TEC Environmental
a division of **Technology, Engineering, & Construction, Inc.**
262 Michelle Court • So. San Francisco, CA 94080-6201 • www.tecenvironmental.com
Tel: (650) 616-1200 • Fax: (650) 616-1244 • Contractor's Lic. #762034

December 12, 2013

Ms. Karel Detterman, P.G.
Alameda County Health Agency
Division of Environmental Protection
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

SUBJECT: **PERJURY STATEMENT**

SITE: **FORMER OLYMPIAN SERVICE STATION**
1435 WEBSTER STREET
ALAMEDA, CALIFORNIA 94501
FLC # RO0000193

Dear Ms. Detterman:

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.

Thank you for your cooperation and assistance on this project. If you have any questions, feel free to contact me at (650) 596-8950.

Sincerely,

Fred Bertetta, PRESIDENT
Responsible Party
OLYMPIAN

TEC Environmental
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December 12, 2013

Ms. Karel Detterman, P.G.
Alameda County Health Agency
Division of Environmental Protection
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

SUBJECT: DATA GAP INVESTIGATION WORKPLAN

SITE: FORMER OLYMPIAN SERVICE STATION
1435 WEBSTER STREET
ALAMEDA, CALIFORNIA 94501
FLC # RO0000193

Dear Ms. Detterman:

On behalf of Olympian JV, Technology, Engineering & Construction, Inc. has prepared this *Data Gap Investigation Workplan* for the above-referenced site.

Thank you for your cooperation and assistance on this project. If you have any questions or concerns, please contact the undersigned at (650) 222-0890.

Sincerely,
Technology, Engineering
& Construction, Inc.

2013.12.12
17:38:31 -08'00'

Paul B. Dotson, PG
Project Manager

cc: Mr. Fred Bertetta c/o Ms. Janet Heikel, Olympian, 1300 Industrial Road, Suite 2, San Carlos, California 94070
Mr. Jeff Farrar, via email
Mr. Ed Firestone, via email
Mr. and Mrs. Charles A. & Ose M. Begley, 2592 Pine View Dr., Fortuna, California 95540

DATA GAP INVESTIGATION WORK PLAN

FORMER OLYMPIAN SERVICE STATION
1435 WEBSTER STREET
ALAMEDA, CALIFORNIA 94501

FLC #: RO0000193

PREPARED FOR:

OLYMPIAN JV
AND
ALAMEDA COUNTY HEALTH AGENCY

PREPARED BY:

TECHNOLOGY, ENGINEERING & CONSTRUCTION, INC.
PROJECT #: E-608

WORK PLAN DATE:

DECEMBER 12, 2013

TEC ENVIRONMENTAL

TABLE OF CONTENTS

PAGE

1.0 INTRODUCTION 1
2.0 SITE DESCRIPTION 1
3.0 ENVIRONMENTAL BACKGROUND 1
3.1 Site Timeline 1
3.2 Site Condition 3
4.0 SCOPE OF WORK 3
4.1 PROCEDURES 3
4.1.1 Pre-Field Activities 3
4.2.2 Soil Boring and Sampling 3
4.2 Electronic Laboratory Data Submittal 4
5.0 LIMITATIONS 5

TABLES

1 SUMMARY OF HISTORICAL SOIL ANALYTICAL DATA
2 SUMMARY OF HISTORICAL GROUNDWATER ELEVATION DATA
3 SUMMARY OF HISTORICAL GROUNDWATER MONITORING ANALYTICAL DATA
4 SUMMARY OF HISTORICAL GRAB GROUNDWATER ANALYTICAL DATA
5 SUMMARY OF HISTORICAL SOIL VAPOR ANALYTICAL DATA

FIGURES

1 VICINITY MAP
2 SITE MAP – PROPOSED BORING LOCATIONS

ATTACHMENTS

A SITE CONCEPTUAL MODEL
B DATA GAP IDENTIFICATION SUMMARY AND PROPOSED INVESTIGATION

1.0 INTRODUCTION

On behalf of Olympian JV, Technology, Engineering & Construction, Inc. (TEC) has prepared this Data Gap Investigation Workplan for the former Olympian Service Station located at 1435 Webster Street, Alameda, California. The site is the location of a subsurface release of petroleum hydrocarbons related to the former gasoline underground storage tanks (USTs) that were removed in 1989. This workplan has been completed in accordance with the Alameda County Environmental Health (ACEH) directive letter dated October 10, 2013.

This document has been prepared to identify data gaps that prevent the site from meeting the State Water Resources Control Board's Low Threat Underground Storage Tank Case Closure Policy. Data gaps were identified by evaluating the current Site Conceptual Model (SCM, Attachment A). A summary of the identified data gaps is included in Attachment B. A vicinity map and site map are provided as Figures 1 and 2, respectively.

2.0 SITE DESCRIPTION

The site is located on the corner of Webster Street and Taylor Avenue in Alameda, California. Prior to 1989, the site was occupied by an Olympian Service Station. Station facilities consisted of two 10,000-gallon gasoline USTs, one 7,500-gallon diesel UST, one 500-gallon waste oil UST and two dispenser islands (Figure 2).

The surrounding topography is flat and the site is approximately 20 feet above mean sea level. The site is situated in a mixed commercial and residential area and is currently used as a parking lot, however the site owner wishes to redevelop the property as mixed commercial (ground floor) / residential.

3.0 ENVIRONMENTAL BACKGROUND

A historical timeline of relevant activities at the subject site is presented in Section 3.1; a summary of the current site condition, including the monitoring well network and chemicals of concern (COCs), is presented in Section 3.2.

3.1 Site Timeline

October 1988 Soil gas analysis performed onsite identified significant concentrations of total hydrocarbons as propane in soil gas.

September 1989 Two 10,000-gallon gasoline USTs, one 7,500-gallon diesel UST and one 500-gallon waste oil UST removed by TEC Accutite; petroleum hydrocarbons detected in soil beneath former tank location.

January 1991 Approximately 950 cubic yards of soil were removed from the former location of the USTs; this soil was bioremediated onsite and returned to the former excavation.

January 1993 Three monitoring wells installed onsite (MW-1 through MW-3); no petroleum hydrocarbons detected in soil.

February 1999 Four soil borings advanced on- and offsite (B-1 through B-4); petroleum hydrocarbon concentrations detected in soil and groundwater.

December 1999 Three monitoring wells, installed onsite (MW-4 through MW-6); petroleum hydrocarbons detected in soil.

November 2000	Site conceptual model (SCM) completed; potential for benzene vapor-phase migration from hydrocarbon affected groundwater to indoor and ambient air identified as an exposure pathway requiring futher evaluation.
June 2001	Four soil borings advanced [B-1 through B-4 (second set of B-1 through B-4)]; no petroleum hydrocarbons detected in soil; petroleum hydrocarbons detected in groundwater.
February 2002	Site-specific risk assessment performed; compounds of concern identified as TPHg and benzene.
May 2003	Eight soil vapor probes advanced onsite (SV-1 through SV-7); petroleum hydrocarbons detected below their respective Environmental Screening Levels (ESLs).
September 2005	SCM updated; uncertainties identified in onsite benzene vapor concentrations and offsite groundwater conditions.
June 2006	Eight soil borings advanced (SP-1 through SP-8); petroleum hydrocarbons detected in soil above constituent ESLs.
November 2006	Seventeen soil borings advanced (CB-1 through CB-17) to determine excavation limits; petroleum hydrocarbons detected at concentrations below ESLs and/or laboratory detection limits at depths shallower than 8 feet bsg.
December 2006	Five soil borings advanced (DB-1 through DB-5); onsite soils classified as Class II waste; monitoring wells MW-1 and MW-5 abandoned by pressure grouting.
February 2007	Interim remedial action conducted; 992.54 tons of soil excavated from site; 15,000 gallons of groundwater pumped from open excavation pit, sediment removed and carbon-filtered, and discharged to sewer under permit.
March 2007	Two monitoring wells installed onsite (MW-7 and MW-8).
July 2007	Thirteen off-site soil borings advanced (B-6 through B-18); off-site plume defined in all directions except crossgradient to the northeast.
July 2007	Thirteen off-site soil borings advanced (B-6 through B-18); off-site plume defined in all directions except crossgradient to the northeast.
July 2009	Six off-site soil borings advanced (B-19 through B-24); off-site plume fully defined. One groundwater monitoring well (MW-9) installed in the public right-of-way on Webster Street. Five permanent nested vapor monitoring points installed onsite; no petroleum hydrocarbons detected in onsite soil vapor.
February 2010	*Updated Site Conceptual Model, Health Risk Assessment, Feasibility Study and Corrective Action Plan* submitted to the Alameda County Health Agency. Hydrogen peroxide injection identified as the most effective remedial alternative.
March 2011	*Corrective Action Plan Addendum* submitted to the Alameda County Health Agency.
April 2011	Baseline sampling for chromium, hexavalent chromium and other metals completed onsite. Total chromium was detected in wells MW-3, MW-4, MW-6 and MW-7. Chromium was detected at low levels in the hexavalent (oxidized) state in wells MW-3 and MW-4.

September – December 2011 Injection Pilot Test completed. 1,078 gallons of 7% hydrogen peroxide solution injected at three target remediation areas onsite.

3.2 Site Condition

The site currently has seven groundwater monitoring wells (MW-2 through MW-4 and MW-6 through MW-9) and five dual-completed vapor monitoring points (VMP-1 through VMP-5). Locations of site monitoring wells are presented in Figure 2. Chemicals of concern (COCs) for the site include petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX compounds), and methyl tert-butyl ether (MTBE). The source of the contamination was the former USTs, which were removed in 1989. With the exception of the first semester of 2013, all active groundwater monitoring wells associated with the site have been monitored on a semi-annual basis.

Historical soil analytical data, groundwater elevation data, groundwater monitoring analytical data, grab groundwater analytical data and soil vapor analytical data are summarized in Tables 1 through 5, respectively.

4.0 SCOPE OF WORK

In order to meet requirements of the LTCP, TEC proposes to complete the Data Gap Items described in Attachment B. Procedures for completing these tasks are described below.

4.1 PROCEDURES

TEC will advance seven soil borings (B-for collection of grab groundwater and/or soil samples. Proposed boring locations are shown on Figure 2.

4.1.1 Pre-Field Activities

TEC will complete the following tasks prior to field mobilization:

- As required by the Occupational Health and Safety Administration (OSHA), and by the California OSHA, TEC will prepare a site-specific Health and Safety Plan prior to the commencement of fieldwork. The plan will be reviewed and signed by field staff and contractors before beginning field operations, and will be in the possession of TEC personnel while conducting activities at the site.

- TEC will obtain a drilling permit from the Alameda County Public Works Agency (ACPWA) prior to commencing fieldwork (Attachment D).

- More than 48 hours prior to the initiation of fieldwork, TEC personnel will mark the soil boring locations with white paint and contacted Underground Service Alert of Northern California (USA). Additionally, a private subsurface utility locator will complete a survey of the proposed soil boring locations to identify any subsurface utilities and obstructions.

