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November 14, 2011

Ms. Barbara Jakub
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: **Work Plan – Additional Site Investigation**

Site: **76 Station No. 5191/5043**
449 Hegenberger Road
Oakland, California
Fuel Leak Case No. RO0000219

Dear Ms. Jakub;

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:

Liz Bermudez
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Sincerely,

PACIFIC CONVENIENCE & FUEL

Liz Bermudez

LIZ BERMUDEZ
Senior Paralegal

Attachment

Work Plan - Additional Site Investigation

76 Station No. 5191/5043
449 Hegenberger Road
Oakland, CA

Alameda County Health Care Services Agency
Fuel leak Case No. RO0000219
Regional Water Quality Control Board
San Francisco Bay No. 01-1601

GeoTracker Global ID No.T0600101476

Antea Group Project No. I42705191
November 14, 2011

Prepared for:
Ms. Barbara Jakub
Alameda County
Health Care Services Agency
1131 Harbor Bay Parkway,
Suite 250
Alameda, CA 94502-6577

Prepared by:
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1.0 INTRODUCTION

Antea Group (formally Delta Consultants) has prepared this work plan proposing the advancement of five test borings at the site located at 449 Hegenberger Road in Oakland, California. This work is proposed to help assess if in-situ chemical oxidation (ISCO) is a viable remediation option to address the impacted soil and groundwater beneath the site.

1.1 Site Description

The site is currently an operating 76 station located at 449 Hegenberger Road in Oakland, California (**Figure 1**). The site contains six fuel dispensers on two islands under a single canopy, three fuel underground storage tanks (USTs) on the north side of the site, a carwash facility on the west side of the site, and a station building in the central portion of the site. The current site features are shown on **Figure 2**. A summary of previous assessment and sensitive receptors are presented in **Appendix A**.

2.0 SITE GEOLOGY AND HYDROGEOLOGY

The site is underlain by Holocene-age bay mud. The bay mud typically consists of unconsolidated, saturated clay and sandy clay that is rich in organic material. The bay mud locally contains lenses and stringers of silt, well-sorted sand and gravel, and beds of peat.

The most recent monitoring and sampling event was conducted at the site on September 7, 2011. The measured depth to groundwater ranged from 1.56 feet to 5.74 feet below top of casing (TOC). The groundwater flow direction was southeast with a hydraulic gradient of 0.02 foot per foot.

3.0 BORING ADVANCEMENT ACTIVITIES

3.1 Permitting, Utility Notification, and Borehole Clearance

Before commencing field activities Antea Group will update the Health and Safety Plan in accordance with state and federal requirements for use during investigation activities. Antea Group will obtain drilling permits for the five (5) text borings from the Alameda County Public Works Agency (**Appendix A**). Prior to drilling, Underground Service Alert (USA) will be notified, as required by law, and a private utility locator will be employed to clear each boring location for underground utilities. In addition, an air-knife

will be used to clear each boring location to a depth of 5 feet bgs prior borehole advancement and well installation.

3.2 Test Boring Advancement

Antea Group will evaluate hydraulic behavior of the subsurface soils using a direct-push Hydraulic Profiling Tool (HPT). The HPT probe is pushed or hammered at a constant rate using a direct-push drill rig and clean water is injected 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. However, a relatively high pressure response indicates a relatively small grain size, which correlates with the low ability to transmit water. Simultaneously, soil conductivity data is collected for comparison with the HPT data. Upon completion of the hydraulic profiling test boring, data generated will include soil conductivity, flow, and pressure curves plotted with respect to depth. Five borings (Hydraulic Profiling Boring, HPB-1 through HPB-5) will be advanced to a maximum depth of 13 feet bgs between MW-14 and MW-17 to evaluate hydraulic subsurface conditions. Proposed boring locations are shown on **Figure 3**.

Subsequent to hydraulic testing, the borings will be backfilled to the surface with neat cement using a tremie pipe.

3.3 Disposal of Drill Cuttings and Wastewater

Air-knife cuttings and decontamination water generated during test boring advancement activities will be placed into properly labeled 55-gallon Department of Transportation (DOT) approved steel drums. Samples of the drill cuttings and purge water will be collected, properly labeled, placed on ice, and submitted to a California-certified laboratory for analysis of TPHg by the CA LUFT Method, BTEX and MTBE by Environmental Protection Agency (EPA) Method 8260, and total lead by EPA Method 6010. Chain-of-custody documentation will accompany the samples during transportation to the laboratory. Subsequent to receiving the laboratory analytical results, the drummed air-knife cuttings and decontamination wastewater will be profiled, transported, and disposed of at an approved facility.

4.0 REPORTING

Following completion of the field work and receipt of analytical results, a site investigation report will be prepared and submitted within 60 days. The report will present the details of the site investigation

activities, including copies of the drilling permits, details of disposal activities and copies of disposal documents (if available), and copies of laboratory reports. Required electronic submittals will be uploaded to the State Geotracker database.

Subsequent to this investigation Antea Group will prepare and submit a corrective action plan to address the soil and groundwater impact beneath the site.

5.0 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.

Prepared by:

Jonathan Fillingame Date: 11/14/11

Jonathan Fillingame
Staff Geologist

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.

