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February 10, 2015

RECEIVED
By Alameda County Environmental Health at 2:23 pm, Apr 14, 2015

Mr. Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: Former Signal Oil Marine Storage and Distribution Facility
(Former Chevron Bulk Plant 206127)
2301-2311 Blanding Avenue
Alameda, California
LOP Case RO0002466

Dear Mr. Wickham:

The purpose of this letter is to verify that as a representative for Chevron Environmental Management Company (Chevron), I reviewed, and concur with, the comments in the *Site Conceptual Model and Low Threat Closure Request* for the referenced facility, prepared on behalf of Chevron by Conestoga-Rovers & Associates. I declare under penalty of perjury that the foregoing is true and correct.

Please feel free to contact me at (714) 671-3207 if you have any questions.

Sincerely,

Mike Bauer
Project Manager

SITE CONCEPTUAL MODEL AND LOW-THREAT CLOSURE REQUEST

FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA
AGENCY CASE NO. RO0002466

Prepared For:

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SITE CONCEPTUAL MODEL AND LOW-THREAT CLOSURE REQUEST

FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA
AGENCY CASE NO. RO0002466

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TABLE OF CONTENTS

Page

1.0 INTRODUCTION 1

2.0 SITE CONCEPTUAL MODEL (SCM) 1
- 2.1 SITE DESCRIPTION AND VICINITY 1
- 2.2 REGIONAL SETTING 2
- 2.3 REGIONAL AND SITE GEOLOGY AND HYDROLOGY 2
- 2.4 RELEASE HISTORY 3
- 2.5 SUMMARY OF PREVIOUS INVESTIGATION AND REMEDIAL ACTIVITIES 3
- 2.5.1 AST, PRODUCT PIPING AND DISPENSER EXCAVATION HISTORY 3
- 2.5.2 SITE ASSESSMENT AND REMEDIATION HISTORY 3
- 2.6 OFFSITE SOURCES 10
- 2.7 SOURCE 10
- 2.8 MEDIA AND CONTAMINANTS OF CONCERN 10
- 2.8.1 SOIL 11
- 2.8.2 GROUNDWATER 11
- 2.8.3 SOIL VAPOR 12
- 2.9 PLUME DELINEATION AND STABILITY 13
- 2.10 PATHWAYS AND RECEPTORS 13
- 2.10.1 SURFACE WATER 13
- 2.10.2 WATER SUPPLY WELLS 13
- 2.10.3 POTENTIAL HUMAN RECEPTORS 14
- 2.10.4 SUMMARY OF POTENTIAL EXPOSURE PATHWAYS 15
- 2.11 DATA GAP ANALYSIS 15

3.0 REQUEST FOR LOW-THREAT CLOSURE 15
- 3.1 GENERAL CRITERIA 15
- 3.2 MEDIA-SPECIFIC CRITERIA 16
- 3.2.1 GROUNDWATER-SPECIFIC CRITERIA 17
- 3.2.2 VAPOR INTRUSION TO INDOOR AIR 17
- 3.2.3 DIRECT CONTACT AND OUTDOOR AIR EXPOSURE 18

4.0 RECOMMENDATIONS 19

LIST OF FIGURES
(Following Text)

FIGURE 1	VICINITY MAP
FIGURE 2	SITE PLAN
FIGURE 3	GEOLOGIC CROSS-SECTION A-A’
FIGURE 4	GEOLOGIC CROSS-SECTION B-B’
FIGURE 5	TPHD IN SOIL ABOVE ESL (0-15 FBG)
FIGURE 6	TPHG IN SOIL ABOVE ESL (0-15 FBG)
FIGURE 7	BENZENE IN SOIL ABOVE ESL (0-15 FBG)
FIGURE 8	TPHD IN GROUNDWATER
FIGURE 9	TPHG IN GROUNDWATER
FIGURE 10	BENZENE IN GROUNDWATER

LIST OF TABLES
(Following Text)

TABLE 1	HISTORICAL SOIL ANALYTICAL RESULTS
TABLE 2	HISTORICAL SOIL ANALYTICAL RESULTS (METALS)
TABLE 3	HISTORICAL GRAB-GROUNDWATER ANALYTICAL RESULTS
TABLE 4	HISTORICAL SOIL VAPOR ANALYTICAL RESULTS
TABLE 5	HISTORICAL INDOOR-OUTDOOR AIR ANALYTICAL RESULTS
TABLE 6	WELL CONSTRUCTION DETAILS

LIST OF APPENDICES

APPENDIX A	BORING LOGS
APPENDIX B	GROUNDWATER MONITORING AND SAMPLING DATA TABLES
APPENDIX C	MASS FLUX
APPENDIX D	DEGRADATION CALCULATIONS
APPENDIX E	SENSITIVE RECEPTOR SURVEY

1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) is submitting this *Site Conceptual Model and Low-Threat Closure Request* for former Signal Oil Marine Storage and Distribution facility (Chevron facility 206127) located at 2301-2311 Blanding Avenue in Alameda, California (site) on behalf of Chevron Environmental Management Company (Chevron). This report provides a Site Conceptual Model (SCM) summarizing current site conditions and compares these conditions to the low-threat closure criteria specified in the *Low-Threat Underground Storage Tank Case Closure Policy* (the "*Low-Threat Policy"*) adopted by the State Water Resources Control Board (SWRCB) May 1, 2012. Based on CRA's review of site conditions, the site meets the general and media-specific criteria for closure specified in the *Low-Threat Policy* and should be closed. A site conceptual model, evaluation of site conditions to the *Low-Threat Policy* case closure criteria, and recommendations are presented herein.

2.0 SITE CONCEPTUAL MODEL (SCM)

2.1 SITE DESCRIPTION AND VICINITY

The approximately 3.5-acre site is located on the northeast side of Blanding Avenue between Oak and Park Streets in Alameda, California (Figures 1 and 2). Land use in the site vicinity is primarily commercial and industrial. The Alameda Canal and a marina are located adjacent to the northeast side of the site. The site is currently occupied by three large commercial buildings, which are used for office, retail, and storage space, and identified as Park Street Landing at 2307-2337 Blanding Avenue.