4.2.2 Soil Boring and Sampling

Prior to drilling, all borings will be cleared to 5 ft bsg using a hand auger. After clearing, each boring will be advanced to a total depth of at least 14 ft bsg using a direct push technology (DPT) drill rig equipped with Macrocore (or similar) rods lined with acetate sleeves. Soil cores will be collected from each boring

in the acetate sleeves. The lithology of each boring will be viewed continuously and logged in accordance with the Unified Soil Classification System. Soil samples will be collected from target depths by cutting an approximately 6-inch length of the acetate sleeve, capping each end, properly labeling the sample and placing it in an ice chest with ice. Splits of each soil sample will be screened for volatile organic compounds (VOCs) by sealing the soil within a plastic bag, placing the bag in a warm location allowing volatiles to accumulate in the bag headspace, and screening the headspace for VOCs using a calibrated PID. For borings advanced to collect soil samples, samples from each boring will submitted for laboratory analysis based on PID results and field observations. Observations (unusual odor or staining), sample IDs and PID readings will be recorded on the boring logs.

After reaching total boring depth, the drill rods will be extracted approximately 5 feet to allow groundwater to enter the boring and a temporary ¾-inch diameter PVC casing will be installed for grab groundwater collection. Grab groundwater samples will be collected from the temporary PVC casing using a properly decontamined steel bailer or new, disposable plastic bailers and transferred to laboratory prepared and supplied sample containers, which will be stored in an insulated container with ice pending shipment to a California State-certified laboratory for analysis.

All grab groundwater and selected soil samples will be submitted for laboratory analysis under chain-of-custody documentation and analyzed for TPHg, BTEX compounds, and fuel oxygenates by EPA Method 8260B. Soil samples collected from boring B-28, to be located at the former waste oil UST, will also be analyzed for TPH quantified as diesel and TPH quanified as motor oil by EPA method 8015M, semi-volatile organic compounds by EPA Method 8270 and RCRA 7 Metals, including arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver by EPA Methods 6020/200.7.

All non-disposable sampling materials, including drill rods and steel bailer, will be cleaned using a phosphate-free detergent and triple rinsed with potable water. Disposable sampling materials, including acetate liners and temporary casings, will be used for each boring. Borings will be backfilled following sample collection in accordance with California and County of Alameda regulations

4.2 Electronic Laboratory Data Submittal

All report documents and data, including boring logs, an updated site map, well data, and laboratory analytical reports, will be submitted in electronic format to GeoTracker, the California online geospatial database. This workplan will be converted to PDF format and submitted as a GEO_REPORT file.

5.0 LIMITATIONS

Our services consist of professional opinions, conclusions, and recommendations made today in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied. Technology, Engineering & Construction Inc.'s liability is limited to the dollar amount of the work performed.

Thank you for your cooperation and assistance with this project. If you have any questions or concerns, please contact the undersigned at (650) 616-1200.

Sincerely,
Technology, Engineering
& Construction, Inc.

Reviewed by:

Paul B. Dotson, PG # 8237
Professional Geologist

TABLES

Table 1
Summary of Historical Soil Analytical Data
Former Olympian Service Station
1435 Webster Avenue
Alameda, California

Field Point ID	Date	Depth (ft bsg)	TPHg	TPHd	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Pb
			Concentrations in milligrams per kilogram							
Southwest Corner										
					1993					
MW-2	6/12/1993	?	ND	ND	ND	ND	ND	ND	NA	NA
MW-3	6/12/1993	?	ND	ND	ND	ND	ND	ND	NA	NA
Northwest Corner										
					1999					
MW-6	11/10/1999	9	<0.5	<1.0	<0.005	<0.005	<0.005	<0.010	<0.005	---
					2001					
B4	6/27/2001	9	<0.5	---	<0.005	<0.005	<0.005	<0.01	<0.005	---
Western Boundary of 2007 Excavation										
					2006					
CB-14	11/15/2006	8	<0.5	<2.5	<0.01	<0.01	<0.01	<0.01	<0.05	---
CB-14	11/15/2006	12	1.0	<2.5	<0.01	<0.01	<0.01	<0.01	<0.05	---
CB-16	11/15/2006	8	<0.5	<2.5	<0.01	<0.01	<0.01	<0.01	<0.05	---
CB-17	11/15/2006	8	<0.5	<2.5	<0.01	<0.01	<0.01	<0.01	<0.05	---
CB-17	11/15/2006	12	**10,000**	<50 [1]	<20	170	120	640	<100	---
					2011					
I-A3	10/4/2011	9	<0.1	---	<0.010	<0.010	<0.010	<0.015	<0.010	---
A-1	12/6/2011	9	<0.1	---	<0.010	<0.010	<0.010	<0.015	<0.010	---
Eastern Boundary of 2007 Excavation										
					2006					
CB-10	11/15/2006	8	2.2	<2.5 [1]	<0.01	<0.01	0.012	<0.01	<0.05	---
CB-10	11/15/2006	12	**2,800**	<12 [1]	<10	34	45	200	<50	---
CB-11	11/15/2006	8	0.53	<2.5	<0.01	<0.01	<0.01	<0.01	<0.05	---
CB-11	11/15/2006	12	**300**	<62 [1]	<2.0	3.8	4.8	25	<10	---
CB-12	11/15/2006	8	<0.5	<2.5	<0.01	<0.01	<0.01	<0.01	<0.05	---
CB-12	11/15/2006	12	<0.50	<2.5	<0.01	<0.01	<0.01	<0.01	<0.05	---
					2011					
I-B1	10/4/2011	9	**170** [5]	---	<1	<1	2.3	3.1	<1	---
A-2	12/6/2011	9	49 [2]	---	<0.05	<0.05	<0.05	<0.075	<0.05	---
I-B6	10/4/2011	9	**150** [5]	---	<1	<1	2.3	7.4	<1	---
A-3	12/6/2011	9	12 [2,3]	---	<0.05	<0.05	0.13	0.43	<0.05	---
Southeast Corner										
					2001					
B1	6/27/2001	9	<0.5	---	<0.005	<0.005	<0.005	<0.01	<0.005	---
					2007					
MW-8	3/9/2007	10	<0.1	<2.5	<.005	<.005	<.005	<.010	<.005	---
					2011					
I-C1	10/4/2011	9	<0.1	---	<0.01	<0.01	<0.01	<0.015	<0.01	---
A-4	12/6/2011	9	<0.1	---	<0.01	<0.01	<0.01	<0.015	<0.01	---

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Summary of Historical Soil Analytical Data
Former Olympian Service Station
1435 Webster Avenue
Alameda, California

Field Point ID	Date	Depth (ft bsg)	TPHg	TPHd	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Pb
			Concentrations in milligrams per kilogram							
Offsite - East and Southeast										
			1999							
B1	2/11/1999	7.5	0.65	<1.0	<0.005	<0.005	<0.005	<0.010	<0.005	<1.0
B2	2/11/1999	7.5	<0.5	<1.0	<0.005	<0.005	<0.005	<0.010	<0.005	2.0
B3	2/11/1999	6	<0.5	<1.0	<0.005	<0.005	<0.005	<0.010	<0.005	1.2
B4	2/11/1999	7.5	<0.5	<1.0	<0.005	<0.005	<0.005	<0.010	<0.005	1.2
MW-4	11/11/1999	9.5	<0.5	<1.0	<0.005	<0.005	<0.005	<0.010	<0.005	---
			2001							
B2	6/27/2001	9	<0.5	---	<0.005	<0.005	<0.005	<0.01	<0.005	---
			2007							
B-6	7/11/2007	8	0.196 [3]	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-6	7/11/2007	11	11.2 [5]	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-7	7/11/2007	6	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-7	7/11/2007	8	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-8	7/11/2007	6	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-8	7/11/2007	8	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-9	7/11/2007	8	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-9	7/11/2007	11	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-10	7/11/2007	8	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-10	7/11/2007	11	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-11	7/11/2007	8	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-11	7/11/2007	11	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-12	7/11/2007	10	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-12	7/11/2007	12	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-13	7/10/2007	10	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-13	7/10/2007	12	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-14	7/10/2007	8	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-14	7/10/2007	10	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-17	7/10/2007	8	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-17	7/10/2007	10	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-18	7/10/2007	10	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
B-18	7/10/2007	12	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.01	---
			2009							
B-19	7/7/2009	8	<1	---	<0.01	<0.01	<0.01	<0.015	<0.01	---
B-19	7/7/2009	12	<1	---	<0.01	<0.01	<0.01	<0.015	<0.01	---
B-20	7/7/2009	6	<1	---	<0.01	<0.01	<0.01	<0.015	<0.01	---
B-21	7/7/2009	6	<1	---	<0.01	<0.01	<0.01	<0.015	<0.01	---
B-21	7/7/2009	11	<1	---	<0.01	<0.01	<0.01	<0.015	<0.01	---
B-22	7/7/2009	8	<1	---	<0.01	<0.01	<0.01	<0.015	<0.01	---
B-22	7/7/2009	14	<1	---	<0.01	<0.01	<0.01	<0.015	<0.01	---
B-23	7/7/2009	8	<1	---	<0.01	<0.01	<0.01	<0.015	<0.01	---
B-23	7/7/2009	14	<1	---	<0.01	<0.01	<0.01	<0.015	<0.01	---
B-24	7/7/2009	8	<1	---	<0.01	<0.01	<0.01	<0.015	<0.01	---
B-24	7/7/2009	14	<1	---	<0.01	<0.01	<0.01	<0.015	<0.01	---
MW-9	7/13/2009	8	<0.1	---	<0.01	<0.01	<0.01	<0.015	<0.01	---
MW-9	7/13/2009	20*	<0.1	---	<0.011	<0.011	<0.011	<0.017	<0.011	---