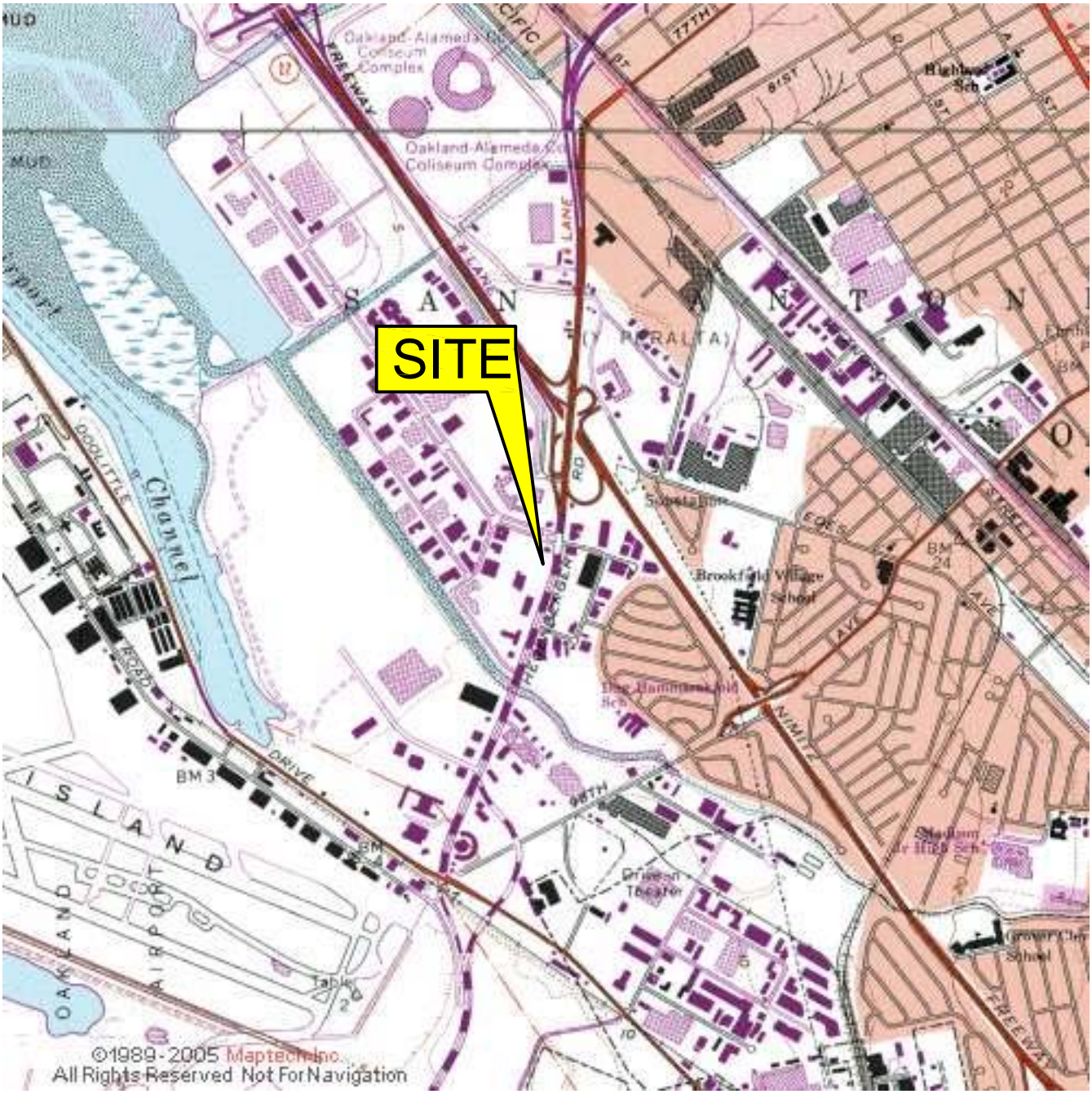
Licensed Approver:

PROFESSIONAL GEOLOGIST
DENNIS SHANNON DETTLOFF
No. 7480
STATE OF CALIFORNIA

Dennis S. Dettloff Date: 11/14/11

Dennis S. Dettloff, P.G.
Project Manager
California Registered Professional Geologist No. 7480

Figures



North

0 900 1800 FT

SCALE

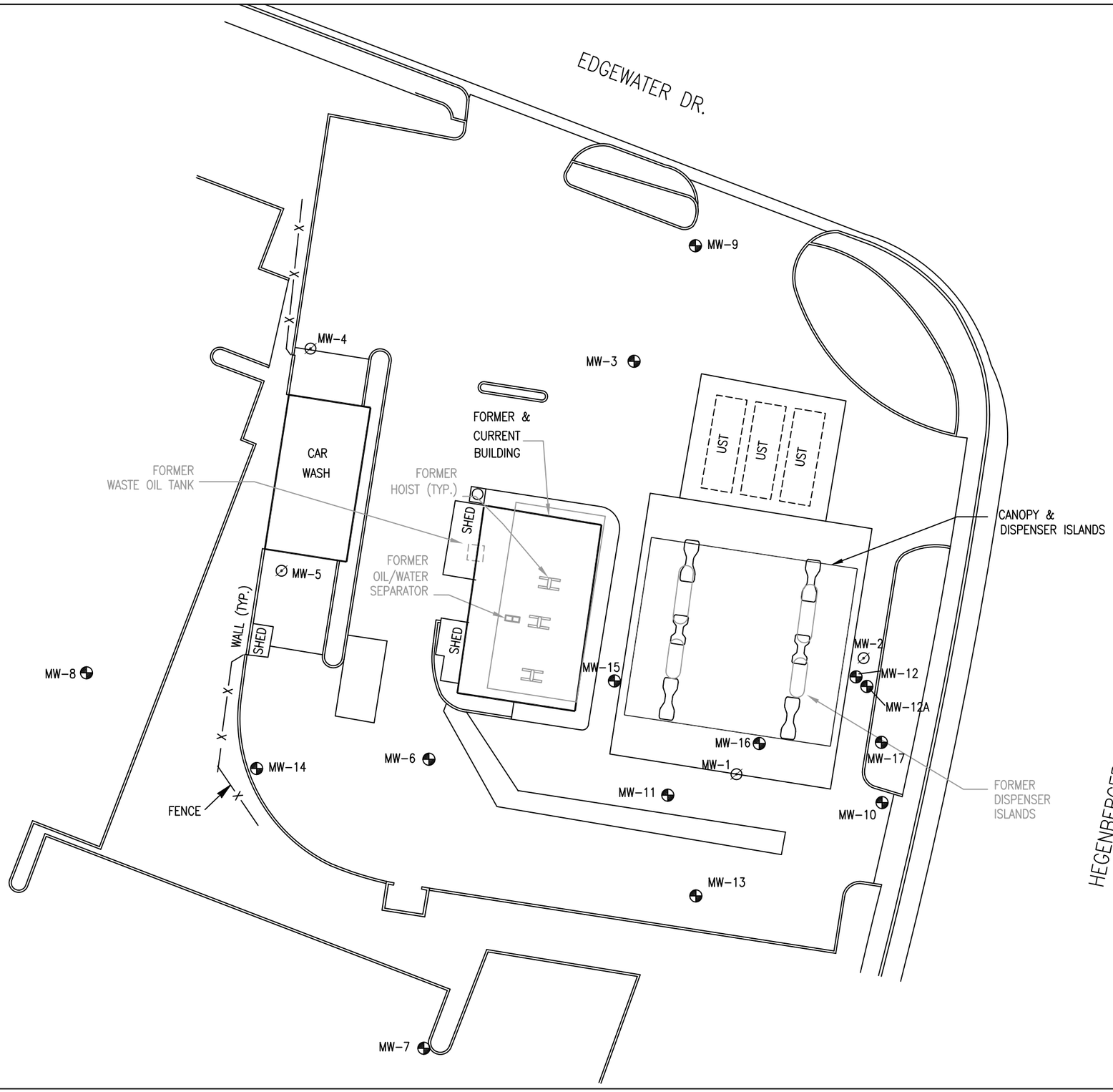
SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP, OAKLAND EAST QUADRANGLE (1973)

