

Atlantic Richfield Company

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RECEIVED

10:11 am, Dec 16, 2011

Alameda County
Environmental Health

October 13, 2009

Alameda County LOP
1131 Harbor Bay Parkway
Alameda, CA 94502-6577
Attn: Paresh Khatri

Re: Notice to Agency of Change in Contact Information and Responsible Party Status
Former BP Site # 11117
7210 BANCROFT AVE
OAKLAND, CA 94605
Agency Case Number RO0000356

Dear Mr. Khatri:

This correspondence has been prepared in order to provide you with written notice of the following information for the above referenced location.

After September 15, 2009, Delta Consultants (Delta) will assume all responsibility for any remediation previously being conducted by Atlantic Richfield Company at this location. Delta has been retained to manage the remediation related liabilities, including but not limited to any monitoring and reporting requirements. ConocoPhillips understands that it is still a Responsible Party of record.

Accordingly, the parties are hereby taking this opportunity to notify the Alameda County LOP that effective immediately, all correspondence, directives and other inquiries and information regarding these properties be directed to the following:

Delta Consultants
312 Piercy Road
San Jose, CA 95138
Attn: Douglas Umland

If you have any questions or would like to discuss this matter in greater detail, please feel free to contact me at the number listed above.



John C. Skance
Strategy Manager - US Retail & Logistics

cc: Douglas Umland, Delta Consultants



Antea USA, Inc.
312 Piercy Road
San Jose, California 95138 USA
www.anteagroup.com

December 13, 2011

Paresh Khatri
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502-6577

Re: **Work Plan Addendum Submittal**
Remedial Investigation Work Plan Addendum
76 (Former BP) Service Station No. 2611117
7210 Bancroft Avenue
Oakland, California

Dear Mr. Khatri,

I declare under penalty of perjury that, to the best of my knowledge, the information and/or recommendations contained in the attached report is/are true and correct.

If you have any questions or need additional information, please call me at (408) 826-1874.

Sincerely,

A handwritten signature in blue ink, appearing to read "Douglas K. Umland".

Douglas K. Umland, P.G.
Senior Project Manager

Enc: Antea Group, *Remedial Investigation Work Plan Addendum*

Remedial Investigation Work Plan Addendum

*76 (Former BP) Service Station No. 11117
7210 Bancroft Avenue
Oakland, California*

*Alameda County Environmental Health Case No. RO0000356
San Francisco Bay Region Quality Control Board Case No. 01-0215*

*Antea Group Project No. I42611117
December 13, 2011*

Prepared for:
Mr. Paresh Khatri
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502-6577

Prepared by:
Antea™Group
312 Piercy Road
San Jose, CA 95138
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Remedial Investigation Work Plan Addendum

76 (Former BP) Service Station No. 11117
7210 Bancroft Avenue
Oakland, California

1.0 INTRODUCTION

Antea™Group is pleased to submit this *Remedial Investigation Work Plan Addendum* for 76 (Former BP) Service Station No. 11117 located at 7210 Bancroft Avenue, Oakland, Alameda County, California (**Figure 1**). Antea Group submitted the original *Remedial Action Investigation Work Plan* on August 3, 2011. With the exception of an air sparge / soil vapor extraction (AS/SVE) pilot test and completion of the In-Situ Chemical Oxidation (ISCO) treatability study, Antea Group has performed the scope of work proposed in the original work plan. The purpose of this work plan addendum is to propose a postponement of the AS/SVE pilot test, a change in remedial strategy that will focus continued site cleanup efforts on the remaining recalcitrant areas of impacts, and another postponement of the technical report due date.

The site is currently under the lead regulatory oversight of the Alameda County Environmental Health Department (ACEHD) [Case No. RO0000356]. The site is also under the oversight of the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) – Region 2 (Case No. 01-0215). The State of California Water Resources Control Board’s online GeoTracker database contains selected reports and agency correspondence (Global I.D. No.T0600100201).

2.0 SITE DESCRIPTION AND LAND USE

The site is an active gasoline station that includes a service station building, three 12,000-gallon gasoline underground storage tanks (USTs), one 10,000-gallon diesel UST, and associated piping and dispensers. Asphalt or concrete surfacing covers the site except for planters along the southeastern and southwestern property boundaries and at the north corner of the property (**Figure 2**). Refer to **Appendix A** for additional site information and for a history of the environmental investigations and remedial actions.

3.0 SUMMARY OF SITE HYDROGEOLOGIC CONDITIONS

Fine-grained sediments including clays and silts to depths varying from 6 feet to 10 feet below ground surface (bgs) underlay the site. Coarse-grained sediments consisting of sands, clayey sands, gravels, and clayey gravels underlay the fine-grained sediments to depths varying between approximately 10 feet to 35 bgs. The thickness of the coarse-grained sediments generally ranges between 10 feet to 20 feet across the site.

Table 1 summarizes the historical boring and well construction details. **Table 2** summarized historical groundwater gauging and analytical data. Historically, depth to water has ranged from 9.49 feet below top of casing BTOC in well MW-3 in 2nd quarter 2000 to 34.07 feet BTOC in well MW-2 in 4th quarter 1994. Groundwater elevation ranged

from 15.43 feet in well MW-3 in 4th quarter 2008 to 41.91 feet in well MW-3 in 2nd quarter 2000. Historical data shows that the groundwater flows predominantly to the northeast at the site, but has also been observed to the southeast. Antea Group calculated historical groundwater flow gradients to be on average 0.015 feet per foot (ft/ft).

During the most recent August 15, 2011 groundwater monitoring event, depth to water ranged from 14.58 feet BTOC (MW-11) to 17.76 feet BTOC (MW-10). Groundwater elevation ranged from 22.00 feet (MW-3) to 23.24 feet (EX-2). Based on the August 15, 2011 data, the groundwater flow direction was variable, but generally to the northeast. Please note Antea Group resurveyed the well network on October 24, 2011, and groundwater elevations are likely to change significantly during the next monitoring event based on the new top of casing elevations.

4.0 CHANGE IN REMEDIATION STRATEGY

4.1 Postponement of AS/SVE Pilot Test

As proposed in the original *Remedial Action Investigation Work Plan*, Antea Group installed wells AS-1 and SVE-1 (**Figure 2**) in October 2011. Antea Group intended to use these wells to conduct the ACEHD-approved AS/SVE pilot test. Due to the proposed change in remediation pilot testing strategy (**Sections 4.2 and 4.3**), Antea Group requests ACEHD approval to postpone the AS/SVE pilot test because the activities will conflict with the newly proposed pilot testing strategy. Antea Group will perform the AS/SVE pilot testing at the site upon conclusion of the newly proposed remediation, if necessary.

4.2 Proposed Change in Remediation Pilot Test Strategy

To continue pilot testing site remediation strategies, Antea Group proposes a Pilot Test using a product called Plume Stop from Regenesis. **Appendix B** contains copies of the Material Safety Data Sheets (MSDS) for the injectates. A description of this technology and process is summarized below.

Plume Stop is comprised of water-soluble, non-toxic ingredients and typically applied to groundwater via direct push injection or into injection wells. This technology is protected by Regenesis patents and patents pending. After the material is distributed in the subsurface, it undergoes a cross-linking process on the order of days to weeks which forms a sorbent network on the surface of soil. Plume Stop reacts in situ to form a sorbent network throughout the contaminated zone. The function of the Plume-Stop™ technology is to:

- 1) Adsorb contaminants and reduce groundwater concentrations*
- 2) Inhibit transport of contaminants in groundwater*
- 3) Provide a compatible matrix for bacteria and contaminants to facilitate natural attenuation.*

The intended result of the Plume Stop application is a substantial and sustained reduction of contaminant concentrations in groundwater of the targeted treatment area. This capture of contamination will inhibit migration and hold the contaminant in-place. Laboratory studies on this technology indicate that Plume Stop causes on the order of 50-90% drop in groundwater contaminant concentrations within weeks of application due to a sorption of contaminant onto the Plume Stop material. Additional Regeneration objectives of this study are to validate and optimize performance of the new Plume Stop technology, and to demonstrate its expected longevity of multiple years.

Plume Stop is effective on petroleum contaminants as well as chlorinated VOCs. It can be used alone or in combination with enhanced bioremediation.

4.3 Pilot Test Proposal

Antea Group proposes implementation of the Plume Stop Pilot Test in a rectangular area roughly centered on monitoring wells MW-4 and DPE-5. The proposed activities consist of investigation related work (principally Hydraulic Profile testing [HPT] and baseline groundwater sampling), Plume Stop injection, and post-injection groundwater monitoring and sampling of the wells inside and surrounding the application area, as shown on **Figure 3**. The project work will involve approximately three phases (outlined below).

4.3.1 Phase 1: Pre-Application Data Collection

To delineate subsurface conditions in the area surrounding MW-4 and DPE-5, Antea Group proposes collection of the following data to support the final injection design layout for the Plume Stop treatment. **Figure 3** depicts the locations of these points.

Hydraulic Profiling Test using Direct Push Technology (HPT- DPT) Probe Study

Antea Group proposes conducting a HPT survey to determine the hydraulic properties of the site subsurface. Drilling personnel will advance three HPT locations that transect the proposed treatment area from 5 feet above the current water table surface to 40 feet below ground surface (bgs), approximately corresponding with MW-4's screened interval. Drilling personnel will advance the HPT probe at a constant rate using a direct-push drill rig and inject clean water through a screen on the side of the HPT probe at a flow rate, usually less than 300 milliliters per minute (mL/min).

The injection pressure, which is monitored and plotted versus depth, is an indication of the hydraulic properties of the soil. A relatively low-pressure response indicates a relatively large grain size and the ability to easily transmit water. A relatively high-pressure response indicates a relatively small grain size, which correlates with the low ability to transmit water. Simultaneously, personnel will collect soil conductivity data for comparison with the HPT data. Upon completion of the hydraulic profiling test boring, data generated includes soil conductivity, flow, and pressure curves plotted with respect to depth.

Grab Groundwater Sampling

Antea Group proposes the collection of two grab groundwater samples from the northern and southern HPT locations noted on **Figure 3**. Antea Group will collect these samples from approximately 25 and 30 feet bgs and will aid in evaluation of the vertical distribution of dissolved phase contaminants. The laboratory will analyze the groundwater samples for the following constituents:

- Gasoline Range Organics (GRO), carbon chain range C₀₅ – C₁₂, by California Leaking Underground Fuel Tank (LUFT) method;
- Benzene, toluene, ethyl benzene, and xylenes (collectively BTEX compounds), methyl tertiary-butyl ether (MTBE), tertiary-butyl alcohol (TBA), ethyl tertiary-butyl ether (ETBE), tertiary-amyl methyl ether (TAME), di-isopropyl ether (DIPE), ethylene dibromide (EDB), ethanol, and 1,2-dichloroethane (1,2-DCA) by Environmental Protection Agency (EPA) Method 8260.
- Nitrate by EPA 323.2R2.0
- Total Iron by EPA 6010B
- Dissolved Iron by EPA 6010B
- Sulfate by EPA 375.2R2.0
- Sulfide by Standard Method (SM) 4500S2C,D
- Methane, dissolved gases by Robert S. Kerr (RSK) method SOP-175
- Total Organic Carbon (TOC) by SM5310C-2000
- Chemical Oxidant Demand by SM5220D
- Alkalinity by SM2320B

In addition to these laboratory analytical samples, personnel will record the following field data from each sample interval: depth to water, pH, dissolved oxygen oxidation-reduction potential, conductivity, and turbidity.

Baseline Sampling Event of Existing Monitoring Wells

Prior to implementing the pilot test injections, Antea Group proposes to conduct a baseline sampling event in one key monitoring well, MW-4. The laboratory will analyze this groundwater sample from MW-4 for the following constituents:

- GRO, carbon chain range C₀₅ – C₁₂, by California LUFT method;
- BTEX, MTBE, TBA, ETBE, TAME, DIPE, EDB, ethanol, and 1,2-DCA by EPA Method 8260.

- Nitrate by EPA 323.2R2.0
- Total Iron by EPA 6010B
- Dissolved Iron by EPA 6010B
- Sulfate by EPA 375.2R2.0
- Sulfide by SM 4500S2C,D
- Methane, dissolved gases by RSK method SOP-175
- Total Organic Carbon (TOC) by SM5310C-2000
- Chemical Oxidant Demand by SM5220D
- Alkalinity by SM2320B

In addition to these laboratory analytical samples, personnel will record the following field data from each well: depth to water, pH, dissolved oxygen oxidation-reduction potential, conductivity, and turbidity.

4.3.2 Phase 2: Plume Stop Application Phase

Following an evaluation of the field, lithological, and contaminant data collected during Phase 1, Antea Group will oversee the injection of Plume Stop in the proposed injection area surrounding MW-4 and DPE-5 (**Figure 3**). If the initial data collection shows that the formation is not conducive to this remedial strategy, Antea Group will summarize the results in a brief report to the ACEH and revisit the site remediation strategy. If conditions are favorable for the Pilot Test to proceed, Antea Group will implement the following work scope:

Inject solution between approximately 12 direct-push points:

- Test Area Dimensions: 12 x 20 feet and an application thickness of 25 feet (approximately 5 feet above the water table to a total depth of 40 ft bgs. This application thickness will be a few feet above the water table, extending into the water table.
- Total volume approximately 6,300 gallons of Plume Stop solution. This volume is based on initial calculations provided by Regenesis in their review of current and historical impacts in the injection area.

The final volume/quantity of plume stop injected may vary depending on the results of the Phase I (**Section 4.3.1**) technical assessment.

4.3.3 Phase 3: Post Injection Monitoring

Antea Group proposes a minimum of three groundwater-monitoring events that will occur at 30, 60, and 90 days following the injection. Well sampling personnel will collect samples from MW-4. The laboratory will analyze this groundwater sample for the same constituents identified in **Section 4.3.1**. In addition to these laboratory analytical samples, well sampling personnel will record the following field data from MW-4: depth to water, pH, dissolved oxygen oxidation-reduction potential, conductivity, and turbidity.