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Alameda, California

Field Point ID	Date	Depth (ft bsg)	TPHg	TPHd	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Pb
			Concentrations in milligrams per kilogram							
Removed During Excavation										
MW-1	6/12/1993	?	ND	ND	ND	ND	ND	ND	NA	NA
MW-5	11/10/1999	9.5	1,100	200	3.4	21	14	70	<0.005	---
B3	6/27/2001	9	<0.5	---	<0.005	<0.005	<0.005	<0.01	<0.005	---
SP-1	6/12/2006	7.5	1,600 [2]	9.5 [4]	0.44	5	38	190	<4	---
SP-1	6/12/2006	10	1,530	12 [4]	3.5[J]	23	28	150	<4	---
SP-2	6/12/2006	7	586 [3]	8.8 [4]	0.033	<1	3.1	13	<2	---
SP-2	6/12/2006	10	360 [3]	8.8 [4]	0.4	0.58[J]	4.9	23	<2	---
SP-3	6/12/2006	8	114 [3]	2.4 [4]	<1	2.2	1.7[J]	9.4	<2	---
SP-3	6/12/2006	10	96.3 [3]	5.5 [4]	0.46	1.4[J]	1.2[J]	7	<2	---
SP-4	6/12/2006	4	0.0308	<2	<0.01	0.01	0.01	0.051	<0.01	---
SP-4	6/12/2006	7.5	1,240	29 [4]	0.72	2	12	61	<4	---
SP-4	6/12/2006	10	1,410	150 [4]	6.30	45	18	93	<4	---
SP-5	6/12/2006	7	758 [2]	42 [4]	0.24	1.7[J]	4	35	<4	---
SP-5	6/12/2006	10	1,100 [2]	68 [4]	0.39	16	23	140	<4	---
SP-6	6/12/2006	7	5.83 [3]	64 [4]	0.019[J]	0.037	0.48	0.71	<0.025	---
SP-6	6/12/2006	10	2.78 [3]	3.8 [4]	<0.02	0.0066	0.027	0.053	<0.02	---
SP-7	6/12/2006	7.5	1,100 [3]	200 [4]	0.032	0.027	0.066	0.29	<0.02	---
SP-7	6/12/2006	10	328 [3]	8.5 [4]	0.019[J]	2.1[J]	3.3[J]	18	<4	---
SP-8	6/12/2006	7	3,430	270 [4]	0.21	4.8[J]	40	160	<20	---
SP-8	6/12/2006	10	1,350	160 [4]	<10	20	31	160	<20	---
CB-2	11/15/2006	6	<0.5	<2.5 [1]	< 0.01	<0.01	<0.01	<0.01	<0.05	---
CB-2	11/15/2006	10	8,800	<120 [1]	<20	190	92	490	<100	---
CB-4	11/15/2006	8	<0.5	<2.5	<0.01	<0.01	<0.01	<0.01	<0.05	---
CB-4	11/15/2006	12	2,100	<120 [1]	<5.0	14	21	52	<25	---
CB-5	11/15/2006	8	<0.5	<2.5	<0.01	<0.01	<0.01	<0.01	<0.05	---
CB-5	11/15/2006	12	0.7	<2.5 [1]	<0.01	<0.01	0.013	0.067	<0.05	---
CB-6	11/15/2006	8	<0.5	<2.5	<0.01	<0.01	<0.01	<0.01	<0.05	---
CB-6	11/15/2006	12	8,000	<12 [1]	57	190	94	500	<50	---
CB-7	11/15/2006	12	---	---	---	---	---	---	---	11
CB-8	11/15/2006	8	<0.5	<2.5	<0.01	<0.01	<0.01	<0.01	<0.05	---
CB-8	11/15/2006	10	1,800	<5.0 [1]	<5.0	<5.0	26	150	<25	4.8
CB-9	11/15/2006	8	<0.5	<2.5	<0.01	<0.01	<0.01	<0.01	<0.05	---
CB-9	11/15/2006	10	<0.5	<2.5	<0.01	<0.01	<0.01	<0.01	<0.05	---

Notes:
--- = Not Analyzed ? = Depth unknown
ND = No Detection at or above laboratory reporting limits
TPHg = Total petroleum hydrocarbons as gasoline, EPA Method 8015; 2009 samples by EPA Method 8260.
TPHd = Total petroleum hydrocarbons as diesel, EPA Method 8015.
Benzene, Ethylbenzene, Toluene, Xylenes, EPA Method 8020; 2009 and later samples by EPA Method 8260.
MTBE = Methyl tert-butyl ether, EPA Method 8020; 2009 samples by EPA Method 8260.
Pb = Lead, Method 7420
* = dry weight analysis.
[1] No diesel pattern present.
[2] Hydrocarbons responded in gasoline range, but pattern does not match typical gasoline (possibly aged gasoline).
[3] Hydrocarbons responded in gasoline range, but pattern does not match typical gasoline (heavy end).
[4] Sample chromatogram does not resemble typical diesel pattern. Unidentified lighter end hydrocarbons within the diesel range quantitated as diesel.
[5] Hydrocarbons responded in gasoline range, but pattern does not match typical gasoline (includes non-target compounds).
[J] Value should be considered estimated.

Table 2
Summary of Historical Groundwater Elevation Data
Former Olympian Service Station
1435 Webster Street
Alameda, California

Well ID	TOC Elevation (ft)	Sample Date	Depth to Water (ft)	Groundwater Elevation (ft)
MW-1	19.53	6/3/1993	(1)	---
		9/14/1994	11.46	8.07
		12/30/1994	9.22	10.31
		3/26/1995	6.76	12.77
		7/9/1995	8.92	10.61
		7/31/1998	8.30	11.23
		2/11/1999	7.91	11.62
		6/23/1999	9.03	10.50
		12/6/1999	10.86	8.67
		3/16/2000	6.93	12.60
		6/13/2000	8.73	10.80
		9/29/2000	10.18	9.35
		3/22/2001	8.24	11.29
		6/25/2001	9.73	9.80
		9/28/2001	11.06	8.47
		12/26/2001	8.11	11.42
		07/0705	8.69	10.84
		10/19/2005	10.25	9.28
		1/13/2006	7.09	12.44
		5/5/2006	6.40	13.13
		7/19/2006	8.28	11.25
		10/5/2006	9.67	9.86
		Abandoned 12/27/2006		
MW-2	19.80	6/3/1993	9.54	10.26
		9/14/1994	11.82	7.98
		12/30/1994	9.46	10.34
		3/26/1995	6.82	12.98
		7/9/1995	9.22	10.58
		7/31/1998	8.56	11.24
		2/11/1999	8.12	11.68
		6/23/1999	9.33	10.47
		12/6/1999	11.20	8.60
		3/16/2000	6.88	12.92
		6/13/2000	8.99	10.81
		9/29/2000	10.40	9.40
		3/22/2001	8.46	11.34
		6/25/2001	10.11	9.69
		9/28/2001	11.40	8.40
		12/26/2001	8.28	11.52
		7/7/2005	8.99	10.81
		10/19/2005	10.63	9.17
		1/13/2006	7.15	12.65
		5/5/2006	6.43	13.37
		7/19/2006	8.57	11.23
		10/5/2006	10.05	9.75
		3/29/2007	8.83	10.97
		6/27/2007	9.86	9.94
		9/19/2007	10.89	8.91
		12/19/2007	10.78	9.02
		3/6/2008	8.48	11.32
		6/18/2008	10.23	9.57
		9/10/2008	11.36	8.44
		12/10/2008	11.89	7.91
		3/4/2009	8.68	11.12
		6/3/2009	9.91	9.89
		8/27/2009	11.16	8.64
		12/10/2009	11.32	8.48
		3/10/2010	7.99	11.81
		6/10/2010	9.13	10.67
		9/22/2010	10.95	8.85
		4/19/2011	7.43	12.37
		9/30/2011	10.54	9.26
		12/6/2011	10.79	9.01
		9/5/2012	10.75	9.05
		7/11/2013	10.60	9.20

Table 2
Summary of Historical Groundwater Elevation Data
Former Olympian Service Station
1435 Webster Street
Alameda, California

Well ID	TOC Elevation (ft)	Sample Date	Depth to Water (ft)	Groundwater Elevation (ft)
MW-3	19.79	6/3/1993	9.80	9.99
		9/14/1994	12.19	7.60
		12/30/1994	9.72	10.07
		3/26/1995	6.88	12.91
		7/9/1995	9.52	10.27
		7/31/1998	8.40	11.39
		2/11/1999	7.77	12.02
		6/23/1999	9.21	10.58
		12/6/1999	11.12	8.67
		3/16/2000	6.48	13.31
		6/13/2000	8.76	11.03
		9/29/2000	10.20	9.59
		3/22/2001	8.24	11.55
		6/25/2001	10.04	9.75
		9/28/2001	11.34	8.45
		12/26/2001	8.01	11.78
		7/7/2005	8.84	10.95
		10/19/2005	10.58	9.21
		1/13/2006	6.85	12.94
		5/5/2006	6.11	13.68
		7/19/2006	8.41	11.38
		10/5/2006	10.02	9.77
		3/29/2007	9.71	10.08
		6/27/2007	9.82	9.97
		9/19/2007	10.88	8.91
		12/19/2007	10.68	9.11
		3/6/2008	8.30	11.49
		6/18/2008	10.18	9.61
		9/10/2008	11.33	8.46
		12/10/2008	11.89	7.90
		3/4/2009	8.40	11.39
		6/3/2009	9.81	9.98
		8/27/2009	11.18	8.61
		12/10/2009	11.30	8.49
		3/10/2010	7.78	12.01
		6/10/2010	9.02	10.77
		9/22/2010	10.96	8.83
		4/19/2011	7.22	12.57
		9/30/2011	10.52	9.27
		12/6/2011	10.78	9.01
		9/5/2012	10.82	8.97
		7/11/2013	10.60	9.19
MW-4	19.30	12/6/1999	10.79	8.51
		3/16/2000	6.86	12.44
		6/13/2000	8.18	11.12
		9/29/2000	10.11	9.19
		4/5/2001	8.26	11.04
		6/25/2001	9.68	9.62
		9/28/2001	10.98	8.32
		12/26/2001	8.18	11.12
		7/7/2005	8.77	10.53
		10/19/2005	10.24	9.06
		1/13/2006	(1)	(1)
		5/5/2006	(1)	(1)
		7/19/2006	8.38	10.92
		10/5/2006	9.65	9.65
		3/29/2007	8.55	10.75
		6/27/2007	9.40	9.90
		9/19/2007	10.45	8.85
		12/19/2007	10.35	8.95
		3/6/2008	8.25	11.05
		6/18/2008	9.80	9.50
		9/10/2008	10.89	8.41
		12/10/2008	11.43	7.87
		3/4/2009	8.47	10.83
		6/3/2009	9.53	9.77
		8/27/2009	10.72	8.58
		12/10/2009	10.85	8.45
		3/10/2010	7.87	11.43
		6/10/2010	8.87	10.43
		9/22/2010	10.52	8.78
		4/19/2011	7.43	11.87
		9/30/2011	10.15	9.15
		12/6/2011	10.41	8.89
		9/5/2012	10.36	8.94
		7/11/2013	10.19	9.11

Table 2
Summary of Historical Groundwater Elevation Data
Former Olympian Service Station
1435 Webster Street
Alameda, California

Well ID	TOC Elevation (ft)	Sample Date	Depth to Water (ft)	Groundwater Elevation (ft)
MW-5	18.99	12/6/1999	10.17	8.82
		3/16/2000	6.28	12.71
		6/13/2000	7.95	11.04
		9/29/2000	9.54	9.45
		3/22/2001	7.48	11.51
		6/25/2001	9.05	9.94
		9/28/2001	10.39	8.60
		12/26/2001	7.28	11.71
		8/24/2005	7.87	11.12
		10/19/2005	9.51	9.48
		1/13/2006	6.35	12.64
		5/5/2006	5.64	13.35
		7/19/2006	7.41	11.58
		10/5/2006	8.89	10.10
		Abandoned 12/27/2006		
MW-6	20.27	12/6/1999	11.46	8.81
		3/16/2000	8.32	11.95
		6/13/2000	9.14	11.13
		9/29/2000	10.81	9.46
		3/22/2001	8.64	11.63
		6/25/2001	10.39	9.88
		9/28/2001	11.70	8.57
		12/26/2001	8.40	11.87
		7/7/2005	9.10	11.17
		10/19/2005	10.88	9.39
		1/13/2006	7.33	12.94
		5/5/2006	6.53	13.74
		7/19/2006	8.64	11.63
		10/5/2006	10.29	9.98
		3/29/2007	9.01	11.26
		6/27/2007	10.14	10.13
		9/19/2007	11.17	9.10
		12/19/2007	10.99	9.28
		3/6/2008	8.65	11.62
		6/18/2008	10.46	9.81
		9/10/2008	11.64	8.63
		12/10/2008	12.18	8.09
		3/4/2009	8.86	11.41
		6/3/2009	10.07	10.20
		8/27/2009	11.45	8.82
		12/10/2009	11.61	8.66
		3/10/2010	8.19	12.08
		6/10/2010	9.30	10.97
		9/22/2010	11.28	8.99
		4/19/2011	7.59	12.68
		9/30/2011	10.81	9.46
		12/6/2011	11.13	9.14
		9/5/2012	11.10	9.17
		7/11/2013	10.83	9.44
MW-7	18.93	3/29/2007	7.90	11.03
		6/27/2007	8.87	10.06
		9/19/2007	9.88	9.05
		12/19/2007	9.72	9.21
		3/6/2008	7.52	11.41
		6/18/2008	9.13	9.80
		9/10/2008	10.29	8.64
		12/10/2008	10.81	8.12
		3/4/2009	7.89	11.04
		6/3/2009	8.70	10.23
		8/27/2009	10.05	8.88
		12/10/2009	10.21	8.72
		3/10/2010	7.16	11.77
		6/10/2010	8.58	10.35
		9/22/2010	9.89	9.04
		4/19/2011	6.58	12.35
		9/30/2011	9.48	9.45
		12/6/2011	9.68	9.25
		9/5/2012	9.68	9.25
		7/11/2013	9.32	9.61