FIGURE 1
SITE LOCATION MAP

76 STATION NO. 5191/5043
449 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

PROJECT NO.	PREPARED BY	DRAWN BY
142705191	EW	DR/JH
DATE	REVIEWED BY	FILE NAME
1/31/11	DD	5043-SiteLocator

antea group



LEGEND

- MW- MONITORING WELL
- MW- ABANDONED MONITORING WELL

North

0 30

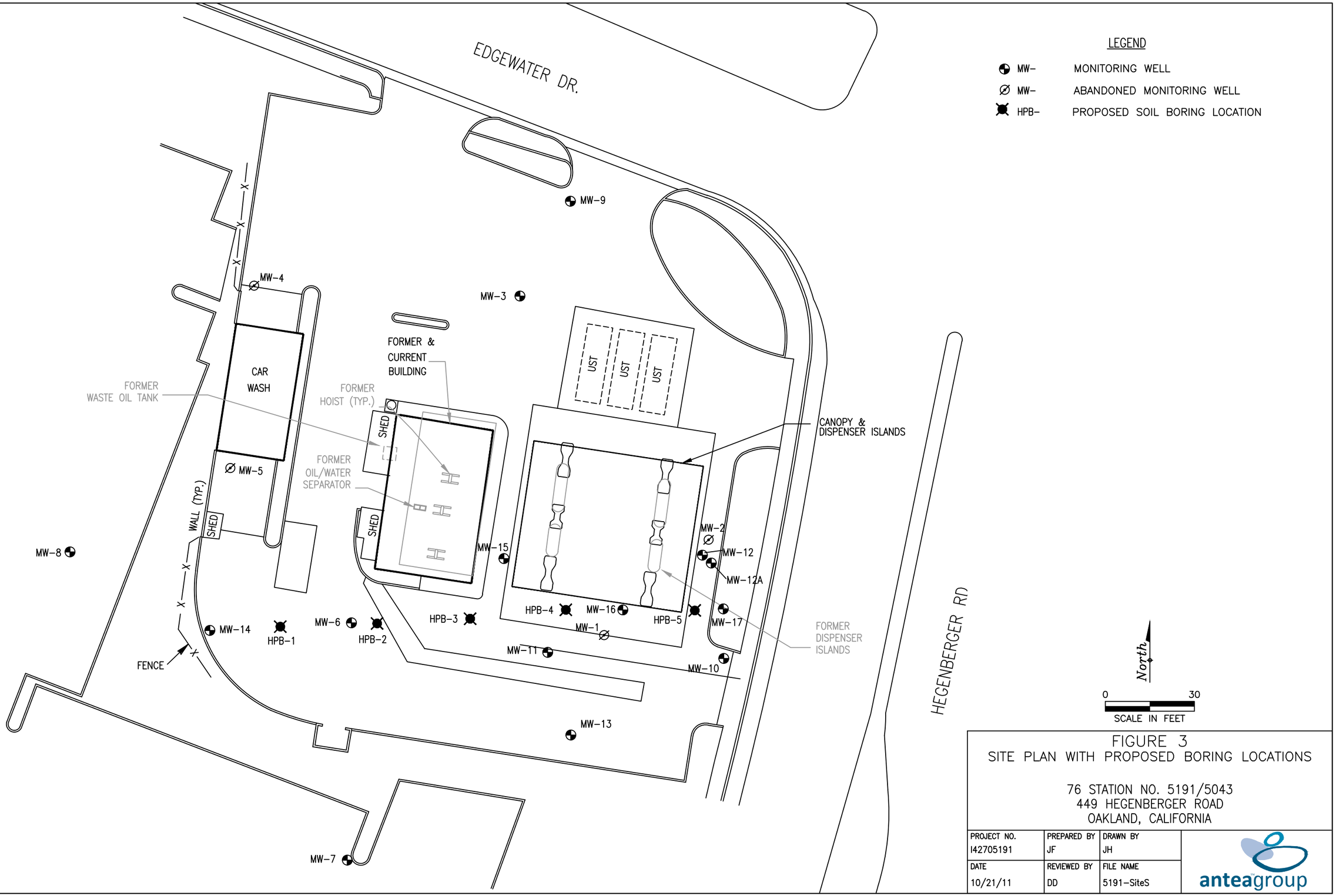
SCALE IN FEET

FIGURE 2
SITE PLAN

76 STATION NO. 5191/5043
449 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

PROJECT NO.	PREPARED BY	DRAWN BY
142705191	DD	JH
DATE	REVIEWED BY	FILE NAME
5/26/11	DD	5191-SiteS

antea group



LEGEND

- MW– MONITORING WELL
- MW– ABANDONED MONITORING WELL
- HPB– PROPOSED SOIL BORING LOCATION

FIGURE 3
SITE PLAN WITH PROPOSED BORING LOCATIONS

76 STATION NO. 5191/5043
449 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

PROJECT NO.	PREPARED BY	DRAWN BY
142705191	JF	JH
DATE	REVIEWED BY	FILE NAME
10/21/11	DD	5191-SiteS

antea group

Tables

TABLE 1

HISTORICAL SOIL ANALYTICAL RESULTS
76 Station No. 5191/5043
449 Hegenberger Raod, Oakland, California