4.4 Disposal of Investigation Derived Waste

Drilling personnel will place any soil cuttings, purge water, wastewater, or construction debris generated during investigation activities in Department of Transportation (DOT) approved 55-gallon drums, seal and label in accordance with the corresponding DOT protocols for non-hazardous waste. The drums will be temporarily stored on-site pending receipt of analytical results. Upon receipt of the results, Antea Group's waste management contractor Belshire Environmental Services, Inc. will transport the waste for disposal at an appropriate facility.

5.0 SCHEDULE AND REPORTING

ACEHD established a technical report due date of December 2, 2011 for the original scope of proposed work. Antea Group submitted a *Technical Report Extension Request Letter* to the ACEHD on September 29, 2011, proposing a revised submittal date of February 3, 2012. Antea Group requested the extension to fully complete and evaluate the results of the ACEH-approved ISCO treatability studies. At the issuance of this work plan addendum, Antea Group has not received a response from the ACEH regarding the extension request. Based on the proposed scope of work presented in this work plan addendum, Antea Group requests another technical report submittal date extension to April 9, 2012.

Antea Group will begin pre-field activities upon approval of this work plan. Scheduling of drilling equipment will require approximately 60 days after the approval of any necessary boring installation permits. Depending on weather and subsurface conditions, the installation of the borings and HPT tests described in Phase 1 (**Section 4.3.1**) will take approximately four days to complete. Phase 2 (**Section 4.3.2**) is expected to take three to four days to complete depending on the final grid layout, injection depths, and injection volumes. Phase 3 (**Section 4.3.3**) will be completed 90 days after the injection of the Plume Stop solution. Antea Group will submit soil and groundwater samples to the laboratory on a standard 14-day turnaround time.

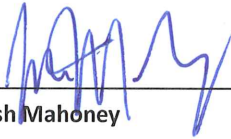
Antea Group can issue a summary report within approximately 6 weeks of completion of field activities and post-injection monitoring. Pilot Test progress updates will be included in a quarterly monitoring report if there are overlapping periods. Antea Group will include the results of this Pilot Test in a report that also documents the results from the October 2011 site investigation (soil borings). Upon completion of the proposed scope of work, a report will be prepared that will contain the following:

- A map showing the final HPT, groundwater sampling, and injection locations;
- A detailed description of injection methods, groundwater sampling methods, and boring logs ;
- Laboratory and chain of custody documentation for groundwater samples and a table summarizing laboratory analytical results;
- Waste disposal manifests;
- Interpretation of the field and laboratory data, and recommendations for future site assessment and/or remediation activities (if necessary).

The proposed activities outlined in this work plan and the corresponding reports will be performed and prepared under the direction of a California Professional Engineer, Certified Engineering Geologist, Registered Geologist, or Certified Hydrogeologist. Antea Group will prepare all reports will in accordance with the county and state requirements. In accordance with State of California requirements, Antea Group will upload all reports, maps, and analytical data to the GeoTracker database.

6.0 REMARKS

The recommendations contained in this report represent Antea USA, Inc.'s professional opinions based upon the currently available information and are arrived at in accordance with currently accepted professional standards. This report is based upon a specific scope of work requested by the client. The contract between Antea USA, Inc. and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Antea USA, Inc.'s client and anyone else specifically identified in writing by Antea USA, Inc. as a user of this report. Antea USA, Inc. will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Antea USA, Inc. makes no express or implied warranty as to the contents of this report.



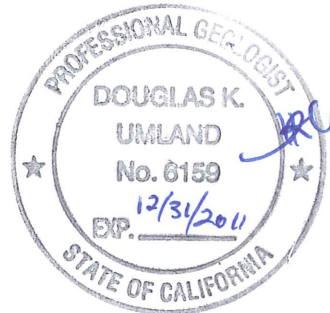
Josh Mahoney
Senior Project Manager

Information, conclusions, and recommendations provided by Antea Group in this document regarding the site have been prepared under the supervision of and reviewed by the licensed professional whose signature appears below.

Licensed Approver:

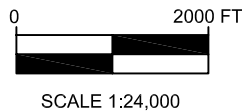
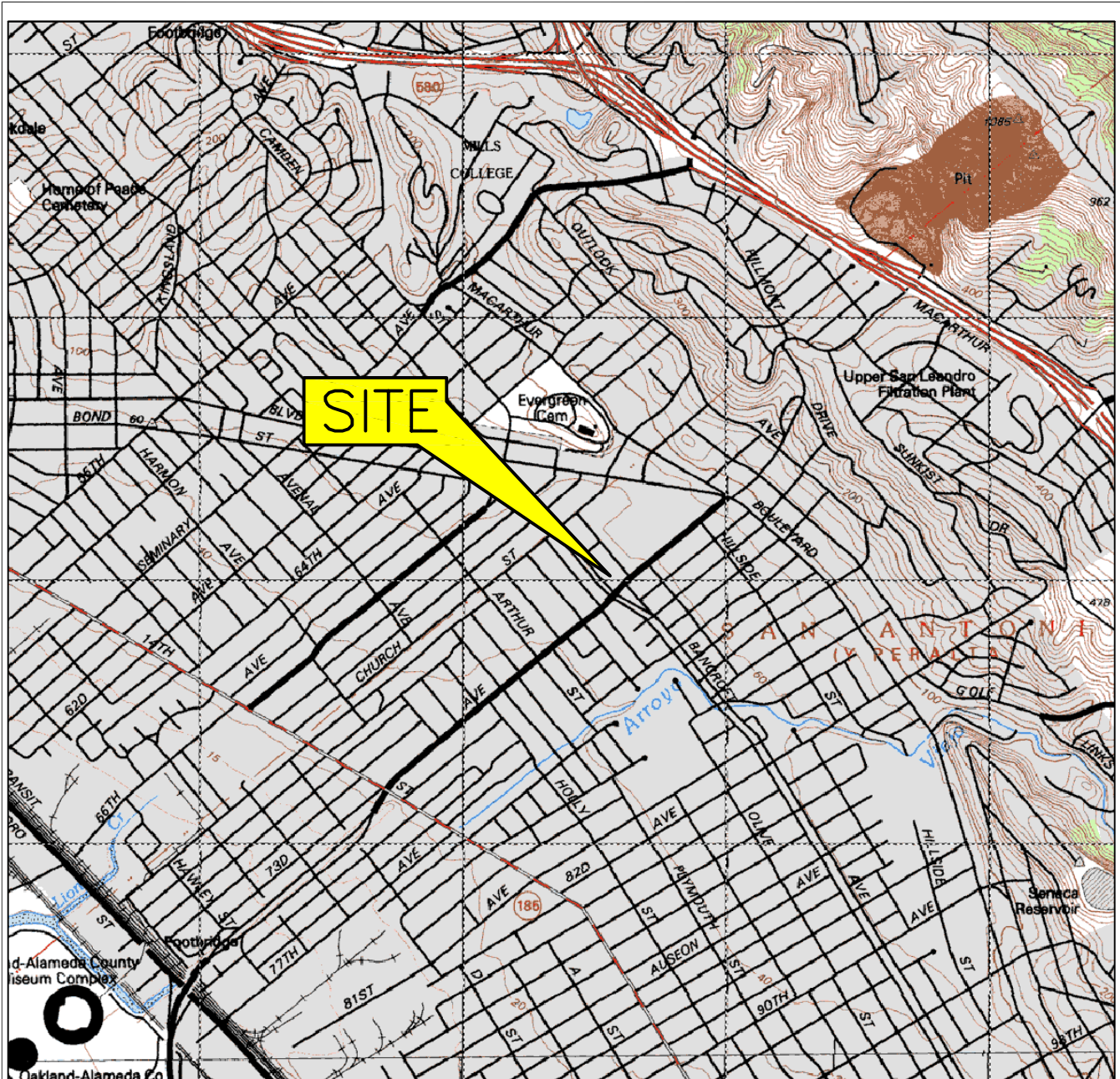


Douglas K. Umland
Senior Project Manager
California Registered Professional Geologist No. 6159



Figures

- Figure 1 Site Location
- Figure 2 Site Map
- Figure 3 Proposed Pilot Test Locations



QUADRANGLE LOCATION

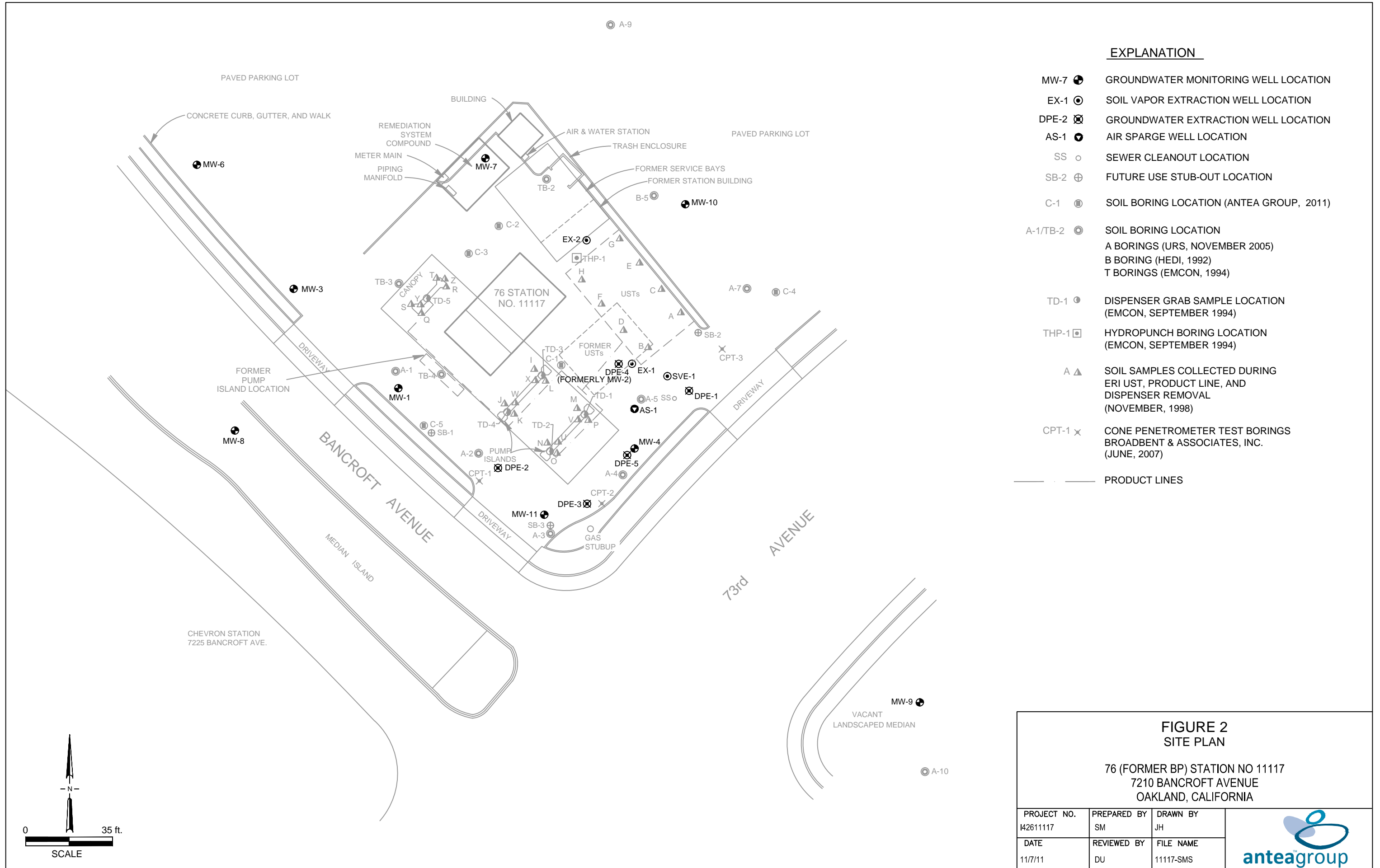
FIGURE 1
SITE LOCATION MAP

76 (FORMER BP) STATION NO 11117
7210 BANCROFT AVENUE
OAKLAND CALIFORNIA

GENERAL NOTES:
BASE MAP FROM USGS, 7.5 MINUTE
TOPOGRAPHIC OAKLAND, CA. PHOTO REVISED 1980

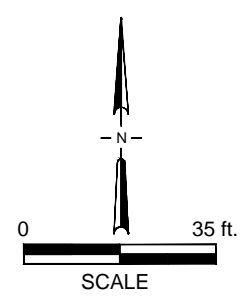
PROJECT NO. 142611117	PREPARED BY DK	DRAWN BY JH
DATE 03/30/11	REVIEWED BY DU	FILE NAME 11117-TOPO





EXPLANATION


- MW-7 ● GROUNDWATER MONITORING WELL LOCATION
- EX-1 ⊙ SOIL VAPOR EXTRACTION WELL LOCATION
- DPE-2 ⊗ GROUNDWATER EXTRACTION WELL LOCATION
- AS-1 ● AIR SPARGE WELL LOCATION
- SS ○ SEWER CLEANOUT LOCATION
- SB-2 ⊕ FUTURE USE STUB-OUT LOCATION
- C-1 ⊙ SOIL BORING LOCATION (ANTEA GROUP, 2011)
- A-1/TB-2 ⊙ SOIL BORING LOCATION
A BORINGS (URS, NOVEMBER 2005)
B BORING (HEDI, 1992)
T BORINGS (EMCON, 1994)
- TD-1 ⊙ DISPENSER GRAB SAMPLE LOCATION (EMCON, SEPTEMBER 1994)
- THP-1 ⊠ HYDROPUNCH BORING LOCATION (EMCON, SEPTEMBER 1994)
- A ▲ SOIL SAMPLES COLLECTED DURING ERI UST, PRODUCT LINE, AND DISPENSER REMOVAL (NOVEMBER, 1998)
- CPT-1 × CONE PENETROMETER TEST BORINGS BROADBENT & ASSOCIATES, INC. (JUNE, 2007)
- — — PRODUCT LINES