Table 2
Summary of Historical Groundwater Elevation Data
Former Olympian Service Station
1435 Webster Street
Alameda, California

Well ID	TOC Elevation (ft)	Sample Date	Depth to Water (ft)	Groundwater Elevation (ft)
MW-8	19.33	3/29/2007	8.40	10.93
		6/27/2007	9.33	10.00
		9/19/2007	10.31	9.02
		12/19/2007	10.23	9.10
		3/6/2008	9.14	10.19
		6/18/2008	9.74	9.59
		9/10/2008	10.76	8.57
		12/10/2008	11.31	8.02
		3/4/2009	8.59	10.74
		6/3/2009	9.51	9.82
		8/27/2009	10.57	8.76
		12/10/2009	10.72	8.61
		3/10/2010	7.77	11.56
		6/10/2010	8.01	11.32
		9/22/2010	10.39	8.94
		4/19/2011	7.36	11.97
		9/30/2011	9.97	9.36
		12/6/2011	10.22	9.11
		9/5/2012	10.18	9.15
		7/11/2013	9.97	9.36
MW-9	18.83	8/27/2009	10.01	8.82
		12/10/2009	10.16	8.67
		3/10/2010	7.31	11.52
		6/10/2010	8.14	10.69
		9/22/2010	9.86	8.97
		4/19/2011	6.86	11.97
		9/30/2011	9.48	9.35
		12/6/2011	9.65	9.18
		9/5/2012	9.60	9.23
		7/11/2013	9.35	9.48

Notes:
TOC = Top of Casing
ft = Feet
--- = Not Available
(1) = Well not accessible due to obstruction by a parked car

Table 3
Summary of Historical Groundwater Monitoring Analytical Data
Former Olympian Service Station
1435 Webster Street
Alameda, California

Well ID	Sample Date	TPHd	TPHg	B	T	E	X	MTBE	TRPH	DIPE	TBA	1,2-DCA
		Concentrations in micrograms per liter (µg/L)										
ESL		*100*	*100*	*1.0*	*40*	*30*	*20*	*5.0*	---	---	*12*	*0.5*
MW-1	6/3/1993	---	---	---	---	---	---	---	---	---	---	---
	9/14/1994	<50	14,000	44	28	25	50	---	800	---	---	---
	12/30/1994	<50	4,000	12	9	6.8	30	---	<500	---	---	---
	3/26/1995	<50	1,000	21	10	7.1	25	---	2,100	---	---	---
	7/9/1995	<50	16,000	57	28	25	53	---	---	---	---	---
	7/31/1998	1,700	4,700	1,300	48	140	150	6,600	<5000	---	---	---
	2/11/1999	2000	25,000	18,000	1,600	1,400	500	28,000	---	---	---	---
	6/23/1999	4,900	42,000	11,000	1,100	1,500	2,300	15,000	---	---	---	---
	12/6/1999	4,000	44,000	8,900	3,400	1,900	5,100	11,000	---	---	---	---
	3/16/2000	700	5,100	2,400	100	280	460	2,700 [2]	---	---	---	---
	6/13/2000	2,800	17,000	5,300	260	720	790	7,000 [2]	---	---	---	---
	9/29/2000	5,200 [1]	50,000	11,000	2,900	1,900	4,600	7,200 [2]	---	---	---	---
	3/22/2001	1,500 [1]	8,600	2,600	750	250	950	3,200 [2]	---	---	---	---
	6/25/2001	---	18,000	1,200	1,800	970	3,200	1,500 [2]	---	---	---	---
	9/28/2001	---	48,000	5,200	6,100	2,200	8,100	4,000	---	---	---	---
	12/26/2001	---	524	216	1.2	8.6	7.4	721	---	---	---	---
	7/7/2005	---	1,500	190	15	36	29	1,100	---	<20	---	50
	10/19/2005	---	11,000	2,100	45	370	82	4,600	---	<250	<500	200
	1/13/2006	---	5,400	680	37	83	41	3,900	---	<250	<500	180
	5/5/2006	---	<25	2	<0.5	<0.5	<0.5	2.2	---	<5.0	<10	<0.5
	7/19/2006	---	5,000	836	22.3	107	81.8	1,130	---	<4.2	<84	54.1
	10/5/2006	---	23,000	3,740	112	395	161	6,020	---	13.5	546	219
		********** Well Abandoned 12/27/2006 **********										
MW-2	6/3/1993	<50	<50	5.8	<0.5	<0.5	<0.5	---	<500	---	---	---
	9/14/1994	<50	<50	<0.5	<0.5	<0.5	<0.5	---	<500	---	---	---
	12/30/1994	<50	160	1.4	1.4	0.8	5	---	<500	---	---	---
	3/26/1995	<50	<50	<0.5	<0.5	<0.5	<0.5	---	<500	---	---	---
	7/9/1995	---	---	---	---	---	---	---	---	---	---	---
	7/31/1998	220	<50	<0.5	<0.5	<0.5	<0.5	73	<500	---	---	---
	2/11/1999	<50	<50	<0.5	<0.5	<0.5	<0.5	75	---	---	---	---
	6/23/1999	420	<50	<0.5	<0.5	<0.5	<0.5	96	---	---	---	---
	12/6/1999	<110	300	28	45	6	37	210	---	---	---	---
	3/16/2000	<50	<50	1	<0.5	0.5	1	3	---	---	---	---
	6/13/2000	<50	68	0.8	<0.5	<0.5	<0.5	38	---	---	---	---
	9/29/2000	<50	67	0.8	0.5	<0.5	1	86 [2]	---	---	---	---
	3/22/2001	<50	<50	1	0.5	<0.5	1	14	---	---	---	---
	6/25/2001	---	<50	<0.5	<0.5	<0.5	<1.0	13	---	---	---	---
	9/28/2001	---	300	4	6	3	10	130	---	---	---	---
	12/26/2001	---	<50	<0.5	<0.5	<0.5	<1.0	<0.5	---	---	---	---
	7/7/2005	---	<50	<0.5	<0.5	<0.5	<1.0	20	---	<1.0	---	1.1
	10/19/2005	---	29	1.4	<0.5 [3]	<0.5	<0.5	19	---	<5.0	<10	0.95
	1/13/2006	---	<25	<0.5	<0.5	<0.5	<0.5	<1.0	---	<5.0	<10	<0.5
	5/5/2006	---	<25	<0.5	<0.5	<0.5	<0.5	<1.0	---	<5.0	<10	<0.5
	7/19/2006	---	<50	<0.5	<0.5	<0.5	<1.5	16.6	---	<0.5	<10	1.24
	10/5/2006	---	<50	<0.5	<0.5	<0.5	<1.5	11.9	---	<0.5	<10	0.750
Post excavation	3/29/2007	---	<50	<0.5	<0.5	<0.5	<1.5	3.36	---	<0.5	<10	<0.5
	6/27/2007	---	<50	<0.5	<0.5	<0.5	<1.5	10.5	---	<0.5	<10	0.820
	9/19/2007	---	52 [4]	<0.5	<0.5	<0.5	<1.5	18.1	---	<0.5	<10	0.710
	12/19/2007	---	<50	<0.5	<0.5	<0.5	<1.5	22.9	---	<0.5	<10	0.840
	3/6/2008	---	<50	<0.5	<0.5	<0.5	<1.5	1.02	---	<0.5	<10	<0.5
	6/18/2008	---	<50	<0.5	<0.5	<0.5	<1.5	36.9	---	<0.5	<10	0.880
	9/10/2008	---	69 [4]	<0.5	<0.5	<0.5	<1.5	24.6	---	<0.5	<10	0.810
	12/10/2008	---	84 [4]	<0.5	<0.5	<0.5	<1.5	30.2	---	<0.5	<10	0.650
	3/4/2009	---	<50	<0.5	<0.5	<0.5	<1.5	3.15	---	<0.5	<10	<0.5
	6/3/2009	---	<55	<0.55	<0.55	<0.55	<1.6	35	---	<0.55	<11	0.55
	8/27/2009	---	<50	<0.5	<0.5	<0.5	<1.5	73	---	<0.5	23	1.1
	3/11/2010	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<30	<0.5
	9/22/2010	---	<50	<0.5	<0.5	<0.5	<1.5	44	---	<0.5	<5.0	1.3
	4/19/2011	---	<50	<0.5	<0.5	<0.5	<1.5	2.4	---	<0.5	<5.0	--
	9/30/2011	---	<50	<0.5	<0.5	<0.5	<1.5	12	---	<0.5	<5.0	0.80
	10/26/2011	---	<50	<0.5	<0.5	<0.5	<1.5	20	---	<0.5	<5.0	--
	12/6/2011	---	<50	<0.5	<0.5	<0.5	<1.5	15	---	<0.5	<5.0	--
	9/5/2012	---	<50	<0.5	<0.5	<0.5	<1.5	20	---	<0.5	<5.0	--
	7/11/2013	---	<50	<0.5	<0.5	<0.5	<1.5	25	---	<0.5	<5.0	--
MW-3	6/3/1993	<50	<50	<0.5	<0.5	<0.5	<0.5	---	<500	---	---	---
	9/14/1994	<50	<50	<0.5	<0.5	<0.5	<0.5	---	<500	---	---	---
	12/30/1994	<50	<50	<0.5	<0.5	<0.5	<0.5	---	<500	---	---	---
	3/26/1995	<50	<50	<0.5	<0.5	<0.5	<0.5	---	<500	---	---	---
	7/9/1995	---	---	---	---	---	---	---	---	---	---	---
	7/31/1998	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5000	---	---	---
	2/11/1999	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---
	6/23/1999	<50	<50	<0.5	<0.5	<0.5	<0.5	3	---	---	---	---
	12/6/1999	<110	<50	3	1	<0.5	1	0.6	---	---	---	---
	3/16/2000	<50	<50	<0.5	<0.5	<0.5	<1.0	1	---	---	---	---
	6/13/2000	<50	490	0.8	<0.5	<0.5	9	2	---	---	---	---
	9/29/2000	<50	57	<0.5	<0.5	<0.5	<1.0	<1.0 [2]	---	---	---	---
	3/22/2001	<50	<50	<0.5	<0.5	<0.5	<1.0	2	---	---	---	---
	6/25/2001	---	<50	<0.5	<0.5	<0.5	<1.0	0.8	---	---	---	---
	9/28/2001	---	91	<0.5	<0.5	<0.5	2	2	---	---	---	---
	12/26/2001	---	<50	<0.5	<0.5	<0.5	<1.0	<0.5	---	---	---	---
	7/7/2005	---	<50	<0.5	<0.5	<0.5	<1.0	<0.5	---	<1.0	---	<0.5
	10/19/2005	---	<25	<0.5	<0.5 [3]	<0.5	<0.5	<1.0	---	<5.0	<10	<0.5
	1/13/2006	---	<25	<0.5	<0.5	<0.5	<0.5	<1.0	---	<5.0	<10	<0.5
	5/5/2006	---	<25	<0.5	<0.5	<0.5	<0.5	<1.0	---	<5.0	<10	<0.5
	7/19/2006	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	10/5/2006	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
Post excavation	3/29/2007	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	6/27/2007	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	9/19/2007	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	12/19/2007	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	3/6/2008	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	6/18/2008	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	9/10/2008	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	12/10/2008	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	3/4/2009	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	6/3/2009	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	8/27/2009	---	<55	<0.55	<0.55	<0.55	<1.6	<0.55	---	<1.55	<11	<0.55
	3/11/2010	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<30	<0.5
	9/22/2010	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	<0.5
	4/19/2011	---	<50	<0.5	<0.5	<0.5	<1.5	2.9	---	<0.5	<5.0	---
	9/30/2011	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	<0.5
	10/26/2011	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	--
	12/6/2011	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	--
	9/5/2012	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	--
	7/11/2013	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	--