Sample ID	Date	Sample Depth (feet)	TPHg (mg/kg)	TPHg* (mg/kg)	DRO (mg/kg)	DRO* (mg/Kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	TAME (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	Ethanol (mg/kg)	EDB (mg/kg)	1,2-DCA (mg/kg)	Lead (mg/kg)
P1	10/25/1991	3	**3,200**	NA	**420**	NA	**33**	**120**	**110**	**540**	NA	NA	NA	NA	NA	NA	NA	NA	NA
P2	10/25/1991	3	**9,000**	NA	**8,400**	NA	**46**	**120**	**330**	**1,500**	NA	NA	NA	NA	NA	NA	NA	NA	NA
P3	10/25/1991	3	**7,100**	NA	**1,100**	NA	**48**	**410**	**220**	**1,200**	NA	NA	NA	NA	NA	NA	NA	NA	NA
P4	10/25/1991	3	**370**	NA	**460**	NA	**7.4**	**39**	**12**	**77**	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW1(2.5)	2/5/1992	2.5	**14,000**	NA	**1,200**	NA	**160**	**680**	**470**	**2,400**	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW2(3.5)	2/5/1992	3.5	**9,000**	NA	**2,400**	NA	**74**	**440**	**280**	**1,400**	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW2(4.5)	2/5/1992	4.5	**31**	NA	**29**	NA	**2.4**	**0.14**	**3**	**9**	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW3(3)	2/5/1992	3	<1.0	NA	**49**	NA	<0.005	<0.005	<0.005	**0.011**	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW3(4.5)	2/5/1992	4.5	<1.0	NA	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW4(5)	8/21/1992	5	<1.0	NA	<1.0	NA	<0.005	<0.005	<0.005	**0.0066**	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW5(6)	8/21/1992	6	**340**	NA	**43**	NA	**1.1**	**1.2**	**7.8**	**13**	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW6(5)	8/21/1992	5	**3.7**	NA	**1.2**	NA	**0.9**	<0.005	**1**	**0.05**	NA	NA	NA	NA	NA	NA	NA	NA	NA
WO1	9/20/1994	9	<1.0	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	5.0
MW9(3)	1/25/1995	3	**1.7**	NA	**2.6**	NA	**0.016**	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW10(2.5)	1/25/1995	2.5	**44**	NA	**17**	NA	**2**	**1.5**	**2.3**	**5.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW1	3/10/1995	8	**11**	NA	NA	NA	**2.8**	<0.005	**1.6**	**0.067**	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW2	3/10/1995	8	**11**	NA	NA	NA	**3.8**	<0.005	**0.79**	**0.034**	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW2(4)	3/10/1995	4	**2,000**	NA	**140**	NA	<0.005	**53**	**42**	**240**	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW3	3/10/1995	8	**1**	NA	<1.0	NA	**0.009**	**0.006**	**0.007**	**0.014**	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW4	3/10/1995	8	<1.0	NA	**1.8**	NA	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW5	3/10/1995	8	<1.0	NA	**1.4**	NA	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW6	3/10/1995	8	<1.0	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW7	3/10/1995	8	<1.0	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW8	3/10/1995	8	**140**	NA	NA	NA	**2.6**	**5.3**	**2.7**	**12**	NA	NA	NA	NA	NA	NA	NA	NA	NA
D1	3/24/1995	3	**760**	NA	**46**	NA	**1.5**	**19**	**15**	**73**	NA	NA	NA	NA	NA	NA	NA	NA	NA
D2	3/24/1995	3	**1,200**	NA	**97**	NA	**1.6**	**16**	**22**	**110**	NA	NA	NA	NA	NA	NA	NA	NA	NA
B1	3/28/1995	6	<1.0	NA	<1.0	NA	**0.13**	**0.026**	**0.0088**	**0.059**	NA	NA	NA	NA	NA	NA	NA	NA	NA
B2	3/28/1995	6	**3.4**	NA	<1.0	NA	**2.8**	**0.041**	**0.19**	**0.28**	NA	NA	NA	NA	NA	NA	NA	NA	NA