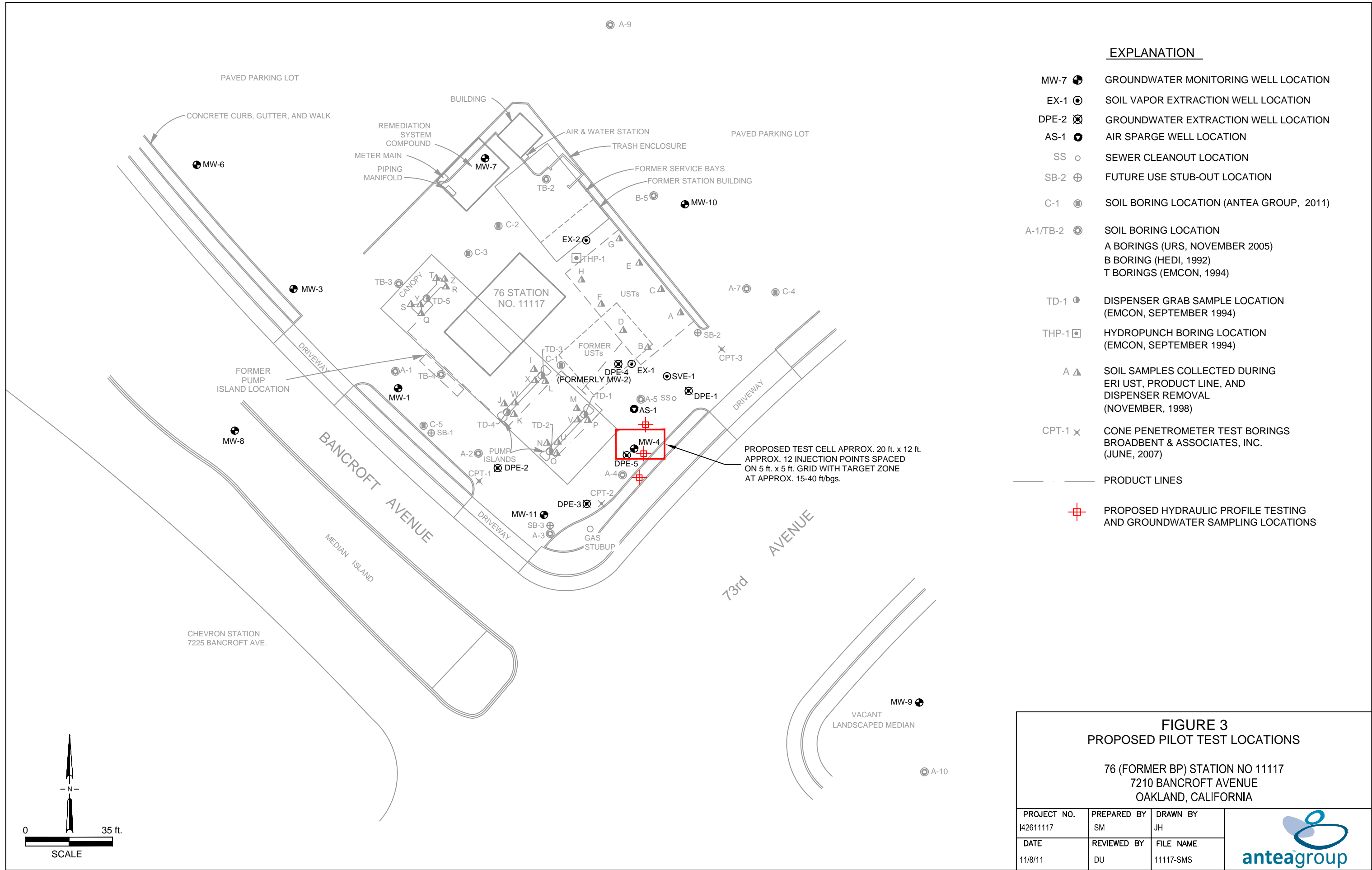


**FIGURE 2
SITE PLAN**

76 (FORMER BP) STATION NO 11117
7210 BANCROFT AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. I42611117	PREPARED BY SM	DRAWN BY JH
DATE 11/7/11	REVIEWED BY DU	FILE NAME 11117-SMS





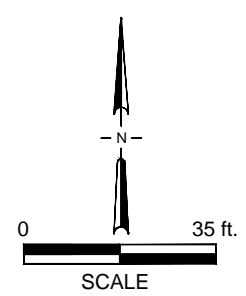
EXPLANATION

- MW-7 ● GROUNDWATER MONITORING WELL LOCATION
- EX-1 ⊙ SOIL VAPOR EXTRACTION WELL LOCATION
- DPE-2 ⊗ GROUNDWATER EXTRACTION WELL LOCATION
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- SS ○ SEWER CLEANOUT LOCATION
- SB-2 ⊕ FUTURE USE STUB-OUT LOCATION
- C-1 ⊙ SOIL BORING LOCATION (ANTEA GROUP, 2011)
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- CPT-1 × CONE PENETROMETER TEST BORINGS BROADBENT & ASSOCIATES, INC. (JUNE, 2007)
- — — PRODUCT LINES
- ⊕ PROPOSED HYDRAULIC PROFILE TESTING AND GROUNDWATER SAMPLING LOCATIONS

**FIGURE 3
PROPOSED PILOT TEST LOCATIONS**

76 (FORMER BP) STATION NO 11117
7210 BANCROFT AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. I42611117	PREPARED BY SM	DRAWN BY JH
DATE 11/8/11	REVIEWED BY DU	FILE NAME 11117-SMS



Tables

Table 1	Soil Boring and Well Construction Details
Table 2	Historical Groundwater Gauging and Analytical Data

TABLE 1
SOIL BORING AND MONITORING WELL CONSTRUCTION DETAILS
76 (FORMER BP) SERVICE STATION NO. 11117
7210 BANCROFT AVENUE
OAKLAND, CALIFORNIA

Updated 11/09/2011

Boring/Well ID	Well/Boring Completion Date	TOC Elevation ¹ (ft)	Borehole Depth (ft bgs)	Borehole Diameter (in)	Well Depth (ft)	Well Casing Diameter (in)	Well Casing Material	Well Screen Slot Size (in)	Well Screen Interval (ft bgs)	Cement Grout Seal Interval (ft bgs)	Bentonite Seal Interval (ft bgs)	Filter Pack Interval (ft bgs)	Comments
Soil Borings													
B-5	Jul-92	NA	50.0	8.0	NA	NA	NA	NA	NA to NA	0.0 to 50.0	NA to NA	NA to NA	
THP-1	Sep-94	NA	45.0	1.75	NA	NA	NA	NA	NA to NA	0.0 to 45.0	NA to NA	NA to NA	
TB-2	Sep-94	NA	45.0	1.75	NA	NA	NA	NA	NA to NA	0.0 to 45.0	NA to NA	NA to NA	
TB-3	Sep-94	NA	45.0	1.75	NA	NA	NA	NA	NA to NA	0.0 to 45.0	NA to NA	NA to NA	
TB-4	Sep-94	NA	45.0	1.75	NA	NA	NA	NA	NA to NA	0.0 to 45.0	NA to NA	NA to NA	
A-1	Sep-05	NA	46.5	4.25	NA	NA	NA	NA	NA to NA	0.0 to 46.5	NA to NA	NA to NA	
A-2	Sep-05	NA	42.0	2.0	NA	NA	NA	NA	NA to NA	0.0 to 42.0	NA to NA	NA to NA	
A-3	Nov-05	NA	36.0	2.0	NA	NA	NA	NA	NA to NA	0.0 to 36.0	NA to NA	NA to NA	
A-4	Nov-05	NA	36.0	2.0	NA	NA	NA	NA	NA to NA	0.0 to 36.0	NA to NA	NA to NA	
A-5	Nov-05	NA	36.0	2.0	NA	NA	NA	NA	NA to NA	0.0 to 36.0	NA to NA	NA to NA	
A-7	Nov-05	NA	36.5	4.25	NA	NA	NA	NA	NA to NA	0.0 to 36.5	NA to NA	NA to NA	
A-8	Nov-05	NA	36.5	4.25	NA	NA	NA	NA	NA to NA	0.0 to 36.5	NA to NA	NA to NA	
A-9	Nov-05	NA	36.5	4.25	NA	NA	NA	NA	NA to NA	0.0 to 36.5	NA to NA	NA to NA	
A-10	Nov-05	NA	39.0	4.25	NA	NA	NA	NA	NA to NA	0.0 to 39.0	NA to NA	NA to NA	
CPT-1	Apr-07	NA	60.0	1.75	NA	NA	NA	NA	NA to NA	0.0 to 60.0	NA to NA	NA to NA	
CPT-2	Apr-07	NA	60.0	1.75	NA	NA	NA	NA	NA to NA	0.0 to 60.0	NA to NA	NA to NA	
CPT-3	Apr-07	NA	60.0	1.75	NA	NA	NA	NA	NA to NA	0.0 to 60.0	NA to NA	NA to NA	
C-1	Oct-11	NA	35.0	3.25	NA	NA	NA	NA	NA to NA	0.0 to 35.0	NA to NA	NA to NA	
C-2	Oct-11	NA	35.0	3.25	NA	NA	NA	NA	NA to NA	0.0 to 35.0	NA to NA	NA to NA	
C-3	Oct-11	NA	35.0	3.25	NA	NA	NA	NA	NA to NA	0.0 to 35.0	NA to NA	NA to NA	
C-4	Oct-11	NA	35.0	3.25	NA	NA	NA	NA	NA to NA	0.0 to 35.0	NA to NA	NA to NA	
C-5	Oct-11	NA	35.0	3.25	NA	NA	NA	NA	NA to NA	0.0 to 35.0	NA to NA	NA to NA	
Groundwater Monitoring Wells													
MW-1	Dec-91	43.14	40	8	40	2	PVC	0.02	20.0 to 40.0	0.0 to 17.0	17.0 to 18.0	18.0 to 40.0	
MW-2	Dec-91	51.07	40	8	40	2	PVC	0.02	20.0 to 40.0	0.0 to 17.0	17.0 to 18.0	18.0 to 40.0	Well destroyed November 17, 2007
MW-3	Dec-89	43.27	45	8	45	2	PVC	0.02	30.0 to 45.0	0.0 to 3.0	3.0 to 25.0	25.0 to 45.0	
MW-4	Jul-92	43.64	40	8	40	2	PVC	0.02	20.0 to 40.0	0.0 to 17.0	17.0 to 18.0	18.0 to 40.0	
MW-6	Jul-92	43.64	40	8	40	2	PVC	0.02	20.0 to 40.0	0.0 to 17.0	17.0 to 18.0	18.0 to 40.0	
MW-7	Oct-94	44.21	45	8	45	2	PVC	0.02	25.0 to 45.0	0.0 to 21.0	21.0 to 23.0	23.0 to 45.0	
MW-8	Oct-94	44.18	40	8	40	2	PVC	0.02	25.0 to 40.0	0.0 to 21.0	21.0 to 23.0	23.0 to 40.0	
MW-9	Oct-94	44.35	40	8	40	2	PVC	0.02	25.0 to 40.0	0.0 to 21.0	21.0 to 23.0	23.0 to 40.0	
MW-10	Jul-97	46.17	37.5	8	35	2	PVC	0.02	15.0 to 35.0	0.0 to 13.0	13.0 to 14.0	14.0 to 37.5	
MW-11	Nov-07	43.34	40	10	40	4	PVC	0.02	15.0 to 40.0	0.0 to 10.0	10.0 to 13.0	13.0 to 40.0	Graphic log indicates TD = 35 ft bgs

**TABLE 1
SOIL BORING AND MONITORING WELL CONSTRUCTION DETAILS
76 (FORMER BP) SERVICE STATION NO. 11117
7210 BANCROFT AVENUE
OAKLAND, CALIFORNIA**

Updated 11/09/2011

Boring/Well ID	Well/Boring Completion Date	TOC Elevation ¹ (ft)	Borehole Depth (ft bgs)	Borehole Diameter (in)	Well Depth (ft)	Well Casing Diameter (in)	Well Casing Material	Well Screen Slot Size (in)	Well Screen Interval (ft bgs)	Cement Grout Seal Interval (ft bgs)	Bentonite Seal Interval (ft bgs)	Filter Pack Interval (ft bgs)	Comments
Remediation Wells													
EX-1	Nov-99	44.20	39.5	10	40	4	PVC	0.02	18.0 to 38.0	0.0 to 15.0	15.0 to 16.0	16.0 to 39.5	
EX-2	Nov-99	45.33	36.5	10	40	4	PVC	0.02	15.0 to 35.0	0.0 to 13.0	13.0 to 13.0	13.0 to 36.5	
DPE-1	Nov-07	44.28	40	10	38	4	PVC	0.02	15.0 to 40.0	0.0 to 10.0	10.0 to 13.0	13.0 to 40.0	
DPE-2	Nov-07	43.03	40	10	40	4	PVC	0.02	15.0 to 40.0	0.0 to 10.0	10.0 to 13.0	13.0 to 40.0	
DPE-3	Nov-07	43.27	40	10	40	4	PVC	0.02	13.0 to 38.0	0.0 to 8.0	8.0 to 11.0	11.0 to 40.0	
DPE-4	Nov-07	44.08	45	10	38	4	PVC	0.01	15.0 to 40.0	0.0 to 10.0	10.0 to 13.0	13.0 to 45.0	Installed in same borehole as destroyed well MW-2
DPE-5	Nov-07	44.60	40	10	35	4	PVC	0.01	15.0 to 40.0	0.0 to 10.0	10.0 to 13.0	13.0 to 40.0	Log indicates Screen Interval at 15-38 ft bgs
SVE-1	Oct-11	44.78	22	10	22	4	PVC	0.02	10.0 to 22.0	0.0 to 6.0	6.0 to 8.0	8.0 to 22.0	
AS-1	Oct-11	44.64	35	3.25	35	0.25/2.0	Teflon/SS	NA	33.5 to 34.0	0.0 to 31.5	31.5 to 32.5	32.5 to 35.0	