Table 3
Summary of Historical Groundwater Monitoring Analytical Data
Former Olympian Service Station
1435 Webster Street
Alameda, California

Well ID	Sample Date	TPHd	TPHg	B	T	E	X	MTBE	TRPH	DIPE	TBA	1,2-DCA
		Concentrations in micrograms per liter (µg/L)										
ESL		*100*	*100*	*1.0*	*40*	*30*	*20*	*5.0*	*---*	*---*	*12*	*0.5*
MW-4	12/6/1999	160	<50	3	2	0.6	4	140	---	---	---	---
	3/16/2000	90	<50	0.5	0.5	<0.5	2	34	---	---	---	---
	6/13/2000	<50	56	<0.5	<0.5	<0.5	<1.0	1	---	---	---	---
	9/29/2000	<50	92	0.7	<0.5	<0.5	3	<1.0 [2]	---	---	---	---
	4/5/2001	<50	51	<0.5	0.5	<0.5	1	6 [2]	---	---	---	---
	6/25/2001	---	<50	<0.5	<0.5	<0.5	<1.0	<0.5	---	---	---	---
	9/28/2001	---	<50	<0.5	<0.5	<0.5	2	2	---	---	---	---
	12/26/2001	---	<50	1.6	1.7	1.6	4.4	2.7	---	---	---	---
	7/7/2005	---	<50	<0.5	<0.5	<0.5	<1.0	<0.5	---	<1.0	---	<0.5
	10/19/2005	---	<25	<0.5	<0.5 [3]	<0.5	<0.5	<1.0	---	<5.0	<10	<0.5
	7/19/2006	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	10/5/2006	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
Post excavation	3/29/2007	---	<50	<0.5	<0.5	<0.5	<1.5	0.69	---	<0.5	<10	<0.5
	6/27/2007	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	9/19/2007	---	<50	<0.5	<0.5	<0.5	<1.5	1.38	---	<0.5	<10	<0.5
	12/19/2007	---	63 [5]	<0.5	<0.5	<0.5	<1.5	2.20	---	<0.5	<10	0.590
	3/6/2008	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	6/18/2008	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	9/10/2008	---	<50	<0.5	<0.5	<0.5	<1.5	0.700	---	<0.5	<10	<0.5
	12/10/2008	---	<50	<0.5	<0.5	<0.5	<1.5	2.04	---	<0.5	<10	<0.5
	3/4/2009	---	<50	<0.5	<0.5	<0.5	<1.5	2.96	---	<0.5	<10	<0.5
	6/3/2009	---	<50	<0.5	<0.5	<0.5	<1.5	1.5	---	<0.5	<10	<0.5
	8/27/2009	---	<50	<0.5	<0.5	<0.5	<1.5	4.9	---	<0.5	11	1.3
	12/10/2009	---	<50	<0.5	<0.5	<0.5	<1.5	4.1	---	<0.5	<5	0.71
	3/11/2010	---	<50	<0.5	<0.5	<0.5	<1.5	9.8	---	<0.5	<30	<0.5
	6/10/2010	---	<50	<0.5	<0.5	<0.5	0.52	8.5	---	<0.5	6.1	1.8
	9/22/2010	---	<50	<0.5	<0.5	<0.5	<1.5	5.2	---	<0.5	5.1	1.1
	4/19/2011	---	<50	<0.5	<0.5	<0.5	<1.5	6.1	---	<0.5	<5.0	---
	9/30/2011	---	73 [5]	<0.5	<0.5	<0.5	<1.5	70	---	<0.5	<5.0	2.4
	10/26/2011	---	<50	<0.5	<0.5	<0.5	<1.5	80	---	<0.5	<5.0	--
	12/6/2011	---	110 [5]	<0.5	<0.5	<0.5	<1.5	140	---	<0.5	14	--
	9/5/2012	---	79 [5]	<0.5	<0.5	<0.5	<1.5	140	---	<0.5	<5.0	--
	7/11/2013	---	90	<0.5	<0.5	<0.5	<1.5	59	---	<0.5	<5.0	---
MW-5	12/6/1999	2,800	30,000	2,200	3,300	910	7000	670	---	---	---	---
	3/16/2000	1,100	3,500	1,100	260	210	6300	260	---	---	---	---
	6/13/2000	1,100	6,500	2,200	360	360	730	480	---	---	---	---
	9/29/2000	700 [1]	3,900	990	120	300	340	390 [2]	---	---	---	---
	3/22/2001	380 [1]	4,300	780	240	250	530	190	---	---	---	---
	6/25/2001	---	3,100	1,000	110	200	320	140	---	---	---	---
	9/28/2001	---	3,000	1,200	77	120	170	770	---	---	---	---
	12/26/2001	---	3,240	738	262	218	626	66.4	---	---	---	---
	8/24/2005	---	150	57	3	8	3.9	67	---	<1.0	18	3.0
	10/19/2005	---	560	130	3.8	23	9.3	230	---	<25	<50	11
	1/13/2006	---	2,300	570	18	120	140	220	---	<25	<50	14
	5/5/2006	---	130	35	1.7	7.8	7.4	8	---	<5.0	<10	0.55
	7/19/2006	---	210	102	1.54	15.8	3.85	27.6	---	<0.5	<10	2.06
	10/5/2006	---	410	105	1.06	9.05	2.24	101	---	0.640	11.3	6.65
		********** Well Abandoned 12/27/2006 **********										
MW-6	12/6/1999	110	<50	2	2	0.8	8	1	---	---	---	---
	3/16/2000	<50	<50	8	8	5	18	<0.5	---	---	---	---
	6/13/2000	<50	75	0.7	1	0.9	2	0.6	---	---	---	---
	9/29/2000	<50	<50	<0.5	<0.5	<0.5	<1.0	<0.5	---	---	---	---
	3/22/2001	<50	66	0.5	<0.5	<0.5	<1.0	3	---	---	---	---
	6/25/2001	---	<50	<0.5	<0.5	<0.5	<1.0	4	---	---	---	---
	9/28/2001	---	63	2	ND	ND	1	3	---	---	---	---
	12/26/2001	---	<50	<0.5	<0.5	<0.5	1.4	<0.5	---	---	---	---
	7/7/2005	---	<50	<0.5	<0.5	<0.5	<1.0	<0.5	---	<1.0	---	<0.5
	10/19/2005	---	<25	<0.5	<0.5 [3]	<0.5	<0.5	<1.0	---	<5.0	<10	<0.5
	1/13/2006	---	<25	<0.5	<0.5	<0.5	<0.5	<1.0	---	<5.0	<10	<0.5
	5/5/2006	---	<25	<0.5	<0.5	<0.5	<0.5	<1.0	---	<5.0	<10	<0.5
	7/19/2006	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	10/5/2006	---	<50	<05	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
Post excavation	3/29/2007	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	6/27/2007	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	9/19/2007	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	12/19/2007	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	3/6/2008	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	6/18/2008	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	9/10/2008	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	12/10/2008	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	3/4/2009	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	6/3/2009	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	8/27/2009	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<10	<0.5
	3/11/2010	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<30	<0.5
	9/22/2010	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	<0.5
	4/19/2011	---	<50	<0.5	<0.5	<0.5	<1.5	0.63	---	<0.5	<5.0	---
	9/30/2011	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	<0.5
	10/26/2011	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	---
	12/6/2011	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	---
	9/5/2012	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	---
	7/11/2013	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	---

Table 3
Summary of Historical Groundwater Monitoring Analytical Data
Former Olympian Service Station
1435 Webster Street
Alameda, California