B3	3/28/1995	6	<1.0	NA	<1.0	NA	<0.005	**0.01**	<0.005	**0.017**	NA	NA	NA	NA	NA	NA	NA	NA	NA
B4	3/28/1995	6	<1.0	NA	<1.0	NA	<0.005	**0.017**	<0.005	**0.032**	NA	NA	NA	NA	NA	NA	NA	NA	NA
BD1	3/28/1995	6	<1.0	NA	<1.0	NA	**0.21**	**0.011**	**0.018**	**0.038**	NA	NA	NA	NA	NA	NA	NA	NA	NA
BD2	3/28/1995	6	**12**	NA	**4.8**	NA	**2.6**	**0.68**	**0.56**	**1.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA
BD3	3/28/1995	6	<1.0	NA	<1.0	NA	**0.012**	**0.014**	**0.012**	**0.043**	NA	NA	NA	NA	NA	NA	NA	NA	NA
BD4	3/28/1995	6	<1.0	NA	<1.0	NA	<0.005	**0.011**	**0.0072**	**0.037**	NA	NA	NA	NA	NA	NA	NA	NA	NA
S1	3/28/1995	4	**110**	NA	<1.0	NA	**3.5**	**0.61**	**7**	**13**	NA	NA	NA	NA	NA	NA	NA	NA	NA
S2	3/28/1995	4	**1.4**	NA	**9.4**	NA	**0.028**	**0.012**	**0.015**	**0.019**	NA	NA	NA	NA	NA	NA	NA	NA	NA
S3	3/28/1995	4	**22**	NA	**2.9**	NA	**1.2**	**1.2**	**0.65**	**1.9**	NA	NA	NA	NA	NA	NA	NA	NA	NA
S4	3/28/1995	4	**150**	NA	**5.8**	NA	**6.8**	**5.6**	**5.3**	**27**	NA	NA	NA	NA	NA	NA	NA	NA	NA
RF1	3/31/1995	3	**2,000**	NA	**330**	NA	**8.8**	**68**	**55**	**280**	NA	NA	NA	NA	NA	NA	NA	NA	NA
RF2	3/31/1995	3	**3,300**	NA	**230**	NA	**18**	**160**	**110**	**550**	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW8(6)	4/3/1995	8	<1.0	NA	<1.0	NA	**0.0085**	<0.005	**0.0084**	**0.011**	NA	NA	NA	NA	NA	NA	NA	NA	NA
FB1	4/3/1995	4.5	**25**	NA	**8.6**	NA	**2.1**	**0.058**	**2.2**	**1.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA
FB2	4/3/1995	4.5	**7.1**	NA	**1.6**	NA	**0.4**	**0.018**	**0.81**	**1.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA
FB3	4/3/1995	4.5	**1.6**	NA	<1.0	NA	**0.028**	<0.005	**0.13**	**0.26**	NA	NA	NA	NA	NA	NA	NA	NA	NA
FB4	4/3/1995	4.5	**1.4**	NA	<1.0	NA	**0.23**	**0.022**	**0.05**	**0.15**	NA	NA	NA	NA	NA	NA	NA	NA	NA
FBSW1	4/3/1995	3	**7.4**	NA	**1.3**	NA	**0.066**	**0.021**	**1**	**<0.005**	NA	NA	NA	NA	NA	NA	NA	NA	NA
FBSW2	4/3/1995	3	**70**	NA	**7.6**	NA	**0.11**	**0.096**	**2.1**	**6.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA
FBSW3	4/3/1995	3	**2.3**	NA	**7.8**	NA	**0.012**	**0.01**	**0.018**	**0.012**	NA	NA	NA	NA	NA	NA	NA	NA	NA
FBSW4	4/3/1995	3	**9**	NA	**3.7**	NA	**0.25**	**0.036**	**0.93**	**0.062**	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW1SW1	4/5/1995	5	**25**	NA	**2.8**	NA	**2.1**	**0.025**	**2.4**	**0.19**	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW1SW2	4/5/1995	5	**4.2**	NA	**1.2**	NA	**0.17**	**0.01**	**0.68**	**0.048**	NA	NA	NA	NA	NA	NA	NA	NA	NA
WE1	4/5/1995	4.5	**26**	NA	**3.4**	NA	**0.31**	**0.3**	**0.59**	**2.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA
WE2	4/5/1995	4.5	**2.7**	NA	**5.1**	NA	**0.0054**	**0.0065**	**0.038**	**0.17**	NA	NA	NA	NA	NA	NA	NA	NA	NA
WE3	4/5/1995	4.5	**8.2**	NA	**1.6**	NA	**0.21**	**0.074**	**1.6**	**0.0076**	NA	NA	NA	NA	NA	NA	NA	NA	NA
FS-1	4/5/1995	4	**12**	NA	<1.0	NA	**0.28**	<0.005	**1.5**	**0.016**	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW8(6)	4/21/1997	6	**1.3**	NA	<1.0	NA	**0.0051**	<0.005	**0.015**	**0.041**	<0.005	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1

HISTORICAL SOIL ANALYTICAL RESULTS
76 Station No. 5191/5043
449 Hegenberger Raod, Oakland, California