Notes:

- ft = feet
- in = inches
- TOC = Top of Casing
- bgs = below ground surface
- NA = not applicable
- PVC = polyvinyl chloride
- SS = stainless steel
- B and C = soil boring
- A = hydropunch boring
- CPT = cone penetrometer boring
- MW = monitoring well
- EX = extraction well
- DPE = extraction well
- AS=air sparge well
- SVE=soil vapor extraction well

¹ = TOC Elevations were surveyed to a local datum on the following dates:

MW-2 -- January 1, 1992 by HETI

MW-1, MW-3 through MW-11, EX-1, EX-2, DPE-1 through DPE-5, AS-1, and SVE-1 -- October 24, 2011 by Mid Coast Engineers

TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
76 (FORMER BP) SERVICE STATION NO. 2611117
7210 BANCROFT AVE
OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA														
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	DRO (ug/L)	GRO (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)	
DPE-1	12/14/2007	38.95	21.62	NP	17.33	--	360	24	<0.5	3.4	<0.5	--	<0.5	3.4	<0.5	1300	<300	<0.5	<0.5	
	2/12/2008	38.95	16.13	NP	22.82	--	4700	2000	310	130	360	--	<10	<10	<10	3900	<2000	<10	<10	
	5/22/2008	38.95	18.03	NP	20.92	--	16000	3900	94	510	1700	--	<40	<40	<40	4400	<24000	<40	<40	
	8/25/2008	38.95	20.95	NP	18.00	--	1300	250	<20	<20	<20	--	<20	<20	<20	4000	<12000	<20	<20	
	12/17/2008	38.95	22.33	NP	16.62	--	480	<5	<5	<5	<5	--	<5	<5	<5	1200	<3000	<5	<5	
	2/25/2009	38.95	18.15	NP	20.80	--	1100	170	<10	<10	<10	<10	--	--	--	--	--	--	--	--
DPE-2	8/15/2011	38.95	16.46	NP	22.49	--	571	16.4	5.4	6.3	12.0	1.1	<0.50	<0.50	<0.50	140	<250	<1.0	<1.0	
	12/14/2007	37.64	20.09	NP	17.55	--	2500	1.2	0.99	12	32	--	<0.5	<0.5	<0.5	<20	<300	<0.5	<0.5	
	2/12/2008	37.64	14.35	NP	23.29	--	1100	9.1	9.3	33	91	--	<0.5	<0.5	<0.5	<10	<100	<0.5	<0.5	
	5/22/2008	37.64	16.60	NP	21.04	--	1000	1.2	3.7	11	18	--	<0.5	<0.5	<0.5	<10	<300	<0.5	<0.5	
	8/25/2008	37.64	19.47	NP	18.17	--	780	0.52	<0.5	7.1	6.6	--	<0.5	<0.5	<0.5	<10	<300	<0.5	<0.5	
	12/17/2008	37.64	21.35	NP	16.29	--	21000	230	180	630	1900	--	<10	<10	<10	<200	<6000	<10	<10	
DPE-3	2/25/2009	37.64	16.60	NP	21.04	--	16000	170	180	580	1500	<10	--	--	--	--	--	--	--	
	8/15/2011	37.64	15.29	NP	22.35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/14/2007	37.82	20.45	NP	17.37	--	1300	1800	840	830	1200	--	<25	<25	<25	1700	<15000	<25	<25	
	2/12/2008	37.82	14.88	NP	22.94	--	50	31	55	140	300	--	<5	<5	<5	<100	<1000	<5	<5	
	5/22/2008	37.82	16.92	NP	20.90	--	800	950	160	890	330	--	<20	<20	<20	<400	<12000	<20	<20	
	8/25/2008	37.82	19.77	NP	18.05	--	3900	8.5	21	91	260	--	<2.5	<2.5	<2.5	<50	<1500	<2.5	<2.5	
DPE-4	12/17/2008	37.82	21.61	NP	16.21	--	24000	410	210	980	2900	--	<20	<20	<20	<400	<12000	<20	<20	
	2/25/2009	37.82	17.18	NP	20.64	--	4400	22	12	130	150	<2.5	--	--	--	--	--	--	--	
	8/15/2011	37.82	15.59	NP	22.23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/14/2007	38.46	21.00	NP	17.46	--	510000	12000	27000	4900	27000	--	<500	<500	<500	<20000	<300000	<500	<500	
	2/12/2008	38.46	15.43	NP	23.03	--	100000	6600	21000	3800	22000	--	<50	<50	55	<1000	<10000	<50	<50	
	5/22/2008	38.46	17.38	NP	21.08	--	130000	9700	26000	5000	28000	--	<400	<400	<400	<8000	<240000	<400	<400	
DPE-5	8/25/2008	38.46	20.36	NP	18.10	--	190000	9100	19000	4100	22000	--	<400	<400	<400	<8000	<240000	<400	<400	
	12/17/2008	38.46	21.89	NP	16.57	--	160000	10000	20000	4500	22000	--	<400	<400	<400	<8000	<240000	<400	<400	
	2/25/2009	38.46	17.59	NP	20.87	--	130000	9900	21000	4600	22000	4500	--	--	--	--	--	--	--	
	8/15/2011	38.46	16.15	NP	22.31	--	57600	5920	7240	3830	12100	5560	<0.50	12.2	132	6920	<250	<1.0	<1.0	
	12/14/2007	38.23	20.86	NP	17.37	--	300000	9200	4100	4600	20000	--	<500	<500	<500	<20000	<300000	<500	<500	
	2/12/2008	38.23	15.20	NP	23.03	--	63000	5600	2200	3400	12000	--	<50	<50	<50	2000	<10000	<50	<50	
EX-1	5/22/2008	38.23	17.37	NP	20.86	--	34000	6800	620	2600	6000	--	<200	<200	<200	4500	<120000	<200	<200	
	8/25/2008	38.23	21.80	NP	16.43	--	40000	5200	940	2100	5400	--	<100	<100	<100	5100	<60000	<100	<100	
	12/17/2008	38.23	21.96	NP	16.27	--	33000	4800	130	1700	2500	--	<100	<100	<100	6100	<60000	<100	<100	
	2/25/2009	38.23	17.47	NP	20.76	--	50000	6600	590	2300	6100	3100	--	--	--	--	--	--	--	
	8/15/2011	38.23	15.96	NP	22.27	--	15900	2420	127	1340	1650	773	<0.50	1.2	10.0	2510	<250	<1.0	<1.0	
	5/4/2004	NSVD	16.29	NP	NSVD	--	12000	2300	430	740	1100	--	<25	<25	38	<1000	<5000	<25	<25	
	8/31/2004	NSVD	19.39	NP	NSVD	--	13000	2500	95	650	1500	--	<50	<50	<50	<2000	<10000	<50	<50	
	11/23/2004	NSVD	17.90	NP	NSVD	--	13000	2700	94	460	1700	--	<25	<25	74	<1000	<5000	<25	<25	
	1/18/2005	NSVD	14.20	NP	NSVD	--	16000	2100	390	570	2500	--	<25	<25	54	<1000	<5000	<25	<25	
	6/29/2005	NSVD	14.22	NP	NSVD	--	6400	1100	52	280	790	--	<25	<25	30	<1000	<5000	<25	<25	
	9/1/2005	NSVD	17.22	NP	NSVD	--	7900	2000	94	400	870	--	<25	<25	46	<1000	<5000	<25	<25	
	11/3/2005	NSVD	19.92	NP	NSVD	--	22000	3200	640	550	3300	--	<25	<25	87	<1000	<5000	<25	<25	
	2/14/2006	NSVD	15.40	NP	NSVD	--	3500	<25	<25	<25	74	--	<25	<25	<25	<1000	<15000	<25	<25	
	5/30/2006	NSVD	13.43	NP	NSVD	--	8600	1400	120	490	1300	--	<25	<25	37	<1000	<15000	<25	<25	
8/29/2006	NSVD	17.74	NP	NSVD	--	22000	2900	210	1400	3600	--	<25	<25	56	<1000	<15000	<25	<25		
11/29/2006	NSVD	20.25	NP	NSVD	--	15000	4000	110	770	2700	--	<50	<50	75	<2000	<30000	<50	<50		
2/20/2007	NSVD	16.75	NP	NSVD	--	10000	2500	<50	550	1300	--	<50	<50	<50	<2000	<30000	<50	<50		
5/25/2007	NSVD	17.04	NP	NSVD	--	8600	2100	88	700	1400	--	<50	<50	<50	<2000	<30000	<50	<50		
8/9/2007	NSVD	19.76	NP	NSVD	--	4800	870	40	230	460	--	<10	<10	15	440	<6000	<10	<10		
11/9/2007	NSVD	21.57	NP	NSVD	--	5300	2700	29	220	200	--	<25	<25	<25	1900	<15000	<25	<25		
12/14/2007	38.98	21.60	NP	17.38	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
2/12/2008	38.98	15.92	NP	23.06	--	19000	2500	<50	360	860	320	<50	<50	<50	2200	<10000	<50	<50		

TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
76 (FORMER BP) SERVICE STATION NO. 2611117
7210 BANCROFT AVE
OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA													
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	DRO (ug/L)	GRO (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)
MW-2	8/31/2000	49.95	21.97	NP	27.98	--	200000	16000	26000	2500	16000	--	--	--	--	--	--	--	--
	12/11/2000	49.95	22.05	NP	27.90	--	130000	18600	30000	3250	20600	--	--	--	--	--	--	--	--
	3/20/2001	49.95	17.75	NP	32.20	--	140000	15900	24800	3700	22100	--	--	--	--	--	--	--	--
	6/19/2001	49.95	20.15	NP	29.80	--	130000	15100	19500	3300	21400	--	--	--	--	--	--	--	--
	9/20/2001	49.95	22.14	NP	27.81	--	110000	12400	12600	2230	13000	--	--	--	--	--	--	--	--
	12/27/2001	49.95	18.17	NP	31.78	--	150000	17500	26000	3050	19500	--	--	--	--	--	--	--	--
	2/28/2002	49.95	17.42	NP	32.53	--	120000	13900	18800	3030	19600	--	--	--	--	--	--	--	--
	6/28/2002	49.95	17.04	NP	32.91	--	3700	190	23.3	139	287	--	--	--	--	--	--	--	--
	9/12/2002	49.95	19.52	NP	30.43	--	100000	13000	22000	3600	20000	--	--	--	--	--	--	--	--
	12/12/2002	49.95	21.08	NP	28.87	--	120000	13000	21000	4400	25000	--	--	--	--	--	--	--	--
	3/10/2003	49.95	17.84	NP	32.11	--	100000	17000	21000	3400	20000	--	--	--	--	--	--	--	--
	5/12/2003	49.95	16.66	NP	33.29	--	150000	16000	24000	3500	22000	--	--	--	--	--	--	--	--
	8/27/2003	49.95	19.65	NP	30.30	--	120000	14000	12000	3900	20000	--	<120	<120	140	<5000	<25000	--	--
	11/10/2003	49.95	20.80	NP	29.15	--	97000	12000	9500	3600	15000	--	<250	<250	<250	<10000	<50000	--	--
	2/3/2004	49.95	16.82	NP	33.13	--	130000	14000	19000	3400	20000	--	--	--	--	--	--	--	--
	5/4/2004	49.95	16.19	NP	33.76	--	120000	12000	16000	3700	22000	--	<250	<250	<250	<10000	<50000	<250	<250
	8/31/2004	49.95	19.50	NP	30.45	--	99000	10000	13000	3700	18000	--	--	--	--	--	--	--	--
	11/23/2004	49.95	18.20	NP	31.75	--	110000	8200	17000	4000	23000	--	<250	<250	<250	<10000	<50000	<250	<250
	1/18/2005	49.95	14.91	NP	35.04	--	96000	6500	14000	3500	21000	--	<100	<100	<100	<4000	<20000	<100	<100
	6/29/2005	49.95	13.98	NP	35.97	--	54000	6200	4900	3300	12000	--	--	--	--	--	--	--	--
	9/1/2005	49.95	17.00	NP	32.95	--	58000	6300	6000	3300	15000	--	<100	<100	100	<4000	<20000	<100	<100
	11/3/2005	49.95	20.25	NP	29.70	--	63000	7400	3700	3300	10000	--	<100	<100	100	<4000	<20000	<100	<100
	2/14/2006	49.95	13.72	NP	36.23	--	97000	7500	11000	4300	16000	--	<100	<100	<100	<4000	<60000	<100	<100
	5/30/2006	49.95	13.50	NP	36.45	--	28000	5200	2500	1500	3300	--	<100	<100	<100	<4000	<60000	<100	<100
8/29/2006	49.95	18.16	NP	31.79	--	65000	7200	4500	3200	11000	--	<100	<100	100	<4000	<60000	<100	<100	
11/29/2006	49.95	20.06	NP	29.89	--	46000	8500	4600	3300	10000	--	<120	<120	120	<5000	<75000	<120	<120	
2/20/2007	49.95	16.43	NP	33.52	--	78000	9700	12000	4100	16000	--	<100	<100	<100	<4000	<60000	<100	<100	
5/25/2007	49.95	16.80	NP	33.15	--	62000	7400	9500	4100	15000	--	<200	<200	<200	<8000	<120000	<200	<200	
8/9/2007	49.95	19.55	NP	30.40	--	58000	7400	5000	3800	12000	--	<100	<100	<100	<4000	<60000	<100	<100	
11/9/2007	49.95	21.53	NP	28.42	--	49000	6300	3300	2900	8300	--	<100	<100	<100	<4000	<60000	<100	<100	
MW-3	1/5/1992	NSVD	33.69	NP	NSVD	4000	7400	790	23	210	40	--	--	--	--	--	--	--	
	1/10/1992	NSVD	33.74	NP	NSVD	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	6/5/1992	NSVD	29.65	NP	NSVD	--	0	130	5.3	93	20	--	--	--	--	--	--	--	
	7/24/1992	NSVD	30.14	NP	NSVD	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	7/27/1992	NSVD	30.14	NP	NSVD	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	9/15/1992	NSVD	31.07	NP	NSVD	<50	450	55	3.1	34	7.1	--	--	--	--	--	--	--	
	12/15/1992	NSVD	31.93	NP	NSVD	710	12000	940	<50	310	120	--	--	--	--	--	--	--	
	3/15/1993	NSVD	25.71	NP	NSVD	60	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	
	6/7/1993	NSVD	25.80	NP	NSVD	<50	150	3.6	<0.5	0.9	1.3	--	--	--	--	--	--	--	
	9/23/1993	NSVD	29.18	NP	NSVD	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	9/24/1993	NSVD	NG	NG	NG	<50	160	8.4	<0.5	3.7	1.3	--	--	--	--	--	--	--	
	12/27/1993	NSVD	29.25	NP	NSVD	--	9400	1100	48	530	120	--	--	--	--	--	--	--	
	4/5/1994	NSVD	26.84	NP	NSVD	--	7000	860	19	330	52	--	--	--	--	--	--	--	
	7/22/1994	NSVD	26.90	NP	NSVD	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	
	10/13/1994	NSVD	27.83	NP	NSVD	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	
	1/25/1995	51.40	21.65	NP	29.75	--	<50	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	
	4/19/1995	51.40	19.33	NP	32.07	--	2400	170	8	130	27	--	--	--	--	--	--	--	
7/5/1995	51.40	20.27	NP	31.13	--	<50	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--		
10/5/1995	51.40	23.73	NP	27.67	--	2300	210	3.1	10	5.1	--	--	--	--	--	--	--		
1/12/1996	51.40	24.84	NP	26.56	--	<50	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--		
4/22/1996	51.40	18.60	NP	32.80	--	<50	<0.5	<1	<1	<1	--	--	--	--	--	--	--		

TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
76 (FORMER BP) SERVICE STATION NO. 2611117
7210 BANCROFT AVE
OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA													
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	DRO (ug/L)	GRO (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)
MW-6	2/11/2008	51.05	15.08	NP	35.97	--	<50	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<10	<100	<0.5	<0.5
	5/22/2008	51.05	17.07	NP	33.98	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/25/2008	51.05	19.82	NP	31.23	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/17/2008	51.05	21.58	NP	29.47	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/25/2009	51.05	17.34	NP	33.71	--	120	<0.50	<0.50	<0.50	<0.50	13	--	--	--	--	--	--	--
	5/21/2009	51.05	16.85	NP	34.20	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	8/14/2009	51.05	20.03	NP	31.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	2/10/2010	51.05	15.31	NP	35.74	--	<50.0	<0.50	<0.50	<0.50	<1.5	<0.50	<0.50	<0.50	<0.50	<5.0	<250	<1.0	<1.0
	8/20/2010	51.05	16.60	NP	34.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	2/7/2011	51.05	14.86	NP	36.19	--	<50.0	<0.50	<0.50	<0.50	<1.5	<0.50	<0.50	<0.50	<0.50	<5.0	<250	<1.0	<1.0
8/15/2011	51.05	16.07	NP	34.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	1/25/1995	51.40	21.67	NP	29.73	--	<50	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--
	4/19/1995	51.40	25.27	NP	26.13	--	<50	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--
	7/5/1995	51.40	24.63	NP	26.77	--	<50	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--
	10/5/1995	51.40	28.21	NP	23.19	--	83	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--
	1/12/1996	51.40	29.29	NP	22.11	--	63	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--
	4/22/1996	51.40	23.11	NP	28.29	--	<50	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--
	7/2/1996	51.40	23.56	NP	27.84	--	<50	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--
	11/8/1996	51.40	20.06	NP	31.34	--	<50	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--
	1/3/1997	51.40	23.42	NP	27.98	--	<50	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--
	4/28/1997	51.40	24.12	NP	27.28	--	<50	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--
	7/1/1997	51.40	26.40	NP	25.00	--	<50	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--
	10/2/1997	51.40	28.14	NP	23.26	--	<50	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--
	1/9/1998	51.40	24.02	NP	27.38	--	<50	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--
	5/6/1998	51.40	21.00	NP	30.40	--	1900	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--
	7/21/1998	51.40	21.17	NP	30.23	--	50	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--
	12/30/1998	51.40	22.13	NP	29.27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/2/1999	51.40	22.08	NP	29.32	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/10/1999	51.40	18.58	NP	32.82	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/23/1999	51.40	24.29	NP	27.11	--	70	<1	<1	<1	<1	--	--	--	--	--	--	--	--
	12/23/1999	51.40	24.53	NP	26.87	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/27/2000	51.40	18.58	NP	32.82	--	910	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--
	5/22/2000	51.40	19.49	NP	31.91	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/31/2000	51.40	22.53	NP	28.87	--	440	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--
	12/11/2000	51.40	22.75	NP	28.65	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/20/2001	51.40	18.79	NP	32.61	--	1100	<0.5	<0.5	<0.5	<1.5	--	--	--	--	--	--	--	--
	6/19/2001	51.40	19.82	NP	31.58	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/20/2001	51.40	21.35	NP	30.05	--	1300	1.21	<0.5	<0.5	<1.5	--	--	--	--	--	--	--	--
	12/27/2001	51.40	20.36	NP	31.04	--	510	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--
	2/28/2002	51.40	21.86	NP	29.54	--	250	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--
	6/28/2002	51.40	22.64	NP	28.76	--	<50	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--
9/12/2002	51.40	23.51	NP	27.89	--	<50	<0.5	<0.5	<0.5	1	--	--	--	--	--	--	--	--	
12/12/2002	51.40	23.75	NP	27.65	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
3/10/2003	51.40	21.25	NP	30.15	--	61	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
5/12/2003	51.40	21.44	NP	29.96	--	<100	<1	<1	<1	<1	--	--	--	--	--	--	--	--	
8/27/2003	51.40	23.30	NP	28.10	--	120	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<20	<100	--	--	
11/10/2003	51.40	20.24	NP	31.16	--	230	<1	<1	<1	<1	--	<1	<1	<1	<40	<200	--	--	
2/3/2004	51.40	20.63	NP	30.77	--	<250	<2.5	<2.5	<2.5	<2.5	--	<2.5	<2.5	<2.5	<100	<500	<2.5	<2.5	
5/4/2004	51.40	21.89	NP	29.51	--	<250	<2.5	<2.5	<2.5	<2.5	--	<2.5	<2.5	<2.5	<100	<500	<2.5	<2.5	

TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
76 (FORMER BP) SERVICE STATION NO. 2611117
7210 BANCROFT AVE
OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA													
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	DRO (ug/L)	GRO (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)
MW-9	7/21/1998	51.05	18.46	NP	32.59	--	70	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--
	12/30/1998	51.05	NG	NG	NG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/2/1999	51.05	NG	NG	NG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/10/1999	51.05	NG	NG	NG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/23/1999	51.05	NG	NG	NG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/23/1999	51.05	NG	NG	NG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/27/2000	51.05	NG	NG	NG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/22/2000	51.05	NG	NG	NG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/31/2000	51.05	NG	NG	NG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/11/2000	51.05	NG	NG	NG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/20/2001	51.05	NG	NG	NG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/19/2001	51.05	NG	NG	NG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/20/2001	51.05	22.20	NP		28.85	--	6300	2.87	<0.5	<0.5	<1.5	--	--	--	--	--	--	--
	12/27/2001	51.05	18.92	NP		32.13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/28/2002	51.05	17.22	NP		33.83	--	19000	1560	61.3	84	111	--	--	--	--	--	--	--
	6/28/2002	51.05	18.20	NP		32.85	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/12/2002	51.05	19.92	NP		31.13	--	5100	570	180	<25	220	--	--	--	--	--	--	--
	12/12/2002	51.05	21.78	NP		29.27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/10/2003	51.05	18.25	NP		32.80	--	26000	2500	<100	<100	<100	--	--	--	--	--	--	--
	5/12/2003	51.05	16.29	NP		34.76	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/27/2003	51.05	19.69	NP		31.36	--	11000	830	<50	<50	<50	--	<50	<50	<50	<2000	<10000	--
	11/10/2003	51.05	19.97	NP		31.08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/3/2004	51.05	17.23	NP		33.82	--	6200	180	<50	<50	<50	--	<50	<50	<50	<2000	<10000	<50
	5/4/2004	51.05	17.17	NP		33.88	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/31/2004	51.05	19.71	NP		31.34	--	<2500	210	<25	<25	<25	--	<25	<25	<25	<1000	<5000	<25
	11/23/2004	51.05	18.58	NP		32.47	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/18/2005	51.05	14.98	NP		36.07	--	490	32	<2.5	<2.5	8.9	--	<2.5	<2.5	<2.5	150	<500	<2.5
	6/29/2005	51.05	14.74	NP		36.31	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/1/2005	51.05	17.42	NP		33.63	--	3500	1300	<25	<25	28	--	<25	<25	<25	2700	<5000	<25
	11/3/2005	51.05	19.90	NP		31.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/2006	51.05	12.95	NP		38.10	--	2700	<25	<25	<25	<25	--	<25	<25	<25	<1000	<15000	<25
	5/30/2006	51.05	13.76	NP		37.29	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/29/2006	51.05	17.86	NP		33.19	--	1200	580	<25	<25	<25	--	<25	<25	<25	2100	<15000	<25
	11/29/2006	51.05	20.25	NP		30.80	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/20/2007	51.05	16.91	NP		34.14	--	780	66	1.5	2	1.4	--	<1	<1	<1	380	<600	<1
	5/25/2007	51.05	17.28	NP		33.77	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
8/9/2007	51.05	19.71	NP		31.34	--	650	150	<0.5	<0.5	2	--	<0.5	<0.5	<0.5	790	<300	<0.5	
11/9/2007	51.05	21.62	NP		29.43	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
12/14/2007	38.63	21.66	NP		16.97	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
2/12/2008	38.63	16.30	NP		22.33	--	890	27	2.5	28	5.4	--	<0.5	<0.5	<0.5	37	<100	<0.5	
5/22/2008	38.63	18.10	NP		20.53	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
8/25/2008	38.63	20.93	NP		17.70	--	180	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	75	<300	<0.5	
12/17/2008	38.63	22.86	NP		15.77	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
2/25/2009	38.63	18.78	NP		19.85	--	600	11	0.86	1.1	2.2	<0.50	--	--	--	--	--	--	
5/21/2009	38.63	17.95	NP		20.68	--	--	--	--	--	--	--	--	--	--	--	--	--	
8/14/2009	38.63	20.81	NP		17.82	--	--	--	--	--	--	--	--	--	--	--	--	--	
2/10/2010	38.63	16.71	NP		21.92	--	<50.0	<0.50	<0.50	<0.50	<1.5	<0.50	<0.50	<0.50	<0.50	<5.0	<250	<1.0	
8/20/2010	38.63	17.22	NP		21.41	--	137	26.5	<0.50	<0.50	<1.5	0.91	<0.50	<0.50	<0.50	92.5	<250	<1.0	
2/7/2011	38.63	16.18	NP		22.45	--	78.5	1.6	<0.50	<0.50	<1.5	0.64	<0.50	<0.50	<0.50	27.6	<250	<1.0	