Well ID	Sample Date	TPHd	TPHg	B	T	E	X	MTBE	TRPH	DIPE	TBA	1,2-DCA
		Concentrations in micrograms per liter (µg/L)										
ESL		*100*	*100*	*1.0*	*40*	*30*	*20*	*5.0*	---	---	*12*	*0.5*
MW-7	3/29/2007	---	840	50.8	9.33	2.54	162	39.9	---	<0.5	<10	2.26
	6/27/2007	---	270	126	<0.5	7.11	<1.5	94.4	---	0.550	58.4	6.21
	9/19/2007	---	191 [4]	0.5	<0.5	5.38	<1.5	49.6	---	<0.5	28.5	4.37
	12/19/2007	---	54 [4]	<0.5	<0.5	<0.5	<1.5	11.4	---	<0.5	<10	1.09
	3/6/2008	---	<50	<0.5	<0.5	<0.5	<1.5	4.83	---	<0.5	<10	0.59
	6/18/2008	---	<50	0.840	<0.5	0.500	<1.5	52.5	---	<0.5	15.8	5.70
	9/10/2008	---	55 [4]	<0.5	<0.5	<0.5	<1.5	15.3	---	<0.5	<10	1.98
	12/10/2008	---	<50	<0.5	<0.5	<0.5	<1.5	2.43	---	<0.5	<10	<0.5
	3/4/2009	---	<50	<0.5	<0.5	<0.5	<1.5	0.530	---	<0.5	<10	<0.5
	6/3/2009	---	<50	0.62	<0.5	<0.5	<1.5	5.2	---	<0.5	<10	<0.5
	8/27/2009	---	<50	<0.5	<0.5	<0.5	<1.5	4.8	---	<0.5	<10	0.55
	3/11/2010	---	<50	<0.5	<0.5	<0.5	<1.5	0.73	---	<0.5	<30	<0.5
	9/22/2010	---	<50	<0.5	<0.5	<0.5	<1.5	3.9	---	<0.5	<5.0	0.64
	4/19/2011	---	<50	<0.5	<0.5	<0.5	<1.5	2.0	---	<0.5	<5.0	---
	9/30/2011	---	<50	<0.5	<0.5	<0.5	<1.5	4.3	---	<0.5	<5.0	---
	10/26/2011	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	---
	12/6/2011	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	---
	9/5/2012	---	<50	<0.5	<0.5	<0.5	<1.5	2.4	---	<0.5	<5.0	---
	7/11/2013	---	<50	<0.5	<0.5	<0.5	<1.5	2.1	---	<0.5	<5.0	---
MW-8	4/6/2007	---	27,000	2,460	1,520	210	1,810	16,000	---	24.3	1,050	459
	6/27/2007	---	20,000	2,460	382	611	1,040	7,310	---	11.1	3,400	319
	9/19/2007	---	20,400 [4]	814	16.2	219	21.6	10,300	---	<4.40	7,080	194
	12/19/2007	---	14,100 [4]	426	10.6	115	22.4	12,700	---	25.0	864	289
	3/6/2008	---	19,000 [5]	639	19.5	268	152	11,200	---	<4.4	<88	227
	6/18/2008	---	5,800 [4]	496	11.7	258	24.4	9,730	---	15.7	468	209
	9/10/2008	---	9,900	299	11.1	73.0	13.6	11,600	---	27.1	1,670	240
	12/10/2008	---	6,900	477	3.98	57.9	22.6	11,600	---	23.1	634	287
	3/4/2009	---	8,500 [4]	168	1.35	17.3	8.59	8,190	---	7.00	2,050	238
	6/3/2009	---	11,000 [5]	490	3.90	57	16	14,000	---	<0.5	<10	310
	8/27/2009	---	5,400 [5]	340	8.3	67	37	8,900	---	21	2,900	300
	3/11/2010	---	7,900 [5]	660	3.7	100	28.3	5,800	---	18	1,100	150
	9/22/2010	---	4,700 [4]	1,100	<44	230	<132	5,700	---	<44	470	120
	4/19/2011	---	67 [6]	<0.5	<0.5	0.83	<1.5	20	---	<0.5	<5.0	---
	9/30/2011	---	2,500 [5]	140	2.0	38	5.3	5,600	---	8.2	<5.0	180
	10/26/2011	---	6,900 [5]	3.7	<0.5	0.59	<1.5	6,600	---	16	<440	---
	12/6/2011	---	2,100 [5]	4.3	0.52	0.56	<1.5	10,000	---	21	590	---
	9/5/2012	---	590 [4]	99	1.1	20	4.9	510	---	11	3,800	---
	7/11/2013	---	1,300	260	10	89	33	80	---	10	3,200	---
MW-9	8/27/2009	---	<50	<0.5	<0.5	<0.5	<1.5	12	---	<0.5	<10	0.76
	12/10/2009	---	<50	<0.5	0.50	<0.5	<1.5	4.8	---	<0.5	<5.0	<0.5
	3/10/2010	---	<50	<0.5	<0.5	<0.5	<1.5	3.8	---	<0.5	<30	<0.5
	6/10/2010	---	<50	<0.5	<0.5	<0.5	<1.5	7.4	---	<0.5	<5.0	0.6
	9/22/2010	---	<50	<0.5	<0.5	<0.5	<1.5	1.6	---	<0.5	<5.0	<0.5
	4/19/2011	---	<50	<0.5	<0.5	<0.5	<1.5	8.7	---	<0.5	<5.0	---
	9/30/2011	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	<0.5
	10/26/2011	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	---
	12/6/2011	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	---
	9/5/2012	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	---
	7/11/2013	---	<50	<0.5	<0.5	<0.5	<1.5	<0.5	---	<0.5	<5.0	---

Notes:

TPHd = Total Petroleum Hydrocarbons as Diesel (EPA Method 8015)

TPHg = Total Petroleum Hydrocarbons as Gasoline by EPA Method 8015; after July 2005 by EPA 8260

BTEX = Benzene, Toluene, Ethylbenzene, Xylenes by EPA Method 8020; after July 2005 by EPA 8260

Fuel Additives = Methyl-tert-Butyl ether (MTBE), Di-isopropyl ether (DIPE), tert-Butyl alcohol (TBA), 1,2-Dichloroethane (1,2-DCA) by EPA Method 8260B

TRPH = Total Recoverable Petroleum Hydrocarbons

<X = Concentration less than laboratory reporting limit

--- = Not Analyzed

[1] = Does not match diesel chromatogram pattern

[2] = Confirmed by EPA Method 8260

[3] = Toluene was detected at concentrations of 1 ppb in sample from well MW-2, 0.74 ppb in sample from well MW-3, 0.9 ppb in sample from well MW-4, and 0.66 ppb in sample from well MW-6. Data were adjusted to non-detect because of the presence of toluene (0.31 ppb) in method blank and the sample results were less than 5 times in the blank (EPA, Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1994).

[4] = TPH Gasoline value is primarily due to individual peaks / non-target compounds within gasoline quantitative range.

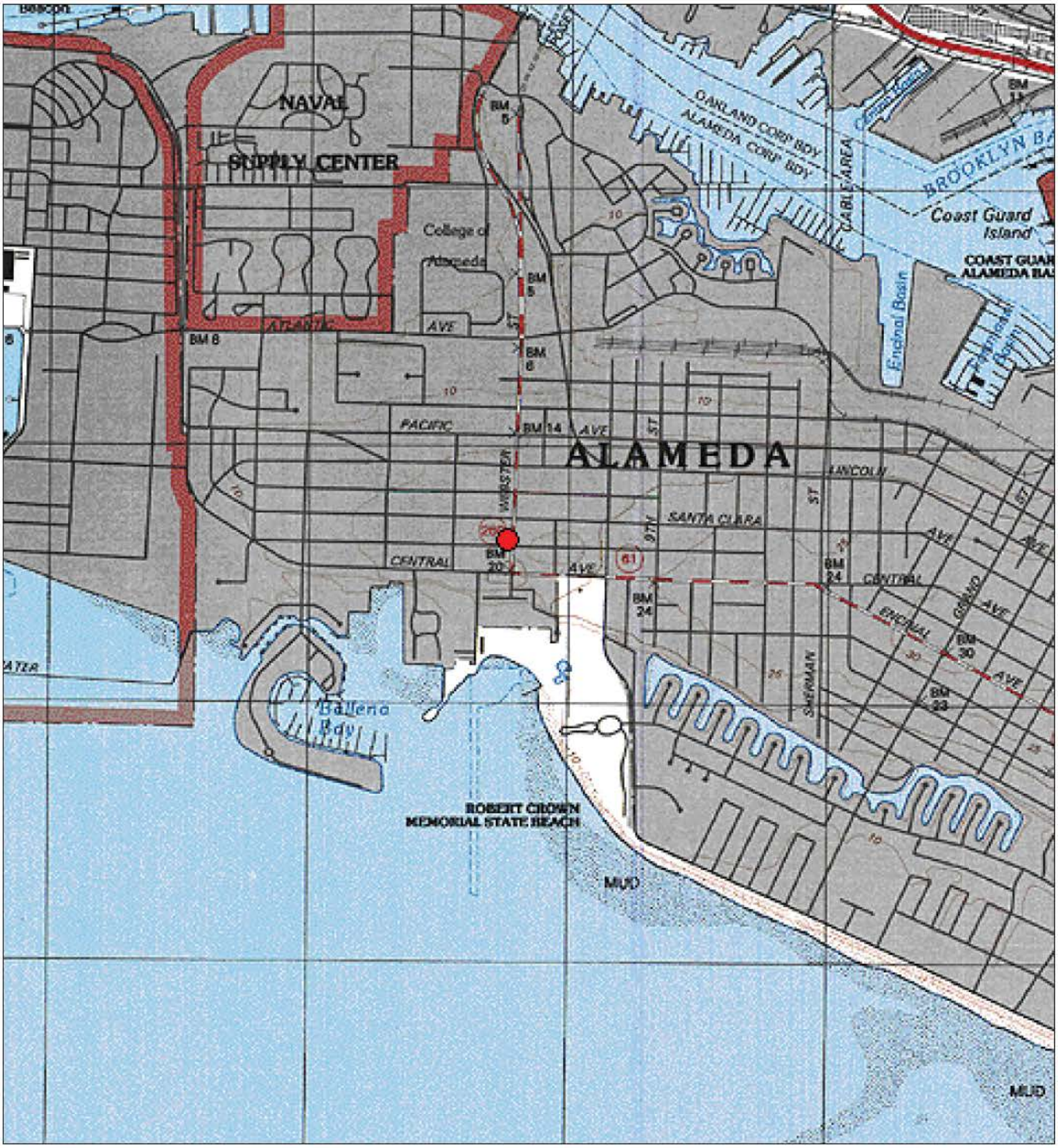
[5] = TPH value due to individual peak(s) (MTBE and/or TBA) within gasoline quantitative range.

[6] = Does not match pattern of reference gasoline standard; hydrocarbons in the range of C5-C12 quantified as gasoline.

ESLs = Environmental Screening Levels (Table F-1a), groundwater is a current or potential drinking water resource (CRWQCB, Interim Final, November 2007, revised May 2013).