Sample ID	Date	Sample Depth (feet)	TPHg (mg/kg)	TPHg* (mg/kg)	DRO (mg/kg)	DRO* (mg/Kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	TAME (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	Ethanol (mg/kg)	EDB (mg/kg)	1,2-DCA (mg/kg)	Lead (mg/kg)
Delta 2009																			
B-4@6	12/17/2009	6	**20.4**	NA	**11.4**	**10.1**	**0.046**	**0.18**	**1**	**4.2**	**0.061**	**0.091**	<0.0029	<0.0029	<0.0029	<0.0029	<0.0029	<0.0029	NA
B-4@15	12/17/2009	15	<4.9	NA	<5.8	<5.8	**0.0036**	**0.0069**	**0.011**	**0.049**	**0.0081**	**0.036**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	NA
B-4@20	12/17/2009	20	<4.9	NA	<5.6	<5.6	<0.003	<0.003	<0.003	<0.006	<0.003	<0.015	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	NA
B-5@8	12/17/2009	8	**1,060**	NA	**285**	**269**	**6.2**	**21.6**	**30.9**	**143**	<0.0029	**0.079**	**0.068**	<0.0029	<0.0029	<0.0029	<0.0029	<0.0029	NA
B-5@17.5	12/17/2009	17.5	**136**	NA	**27.8**	**26.9**	**0.55**	**1.4**	**2.7**	**15.8**	<0.003	**0.035**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	NA
B-5@26.5	12/17/2009	26.5	**1,570**	NA	**338**	**346**	**16.2**	**73.5**	**52.8**	**255**	**0.02**	**0.11**	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	NA
B-5@32	12/17/2009	32	<4.8	NA	<5.9	<5.9	**0.007**	**0.0087**	**0.0057**	**0.031**	<0.0029	<0.015	<0.0029	<0.0029	<0.0029	<0.0029	<0.0029	<0.0029	NA
Delta 2010																			
MW-11@10	6/22/2010	10	NA	<0.18	NA	**3.2**	<0.0022	<0.0022	<0.0022	<0.0066	**0.011**	<0.011	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	**6.1**
MW-11@20	6/22/2010	20	NA	<0.25	NA	**27.3**	<0.0027	<0.0027	<0.0027	<0.0081	<0.0027	<0.013	<0.0027	<0.0027	<0.0027	<0.0027	<0.0027	<0.0027	**3.4**
MW-12@8	6/22/2010	8	NA	**210**	NA	**45.7**	**5.2**	**9.1**	**6.7**	**33.3**	<0.0028	**0.021**	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	**8.6**
MW-12@10	6/22/2010	10	NA	**422**	NA	**73.6**	**4**	**3.5**	**11.0**	**31.4**	<0.0029	<0.015	**0.023**	<0.0029	<0.0029	<0.0029	<0.0029	<0.0029	**9.5**
MW-12@20	6/22/2010	20	NA	<0.24	NA	<2.0	**0.019**	<0.0028	<0.0028	<0.0085	<0.0028	<0.014	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	**6.6**
MW-12A@26	6/23/2010	26	NA	**6,840**	NA	**2,210**	**80.9**	**232**	**178**	**607**	<0.0027	<0.014	<0.0027	<0.0027	<0.0027	<0.0027	<0.0027	<0.0027	**13.1**
MW-12A@32	6/23/2010	32	NA	**943**	NA	**267**	**4.9**	**15.5**	**12.0**	**42.6**	**0.045**	**0.044**	**0.048**	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	**6.6**
MW-12A@34	6/23/2010	34	NA	<0.22	NA	<1.9	<0.0027	**0.0097**	**0.0074**	**0.033**	<0.0027	<0.013	<0.0027	<0.0027	<0.0027	<0.0027	<0.0027	<0.0027	**4.9**
MW-13@8	6/22/2010	8	NA	<0.21	NA	<2.0	<0.0026	<0.0026	<0.0026	<0.0077	**0.064**	<0.013	<0.0026	<0.0026	<0.0026	<0.0026	<0.0026	<0.0026	**3.6**
MW-13@15	6/22/2010	15	NA	<0.24	NA	<2.0	<0.0029	<0.0029	<0.0029	<0.0087	<0.0029	<0.014	<0.0029	<0.0029	<0.0029	<0.0029	<0.0029	<0.0029	**5.9**
Antea Group 2011																			
MW-14d7	5/17/2011	7	NA	<0.23	<2.0	<2.0	<0.0027	<0.0027	<0.0027	<0.0081	<0.0027	<0.014	<0.0027	<0.0027	<0.0027	<0.36	<0.0027	<0.0027	**6.6**
MW-14d10	5/17/2011	10	NA	**1,740**	**45.5 1n**	**45.9 1n**	**1.8**	**0.2**	**44**	**140**	<0.0026	<0.013	<0.0026	<0.0026	<0.0026	<0.34	<0.0026	<0.0026	**7**
MW-14d13	5/17/2011	13	NA	**1**	<2.0	<2.0	<0.0027	<0.0027	**0.037**	**0.066**	<0.0027	<0.014	<0.0027	<0.0027	<0.0027	<0.36	<0.0027	<0.0027	**6.6**
MW-15d8	5/17/2011	8	NA	**2.3**	**6.2**	**5.2**	**0.023**	<0.0038	**1.9**	**0.25**	**0.19**	**0.16**	<0.0038	<0.0038	<0.0038	<0.51	<0.0038	<0.0038	**7**
MW-15d13	5/17/2011	13	NA	<0.23	<1.9	<1.9	<0.0028	<0.0028	<0.0028	<0.0083	**0.015**	**0.022**	<0.0028	<0.0028	<0.0028	<0.37	<0.0028	<0.0028	**7**
MW-16d8	5/17/2011	8	NA	<0.23	<2.0	<2.0	<0.0027	<0.0027	<0.0027	<0.0081	**0.15**	**0.014**	<0.0027	<0.0027	<0.0027	<0.36	<0.0027	<0.0027	**5.7**
MW-16d13	5/17/2011	13	NA	<0.23	<2.0	<2.0	<0.0028	<0.0028	<0.0028	<0.0084	<0.0028	<0.014	<0.0028	<0.0028	<0.0028	<0.37	<0.0028	<0.0028	**5.5**
MW-17d9	5/18/2011	9	NA	**633**	**39.6 1n**	**36.7 1n**	**6**	**14.1**	**17.9**	**58**	<0.0026	**0.03**	<0.0026	<0.0026	<0.0026	<0.35	<0.0026	<0.0026	**16.3**
MW-17d13	5/18/2011	13	NA	**5.4**	**2.9 1n**	**2.5 1n**	**2.7**	**0.46**	**1.4**	**2.8**	<0.0027	**0.029**	<0.0027	<0.0027	<0.0027	<0.36	<0.0027	<0.0027	**6.4**
B-6d9	5/18/2011	9	NA	**2,490**	**72.0 1n**	**68.6 1n**	**26.4**	**73.9**	**58.1**	**230**	<0.0031	<0.015	<0.0031	<0.0031	<0.0031	<0.41	<0.0031	<0.0031	**10.1**
B-6d14	5/18/2011	14	NA	**194**	**258 1n**	**250 1n**	**3.6**	**5.1**	**5.1**	**22**	<0.0025	<0.013	<0.0025	<0.0025	<0.0025	<0.33	<0.0025	<0.0025	**9.2**
B-6d21	5/18/2011	21	NA	**7.2**	<2.0	<2.0	**0.67**	**0.86**	**0.25**	**0.94**	**0.036**	**0.014**	<0.0027	<0.0027	<0.0027	<0.37	<0.0027	<0.0027	**6.8**
B-6d26	5/18/2011	26	NA	**17**	**3.4 1n**	**2.9 1n**	**0.83**	**1.2**	**0.46**	**1.7**	**0.086**	**0.021**	<0.0026	<0.0026	<0.0026	<0.34	<0.0026	<0.0026	**6.6**