A Sanborn map dated 1897 showed the site as occupied by several residential structures and outbuildings; the southeast portion of the site was shown as occupied by a laundry facility and a blacksmith. From at least 1930 until approximately 1961, the northwestern portion of the site was occupied by a petroleum bulk plant operated by Signal Oil & Gas Company. Former bulk plant facilities consisted of one large and seven smaller aboveground gasoline storage tanks (ASTs) within concrete secondary containment, underground piping, an office building, a loading rack, and a small structure containing gasoline pumps (Figure 2). The northeast portion of the facility was shown as occupied by a structure identified as an auto garage and also used for paint storage on Sanborn maps dated between 1932 and 1950. A rail spur was shown to service the facilities on Blanding Avenue. The central portion of the site was shown as occupied by two structures identified as wholesale tires and a can warehouse. An additional larger structure was shown in the central portion of the site that was identified as vacant on the 1948 Sanborn map and as a ladder factory on the 1950 Sanborn map. Several structures appeared to be present in the southeast portion of the site in the 1939 aerial photograph. However, only one or two small

sheds were shown in this area on the 1948 and 1950 Sanborn maps. In the 1958 aerial photograph, the ladder factory structure no longer appeared present and the southeast portion of the site appeared vacant and used for parking. Between 1957 and 1963, the buildings at the site were reportedly removed; it is assumed that the ASTs and piping were also removed at this time. In the 1965 aerial photograph, all the bulk plant facilities appear to have been removed and the majority of the site appears occupied by a construction materials yard with several small structures. Several additional structures also appear present in the southeast portion of the site. From 1973 to 1983, the northwestern portion of the site reportedly was used as a construction yard and for boat repair activities; and the southeastern portion was occupied by a restaurant, paved parking area, and a possible automobile sales lot. In 1987, the site was redeveloped with the current configuration.

2.2 REGIONAL SETTING

The site is located along the northeastern edge of Alameda adjacent to the Alameda Harbor Canal. The City of Alameda is an island surrounded by the San Francisco Bay to the south and the Alameda Harbor Canal to the north. The City of Oakland sits directly across from the Alameda Canal. The site is at an elevation of approximately 12 feet above mean sea level and is relatively flat.

2.3 REGIONAL AND SITE GEOLOGY AND HYDROLOGY

The area was originally marshlands which were filled in with a mixture of man-made refuse, sand dredged from San Francisco Bay, bay mud, and imported fill that ranges in thickness from 2 to 25 feet, underlain by fat clay (bay mud) that ranges in thicknesses from a few inches to 95 feet.[1] According to the East Bay Municipal Utility District (EBMUD), Alameda's drinking water begins at the Mokelumne River watershed in the Sierra Nevada and extends 90 miles to the East Bay.

Previous investigation indicates that subsurface soil beneath the site generally consists of silty sand and clayey sand from just beneath grade to approximately 5 to 9 feet below grade (fbg). Fill consisting of black sand and debris, including concrete fragments, has been reported in several borings at shallow depths. A 4- to 5-foot thick layer of clay with some sand underlies the silty sand and clayey sand. Below the clay is silty sand and sandy silt to the maximum depth explored of approximately 20.5 fbg. Groundwater is typically encountered in site borings at approximately 14.5 to 15 fbg within the silty sand and sandy silt, and subsequently rises in the

1 United States Geological Survey publication, 1959, *Areal and Engineering Geology of the Oakland West Quadrangle, California.*

borings/wells to approximately 7 to 10 fbg suggesting the groundwater beneath the site is semi-confined. Cross-sections depicting soil encountered beneath the site are presented as Figures 3 and 4. Boring logs are included in Appendix A.

Depth to groundwater on site typically ranges from approximately 3 to 10 fbg with flow predominately toward the northeast at a gradient ranging from 0.01 to 0.02. A rose diagram depicting groundwater flow direction is presented on Figure 2.

2.4 RELEASE HISTORY

No records of historical releases have been located for the site. Based on soil and groundwater data, the source area appears to be from the former ASTs and loading rack area. All facilities were removed between 1957 and 1965.

2.5 SUMMARY OF PREVIOUS INVESTIGATION AND REMEDIAL ACTIVITIES

Several environmental investigations have been performed at the site beginning in 1995. To date, 28 soil borings, 7 groundwater monitoring wells, 2 piezometers, 3 shallow soil sample locations, 6 soil vapor probes, and 7 sub-slab soil vapor wells have been completed at the site. Quarterly groundwater monitoring and sampling was conducted from 2001 until 2013 when the schedule was changed to semi-annual monitoring/sampling, which is ongoing. The approximate well and boring locations are shown on Figure 2. Historical soil, groundwater, soil vapor, and air analytical data are presented in Tables 1 through 5 and Appendix B. Well construction details are summarized in Table 6.

2.5.1 AST, PRODUCT PIPING AND DISPENSER EXCAVATION HISTORY

All facilities were removed between 1957 and 1965. No other information has been located regarding the details of the facility removal and the 1987 redevelopment activities.

2.5.2 SITE ASSESSMENT AND REMEDIATION HISTORY

In February 1995, Geomatrix Consultants, Inc. (Geomatrix) advanced eight soil borings to approximately 10 feet below grade (fbg) in the northwestern portion of the site. Groundwater was not encountered in the borings. Two to three soil samples were collected at various depths from each boring for laboratory analysis (Table 1). Nineteen samples were analyzed for total