bold = constituent exceeds ESL

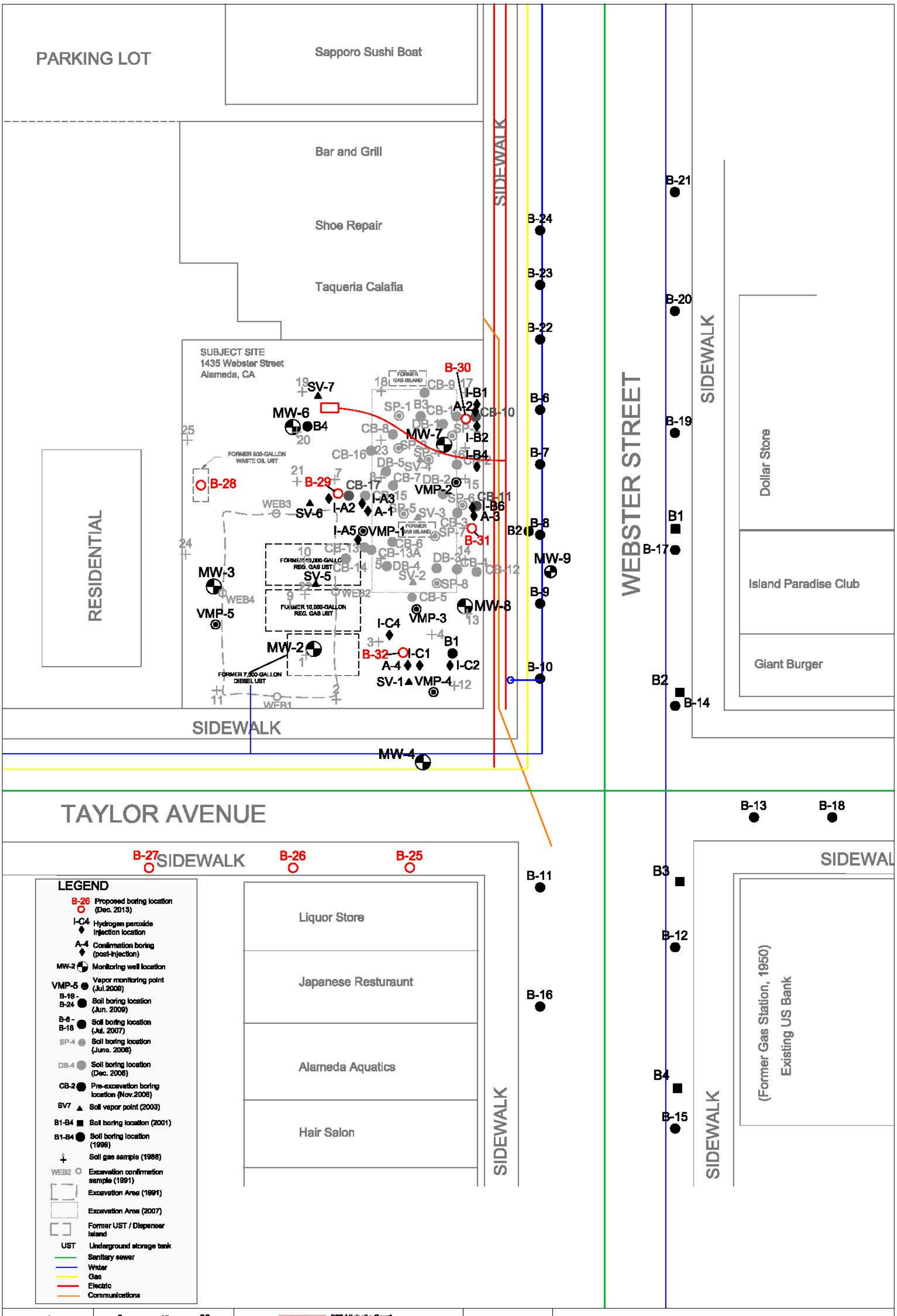
FIGURES



0 1/2 1Mile

0 1,000m

N	● Site Location Map By: TOPO! Date: 3/17/2009 Drafted By: AK	**SITE** 1435 Webster Street Alameda, California TEC ACCUTITE 262 Michelle Court So. San Francisco, CA 94080 Main: (650) 616-1200 Fax: (650) 616-1244	**FIGURE** 1	**TITLE** Vicinity Map


PARKING LOT
Sapporo Sushi Boat
Bar and Grill
Shoe Repair
Taqueria Calafia
RESIDENTIAL
SIDEWALK
SUBJECT SITE
1435 Webster Street
Alameda, CA
FORMER GAS ISLAND
FORMER 500-GALLON WASTE OIL UST
FORMER 10,000-GALLON REG. GAS UST
FORMER 10,000-GALLON REG. GAS UST
FORMER 7,500-GALLON DIESEL UST
SV-7
MW-6
B4
MW-7
SV-6
SV-5
MW-3
VMP-5
MW-2
MW-4
MW-8
VMP-1
VMP-2
VMP-3
VMP-4
SV-1
SV-2
SV-3
SV-4
B-28
B-29
B-30
B-31
B-32
CB-17
CB-16
CB-15
CB-14
CB-13
CB-13A
CB-12
CB-11
CB-10
CB-9
CB-8
CB-7
CB-6
CB-5
DB-5
DB-4
DB-3
DB-2
DB-1
SP-1
SP-2
SP-3
SP-4
SP-5
SP-6
SP-7
SP-8
I-A1
I-A2
I-A3
I-A5
A-1
A-2
A-3
A-4
I-B1
I-B2
I-B4
I-B6
I-C1
I-C2
I-C4
B1
B2
B3
B4
WEB1
WEB2
WEB3
WEB4
B-21
B-24
B-23
B-22
B-20
B-19
B-6
B-7
B-8
B-9
B-10
B-11
B-12
B-13
B-14
B-15
B-16
B-17
B-18
MW-9
SIDEWALK
WEBSTER STREET
Dollar Store
Island Paradise Club
Giant Burger
(Former Gas Station, 1950)
Existing US Bank
TAYLOR AVENUE
B-27
B-26
B-25
SIDEWALK
Liquor Store
Japanese Resturaunt
Alameda Aquatics
Hair Salon
SIDEWALK
SIDEWALK
LEGEND
B-26 Proposed boring location (Dec. 2013)
I-C4 Hydrogen peroxide injection location
A-4 Confirmation boring (post-injection)
MW-2 Monitoring well location
VMP-5 Vapor monitoring point (Jul.2009)
B-19 - B-24 Soil boring location (Jun. 2009)
B-6 - B-18 Soil boring location (Jul. 2007)
SP-4 Soil boring location (June. 2006)
DB-4 Soil boring location (Dec. 2006)
CB-2 Pre-excavation boring location (Nov.2006)
SV7 Soil vapor point (2003)
B1-B4 Soil boring location (2001)
B1-B4 Soil boring location (1999)
Soil gas sample (1988)
WEB2 Excavation confirmation sample (1991)
Excavation Area (1991)
Excavation Area (2007)
Former UST / Dispenser Island
UST Underground storage tank
Sanitary sewer
Water
Gas
Electric
Communications
0 15 30
SCALE (ft)
Revision: 0
Date: 12/12/2013
Drafted By: RD
TEC ACCUTITE
262 Michelle Court
So. San Francisco, CA 94080
Main: (650) 616-1200
Fax: (650) 616-1244
SITE
1435 Webster
Alameda, California
FIGURE
2
Proposed Boring Locations

ATTACHMENT A

SITE CONCEPTUAL MODEL

Attachment A
Site Conceptual Model

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
Geology and Hydrogeology	Regional	The subject site is located on an island in the eastern portion of the San Francisco Bay and is underlain by interbedded Holocene age marine beach and near shore deposits. These deposits are composed of unconsolidated sands and semi- consolidated deposits of well-graded to poorly-graded sand, silty sand/sandy silt, silt, and clayey sand. Groundwater beneath the site has been designated as potentially suitable for municipal and industrial use (San Francisco Bay Water Quality Control Plan, 1995).	None	NA
Geology and Hydrogeology	Site	The site is located on the bay plain deposits of the San Francisco Bay consisting of shallow marine and continental deposits known as the "Bay Mud". Sediments beneath the site consist mainly of fine grained brown sand to a maximum explored depth of 20 ft below surface grade (ft bsg). Depth to groundwater at the site varies from 8 to 11 ft bsg. Groundwater flow direction has consistently been toward the south ranging from southwest to southeast at an average gradient of 0.005 ft/ft. Groundwater beneath the site has been designated as potentially suitable for municipal and industrial use (San Francisco Bay Water Quality Control Plan, 1995).	None	NA
Surface Water Bodies		The closest surface water body is the San Francisco Bay, which is 1,500 feet south of the site.		
Nearby Wells		Numerous monitoring and remediation wells are located at 1629 Webster and 1601 Webster, located approximately 1,200 ft and 1,000 ft, respectively, north and up-gradient of the site.	None	NA

Attachment A
Site Conceptual Model

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
		As of 2005, California Department of Water Resources records indicated that no domestic, industrial, or municipal wells existed within a 1,000 ft radius of the site.		
Release Source and Volume		Two 10,000-gallon gasoline underground storage tanks (USTs), one 7,500-gallon diesel UST, one 500-gallon waste oil UST and two dispenser islands are considered the main source of the release of fuel hydrocarbons that have been detected in soil and groundwater beneath the Site. These tanks were removed in September 1989. The volume of the release is not known.	None	NA
LNAPL		LNAPL has not been observed at the site.	None	NA
Source Removal Activities		In January 1991, approximately 550 cubic yards of soil were removed from the former location of the USTs. This soil was bioremediated onsite. In September 1991 (following the bioremediation of the previously excavated soil), additional 300 cubic yards of contaminated soil were removed. The majority of the excavated soil had been biologically detoxified and returned to the former excavation under the approval of the Alameda County Health Care Services Agency. In February 2007, approximately 1,000 tons of soil was removed from the site and 15,000 gallons of groundwater was extracted, treated and discharged to the sanitary sewer. Soil was removed to a total depth of 14 ft bsg. A hydrogen peroxide injection pilot test was completed at the site in October 2011. Approximately 1,100 gallons of 7% hydrogen	See *Petroleum Hydrocarbons in Groundwater* below.	See *Petroleum Hydrocarbons in Groundwater* below.

Attachment A
Site Conceptual Model

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
		peroxide were injected at areas with elevated adsorbed and dissolved-phase concentrations of chemicals of concern (COCs, as described in the following section). The treatment locations targeted soil near historical borings CB-10, CB-11 and CB-17 and groundwater and soil down-gradient of monitoring well MW-8. The treatment appears to have reduced adsorbed concentrations of COCs in unsaturated soil near CB-10 and CB-11 to acceptable levels; unsaturated soil samples from the area near CB-17 and MW-8 were below laboratory reporting limits before and after treatment. Grab groundwater samples from these same areas (collected approximately two months after the injection event) contained significantly elevated concentrations of COCs as a result of injection-related desorption. Dissolved-phase concentrations in samples collected from monitoring wells located down-gradient of the injection areas (MW-2, MW-4, MW-8) exhibited a similar spike in MTBE; however, MTBE has decreased significantly in well MW-8 since December 2011.		
Contaminants of Concern		COCs for the site include petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX compounds), and methyl tert-butyl ether (MTBE).	None	NA
Petroleum Hydrocarbons in Soil		Soil impacted by COCs above Low Threat Closure Policy (LTCP) levels occurs in two known areas at the site: 1) center of the site in the undisturbed zone between the 1991 and 2007 excavation areas in the vicinity of boring CB-17/A-1, and 2) east side of site along the eastern boundary of the 2007 excavation, specifically near borings CB-10/B-6 and CB-11. Evidence of petroleum hydrocarbon impact to soil, when encountered, is generally not observed above 10 ft bsg or below 15 ft bsg. This depth range represents the smear zone, and is within	1. & 2.	Additional soil borings to be advanced, as described in the *Data Gap Identification Summary and Proposed Investigation* included in Attachment B of this document.

