE pilot testing. This workplan was approved by the San Francisco Bay regional water quality Control board (SF RWQCB) on April 3, 2013. In May 2013, two replacement wells (MW-1 and MW-2) and two soil borings next to each other (DPT-5 and DPT-5W) for collection of soil and groundwater samples were installed. Results were documented in SOMA's report 'Additional investigation and Monitoring Wells Replacement Report' dated September 13, 2013.

In December 2013, MPE pilot test was conducted at the site and results and recommendation were documented in 'Multi-Phase Extraction Pilot Testing Report' dated January 21, 2014. Approximately 497 pounds of volatile PHCs were removed during the MPE pilot test at an average VOC mass removal rate of approximately 36 lbs/day SOMA's recommendation to conduct further MPE events at the site was approved in RWQCB's directive dated June 27, 2014.

An MPE event was conducted at the site from September 17 to November 5, 2014 utilizing MW-1, MW-2, and RS-4 as extraction wells. Approximately 887 pounds of volatile PHCs were removed during this event with an average VOC mass removal rate of approximately 22 lbs/day.

On May 1, 2015, SOMA installed a 4-inch diameter MPE/monitoring well (MW-3) in the vicinity of T-1 to be utilized during the next MPE event and to monitor elevated levels of chemicals in groundwater.

Upon SFB-RWQCB's approval an MPE event was conducted from May 19 to June 19, 2015 utilizing MW-1, MW-2, RS-4, and newly installed MW-3 as extraction wells. Approximately 328 pounds of volatile PHCs were removed during this event with an average VOC mass removal rate of approximately 17 lbs/day.

In March 2016, SOMA conducted an additional site investigation to delineate the extent of MtBE and TBA in the subsurface. One on-site (DPT-6) and three off-site (DPT-7 through DPT-9) soil and groundwater borings were advanced during this investigation and the results showed elevated levels of MtBE, TBA, and TAME in off-site areas in DPT-7 and DPT-8 in shallow and in the deeper water bearing zone.

# APPENDIX B

## GENERAL FIELD PROCEDURES

# GENERAL FIELD PROCEDURES

*Utility Locating*

Prior to drilling, boring locations are marked with white paint or other discernible marking and cleared for underground utilities through Underground Service Alert (USA). In addition, the first five feet of each borehole are air-knifed, or carefully advanced with a hand auger if shallow soil samples are necessary, to help evaluate the borehole location for underground structures or utilities.

*DPT Borehole Advancement*

Pre-cleaned push rods (typically one to two inches in diameter) are advanced using a hydraulic push type rig for the purpose of collecting samples and evaluating subsurface conditions. The drill rod serves as a soil sampler, and an acetate liner is inserted into the annulus of the drill rod prior to advancement. Once the sample is collected, the rods and sampler are retracted and the sample tubes are removed from the sampler head. The sampler head is then cleaned, filled with clean sample tubes, inserted into the borehole and advanced to the next sampling point where the sample collection process is repeated.

*Borehole Completion*

Upon completion of drilling and sampling, the rods are retracted. Neat cement grout, mixed at a ratio of 6 gallons of water per 94 pounds of Portland cement, is introduced, *via* a tremmie pipe, and pumped to displace standing water in the borehole. Displaced groundwater is collected at the surface into DOT approved 55-gallon steel drums, or an equivalent storage container. In areas where the borehole penetrates asphalt or concrete, the borehole is capped with an equivalent thickness of asphalt or concrete patch to match finished grade.

*Equipment Decontamination*

Equipment that could potentially contact subsurface media and compromise the integrity of the samples is carefully decontaminated prior to drilling and sampling. Drill augers and other large pieces of equipment are decontaminated using high pressure hot water spray. Samplers, groundwater pumps, liners and other equipment are decontaminated in an Alconox scrub solution and double rinsed in clean tap water rinse followed by a final distilled water rinse.

The rinsate and other wastewater are contained in 55-gallon DOT-approved drums, labeled (to identify the contents, generation date and project) and stored on-site pending waste profiling and disposal.