petroleum hydrocarbons as diesel (TPHd) and gasoline (TPHg) and benzene, toluene, ethylbenzene, and xylenes (BTEX). TPHd was detected in the majority of the samples at concentrations ranging from 10 to 250 milligrams per kilogram (mg/kg). TPHg was detected in six of the samples at concentrations ranging from 4.0 to 2,000 mg/kg . BTEX were also detected in several of the samples (benzene up to 3.7 mg/kg). The highest concentrations of petroleum hydrocarbons generally were detected in borings SB-2 and SB-4 located in the vicinity of the former ASTs and gasoline pump, respectively, between 4 and 7 fbg. One sample from each boring (depths ranging from 0.5 to 3 fbg) was also analyzed for CAM 17 metals. The detected metals concentrations generally appeared to be within the range of natural background levels with the exception of slightly elevated arsenic in a few samples (Table 2). Arsenic was detected in the samples collected at 1 fbg from borings SB-3, SB-4, and SB-6 at 68 mg/kg, 46 mg/kg, and 130 mg/kg, respectively. As a result, deeper samples collected from borings SB-3 (6.5 fbg) and SB-6 (8 fbg) were also analyzed for arsenic; arsenic was not detected in the sample collected from SB-3, but was detected at 2.5 mg/kg in the sample collected from SB-6. Based on these results, the soil impacted with arsenic appeared to be of limited vertical extent. The Geomatrix report did not include these analytical results in a table or provide the analytical report. They were only discussed in the text of the report. Three soil samples (SB-4-7', SB-5-6', and SB-8-7') were also analyzed for VOCs, which were not detected. Based on the soil analytical results, a shallow groundwater survey was recommended to evaluate if groundwater had been impacted by petroleum hydrocarbons. A summary of this investigation can be found in Geomatrix's September 1995 *Soil Investigation and Shallow Groundwater Survey, Northwest portion of Park Street Landing Site*.

In April 1995, Geomatrix collected grab-groundwater samples from 10 shallow borings (GWS-7 through GWS-16) drilled to depths of 15 to 21.5 fbg at the site. Based on an assumed groundwater flow direction toward Alameda Canal, borings GWS-7 through GWS-12 were located in the northeastern portion of the site adjacent to the canal to evaluate if impacted groundwater was flowing toward the canal. Groundwater was reported at a depth of approximately 9 fbg. Borings GWS-13 through GWS-15 were located on the southwest and northwest property boundaries in the assumed upgradient and perimeter crossgradient directions to evaluate the quality of groundwater coming onto the site. Boring GWS-16 was located to the northeast of the former ASTs and was drilled approximately 6 feet deeper than the remaining borings to evaluate deeper groundwater quality. Groundwater samples were analyzed for TPHd, TPHg, and BTEX; the samples were filtered by the laboratory to remove turbidity and a silica-gel cleanup was performed to remove non-petroleum organic matter prior to the TPHd analysis (Table 3). TPHd was detected in samples collected from borings GWS-8 through GWS-11 at concentrations ranging from 60 micrograms per liter (μg/L) (GWS-8) to 1,200 μg/L (GWS-9). TPHg was detected in samples collected from borings GWS-8 through GWS-11 and GWS-16 at concentrations ranging from 70 (GWS-16) to 22,000 μg/L (GWS-9). Benzene was detected in samples collected from borings GWS-8 through GWS-10 at

concentrations of 36 μg/L, 6,200 μg/L, and 880 μg/L, respectively. Toluene, ethylbenzene, and xylenes (up to 1,200 μg/L) were also detected in several of the samples. The highest concentrations were detected in boring GWS-9 located downgradient of the gasoline pump and loading rack. Petroleum hydrocarbons were not detected in the upgradient borings GWS-13 through GWS-15. The deeper sample (GWS-16) contained only low to trace hydrocarbon concentrations.

A black granular material was encountered in boring GWS-7 near the northern corner of the site from approximately 2.5 to 6 fbg. This material appeared similar to a small pile of black granular material observed on the northwestern property boundary that appeared to have originated from the adjacent property (a metal fabrication company). A sample of this material was collected and analyzed for TPHd, VOCs, semi-VOCs, and CAM 17 metals. An elevated concentration of copper (1,700 mg/kg) was detected in the sample. The detected concentration did not exceed the Total Threshold Limit Concentration (TTLC) of 2,500 mg/kg, which is the concentration above which a waste may be considered hazardous in California. The sample was also analyzed for soluble copper using the Waste Extraction Test (WET) method; 0.04 milligrams per liter (mg/L) was detected. The detected soluble lead concentration did not exceed the Soluble Threshold Limit Concentration (STLC) of 25 mg/L, which is also the concentration above which a waste may be considered hazardous in California. Details of this investigation were presented in the September 1995 Geomatrix report titled *Soil Investigation and Shallow Groundwater Survey, Northwestern Portion of the Park Street Landing Site*.

In July 1998, RRM, Inc. (RRM) performed a Tier 1 Risk-Based Corrective Action (RBCA) assessment to evaluate potential health risks posed by residual petroleum hydrocarbons in soil and groundwater at the site. Based on the results, RRM recommended the collection of site-specific data to complete a Tier 2 RBCA evaluation, identification of the beneficial uses of groundwater beneath the site, evaluation of background water quality in Alameda Canal, and assessment of biodegradation of hydrocarbons at the site. Results of the Tier 1 evaluation were presented in RRM's July 24, 1998 report entitled *Risk-Based Corrective Action (RBCA) Tier 1 Evaluation, Park Street Landing Site*.

In October 1998, RRM performed an additional soil and groundwater investigation at the site. Four borings (SB-9 through SB-12) were advanced to depths of 15 to 18 fbg and eight soil samples were collected at various depths for analysis of TPHd, TPHg, BTEX, and methyl tertiary butyl ether (MTBE). TPHd was detected in soil samples collected at 5, 13, and 15 fbg from boring SB-9 (3,300 mg/kg, 1,300 mg/kg, and 1.2 mg/kg, respectively), in the sample collected at 5.5 fbg from boring SB-10 (130 mg/kg), and in the sample collected at 6 fbg from boring SB-11 (60 mg/kg). TPHg was detected in soil samples collected at 5 and 13 fbg from boring SB-9 (130 mg/kg and 900 mg/kg, respectively), and in a sample collected at 6 fbg from boring SB-11 (140 mg/kg). BTEX (up to 3.3 mg/kg) were detected in soil samples collected from borings SB-9

and SB-11. MTBE (using EPA Method 8020) was only detected in a sample collected at 13 fbg from boring SB-9 (12 mg/kg). Following initial TPHd analysis, two rounds of silica gel cleanup followed by TPHd analysis were performed on soil samples from boring SB-9. Based on reduction of TPHd concentrations, RRM concluded that biodegradation was occurring and natural organic matter was present in the subsurface.