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76 (FORMER BP) SERVICE STATION NO. 2611117
7210 BANCROFT AVE
OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA														
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	DRO (ug/L)	GRO (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)	
MW-9	8/15/2011	38.63	VO	VO	VO	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-10	1/9/1998	51.07	20.97	NP	30.10	--	<50	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--	
	5/6/1998	51.07	18.07	NP	33.00	--	800	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--	
	7/21/1998	51.07	18.28	NP	32.79	--	80	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--	
	12/30/1998	51.07	22.22	NP	28.85	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	2/2/1999	51.07	21.83	NP	29.24	--	940	<10	<10	<10	<10	--	--	--	--	--	--	--	--	
	5/10/1999	51.07	17.99	NP	33.08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/23/1999	51.07	22.61	NP	28.46	--	<50	<1	<1	<1	1.4	--	--	--	--	--	--	--	--	
	12/23/1999	51.07	23.75	NP	27.32	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	3/27/2000	51.07	18.83	NP	32.24	--	1900	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
	5/22/2000	51.07	19.47	NP	31.60	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	8/31/2000	51.07	22.64	NP	28.43	--	1700	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
	12/11/2000	51.07	22.84	NP	28.23	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	3/20/2001	51.07	19.57	NP	31.50	--	16000	<0.5	<0.5	<0.5	<1.5	--	--	--	--	--	--	--	--	
	6/19/2001	51.07	20.63	NP	30.44	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	9/20/2001	51.07	23.07	NP	28.00	--	5800	<0.5	<0.5	<0.5	<1.5	--	--	--	--	--	--	--	--	
	12/27/2001	51.07	20.92	NP	30.15	--	6600	17.3	14.5	<12.5	<25	--	--	--	--	--	--	--	--	
	2/28/2002	51.07	18.52	NP	32.55	--	3600	10.8	<0.5	<0.5	<1	--	--	--	--	--	--	--	--	
	6/28/2002	51.07	18.41	NP	32.66	--	<50	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--	
	9/12/2002	51.07	20.57	NP	30.50	--	660	<5	<5	<5	<5	--	--	--	--	--	--	--	--	
	12/12/2002	51.07	22.80	NP	28.27	--	1400	<5	<5	<5	<5	--	--	--	--	--	--	--	--	
	3/10/2003	51.07	19.26	NP	31.81	--	1700	<5	<5	5.3	15	--	--	--	--	--	--	--	--	
	5/12/2003	51.07	17.90	NP	33.17	--	1500	<12	<12	<12	<12	--	--	--	--	--	--	--	--	
	8/27/2003	51.07	20.82	NP	30.25	--	4100	<25	<25	<25	<25	--	<25	<25	<25	<1000	<5000	--	--	
	11/10/2003	51.07	21.92	NP	29.15	--	<5000	<50	<50	<50	<50	--	<50	<50	<50	<2000	<10000	--	--	
	2/3/2004	51.07	18.52	NP	32.55	--	5100	<50	<50	<50	<50	--	<50	<50	<50	<2000	<10000	<50	<50	
	5/4/2004	51.07	17.63	NP	33.44	--	<2500	<25	<25	<25	<25	--	<25	<25	<25	<1000	<5000	<25	<25	
	8/31/2004	51.07	20.67	NP	30.40	--	<5000	<50	<50	<50	<50	--	<50	<50	<50	<2000	<10000	<50	<50	
	11/23/2004	51.07	19.79	NP	31.28	--	2600	<25	<25	<25	<25	--	<25	<25	<25	<1000	<5000	<25	<25	
	1/18/2005	51.07	16.13	NP	34.94	--	560	<5	<5	<5	<5	--	<5	<5	<5	<200	<1000	<5	<5	
	6/29/2005	51.07	15.56	NP	35.51	--	110	1.9	4.6	4.2	17	--	<0.5	<0.5	<0.5	<20	<100	<0.5	<0.5	
	9/1/2005	51.07	18.10	NP	32.97	--	<250	<2.5	<2.5	<2.5	<2.5	--	<2.5	<2.5	<2.5	<100	<500	<2.5	<2.5	
	11/3/2005	51.07	20.90	NP	30.17	--	800	<5	<5	<5	7	--	<5	<5	<5	<200	<1000	<5	<5	
	2/14/2006	51.07	15.58	NP	35.49	--	600	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	1.2	34	<300	<0.5	<0.5	
	5/30/2006	51.07	14.70	NP	36.37	--	95	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<20	<300	<0.5	<0.5	
	8/29/2006	51.07	18.69	NP	32.38	--	250	<5	<5	<5	<5	--	<5	<5	<5	<200	<3000	<5	<5	
	11/29/2006	51.07	21.35	NP	29.72	--	650	<5	<5	<5	<5	--	<5	<5	5.8	<200	<3000	<5	<5	
	2/20/2007	51.07	18.65	NP	32.42	--	720	<5	<5	<5	<5	--	<5	<5	<5	<200	<3000	<5	<5	
	5/25/2007	51.07	18.15	NP	32.92	--	130	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	0.69	<20	<300	<0.5	<0.5	
	8/9/2007	51.07	20.83	NP	30.24	--	970	<10	<10	<10	<10	--	<10	<10	<10	<400	<6000	<10	<10	
	11/9/2007	51.07	22.53	NP	28.54	--	1100	<10	<10	<10	13	--	<10	<10	<10	<400	<6000	<10	<10	
12/14/2007	40.45	22.62	NP	17.83	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
2/11/2008	40.45	17.86	NP	22.59	--	<50	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	2.6	<100	<0.5	<0.5		
5/22/2008	40.45	19.05	NP	21.40	--	81	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<10	<300	<0.5	<0.5		
8/25/2008	40.45	21.88	NP	18.57	--	<50	<0.5	1	<0.5	0.98	--	<0.5	<0.5	2.2	<10	<300	<0.5	<0.5		
12/17/2008	40.45	23.32	NP	17.13	--	<50	<20	<20	<20	<20	--	<20	<20	<20	<400	<12000	<20	<20		
2/25/2009	40.45	20.07	NP	20.38	--	84	<5.0	<5.0	<5.0	<5.0	290	--	--	--	--	--	--	--		
5/21/2009	40.45	18.80	NP	21.65	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	--	--	--	--	--		
8/14/2009	40.45	21.76	NP	18.69	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
2/10/2010	40.45	17.80	NP	22.65	--	<50.0	<0.50	<0.50	<0.50	<1.5	21.9	<0.50	<0.50	<0.50	<5.0	<250	<1.0	<1.0		
8/20/2010	40.45	18.64	NP	21.81	--	<50.0	<0.50	<0.50	<0.50	<1.5	<0.50	<0.50	<0.50	<0.50	<5.0	<250	<1.0	<1.0		
2/7/2011	40.45	17.02	NP	23.43	--	<50.0	<0.50	<0.50	<0.50	<1.5	0.53	<0.50	<0.50	<0.50	<5.0	<250	<1.0	<1.0		
8/15/2011	40.45	17.76	NP	22.69	--	<50.0	<0.50	<0.50	<0.50	<1.5	13.8	<0.50	<0.50	<0.50	13.1	<250	<1.0	<1.0		

TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
76 (FORMER BP) SERVICE STATION NO. 2611117
7210 BANCROFT AVE
OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA														
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	DRO (ug/L)	GRO (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)	
MW-11	12/14/2007	37.64	20.16	NP	17.48	--	8000	<10	72	230	760	--	<10	<10	<10	<400	<6000	<10	<10	
	2/12/2008	37.64	14.35	NP	23.29	--	5500	46	13	220	160	--	<2.5	<2.5	<2.5	<50	<500	<2.5	<2.5	
	5/22/2008	37.64	16.63	NP	21.01	--	5700	80	21	320	150	--	<5	<5	<5	<100	<3000	<5	<5	
	8/25/2008	37.64	19.48	NP	18.16	--	5300	<5	20	120	320	--	<5	<5	<5	<100	<3000	<5	<5	
	12/17/2008	37.64	21.26	NP	16.38	--	12000	2.4	2.6	30	54	--	<0.5	<0.5	<0.5	<10	<300	<0.5	<0.5	
	2/25/2009	37.64	16.38	NP	21.26	--	6800	0.86	20	150	390	<0.50	--	--	--	--	--	--	--	--
	5/21/2009	37.64	16.16	NP	21.48	--	2500	1.5	4.4	36	82	1.5	--	--	--	--	--	--	--	--
	8/14/2009	37.64	19.27	NP	18.37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	2/10/2010	37.64	13.35	NP	24.29	--	820	0.53	0.86	9.0	15.4	1.4	<0.50	<0.50	<0.50	6.1	<250	<1.0	<1.0	
	8/20/2010	37.64	15.66	NP	21.98	--	1740	0.52	1.4	16.5	26.1	1.2	<0.50	<0.50	<0.50	8.2	<250	<1.0	<1.0	
2/7/2011	37.64	13.55	NP	24.09	--	1530	<0.50	1.3	14.3	24.1	1.1	<0.50	<0.50	<0.50	<5.0	<250	<1.0	<1.0		
8/15/2011	37.64	14.58	NP	23.06	--	1530	<0.50	0.80	9.2	8.0	<0.50	<0.50	<0.50	<0.50	<5.0	<250	<1.0	<1.0		
QC-2	9/15/1992	NSVD	NG	NG	NG	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
	12/15/1992	NSVD	NG	NG	NG	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
	3/15/1993	NSVD	NG	NG	NG	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
	6/7/1993	NSVD	NG	NG	NG	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
	9/24/1993	NSVD	NG	NG	NG	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
	12/27/1993	NSVD	NG	NG	NG	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
	4/5/1994	NSVD	NG	NG	NG	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
	7/22/1994	NSVD	NG	NG	NG	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
	10/13/1994	NSVD	NG	NG	NG	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
	1/25/1995	NSVD	NG	NG	NG	--	<50	<0.5	2	0.6	1	--	--	--	--	--	--	--	--	
	4/19/1995	NSVD	NG	NG	NG	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
	7/5/1995	NSVD	NG	NG	NG	--	<50	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--	
	10/5/1995	NSVD	NG	NG	NG	--	<50	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--	
	1/12/1996	NSVD	NG	NG	NG	--	<50	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--	
	4/22/1996	NSVD	NG	NG	NG	--	<50	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--	
7/2/1996	NSVD	NG	NG	NG	--	<50	<0.5	<1	<1	<1	--	--	--	--	--	--	--	--		

Gauging Notes:
 TOC - Top of Casing
 ft - Feet
 NP - LNAPL not present
 LNAPL - Light non-aqueous phase liquid
 * - Corrected for LNAPL if present (assumes LNAPL specific gravity = 0.75)
 NG - Not gauged
 VO - Unable to Locate
 NSVD - Not surveyed
 -- - No information available

Analytical Notes:
 -- - No information available
 < - Not detected at or above indicated laboratory reporting limit
 NS - Well not sampled.
 ug/L - micrograms/liter
 DRO- diesel range organics
 GRO- gasoline range organics
 MTBE- Methyl tertiary-butyl ether
 TBA- Tertiary-butyl alcohol
 DIPE- Di-isopropyl ether
 ETBE- Ethyl tertiary-butyl ether
 TAME- Tertiary-amyl methyl ether

TABLE 2
 ADDITIONAL HISTORICAL GROUNDWATER ANALYTICAL DATA
 76 (FORMER BP) SERVICE STATION NO. 2611117
 7210 BANCROFT AVE
 OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER ANALYTICAL DATA																		
		Biochemical Oxygen Demand (ug/L)	Chemical Oxygen Demand (ug/L)	Chloride (ug/L)	Chromium (ug/L)	Chromium, Hexavalent (ug/L)	Iron SW6010 T (ug/L)	Iron, Ferric (ug/L)	Iron, Ferrous A3500D (ug/L)	Methane (ug/L)	Nitrate as N (ug/L)	Nitrite as N (ug/L)	Nitrogen (ug/L)	Nitrogen, Ammonia (ug/L)	Nitrogen, NO2 plus NO3 (ug/L)	Phosphate, Ortho (ug/L)	Phosphorous (ug/L)	Sulfate (ug/L)	Sulfide (ug/L)	Total Organic Carbon (ug/L)
DPE-1	8/15/2011	4560	27900	25200	0.66	<0.2	11100	9490	1600	1500	108	13.1	<1000	<100	121	219	236	14300	1040	3640
DPE-4	8/15/2011	55000	113000	26400	4	<0.2	10800	3230	7600	16100	<50.0	39.6	1770	<100	62.1	502	732	<1000	1080	14000
DPE-5	8/15/2011	21200	53900	32100	28	<0.2	20500	14000	6500	13900	<50.0	28.8	1320	<100	<50.0	240	134	<1000	1600	9360
EX-1	8/15/2011	8680	29800	19100	2.9	<0.2	1420	<100	1400	5040	52.9	<10.0	1120	185	59.7	148	107	3830	1080	11600
EX-2	8/15/2011	579000	7420	17100	2.2	<0.2	932	932	<100	208	12100	<10.0	<1000	<100	12100	162	106	17600	760	2010

Analytical Notes:

- - No information available
- < - Not detected at or above indicated laboratory reporting limit
- NS - Well not sampled.
- ug/L - micrograms/liter

*Remedial Investigation Work Plan Addendum
76 (Former BP) Service Station No. 11117
Oakland, California
Antea Group Project No. I42611117*



Appendix A

Previous Investigation and Site History Summary

SITE LOCATION AND BACKGROUND

The Site is an active 76-brand gasoline retail outlet located on the northern corner of Bancroft Avenue and 73rd Avenue at 7210 Bancroft Avenue in Oakland, Alameda County, California (**Figure 1**). The site consists of a service station building, three 12,000-gallon gasoline underground storage tanks (USTs), and one 10,000-gallon diesel UST with associated piping and dispensers. The site is covered with asphalt or concrete surfacing except for planters along the southeastern and southwestern property boundaries and at the north corner of the property.

Land use in the immediate vicinity of the site is mixed commercial and residential. BP acquired the facility from Mobil Oil Corporation in 1989. In January 1994, BP transferred the property to TOSCO Marketing Company (TOSCO) and has not operated the facility since that time.

SUMMARY OF PREVIOUS ENVIRONMENTAL INVESTIGATIONS

1984 UST Replacement: In 1984, the pre-existing USTs at the site were removed and three single-walled fiberglass gasoline underground storage tanks (USTs) (6,000-gallon, 10,000-gallon, and 12,000-gallon) and one 6,000-gallon diesel UST were installed in a cavity immediately to the northeast of the former USTs. A UST removal/installation report is not on file, and it is unknown if one was ever prepared. No documentation was reportedly found referencing the conditions of the removed USTs or reporting evidence of the hydrocarbon impacts in the soil and groundwater, if any, at the time of the UST removal.

1989 Phase II Environmental Audit: In December 1989, Hunter Environmental Services, Inc. (Hunter) performed a Phase II Environmental Audit on the adjacent Eastmont Town Center site located to the north and northwest of the former BP Site. Part of the Phase II study included the installation monitoring well MW-3 near the western boundary of the former BP Site. Soil samples collected from 10 and 20 feet below ground surface (bgs) from MW-3 were analyzed for total petroleum hydrocarbons (TPH), benzene, toluene, ethyl benzene, and total xylenes (BTEX), and oil and grease. No analytes were reported above their respective laboratory reporting limits (LRLs). A groundwater sample collected from MW-3 was reported to contain TPH and benzene at concentrations of 2,700 micrograms per liter ($\mu\text{g/L}$) and 530 $\mu\text{g/L}$, respectively (Hunter, 1989).

1991 Phase I Subsurface Investigation: In December 1991, Hydro Environmental Technologies, Inc. (Hydro) drilled two on-site soil borings (MW-1 and MW-2) to total depths of 40 feet bgs, and soil samples were collected at 10-foot intervals between 5 and 25 feet bgs. First groundwater was encountered at approximately 30 feet bgs. The analytical results of the soil samples from MW-1 and MW-2 reported total petroleum hydrocarbons as gasoline (TPH-g) and BTEX at concentrations below their respective LRLs (Hydro, 1991).