Notes:

TPHg = total petroleum hydrocarbons as gasoline by EPA Method 8015
TPHg* = total petroleum hydrocarbons as gasoline by CA LUFT
DRO = Diesel Range Organics by EPA Method 8015B
DRO* = Diesel Range Organics by EPA Method 8015 Silica Gel Treated
BTEX = benzene, toluene, ethylbenzene, total xylenes by EPA Method 8260B
MTBE = methyl tertiary-butyl ether by EPA Method 8260
TBA = tertiary-butyl alcohol by EPA Method 8260
TAME = tert-amyl methyl ether by EPA Method 8260
DIPE = Diisopropyl ether by EPA Method 8260
ETBE = Ethyl-tert-butyl-ether by EPA Method 8260
EDB = 1,2-Dibromoethane by EPA Method 8260
1,2-DCA = 1,2-Dichloroethane by EPA Method 8260

mg/kg = milligrams per kilogram
NA = not applicable
< = below the laboratory's indicated reporting limit

TABLE 2
CURRENT GROUNDWATER GAUGING AND ANALYTICAL DATA
76 Station No. 5191/5043
449 HEGENBERGER RD
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)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	TBA (ug/L)	Ethanol (ug/L)
MW-3	6/2/2011	10.81	2.43	NP	8.38	**155 1n**	**283**	**0.58**	**1.3**	<0.50	**2.2**	**42.1**	**55.7**	<250
MW-6	6/2/2011	11.55	2.76	NP	8.79	**33700 1n**	**56200**	**780**	**262**	**651**	**3890**	**6.7**	**81.0**	<250
MW-7	6/2/2011	11.64	3.90	NP	7.74	**63.0 1n**	<50.0	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0	<250
MW-8	6/2/2011	11.32	2.77	NP	8.55	**168 1n**	<50.0	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0	<250
MW-9	6/2/2011	10.94	2.24	NP	8.70	<50.0	<50.0	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0	<250
MW-10	6/2/2011	10.97	3.92	NP	7.05	<50.0	**58.7**	**4.8**	**4.2**	**0.96**	**5.1**	<0.50	<5.0	<250
MW-11	6/2/2011	10.53	1.75	NP	8.78	**69.0 1n**	<50.0	<0.50	**0.61**	<0.50	<1.5	**24.9**	**7.1**	<250
MW-12	6/2/2011	11.01	4.40	NP	6.61	**1330 1n**	**12200**	**688**	**70.5**	**225**	**619**	**824**	**110**	<250
MW-12A	6/2/2011	11.29	4.20	NP	7.09	<50.0	<50.0	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0	<250
MW-13	6/2/2011	11.08	3.98	NP	7.10	**89.9 1n**	**260 2n**	<0.50	<0.50	<0.50	<1.5	**228**	**44.7**	<250
MW-14	6/2/2011	12.00	3.58	NP	8.42	**4180 1n**	**51600**	**2750**	**67.9**	**1790**	**13400**	**1.9**	**27.2**	<250
MW-15	6/2/2011	11.11	2.50	NP	8.61	**124 1n**	**357**	<0.50	<0.50	<0.50	<1.5	**15.2**	**6.4**	<250
MW-16	6/2/2011	10.98	3.00	NP	7.98	**509 1n**	**1420 2n**	**79.4**	<0.50	**4.2**	<1.5	**1200**	**257**	<250
MW-17	6/2/2011	11.52	5.78	NP	5.74	**687 1n**	**9130**	**2530**	**960**	**35.1**	**907**	**0.74**	**366**	<250

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)
-- - No information available

Analytical Notes:
Bold - Above laboratory's indicated reporting limit
< = below the laboratory's indicated reporting limit
ug/L - micrograms/liter
DRO- diesel range organics
TPHg - Total petroleum hydrocarbons as gasoline
MTBE- Methyl tertiary-butyl ether
TBA- Tertiary-butyl alcohol
1n - The DRO result for this sample did not match the laboratory standard for diesel.
2n - The TPHg result for this sample did not match the laboratory standard for gasoline.
This is likely due to the presence of MTBE in the sample

Appendix A

Previous Investigation and Site History Summary

PREVIOUS INVESTIGATION AND SITE HISTORY SUMMARY

October 1991 - Four soil samples were collected from the product pipe trenches at depths of approximately 3 feet below ground surface (bgs) during a dispenser island modification. The product pipe trenches were subsequently excavated to the groundwater depth at 4 to 4.5 feet bgs.