Grab-groundwater samples were collected from each boring and analyzed for TPHd, TPHg, BTEX, and MTBE. TPHd was detected in samples collected from borings SB-9 (83,000 μg/L), SB-10 (97 μg/L), and SB-11 (270 μg/L). TPHg was only detected in samples collected from borings SB-9 (14,000 μg/L) and SB-11 (310 μg/L). Benzene and MTBE (using EPA Method 8020) were detected in the sample collected from boring SB-9 (1,400 and 260 μg/L, respectively); however, after re-analyzing the sample for MTBE using EPA Method 8260, MTBE was not detected. Toluene, ethylbenzene, and xylenes (up to 630 μg/L) were detected in samples collected from borings SB-9 and SB-11. As with the soil samples, lower TPHd concentrations were reported using a silica-gel cleanup. Using boring elevation and depth to water data from the borings, groundwater flow direction was calculated to be northerly. Based on natural biodegradation indicator parameters in groundwater (dissolved oxygen, oxidation-reduction potential, nitrate, and sulfate), RRM concluded that petroleum hydrocarbons were being degraded both aerobically and anaerobically,although anaerobic processes appeared dominant.

Three grab-water samples (CS-1 through CS-3) were collected from Alameda Canal (Figure 2) and analyzed for TPHd, TPHg, BTEX, and MTBE; no analytes were detected. Water level measurements were collected from Alameda Canal and four temporary wells placed in borings SB-9 through SB-12 to evaluate potential tidal influence on groundwater beneath the site. RRM reported fluctuations in borings SB-10 through SB-12 were minimal indicating that groundwater was tidally influenced to a limited degree in these areas. A more significant fluctuation was observed in SB-9 suggesting groundwater in this area was tidally influenced, and tidal fluctuations would tend to stabilize the petroleum hydrocarbon plume in this area. RRM concluded that two concrete sea walls separating shallow groundwater beneath the site from canal waterlimit tidal influence. Based on the site data, relevant beneficial uses, and associated water quality parameters, the most applicable beneficial use of groundwater beneath the site was determined to be freshwater replenishment to surface water.

A well survey performed within a ½-mile radius of the site identified one recovery well, one irrigation well, five extraction wells, and two industrial wells within the search radius. All wells were either located upgradient of the site or across Alameda Canal. Based on the results of the Tier 2 RBCA evaluation, RRM concluded petroleum hydrocarbon concentrations in soil and groundwater at the site did not exceed the site-specific target levels (SSTLs). Details of this investigation were presented in RRM's May 7, 1999 report entitled *Soil and Groundwater Investigation Results, Former Signal Oil Marine Terminal*.

In December 2000, Gettler-Ryan Inc., under the supervision of Delta Environmental Consultants, Inc. (Delta), installed one groundwater monitoring well (MW-1) along the northeastern portion of the site adjacent to the Alameda Canal. Soil samples were collected at depths of 5, 10, and 15 fbg from the well boring and analyzed for TPHd, TPHg, BTEX, and MTBE. TPHd was detected in samples collected at 5 and 10 fbg (30 and 160 mg/kg, respectively). TPHg was detected in the sample collected at 10 fbg (320 mg/kg). Low concentrations of BTEX were detected in all three samples, and MTBE was not detected in any of the samples. Initial groundwater samples collected from the well contained TPHd, TPHg, and benzene at 1,100 μg/L, 5,210 μg/L, , and 868 μg/L, respectively. Details of this investigation were presented in Delta's April 10, 2001 report entitled *Monitoring Well Installation Report*.

In January 2004, Cambria Environmental Technology, Inc. (Cambria) collected three surface soil samples (S1, S2, and S3) from the bank above the western shore of the Alameda Canal. Sample S2 was collected directly down-slope of well MW-1 near a water seep observed on the slope above the canal. Samples S1 and S3 were collected approximately 70 feet east and 90 feet north of well MW-1, respectively, to evaluate background concentrations. The three samples were analyzed for TPHd, TPHg, BTEX, and MTBE. TPHg, BTEX, and MTBE were not detected in any of the samples. TPHd was detected in samples S1, S2, and S3 at 14 mg/kg, 220 mg/kg, and 220 mg/kg, respectively. The laboratory chromatographs indicated that the hydrocarbon pattern observed in these soil samples was not typical of diesel fuel. Therefore, it was concluded the TPHd detections may have represented either highly-degraded diesel fuel from various historical onsite and nearby operations, or residual organic material of unknown origin present in local fill material. Details of this investigation were presented in Cambria's February 18, 2004 report entitled *Soil Sampling Report*.

In July 2008, CRA advanced six soil borings (SB-13 through SB-15 and SB-17 through SB-19) to a maximum depth of 16 fbg to further assess soil and groundwater conditions, and advanced six additional borings to depths of 4.5 to 6 fbg for installation of soil vapor wells (VP-1 through VP-6) to assess potential vapor intrusion. Soil boring SB-16 was cleared to 3 fbg but could not be completed due to refusal encountered at three locations (SB-16A, B, and C). Shallow soil samples were collected from SB-16A, B, and C at depths of 1 to 3 fbg, and from the other 12 borings at depths of 1 to 10 fbg. Soil analytical data indicated that the majority of TPHd and TPHg concentrations in soil are generally located in the area of and downgradient of the former ASTs (Table 1). The highest concentrations were detected in boring VP-4 at 5 fbg. Relatively low concentrations of TPHd and TPHg were detected in the perimeter borings. Low concentrations of petroleum-related VOCs were also detected in the majority of the soil samples. The BTEX and VOC concentrations generally did not exceed the ESLs, with the exception of a few samples, and concentrations generally attenuate or were significantly reduced at 10 fbg. Concentrations of

metals were consistent with background levels and only exceeded the ESLs in a few of the samples (Table 2). Metals in shallow soil across the northwest portion of the site do not appear to be a result of former bulk plant operations. With the exception of barium in MW-1, metals do not appear to have impacted groundwater. Chlorinated solvents were not detected in any of the soil samples.