1992 Phase I Subsurface Investigation: In July 1992, Hydro advanced boring MW-4 and MW-6 to total depths of 40 feet bgs, and boring B-5 was advanced to 50 feet bgs, First groundwater was encountered at approximately 30 feet bgs in borings MW-4 and MW-6, and no free water was encountered in boring B-5. The analytical results of soil samples collected at 30 feet bgs from B-5 and MW-6 reported TPH-g and BTEX at concentrations below their respective LRLs. The maximum TPH-g and BTEX concentrations in soil reported in MW-4 were 6,000 milligrams per kilogram (mg/kg) and 34 mg/kg, respectively, from a depth of 20 feet bgs. Borings MW-4 and MW-6 were subsequently converted into monitoring wells (Hydro, 1992).

1994 Baseline Assessment Report: In September 1994, EMCON performed a Supplemental Site Assessment at the site. Four exploratory soil borings (THP-1, TB-2, TB-3, TB-4) were advanced to a maximum depth of 45 feet bgs north of the former and existing UST complexes (THP-1), at the former service bays (TB-2), north of the northern pump island (TB-3), and at a former pump island (TB-4). Additionally, one soil sample was collected from beneath each of the five dispensers (TD-1 through TD-5). Groundwater was encountered in TB-2 and TB-3 at approximately 33 to 36 feet bgs and groundwater samples were collected from TB-2 and TB-3 via temporarily well points. Maximum concentrations of 16 mg/kg TPH-g (TD-3), TPH as diesel (TPH-d) at concentrations ranging from 110 mg/kg to 5,000 mg/kg (TD-1 through TD-5), and benzene at concentrations below LRLs were reported in soil samples. TPHg was not reported above the LRLs and a maximum concentration of 0.7 µg/L benzene (TB-3) was reported in groundwater samples (EMCON, 1994).

1994 Well Installation: In October 1994, Hydro advanced boring MW-7 to a total depth of 45 feet bgs, and borings MW-8 and MW-9 were advanced to total depths of 40 feet bgs. First encountered groundwater was at approximately 27 feet bgs to 32 feet bgs. TPH-g and BTEX were not detected above their respective LRLs in soil samples collected from 25 feet bgs in each boring. The three borings were subsequently converted into monitoring wells MW-7 through MW-9 (Hydro, 1995).

1997 Offsite Well Installation: In July 1997, Pacific Environmental Group (PEG) drilled one boring (MW-10) offsite to a depth of approximately 37.5 feet bgs. Soil samples were collected and the boring was subsequently converted into a monitoring well. First groundwater was encountered at approximately 26 feet bgs. No TPH-g, BTEX or methyl tertiary butyl ether (MTBE) was detected in soil samples at concentrations above their respective LRLs in MW-10. TPH-g and BTEX were not detected in the groundwater sample from MW-10 at concentrations above their respective LRLs. However, MTBE was detected at concentration of 13 µg/L using EPA Method 8020 (PEG, 1997).

1998 UST and Associated Piping and Dispenser Removal: In August 1998, Environmental Resolutions, Inc. (ERI) removed the three gasoline USTs (6,000-gallon, 10,000-gallon, and 12,000-gallon), one 6,000-gallon diesel UST, and associated dispensers and piping from the site. There was no visible evidence of leakage from the USTs removed. A total of eight native soil samples were collected from beneath each end of the removed USTs (denoted as A through H on **Figure 2**) at depths of 14 to 16 feet bgs, and a total of 18 soil samples (denoted as I through Z on **Figure 2**) were collected from the former dispenser locations and from beneath the associated product lines at three feet bgs (ERI, 1998).

TPH-g was reported in five of the eight UST excavation samples at concentrations ranging from 3.7 mg/kg (S-15-T2S) to 5,300 mg/kg (S-15-T1S). TPH-d was detected at 630 mg/kg (S-15-T1N) and 800mg/kg (S-15 T1S) into two samples, benzene concentrations ranged between 0.40 mg/kg (S-15-T1N) to 0.95 mg/kg (S-16-T3N) in three samples, MTBE concentrations ranged between 0.028 mg/kg (S-14-T4S) to 5.3 mg/kg (S-16-T3N) in seven samples, and lead was not reported in the sample analyzed for lead. TPH-g was reported in nine of the eighteen dispenser and product line samples with concentrations ranging between 1.4 mg/kg (S-3-PL12) to 7,200 mg/kg (S-3-D4). TPH-d was detected between 4.8 mg/kg (S-3-PL12) to 190 mg/kg (S-3-PL11) in five samples, benzene was detected between 0.0089 mg/kg (S-3-PL12) to 22 mg/kg (S-3-D4) in three samples and MTBE was detected between 0.048 mg/kg (S-3-PL12) to 15 mg/kg (S-3-PL1) in ten samples (ERI, 1998).

During the 1998 UST replacement activities, approximately 389 tons of soil and backfill were transported off-site disposal. The existing 10,000-gallon diesel and three 12,000-gallon gasoline USTs were installed as replacements (ERI, 1998).

1999 Groundwater Recovery Test: In April 1999, Alisto Engineering Group (Alisto) conducted groundwater recovery tests on wells MW-1 through MW-4, MW-6, MW-7 and MW-10 to assess the spatial variation in hydraulic conductivity in the shallow water-bearing zone across the Site. Testing by the Bouwer-Rice method yielded hydraulic conductivities of 2.46×10^{-2} ft/min for MW-1, 2.42×10^{-4} ft/min for MW-2, 3.82×10^{-4} ft/min for MW-3, 5.75×10^{-4} ft/min for MW-4, 1.99×10^{-2} ft/min for MW-6, 1.09×10^{-4} ft/min for MW-7 and 8.78×10^{-5} ft/min for MW-10. The geometric mean of the hydraulic conductivity and flow velocity values were calculated to be 1.37×10^{-5} feet per second and 73.85 feet per year, respectively (Alisto, 1999).

1999 Extraction Well Installation: In November 1999, Cambria Environmental Technology, Inc. (Cambria) installed two 4-inch diameter wells (EX-1 and EX-2) on-site to facilitate potential remedial activities at the site. Well EX-1 was drilled to 39.5 feet bgs and EX-2 was drilled to 36.5 feet bgs. Groundwater was first encountered at 26 feet bgs. No TPH-G or BTEX, and relatively low MTBE concentrations (below 0.012 mg/kg) were reported in soil samples collected from EX-1 and EX-2 (Cambria, 2000).

2000 Interim Remedial Action and Recovery Testing: Between March 16 and April 30, 2000, Cambria conducted interim remedial activities at the site to evaluate the effectiveness of hydrocarbon and MTBE reduction using short-term groundwater extraction. During eight extraction events, approximately 10,900 gallons of groundwater was extracted from wells EX-1, EX-2 and MW-2. During the extraction events, stable to slightly decreasing hydrocarbon and MTBE concentration trends were reported in samples collected from wells MW-2 and EX-1, located immediately southwest of the existing USTs. Samples from well EX-2, located north of the existing USTs, exhibited lower hydrocarbon and MTBE concentrations than MW-2 and EX-1. In April 2000, during the batch extraction events, recovery tests were conducted on wells EX-1, EX-2 and MW-2. Based on the recovery test measurements, the calculated hydraulic conductivity values ranged from 1.85×10^{-4} ft/min to 8.33×10^{-4} ft/min with resulting flow velocities of 16 ft/year to 73 ft/year at well MW-2 (Cambria, 2000).

The calculated hydraulic conductivity values ranged from 2.02×10^{-5} ft/min to 3.85×10^{-5} ft/min for well EX-1 with resulting flow velocities of 1.8 to 3.4 Ft/yr. And a well EX-2, the calculated hydraulic conductivity values ranged from 3.04×10^{-4} ft/min to 2.13×10^{-3} ft/min for resulting flow velocities of 27 ft/year to 187 ft/year. The geometric mean of these values is a hydraulic conductivity of 3.0×10^{-4} ft/min and resulting flow velocity of 26 ft/year (Cambria, 2000).

2001 Dual-Phase Extraction Pilot Test: From October 29, through November 2, 2001, Cambria performed a dual phase soil vapor and groundwater extraction (DPE) pilot test on the monitoring wells with the highest historical hydrocarbon concentrations (i.e., MW-2 and MW-4) and the extraction wells (EX-1 and EX-2) at the site. The DPE test results indicated that the vacuum influence was limited to within 18 to 28 feet of the extraction well. Water levels typically decreased several feet in the extraction wells and had a varied response in the observation wells. Estimated vapor-phase removal rates were approximately 200-pounds of hydrocarbon per day in wells MW-4 and EX-1, and less than 5-pounds of hydrocarbon per day in wells MW-2 and EX-2 (Cambria 2002).

Soil vapor concentrations showed a decreasing trend in wells MW-4 and EX-1 during the short-term pilot tests. Grab water samples collected before and after the pilot tests remained the same order of magnitude. A total of 6,500 gallons of water was extracted during the DPE pilot test and appropriately disposed off-site. Overall, the test results indicated that DPE is a feasible remedial alternative for the site (Cambria, 2002). Alameda County Environmental Health (ACEH) approved Cambria's August 8, 2002, *Dual Phase Extraction Pilot Test Report* as a Corrective Action Plan (CAP).

2005 Soil and Water Investigation: In Fall 2005, URS completed nine Geoprobe soil borings with co-located Hydropunch borings. The first phase of work was on-site source area characterization: five boring locations (A-1 through A-5) were advanced in the vicinity of the possible hydrocarbons source areas such as locations of former and current USTs, products dispensers, and in the vicinity of MW-4 to adequately characterize the lateral and vertical extent of petroleum hydrocarbons in soils in the identified source areas. An off-site assessment was completed during the second phase of work (borings A-7 through A-10) to further define the downgradient, cross-gradient, and up-gradient extent of the groundwater plume (soil boring A-6 was unable to be advanced due to close proximity to electric lines and product piping). Maximum concentrations of gasoline range organics (GRO), benzene, and MTBE were detected in soil at concentrations of 490 mg/kg [A-4 (23.5-24')], 0.11 mg/kg [A-5 (35-35.5')], and 0.84 mg/kg [A-1 (46-46.5')], respectively. Maximum concentrations of GRO, benzene, and MTBE were detected in ground water at concentrations of 510,000 µg/L [A-2 (21.3')], 11,000 µg/L [A-4 (34-36')], and 39,000 µg/L [A-4 (34-36')], respectively (URS, 2005).

The cross-gradient and downgradient lateral extents of the dissolved hydrocarbon plume were characterized during the last investigation. However, the vertical extent of the dissolved-phase hydrocarbons on the southern portion of the site was not defined. Specifically, significantly elevated concentrations were detected in Hydropunch groundwater samples collected from the bottom depths of soil borings A-2, A-3 and A-4. The bottom Hydropunch sample from boring A-2 (40-42 ft bgs) contained concentrations of GRO, benzene, and MTBE at 36,000 µg/L, 1,800 µg/L, and 110 µg/L, respectively. The bottom Hydropunch sample from boring A-3 (34-36 ft bgs) contained concentrations of GRO, benzene, and MTBE at 12,000µg/L, 21µg/L, and 8.3µg/L respectively. The bottom Hydropunch sample from boring A-4 (34-36 ft bgs) contained GRO, benzene, and MTBE concentrations of 120,000µg/L, 11,000µg/L and 39,000 µg/L respectively (URS, 2005).

Therefore, the vertical extent of dissolved phase petroleum hydrocarbon contamination remains unknown in this southern area of the site (URS, 2005). A work plan for soil and water investigation to delineate the vertical extent of contamination in the southern portion of the site was submitted to ACEH in October 2006.

2007 Soil and Groundwater Investigation: In April 2007, Stratus Environmental, Inc. (Stratus) advanced cone penetrometer test (CPT) borings in three locations onsite (CPT-1 through CPT-3) to maximum depths of 60 feet bgs. CPT-1 was advanced southwest of the dispenser islands and southeast of monitoring well MW-1; CPT-2 was advanced south of the dispenser islands and southwest of monitoring well MW-4; CPT-3 was advanced in the eastern corner of the side as requested by the ACEH. An Ultraviolet Induced Fluorescence (UVIF) module was used at each CPT boring location, analyzing the vertical extent of petroleum hydrocarbons in addition to providing soil profiling data. Groundwater samples were collected from multiple depths at each boring locations; physical soil samples were not collected during this investigation.

- GRO was detected above laboratory reporting limits in five of the seven groundwater samples, ranging from 170 µg/L (CPT-3-28-32') to 170,000 µg/L (CPT-1-37-41').
- Benzene was detected above laboratory reporting limits in four of the seven groundwater samples, ranging from 0.51 µg/L (CPT-3-23-27') to 7,700 µg/L (CPT-2-37-41').
- Toluene was detected above laboratory reporting limits in three of the seven groundwater samples, ranging from 57 µg/L (CPT-1-30-34') to 670 µg/L (CPT-2-28-32').

- Ethylbenzene was detected above laboratory reporting limits in four of the seven groundwater samples, ranging from 530 µg/L (CPT-2-37-41') to 2,600 µg/L (CPT-1-37-41').
- Total xylenes were detected above laboratory reporting limits in four of the seven groundwater samples, ranging from 290 µg/L (CPT-2-37-41') to 9,600 µg/L (CPT-1-37-41').
- MTBE was detected above laboratory reporting limits in five of the seven groundwater samples, ranging from 4.4 µg/L (CPT-3-56-60') to 6,500 µg/L (CPT-2-37-41').
- TBA was detected above laboratory reporting limits in groundwater sample CPT-2-37-41' at 2,400 µg/L.