February 1992 - Three monitoring wells, MW-1 through MW-3, were installed at the site to depths ranging from 13.5 to 15 feet bgs.

August 1992 - Three additional monitoring wells, MW-4 through MW-6, were installed at the site to a depth of 13.5 feet bgs.

September 1994 - One 280-gallon waste-oil UST was removed from the site. The UST was made of steel, and no apparent holes or cracks were observed in the UST. One soil sample was collected from beneath the former UST at a depth of approximately 9 feet bgs. No petroleum hydrocarbons were reported.

January 1995 - Two additional monitoring wells, MW-9 and MW-10, were installed to depths of 13 and 15 feet bgs. In addition, monitoring wells MW-4 and MW-5 were destroyed by over-drilling the wells and backfilling with neat cement.

March 1995 - Two 10,000-gallon gasoline USTs and one 10,000-gallon diesel UST were removed from the site. Groundwater was encountered in the tank cavity at a depth of approximately 8.5 feet bgs. Soil samples contained total petroleum hydrocarbons as diesel (TPHd) and benzene, and TPH as gasoline (TPHg). Approximately 125,000 gallons of groundwater were pumped from the site for remediation and properly disposed off-site. Four fuel dispenser islands and associated product piping were also removed. Based on the results of the confirmation samples, the product dispenser islands were over excavated to approximately 6 feet bgs.

March-April 1995 - During demolition activities of the former station building, soil samples were collected from two excavations, which were subsequently over excavated. Confirmation samples contained petroleum hydrocarbons. An additional area on the south side of the former station building was excavated based on photo-ionization detector (PID) readings. Two monitoring wells, MW-1 and MW-2, were destroyed in order to allow for over excavation activities to extend to an area adjacent to the dispenser islands in the southeastern quadrant of the site. The excavated areas were subsequently backfilled with clean-engineered fill.

April 1997 - Two additional monitoring wells, MW-7 and MW-8, were installed off-site to the south and east on the neighboring property to a depth of 13 feet bgs. In addition, monitoring well MW-3, which was damaged during site renovation activities, was fully drilled out and reconstructed in the same borehole.

October 2003 - Site environmental consulting responsibilities were transferred to TRC.

April 8-9, 2005 - TRC conducted a 24-hour dual phase extraction (DPE) test at the site using monitoring well MW-6. The 24-hour DPE test was only moderately successful at removing vapor-phase petroleum hydrocarbons from the subsurface; therefore, TRC recommended DPE no longer be considered a viable remedial alternative for the site.

October 2007 - Site environmental consulting responsibilities were transferred to Delta Consultants.

December 2009 - Delta advanced two borings, B-4 and B-5, to depths of 20 feet bgs and 32 feet bgs, respectively. Analytical results from the soil and groundwater samples collected from these two borings indicated that the soil and the groundwater were impacted by petroleum hydrocarbons at these locations.

June 2010 – Delta installed two 4-inch diameter monitoring/extraction wells, MW-11 and MW-12, and two 2-inch diameter monitoring wells, MW-12A and MW-13, at the site. Analytical results from the soil and groundwater samples collected from the MW-12 and MW-12A boring locations indicated that the soil and the groundwater were impacted by petroleum hydrocarbons at these locations.

May 2011 – Antea Group (formally Delta Consultants) installed four 2-inch diameter monitoring wells, MW-14 through MW-17, and advanced one soil boring, B-6, at the site. All four monitoring wells were installed with ten feet of screen from 3 feet bgs to 13 feet bgs. Analytical results of soil samples collected during the monitoring well installation reported TPHg concentrations ranging from 1.0 milligrams per kilogram (mg/kg) (MW-14d13) to 2,490 mg/kg (B-6d9), benzene concentrations ranging from 0.67 mg/kg (B-6d21) to 26.4 mg/kg (B-6d9), toluene concentrations ranging from 0.2 mg/kg (MW-14d10) to 73.9 mg/kg (B-6d9), ethylbenzene concentrations ranging from 0.037 mg/kg (MW-14d13) to 58.1 mg/kg (B-6d9), total xylenes concentrations ranging from 0.066 mg/kg (MW-14d13) to 230 mg/kg (B-6d9), methyl tertiary-butyl ether (MTBE) concentrations ranging from 0.015 mg/kg (MW-15d13) to 0.19 mg/kg (MW-15d8), tertiary-butyl alcohol (TBA) concentrations ranging from 0.014 mg/kg (MW-16d8 and B-6d21) to 0.16 mg/kg (MW-15d8), and lead concentrations ranging from 5.5 mg/kg (MW-16d13) to 16.3 mg/kg (MW-17d9). Diesel range organics (DRO) and DRO with silica gel concentrations were reported; however, all of the results did not match the laboratory standard for diesel. Concentrations of DRO ranged from 2.9 mg/kg (MW-17d13) to 258 mg/kg (B-6d14) and DRO with silica gel concentrations ranged from 2.5 mg/kg (MW-17d13) to 250 mg/kg (B-6d14).

SENSITIVE RECEPTORS

April 24, 2006, TRC completed a sensitive receptor survey for the site. According to the Department of Water Resources (DWR) records, three water supply wells are located within one-half mile of the site. The closest well is an irrigation well, reported to be, approximately 1,080 feet southeast of the site. In addition, two surface water bodies were observed within a one-half mile radius of the site. San Leandro Creek is located approximately 1,400

feet southwest of the site and flows into the San Leandro Bay. Elmhurst Creek is located approximately 2,220 feet north of the site and also flows into the San Leandro Bay.

Current Consultant: **Antea Group**