Analysis of grab-groundwater samples from SB-13 through SB-15, SB-18, and SB-19 indicated the highest concentrations of hydrocarbons in groundwater were located downgradient (north-northeast) of the former ASTs. TPHd, TPHg, and benzene were detected in downgradient boring SB-18 at 19,000 μg/L, 3,800 μg/L, and 590 μg/L, respectively; in boring SB-19 adjacent to the former large AST, TPHd, TPHg, and benzene were detected at 1,600 μg/L, 650 μg/L, and 3 μg/L, respectively (Table 3). Relatively low concentrations of TPHd (up to 750 μg/L) were detected in perimeter borings SB-13, SB-14, and SB-15. Low concentrations of TCE, cis-1,2-DCE, and vinyl chloride were reported in the sample from boring SB-15 on the northeast corner of the site.

The highest hydrocarbon concentrations in soil gas were detected in vapor wells VP-4, VP-5, and VP-6 located in the area of the former ASTs (Table 4). Significantly lower concentrations were detected in vapor wells VP-1 and VP-2 located downgradient of VP-4. Chlorinated solvents were not detected in the soil vapor samples. Additional details of this investigation are presented in CRA's October 2008 report entitled *Site Investigation Report*.

In June 2009, CRA installed monitoring wells MW-2 through MW-5 to total depths of 16 to 20.5 fbg to further evaluate soil and groundwater quality beneath the site. The wells were installed within the area of the former ASTs (MW-3), and north (MW-5), south (MW-2), and east (MW-4) of the former ASTs. Soil analytical data suggested the majority of TPHd and TPHg in soil is located north to south through the former AST area and generally decreases with depth. The highest TPHd concentration detected was 610 mg/kg from boring MW-3 at 4 fbg (Table 1), and the highest TPHg concentration detected was 1,100 mg/kg from boring MW-2 at 4.5 fbg.. No petroleum hydrocarbons were detected in perimeter well boring MW-4. No grab-groundwater samples were collected.

CRA also installed sub-slab vapor points beneath the two western buildings at the site in order to further evaluate potential vapor intrusion beneath the buildings. Two sub-slab vapor points (VP-7 and VP-8) were installed inside 2317 Blanding Avenue and five sub-slab vapor points (VP-9 through VP-13) were installed inside 2307 Blanding Avenue. The highest hydrocarbon concentrations in soil gas were detected in vapor points VP-9 and VP-13, located west-southwest of the former ASTs (Table 4). Lower concentrations were detected in vapor points VP-8, and VP-10 through VP-12. All detected concentrations were below the shallow soil gas ESL of 29,000 micrograms per cubic meter ($\mu g/m^3$). Target chlorinated solvents were not

detected in the soil vapor samples. Additional details of this investigation are presented in CRA's September 8, 2009 *Well Installation and Sub-Slab Vapor Sampling Report*.

In October 2009, CRA re-installed sub-slab vapor points VP-9 through VP-13 due to ambient air leaks detected during the initial sampling, and the sub-slab vapor probes were re-sampled. Results of the sampling of the sub-slab vapor wells after being re-installed indicated no soil vapor concentrations in four of the five probes; low concentrations were reported in VP-10 (Table 4). To further evaluate elevated soil vapor concentrations initially detected in vapor wells VP-1 through VP-6, the vapor wells were sampled. Results of the sampling were consistent in vapor wells VP-3 through VP-5; however, results of sampling VP-1 and VP-2 were not consistent with initial results and indicated no TPHg or benzene vapor concentrations at each of these locations. Soil vapor samples could not be collected from VP-1 and VP-6 due to excess moisture in the vapor well tubing most likely due to the wet weather. Additional details are presented in CRA's December 2, 2009 *Vapor Sampling Report*.

In August 2010, CRA replaced well MW-1 with a more discretely screened well, MW-1RB, and installed two new wells MW-1RA and MW-6 to depths between 13 to 20 fbg to further evaluate shallow groundwater near Alameda Canal. Wells MW-1RA and MW-1RB are located in the vicinity of former well MW-1 and MW-6 is located downgradient of well MW-5. The highest TPHd and TPHg concentrations detected in soil were 260 mg/kg at 10 fbg and 490 mg/kg at 13.5 fbg, respectively from boring MW-1RA. Only trace concentrations of hydrocarbons were detected in boring MW-6 (Table 1). Initial groundwater sampling of wells MW1RA, MW-1RB and MW-6 in October 2010 indicated higher concentrations of hydrocarbons in MW-1A compared to MW-1RB and MW-6 (Appendix A). Additional details are presented in CRA's September 29, 2010 *Well Installation Report*.

In September 2012, CRA installed piezometers P-1 and P-2 to total depths of 20 fbg and 12 fbg, respectively, in order to further evaluate the interaction between on site groundwater flow and potential mass flux to Alameda Canal. Submersible data loggers capable of measuring conductivity, temperature, and depth to water were placed in site wells (MW-1RA through MW-6) and newly installed piezometers (P-1 and P-2) to evaluate the effects of tide and saline/freshwater interactions on groundwater flow. A data logger was also installed in a temporary stilling well placed on the adjacent pier to collect water level fluctuations in Alameda Canal. Periodic depth-to-water measurements were manually collected during a two-week period. Water level and conductivity data suggest wells screened within the deeper silty sand zone (MW-1RB through MW-6 and P-1) are tidally influenced and shallow wells MW-1RA and P-2 show little, if any tidal influence. During high tide there was minor groundwater flow from the canal toward the site, but overall groundwater flow was toward the canal. It was concluded that mass flux into Alameda Canal from the site is significantly less than the marine and estuary habitat ESLs for site constituents of concern and do not pose a threat to Alameda Canal.

Additional details can be found in CRA's November 30, 2012 *Piezometer Installation and Tidal Study Report*.