2007-2008 DPE System Installation: Construction of the DPE system was started by Broadbent & Associates, Inc (BAI) and Stratus in late 2007. The system consists of a thermal/catalytic oxidizer with a 25 horsepower liquid ring blower designed to extract water and vapor from six on-site extraction wells. Extracted vapor were to be treated by thermal/catalytic oxidation and discharged to the atmosphere under the oversight of the Bay Area Air Quality Management District. Extracted groundwater was to be treated by a sediment filter and three 1,000 pounds carbon vessels before being discharged into the City of Oakland sanitary sewer system. DPE wells DPE-1 through DPE-5 were installed at the site to total depths ranging from 35 feet to 40 feet bgs. Well MW-2 was overdrilled and destroyed to allow DPE-4 to be installed in the same borehole. The system is currently connected to six wells (DPE-1 through DPE-5 and EX-1) (BAI, 2008a).

As of the end of the fourth quarter 2008 the system had not been started. BAI and Stratus were still coordinating with Pacific Gas & Electric (PG&E) to install electrical service to the system. Natural gas was completed to the site and system in third quarter 2008 (BAI, 2008a).

During DPE construction activities, on-site groundwater monitoring well MW-11 was installed to a total depth of 40 feet bgs on the southern corner of the site. Soil samples collected at 20 feet and 30 feet bgs reported maximum concentrations of 1.9 mg/kg GRO and 0.0089 mg/kg benzene. MTBE was not reported above the LRL in either of the soil samples (BAI, 2008a).

2009-2011 DPE System Startup Efforts: In 2009, Antea Group (formerly Delta Consultants) began coordinating with the neighboring Eastmont Mall to allow trenching for the 3-phase power across the parking lot from behind the AutoZone. The total cost for installation efforts was estimated at approximately \$70,000, which did not include Antea Group's efforts for oversight or extensive negotiations of an access agreement with the mall's property management firm. Additionally, the cost of providing power from this distance would have been significantly increased due to line loss. Total utility cost to run the system was estimated at approximately \$4,000 a month. Additionally, groundwater discharge fees were estimated at approximately \$4,000 to \$5,000 a month.

Due to the significant cost associated with running power lines through the mall parking lot, Antea Group also explored the possibility of having 3-phase power being provided for a transformer near the neighboring Burger King restaurant. This transformer provided 208V/200A power, and the system would have needed modifications due to the 230A/240V design requirements. The total cost of the installation efforts was estimated at \$75,000. Additionally, the system would have still required an approximate \$9,000 to \$10,000 a month in utility and discharge costs.

Antea Group also explored another alternative for the startup of the DPE system, which included reconfiguring the current system for single phase power. Single phase power is available at an underutilized transformer south of the site

across 73rd Avenue. Trenching would be required to install single phase power across the street and then across the site to the compound. A digital three phase converter would be required to convert single phase power to three phase power. PG&E would require a complete engineering evaluation to determine if our equipment will meet their specifications for single phase power (ie digital phase converter). The total cost of single phase power conversion and installation was estimated to be in excess of \$110,000, and would have still required an approximate \$9,000 to \$10,000 a month in utility and discharge costs.

FREE PRODUCT RECOVERY DURING MONITORING AND SAMPLING EVENTS

Free product was observed in groundwater monitoring well MW-2 between the 1993 and 1998, at thicknesses ranging from 2.60 feet (3/30/1994) to less than 0.01 feet (10/2/1997 to 7/21/1998). When free product was observed in the well, it was removed by bailer. Between 1993 and 1998, a cumulative total of 24.90 gallons of free product had been removed from the well (Alisto, 1998).

Free product was also observed in well MW-4 during the third quarter 2001 (0.03 inches), fourth quarter 2006 (0.11 inches), first quarter 2008 (0.01 inches), and third quarter 2008 (0.05 inches); and in EX-2 during the second quarter 2007 (0.01 inch). With the exception of 1.5 gallons of a free product/water mixture recovered from MW-4 during the third quarter 2008 (BAI, 2008b), free product was not recovered from these wells when observed.

SENSITIVE RECEPTORS

2000 Potential Receptor Survey, Expanded Site Plan and Well Search: In October 2000, Alisto completed a potential receptor survey, prepared an expanded site plan with neighboring property parcel information and underground utilities mapped, and identified wells in the vicinity of the site. A review of the files of the California Department of Water Resources (DWR) was performed to identify all known wells within one-half mile radius of the site. The results of the well search revealed that there were 17 wells other than the on-site monitoring wells. Of these, 11 were offsite monitoring wells; four were cathodic protection wells, one an industrial well, and one irrigation well for a nearby cemetery. No domestic/municipal water supply wells were identified from review of the DWR files (Alisto, 2000).

2010 Sensitive Receptor Survey: Delta Consultants (Delta) submitted a *Sensitive Receptor Survey* in October 2010. As part of that receptor survey, Delta conducted a records review (environmental database search), a well radius search, and a search for other sensitive receptors which have the potential to be affected by the petroleum hydrocarbon release at the site. Delta's review of the historical aerial photographs indicated that the site in 1939 was primarily used for agricultural purposes with small family residences. In general, the site was developed to the current conditions with the station building in 1974. The historical topographic maps support the indication of residential houses and agriculture in the site region as early as 1915 to 1948. The well search indicated that 10 wells were within a one-mile radius of the site. DWR indicated the presence of 7 wells within a one-mile radius of the site. However, no records were found for the status of these wells as being active or abandoned. The main surface water bodies were Lake Merritt located northwest of the site and San Leandro Bay located west of the site. Several churches, schools and day care centers were located within a one-mile radius of the site. Based on the above identified receptors' distances from the site, directions from the site, and extent of hydrocarbon impact at the site, they were not anticipated to be affected by the petroleum hydrocarbon release at the site.

*Remedial Investigation Work Plan Addendum
76 (Former BP) Service Station No. 11117
Oakland, California
Antea Group Project No. I42611117*



Appendix B

Plume Stop Material Safety Data Sheets

MATERIAL SAFETY DATA SHEET
for
Plume Stop™ Part A (CCM Part A)

Last Revised: October 27, 2011

Section 1 - Material Identification

Supplier: Regenesys Bioremediation Products, Inc.
1011 Calle Sombra #100
San Clemente, CA 92673

Telephone: (949) 366-8000
Facsimile: (949) 366-8090

Trade Name: Plume Stop Part A

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Section 2 - Hazardous Ingredients
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Classification: None of the ingredients of this material meets the definition of "Dangerous" as defined in European Directives 67/548/EEC, 1999/45/EC, 2001/58/EC.

DOT Hazard Classification: Non-hazardous material

Slip Hazard: Slip hazard when spilled materials becomes wet.

Eyes: Gel may cause foreign body irritation in some individuals.

Skin: Prolonged contact with gel may cause drying or chapping.

Ingestion: Not toxic if swallowed (less than a mouthful) based on available information.

<u>CAS #</u>	<u>Chemical</u>
9000-07-1	food additives
7732-18-5	Water

Section 3 - Physical Data

Melting Point: N/A
Boiling Point: N/A
Physical State: Gel
Solubility in Water: Soluble.
Appearance: Beige Gelatinous Material
Odor: odorless
pH 6.0-8.0

Section 4 - Fire-Fighting Measures

General Advice: Treat as "Class A" fire. Product will burn when in contact with a flame. Self extinguishes when ignition source is removed. Tends to smoulder.

Suitable Extinguishing Media: Water. Dry Chemical. Carbon dioxide.

Hazardous Combustion Products: Carbon Monoxide
Carbon Dioxide

Specific Hazards: Do not breathe smoke, gases or vapors generated.

Special Protective Equipment for Firefighters: In the event of a fire, wear self-contained breathing apparatus.

NPPA: Health 1 Flammability 1 Instability 0
HMIS: Health 1 Flammability 1 Reactivity 0

Section 5 - First Aid Measures

General Advice: Remove material from eyes, skin and clothing. In case of doubt or when symptoms persist, seek medical attention. Wash heavily contaminated clothing before reuse.

Eye Contact: Hold eyelids apart and flush eyes with a steady, gentle stream of water for

several minutes. If eye irritation persists, seek medical attention.

Skin Contact: Wash off with soap and plenty of water.

Inhalation: Move to fresh air. If symptoms persist, call a physician. If not breathing, give artificial respiration.

Ingestion: No significant adverse health effects are expected to develop if only small amount (less than a mouthful) are swallowed.

Section 6 - Stability and Reactivity Data

Stability: Material is stable under certain conditions

Materials to Avoid: Strong oxidizing agents.

Hazardous Decomposition Products: Thermal decomposition products are carbon monoxide and carbon dioxide.

Section 7 - Spill, Leak or Accident Procedures

After Spillage or Leakage: Neutralization is not required. Sweep up dry or wet. For dry sweep beware of limitations on dust. Wet sweep is preferable. Collect in suitable containers. Wash remainder with copious quantities of water.

Disposal: Laws and regulations for disposal vary widely by locality. Observe all applicable regulations and laws. This material, may be disposed of in solid waste in a manner similar to other nuisance dust materials. Disposal in sanitary landfill is usual but local regulations should be checked and observed.

Extinguishing Media: Large quantities of water. In case of a fire in close proximity, all means of extinguishing are acceptable. Self contained breathing apparatus or approved gas mask should be worn due to small particle size. Use extinguishing media appropriate for surrounding fire. Apply cooling water to sides to transport or storage vessels that are exposed to flames until the fire is extinguished. Do not approach hot vessels that contain the product.

First Aid: After contact with skin, wash immediately with plenty of water and soap. In case of contact with eyes, rinse immediately with plenty of water and seek medical attention. Consult an ophthalmologist in all cases.

Section 8 - Special Protection or Handling

Storage: Store in a roofed and well ventilated area in the unopened original package.

Protective Gloves: Vinyl or Rubber
Eyes: Splash Goggles or Full Face Shield
Area should have approved means of washing eyes.

Ventilation: General exhaust.
Storage: Store in cool, dry, ventilated area.

Protect from incompatible materials.

Section 9- Toxicology

LD50 Oral: >5000 mg/kg rat

Carcinogenicity: Not listed as a carcinogen by NTP. Not regulated as a carcinogen by OSHA.

Reported Human Effects: No human toxicity studies have been carried out with this product. Due to the physical nature of this product, may cause eye, skin and respiratory irritation.

Reported Animal Effects: Eye irritation (rabbit) mild. Feeding studies of this or similar products indicate no evidence of risk at anticipated workplace exposure levels. Species tested: mice, rats and monkeys.

Mutagenicity/Genotoxicity: Not a mutagen in IN VITRO tests.

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Section 10- Ecological Information

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Ecotoxicity: Contains no substance known to be hazardous to the environment or not degradable in waste water treatment plants.

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Section 11-Regulatory Information

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Internation Inventories:

Components of the product are on the following Inventory Lists:

- *TSCA
- *Canada (DSL)
- *Europe (EINECS/ELINCS)
- *Australia (AICS)
- *Philippines (PICCS)
- *China

Section 12 - Other Information

Materials containing reactive chemicals should be used only by personnel with appropriate chemical training.

MATERIAL SAFETY DATA SHEET
For
Plume Stop™ Part B (CCM Part B)

Last Revised: October 27, 2011

SECTION 1-----Chemical Identification-----

Supplier: RegenesiS Bioremediation Products, Inc.
1011 Calle Sombra #100
San Clemente, CA 92673

Telephone: (949) 366-8000
Facsimile: (949) 366-8090

Trade Name: Plume Stop Part B

SECTION 2-----Composition on Ingredients-----

CAS #	Chemical
10035-04-8	Calcium Chloride
7732-18-5	Water

SECTION 3-----Hazards Identification-----

Label Precautionary Statements:
Harmful if swallowed.
Irritating to eyes, respiratory system and skin.
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Wear suitable protective clothing.

SECTION 4-----First-Aid Measures-----

In case of contact, immediately flush eyes or skin with copious amounts of water for at least 15 minutes while removing contaminated clothing and shoes.
If inhaled, remove to fresh air. If not breathing give artificail respiration. If breathing is difficult, give oxygen.
If swallowed, wash out mouth with water provided person is conscious.
Call physician.
Wash contaminated clothing before reuse.

SECTION 5-----Fire Fighting Measures-----

Extinguishing Media: Noncombustible. Use extinguishing media appropriate to surround fire conditions.

Special Firefighting Procedures

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Usual Fire and Explosions Hazards

Emits toxic fumes under fire conditions.

SECTION 6-----Accidental Release Measures-----

Evacuate area.

Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.

Keep in a closed container and hold for waste disposal.

Ventilate area and wash spill site after material pickup is complete.

SECTION 7-----Handling and Storage-----

Refer to section 8.

Additional Information:

Calcium chloride is attacked by bromine trifluoride.

SECTION 8-----Exposure Controls/Personal Protection----

Wear appropriate NIOSH/MSHA-approved respirator, chemical-resistant gloves, safety goggles, other protective clothing. Use only in a chemical fume hood.

Safety shower and eye bath.

Do not get into eyes, on skin, on clothing.

Avoid prolonged repeated exposure.

Wash thoroughly after handling.

Irritant

Keep tightly closed

Store in a cool dry place.

SECTION 9-----Physical and Chemical Properties-----

Appearance	Liquid
Odor	None
Density	1.30-1.40 g/ml

SECTION 10----Stability and Reactivity-----

Incompatibilities
Strong acids

Hazardous Combinations or Decomposition Products
Hydrogen chloride gas

SECTION 11-----Toxicological Information-----

Acute Effects

May be harmful by inhalation, ingestion, or skin absorption.
Causes eye and skin irritation.
Material is irritating to mucous membranes and upper respiratory tract.

To the best of our knowledge the chemical, physical and toxicological properties have not been thoroughly investigated.

For Pure Calcium Chloride Dihydrate (Solid)

Toxicity Data

IPR-MUS LD50: 20500 MG/KG CYLPDN 4,110,83

SECTION 12-----Disposal Considerations-----

Contact a licensed professional waste disposal service to dispose of this material.
Observe all federal, state and local environmental regulations.

SECTION 13-----Other Information-----

Materials containing reactive chemicals should be used only by personnel with appropriate chemical training.