Attachment A
Site Conceptual Model

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
		the historic range of groundwater table fluctuations. Soil samples have been collected from 62 soil borings during site assessment activities; 25 soil boring locations were removed during over-excavation activities. Only 5 samples from the 37 borings advanced in undisturbed soil (soil not removed during excavation) contained concentrations of COCs above the most conservative ESL. Specifically, these samples were collected from undisturbed soil: • east of MW-7 (samples collected at 12 ft bsg from borings CB-10 and CB-11 and samples collected at 9 ft bsg from pre-injection borings I-B1 and IB-6); and • in the center of the site between the two excavated areas (sample collected at 12 ft bsg from boring CB-17). Samples from I-B1 and IB-6 were collected from areas subsequently treated during the October 2011 hydrogen peroxide injection pilot study; collocated confirmation samples from these same areas did not contain COCs above ESLs. Therefore, soil potentially containing concentrations of COCs above screening levels are limited to saturated soil in the areas near borings CB-10, CB-11, and CB-17. As the analytical data for samples from "CB" borings are now more than 7 years old (November 2006), they do not represent current conditions. Additionally, saturated "smear zone" soil (greater than 9 ft bsg) located south of MW-8 may contain elevated concentrations of COCs. The lack of <u>current</u> analytical data for these areas represents a **data gap**. Three areas of potential contamination in shallow soil have been identified by Alameda County Environmental Health (ACEH). These areas include the former waste oil UST, the northern		

Attachment A
Site Conceptual Model

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
		gasoline dispenser island and the area south of MW-8. Based on a review of available data, shallow soil samples from boring CB-9, located immediately adjacent to the northern dispenser area (south side), did not contain concentrations of COCs above laboratory reporting limits at 8 and 10 ft bsg; this area appears to be adequately assessed. Shallow soil data does not exist for the former waste oil UST and the area south of MW-8 and represents a **data gap**.		
Petroleum Hydrocarbons in Groundwater		The dissolved phase plume is located primarily on the southern half of the site. Elevated concentrations of dissolved-phase TPHg, benzene and MTBE exist to the south of the 2007 excavation boundary and to the east of the 1991 excavation boundary (well MW-8 and vapor points VMP-3 and VMP-4). Elevated concentrations of petroleum hydrocarbons were also detected in grab groundwater samples collected during the installation of vapor points VMP-1, located west of the 2007 excavation boundary, and VMP-2, located within the footprint of the 2007 excavation boundary. The site is currently monitored by a network of 7 groundwater wells. Prior to December 2011, these wells were monitored on a semi-annual basis. The most recent depth to water and analytical data for the site was collected in July 2013 with only one additional set of data between December 2011 and July 2013. Long-term, post-injection groundwater concentration stability has not been confirmed and represents a **data gap**. Grab groundwater samples collected approximately two months after the 2011 injection event contained significantly elevated	3., 4. & 5.	Complete one additional round of groundwater monitoring from site wells, and collection of grab groundwater samples as described in the *Data Gap Identification Summary and Proposed Investigation* included in Attachment B of this document.

Attachment A
Site Conceptual Model

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
		concentrations of COCs as a result of desorption caused by injection. Dissolved-phase concentrations in samples collected from monitoring wells located down-gradient of the injection areas (MW-2, MW-4, MW-8) exhibited a similar spike in MTBE; however, MTBE has decreased significantly in well MW-8 since December 2011. Long-term persistence of elevated dissolved-phase concentrations (above LTCP, Groundwater Class 2 criteria) caused by desorption is considered a current **data gap**. The lateral distributions of dissolved-phase TPHg and benzene above water quality objectives are defined in all directions. The lateral distribution of MTBE in groundwater is constrained except to the southwest. The distal end of the dissolved-phase MTBE plume that exceeds water quality objectives has not been established; this has been identified as a **data gap**.		
Petroleum Hydrocarbons in Soil Vapor		Data from soil vapor samples collected in August and December 2009 and post-injection samples collected in October 2011 indicate that petroleum hydrocarbons are not significant in soil vapor; samples collected from the unsaturated zone (4-5 ft bsg) and from just above the smear zone (7.5-8.5 ft bsg) did not contain petroleum hydrocarbons at concentrations above laboratory reporting limits. These results are consistent with historical soil vapor samples SV-1 through SV-7, collected from 3.5 ft bsg in 2003. Although grab groundwater samples collected from the exploratory borings for soil vapor monitoring points VMP-1 through VMP-4 contained elevated concentrations of petroleum hydrocarbons, the soil vapor samples from these same points indicate that contaminants are not readily migrating from groundwater to subsurface vapor.	None	NA

Attachment A
Site Conceptual Model

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
Risk Evaluation		Prior to 1989, the site was occupied by an Olympian Service Station. Station facilities consisted of two 10,000-gallon gasoline USTs, one 7,500-gallon diesel UST, one 500-gallon waste oil UST and two dispenser islands. The surrounding topography is flat and the site is approximately 20 feet above mean sea level. The site is situated in a mixed commercial and residential area and is currently unused, has no structures and is covered with asphalt with the exception of landscaped areas in the center and perimeter of the property. Tentative plans for the property include redevelopment for mixed commercial (ground floor) / residential use that could include sub-grade parking. Direct contact with soil (ingestion and/or absorption) is a potentially significant exposure pathway if shallow soil contamination is encountered in proposed soil boring near the former waste oril UST or the area south of MW-8; however, the current data set for shallow soil does not indicate this expose pathway is complete because impacted soils are present at or below 10 ft bsg. Residential site users would be extremely unlikely to directly contact soils below 10 ft bsg. Similarly, impacted deep soils are extremely unlikely to generate soil particulates which pose an inhalation exposure risk, primarily because they are located below the groundwater table. Construction workers may have direct contact with soils below 10 ft bsg during excavation activities assuming sub-grade construction were to be completed. Groundwater beneath the site vicinity is considered a potentially significant resource for municipal or industrial use. However, no extant wells have been identified within 1,000 ft of the site, and the area is expected to access municipal water supplies for the foreseeable future. Because the groundwater table is found between 6 and 12 ft bsg, site users are most likely to directly contact groundwater extracted from a well for domestic use.	1., 2., 4, & 5.	

Attachment A
Site Conceptual Model

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
		Under current use or future on-grade redevelopment, the site satisfies scenarios 1 through 3 presented in Appendices 1 through 4 of the LTCP and therefore can be considered low-threat for vapor intrusion to indoor air. Although shallow soil data is not available for the southeast corner of the property, multiple soil vapor sampling events have been completed at soil vapor sampling points VMP-3 and VMP-4 and results indicate significant levels of COCs do not exist in soil vapor at 4 and 8 ft bsg. However, Media-Specific Criteria for Direct Contact and Outdoor Air Exposure has not been met and will require collection of shallow soil samples from this area. Under a redevelopment scenario in which sub-grade parking would be included in future construction, the site would not satisfy any of the four scenarios presented in the Media Specific Criteria for Vapor Intrusion due to the relatively shallow depth to groundwater. Since 1993, the historical maximum depth to groundwater was 12.2 ft bsg and the minimum depth to groundwater was 5.6 ft bsg. A typical sub-grade parking structure would be constructed with the foundation set between 10 and 15 ft bsg. In this scenario, the foundation would be set at or below the groundwater table and would require dewatering. Therefore, a bioattenuation zone as described in the LTCP (at least 5 ft of unsaturated soil) would not exist under this redevelopment scenario. Volatilization of COCs from groundwater to the sub-grade structure is potentially complete and would need to be addressed through engineering controls (ventilation and/or sub-slab impermeable membrane).		

ATTACHMENT B

DATA GAP IDENTIFICATION SUMMARY AND PROPOSED INVESTIGATION

Attachment B
Data Gap Identification Summary and Proposed Investigation

Item	Data Gap Item #	Proposed Investigation	Rationale	Analyses
1	Media Specific Criteria for Vapor Intrusion to Indoor Air Current analytical data is not available for deep soil (12 ft bsg) following hydrogen peroxide injection pilot study. Historical data showing TPHg concentrations exceed the most conservative 100 mg/kg threshold for a bioattenuation zone are from samples collected more than 7 years ago.	Advance soil borings B-30, B-31 and B-29 adjacent to historical borings CB-10, CB-11 and CB-17, respectively, to collect confirmation soil samples at 12 ft bsg.	Assuming hydrogen peroxide injection and/or natural attenuation has decreased TPHg concentrations below the 100 mg/kg threshold for a bioattenuation zone, unrestricted future redevelopment can be completed at the site, including sub-grade construction. Currently, the site appears to meet criteria for potential exposure scenarios 1 through 3 presented in the Petroleum Vapor Intrusion to Indoor Air section of the LTCP (See SCM – Risk Evaluation section); however, the site would not meet any of the 4 scenarios under a sub-grade redevelopment scenario as little to no bioattenuation zone would exist due to the shallow groundwater table. If analytical data from proposed soil sampling does meet LTCP criteria, engineering controls will likely be required to meet vapor intrusion requirements.	TPHg, BTEX and fuel oxygenates

Item	Data Gap Item #	Proposed Investigation	Rationale	Analyses
2	Media Specific Criteria for Direct Contact and Outdoor Air Exposure: Shallow soil data is not available for the former waste oil UST and the southeast corner of the property.	Advance one soil boring within the former waste oil UST pit (B-28) and one soil boring in the southeast corner of the site (B-32) for collection of shallow soil samples. Soil samples will be collected to at least 15 ft bsg to delineate the vertical extent of potential residual contamination. Step out borings will be completed should concentrations of COCs exceed the concentrations of petroleum constituents listed in Table 1 of the Direct Contact and Outdoor Air Exposure Criteria.	Collection of analytical data will determine if shallow soil satisfies the media-specific criteria for direct contact and outdoor air exposure.	TPHg, BTEX and fuel oxygenates. Soil samples collected from the former waste oil UST area will also be analyzed for TPHmo, TPHd, PAHs, RCRA 7 Metals.
3	Media Specific Criteria for Groundwater: Concentrations of dissolved-phase benzene and MTBE have not shown a stable or decreasing pattern in well MW-8.	Semi-annual monitoring will continue until a stable or decreasing trend has been established for at least one hydrologic year. The most recent sampling data from September 2012 and July 2013 indicate that MTBE appears to be stable or decreasing although benzene has been increasing.	In order to meet Class 2 of the LTCP for Groundwater, maximum groundwater concentrations must not exceed 3,000 µg/l for benzene and 1,000 µg/l for MTBE. Samples collected from MW-8 in September 2012 and July 2013 Monitoring well MW-8 contained concentrations below these levels; however, samples have not been collected during the wet season and benzene has shown an increasing trend.	TPHg, BTEX and fuel oxygenates by EPA 8260.

Attachment B
Data Gaps Summary and Proposed Investigation (Continued)

Item	Data Gap Item #	Proposed Investigation	Rationale	Analyses
4	Media Specific Criteria for Groundwater: Maximum COC concentrations in groundwater exceed Criteria 2 of the LTCP for groundwater. Specifically, grab samples collected following the hydrogen peroxide injection pilot study from borings A-1, A-3 and A-4 exceed the benzene limit of 3,000 µg/l; the sample from boring A-3 exceeded the MTBE limit of 1,000 µg/l.	Advance soil borings adjacent to historical borings A-1 (proposed boring B-29), A-3 (proposed boring B-31) and A-4 (proposed boring B-32) to collect confirmation grab groundwater samples.	See Item 2; groundwater data will be used to determine if maximum concentrations exceed LTCP limits for Class 2.	TPHg, BTEX and fuel oxygenates.
5	Media Specific Criteria for Groundwater: Distal end of the dissolved-phase MTBE plume exceeding water quality objectives has not been determined. This data is required to meet LTCP for Groundwater, Class 2 Criteria.	Advance three soil borings (B-25, B-26 and B-27) south and southwest of the site for collection of grab groundwater samples. Borings will be advanced to first encountered groundwater (approximately 12 ft bsg). Additional step-out borings will be completed in the event samples from any of the initial borings contain concentrations of COCs above the most conservative ESLs.	Analytical data from the proposed borings will be used to determine the length of the dissolved-phase MTBE plume that exceeds the water quality objective of 5 micrograms per liter (µg/l). Currently, the plume is greater than 100 feet. If it can be shown that the plume is less than 250 feet in length, Class 2 of the LTCP for Groundwater appears to be most appropriate for the site, assuming MTBE concentrations in well MW-8 remain below 1,000 µg/l.	TPHg, BTEX and fuel oxygenates