2.6 OFFSITE SOURCES

The site and surrounding properties have been occupied by industrial operations since the early 1900s. A site (known as The Collins Property) located at 2235 Clement Avenue (west of site) is currently an open Envirostor case (#01390007) with The Department of Toxic Substances Control (DTSC). The site operated as several industrial businesses and plants over the years including a diesel engine manufacturing plant for marine vessels and a foundry for brass casting. Site investigation determined that soil and groundwater have been impacted with metals (arsenic, lead and total chromium), TPH compounds (benzene, toluene, ethylbenzene, and xylenes), and semi-volatile organic compounds (SVOC) such as naphthalene, 2-methylnaphthalene, chrysene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene anddibenzo (a,h)anthracene. A March 15, 2007 DTSC letter stated that remedial actions implemented at the site have been completed. It is unknown if future cleanup and investigation are warranted by the DTSC.

2.7 SOURCE

The primary source of hydrocarbons, the ASTs and piping, were removed by 1965 indicating that a release or releases of hydrocarbons occurred 50 or more years ago. The highest remaining concentrations of TPHd, TPHg, and benzene are 6,900 mg/kg, 11,000 mg/kg, and 16 mg/kg, respectively, from soil samples collected from VP-4. Given the tight nature of the site soils, migration of hydrocarbons through soil to groundwater and migration in groundwater is likely limited in extent, and oxygen exchange in this type of soil is very limited resulting in hydrocarbons still remaining at the concentrations found in soil and soil vapor at the suspected source areas during past site investigation.

2.8 MEDIA AND CONTAMINANTS OF CONCERN

The primary constituents of concern (COCs) are TPHd (soil and water), TPHg (soil, soil vapor, water), benzene (soil vapor and water), and ethylbenzene (soil vapor).

Toluene, xylenes, methyl tertiary butyl ether (MTBE), and other volatile organic compounds (VOCs) are not considered COCs due to the relative low concentrations detected. Metals are considered background.

2.8.1 SOIL

Eighty-one soil samples have been collected between the depths of 0.5 fbg and 15 fbg and analyzed during confirmation sampling, soil boring, and monitoring well advancement activities since 1995. Hydrocarbons in soil are primarily detected in the area of VP-4, within the vicinity of the former fueling facility at a depth of approximately 5 fbg. The highest historical residual hydrocarbon concentrations detected at VP-4 include 6,900 mg/kg TPHd and 11,000 mg/kg TPHg. Concentrations that exceed applicable ESLs[2] are primarily detected between 2 to 14 fbg. Concentrations decrease with depth and are vertically delineated outside the source area and to low levels at depth within the source area by confirmation samples collected from MW-1, MW-4, MW-6, and SB-9 at 15 fbg (Figures 3 through Figure 7). Historical soil analytical results are presented as Table 1 through 2. Soil data presented in Table 1 were also compared to the *Low-Threat Policy* criteria and results are presented in Section 3.

2.8.2 GROUNDWATER

Groundwater has been monitored and sampled on a regular basis since 2001. Historical groundwater data tables and Gettler-Ryan's August 4, 2014 *Groundwater Monitoring and Sampling Report,* which includes the results of the most recent monitoring and sampling event (July 25, 2014), are in Appendix B. The lateral and vertical extent of dissolved hydrocarbons above water quality objectives (WQOs[3]) is defined.

The majority of total petroleum hydrocarbon mass in groundwater appears confined to the area of the former fuel pumps, and north of the former aboveground storage tanks. As of the most recent monitoring and sampling event, dissolved TPHd was detected above the ESL in six of the seven wells. However, TPHd analyzed using a 10-gram silica gel column cleanup (SGC) resulted in a significant reduction in dissolved TPHd concentrations (two of the seven wells detected above ESL for TPHd). This suggests that samples not analyzed using SGC contain polar non-hydrocarbons and/or non-dissolved petroleum compounds. The TPHg plume is limited in extent, localized around onsite well MW-5 and defined by crossgradient well MW-4, and upgradient by well MW-2. Benzene was detected during the most recent sampling event; however, benzene detections are concentrated in the source area and appear to be generally stable. The groundwater flows consistently towards the northeast (Alameda Canal). However,

2 Environmental Screening Level (ESL) from the San Francisco Regional Water Quality Control Board's (RWQCB's) *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater,* Interim Final November 2007, Revised May 2008

3 Water Quality Objectives (WQO) from the San Francisco Water Quality Control Board (RWQCB), Chapter 3, 3.1 Water Quality Objectives for the state of California

CRA demonstrated in the 2012 tidal mass flux study that the impacted groundwater beneath the site is not impacting the water of the canal[4]. The study findings are presented as Appendix C. Degradation calculations showing dissolved TPHd with SGC, TPHg and benzene concentrations from MW-3, and MW-5 are presented in Appendix D. Isoconcentration contours for TPHd, TPHg, and benzene are presented in Figures 8 through 10. Groundwater analytical data were compared to *Low-Threat Policy* criteria as presented in Section 3.2.1. The downgradient extent of the dissolved petroleum hydrocarbon plume (TPHd and TPHg) is estimated to be less than 100 feet from the source area.

2.8.3 SOIL VAPOR

Soil vapor sampling was initiated at the site in August 2008. The highest soil vapor concentrations detected were from vapor wells VP-4 and VP-5 in August and October 2008 at concentrations of 110,000 micrograms per cubic meter (µg/m^3) TPHd in VP-5, 220,000,000 µg/m^3 TPHg, 1,100,000 µg/m^3 benzene, and 650,000 µg/m^3 ethylbenzene in VP-4. Subsequent soil vapor sampling indicates concentrations are relatively stable or decreasing.

Sub-slab vapor sampling was initiated in July 2009. The highest sub-slab vapor concentrations were mainly detected during the first two sampling events in August and October 2009, with subsequent sampling events indicating minor or concentrations below the detection limit. The highest sub-slab vapor concentrations detected were from sub-slab vapor probes VP-8, VP-9, and VP-10 in July 2009 and June 2010 at concentrations of 8,800 µg/m^3 TPHg in VP-9, 24 µg/m^3 benzene and 71 µg/m^3 toluene in VP-8, and 52 µg/m^3 ethylbenzene in VP-10. During the last two sub-slab sampling events, all COCs were below ESLs except for a slight exceedance of benzene in VP-8 during the June 2010 sampling event; benzene was below the ESL in VP-8 during the most recent (November 2010) event.

Indoor and outdoor air sampling was initiated in June 2010. Indoor and outdoor air samples collected in site buildings contained relatively low concentrations with the highest at indoor location IA-3 at 530 µg/m^3 TPHg, 4.20 µg/m^3 benzene, and 6.00 µg/m^3 ethylbenzene. The disparity between the sub-slab and indoor air results suggest that other sources within the buildings are contributing to the indoor air results. Each of the suites where the indoor air samples were collected had numerous sources of VOCs present/stored inside and the outdoor air sample also contained TPHg and benzene levels above the indoor air ESLs.

Current sub-slab results are all below ESLs for indoor air under commercial/industrial land use adjusted by a factor of 100 to account for attenuation between sub-slab and indoor air (Table E,

[4] CRA, Piezometer Installation and Tidal Study Report, November 30, 2012

SFRWQCB, 2008). This further supports that there are other indoor sources contributing to the indoor air results. While there are highly elevated concentrations observed in the vapor well samples collected at 5 fbg, sub-slab results show low level vapor impact in near surface soil suggesting vapor intrusion from deeper soil (5 fbg) into the site buildings is not a risk. The soil vapor, sub-slab vapor, and indoor and outdoor air analytical results are presented in Tables 5 and 6. As discussed in Sections 3.2.2 and 3.2.3 below, benzene concentrations are compared to *Low-Threat Policy* criteria in assessing vapor intrusion risk.

2.9 PLUME DELINEATION AND STABILITY

The remaining dissolved hydrocarbon plume appears to be located in the area of the former loading rack and ASTs (MW-5). The tidal influence study performed by CRA in 2012 demonstrated that the plume is stable and flows toward the Alameda Canal and that there is limited to no impact to the surface water of the canal by the remaining hydrocarbon plume. Further details are presented in the CRA *Piezometer Installation and Tidal Study Report* dated November 30, 2012.

2.10 PATHWAYS AND RECEPTORS

2.10.1 SURFACE WATER

The nearest surface water to the site is Alameda Canal which is located along the northern property boundary. Historical grab surface water samples collected from canal sample location CS-2 indicated only minor, sporadic hydrocarbon detections (mainly total petroleum hydrocarbons as diesel [TPHd] since July 2001). Given the limited extent and concentration of the residual dissolved hydrocarbon plume, results of the tidal influence study, and background conditions, surface water bodies do not appear to be at risk of future impact by the site plume. The 2011 sensitive receptor study findings are presented in Appendix E.

2.10.2 WATER SUPPLY WELLS

In June 2011, CRA reviewed Department of Water Resources (DWR) well completion reports to identify wells within a 2,000-foot radius of the site. DWR records identified two industrial wells within the 2,000-foot radius of the site located at the same property on 2307 Clement Avenue, approximately 310 to 340 feet southwest of the site (Appendix E). No domestic, irrigation, or municipal water supply wells were identified.

The wells identified in the survey are not considered at risk from the petroleum hydrocarbons originating from the site, as these wells are located upgradient of the site and petroleum hydrocarbon concentrations detected in well MW-2 onsite, nearest to these wells, have been below ESLs since sampling began. Given the relative lack of petroleum hydrocarbon detections in MW-2 and the direction of groundwater flow, it is unlikely that the shallow dissolved petroleum hydrocarbon plume onsite is migrating to the identified well receptors; therefore they are not considered at risk. The location and construction details of these wells and the other wells identified from DWR records are presented in Appendix E.

2.10.3 POTENTIAL HUMAN RECEPTORS

The site is occupied by three large commercial buildings, which are used for office, retail, and storage space. With the exception of planters and the area between the site and the Alameda Canal, the site is capped with asphalt and concrete slabs under the buildings. As such, the general public is not considered a potential receptor to residual impacted soil under current site conditions. There are no current plans for redevelopment; however, if redevelopment were to occur, construction workers performing trenching or excavating activities at the site could potentially encounter the residual impacted shallow soil. Additionally, the maximum residual COC concentrations in soil presented in Section 2.8.1 are well below the ESLs associated with direct exposure by construction/trench workers per Regional Water Quality Control Board – Region 2 ESL Lookup Table K-3, Interim Final December 2013. Thus, potential exposure to impacted soil by construction workers is not a significant concern.

Based on information provided in CRA's 2011 sensitive receptor search, one school (Alameda Christian School) was identified approximately 1,775 feet southwest of the site (upgradient). Due to the distance and direction from the site, the school should not be impacted by the site. No daycare centers, hospitals, or nursing homes were identified within a 2,000-foot radius of the site (Appendix E). Based on soil and groundwater analytical results, dissolved plume extent and the site's current use as commercial/industrial, there does not appear to be a risk to the sensitive receptors listed above or a vapor intrusion risk to future workers or occupants in an onsite building.

2.10.4 SUMMARY OF POTENTIAL EXPOSURE PATHWAYS

Based on the above evaluation, there do not appear to be any potential exposure pathways of concern.

2.11 DATA GAP ANALYSIS

Based on the information presented above, there are no data gaps at the site.

3.0 REQUEST FOR LOW-THREAT CLOSURE

On August 17, 2012, the SWRCB adopted the *Low-Threat Policy* via Resolution 2012-0016. The intent of the *Low-Threat Policy* is to increase cleanup process efficiency at petroleum release sites. A benefit of improved efficiency is the preservation of limited resources for mitigation of releases posing the greatest threat to human and environmental health. Per the *Low-Threat Policy*, sites that meet the specified general and media-specific criteria pose a low threat to human health, safety, or the environment and are appropriate for case closure pursuant to Health and Safety Code section 25296.10. The *Low-Threat Policy* further states that those sites that meet the criteria for low-threat closure do not require further corrective action and shall be issued a uniform closure letter. Based on the information presented herein, the site meets all General and Media-Specific Criteria within the *Low-Threat Policy*. Discussion of site conditions with respect to each criterion is provided in this section.

3.1 GENERAL CRITERIA

The eight general criteria that must be satisfied by all candidate sites, and the site-specific evaluation for each of these criteria, are presented below.

a. The unauthorized release is located within the service area of a public water system.

Satisfied: As described in Section 2.3, water for the site and surrounding properties originates from the Mokelumne River watershed in the Sierra Nevada.

b. The unauthorized release consists only of petroleum.

Satisfied: The unauthorized release at the site has been characterized as a release of petroleum-based products (gasoline and related constituents).

c. The unauthorized ("primary") release from the UST system has been stopped.

Satisfied: Petroleum storage and handling equipment that were potential sources of the release (loading rack, product piping, and ASTs) were removed by 1965. Environmental investigation beginning in 1995 and monitoring since 2001 indicate that no additional releases have occurred. Therefore, site data supports that the primary release has been stopped.

d. Free product has been removed to the maximum extent practicable.

Satisfied: No light non-aqueous phase liquid (LNAPL) has been observed in any of the site wells.

e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed.

Satisfied: Previous reports (referenced in Section 2.4) and information contained herein contain all elements of a conceptual site model.

f. Secondary source has been removed to the extent practicable.

Satisfied: Review of historical documents did not contain information related to secondary source removal. However, soil and groundwater data from the site demonstrate that hydrocarbon impact is limited to the areas of the former ASTs and loading rack. The soil observed beneath the site is mostly clay and appears to have limited petroleum hydrocarbon migration.

g. Soil and groundwater has been tested for MTBE and results reported in accordance with Health and Safety Code section 25296.15.

Satisfied: Soil and groundwater samples have been analyzed for MTBE, and reported in accordance with Health and Safety Code section 25296.15.

h. Nuisance as defined by Water Code section 13050 does not exist at the site.

Satisfied: Conditions defined as a "nuisance" in Water Code section 13050 do not exist at the site.

3.2 MEDIA-SPECIFIC CRITERIA

Impacts to human health and the environment can occur due to releases from USTs through contact with contaminated media (groundwater, surface water, soil, and soil vapor) via various exposure pathways. In the *Low-Threat Policy*, the most common exposure scenarios have been combined into three media-specific criteria:

1. Groundwater
2. Vapor Intrusion to Indoor Air
3. Direct Contact and Outdoor Air Exposure

3.2.1 GROUNDWATER-SPECIFIC CRITERIA

It is a fundamental tenet of the *Low-Threat Policy* that if the closure criteria described in the policy are satisfied at an unauthorized petroleum release site, attaining background water quality is not feasible, and applicable water quality objectives (WQOs) will be attained through natural attenuation within a reasonable amount of time, prior to the expected need for use of any affected groundwater. If a site has groundwater with a designated beneficial use that is affected by an unauthorized release, to satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds WQOs must be stable or decreasing in aerial extent, and meet all of the additional characteristics of one of the five classes of sites listed in the policy:

Satisfied: The site satisfies the characteristics of Class 5.
Based on CRA's November 30, 2012 *Piezometer Installation and Tidal Study Report* the dissolved hydrocarbon plume is stable and decreasing in aerial extent.

- Wells screened within the deeper silty sand zone (MW-1RB through MW-6 and P-1) are tidally influenced based on water level and conductivity data.
- During high tide there was minor groundwater flow from the canal toward the site, but overall groundwater flow was toward the canal.
- Mass flux into Alameda Canal from the site is significantly less than the marine and estuary habitat ESLs for site constituents of concern and do not pose a threat to Alameda Canal.

Additionally, as the site is currently developed as a commercial property and is capped with asphalt and concrete, dermal contact/ingestion is unlikely. Shallow groundwater in the area is not used as a drinking water source and there are no municipal wells in the vicinity of the site as described in Sections 2.3 and 2.10.2. Based on these findings the remaining dissolved hydrocarbons meet the groundwater-specific criteria of the Low Threat Policy.

3.2.2 VAPOR INTRUSION TO INDOOR AIR

The low-threat vapor intrusion criteria described below apply to sites where the release originated and impacted or potentially impacted adjacent parcels when the following exist: (1) existing buildings are occupied or may be reasonably expected to be occupied in the future, or (2) buildings for human occupancy are reasonably expected to be constructed in the future.

Petroleum release sites will satisfy the media-specific screening criteria for petroleum vapor intrusion if the following are met:

a. Site-specific conditions at the release site satisfy all of the characteristics and criteria of scenarios 1 through 3 as applicable, or all of the characteristics and criteria of scenario 4 as applicable; or,

b. A site-specific risk assessment for vapor intrusion is conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency; or,

c. The regulatory agency determines there is no significant risk of adversely affecting human health through the use of institutional or engineering controls.

Petroleum release sites shall satisfy the media-specific criteria for petroleum vapor intrusion to indoor air and be considered low-threat for the vapor intrusion to indoor air pathway if any of the above criteria are met.

Satisfied: The site satisfies the characteristics of criteria (b).
CRA performed a vapor intrusion pathway assessment including sub-slab vapor, soil vapor, and indoor/outdoor air sampling. As discussed in Section 2.8.3 CRA's assessment demonstrated that current sub-slab results were all below ESLs for indoor air under commercial/industrial land use adjusted by a factor of 100 to account for attenuation between sub-slab and indoor air. While there are highly elevated concentrations observed in the vapor well samples collected at 5 fbg, sub-slab results show low level vapor impact in near surface soil suggesting vapor intrusion from deeper soil (5 fbg) into the site buildings is not a risk. This suggests that there are other indoor sources contributing to the indoor air results. The soil vapor, sub-slab vapor, and indoor and outdoor air analytical results are presented in Tables 5 and 6.

3.2.3 DIRECT CONTACT AND OUTDOOR AIR EXPOSURE

The *Low-Threat Policy* describes conditions where direct contact with contaminated soil or inhalation of contaminants volatized to outdoor air poses an insignificant threat to human health. Release sites where human exposure may occur satisfy media-specific criteria for direct contact and outdoor air exposure and shall be considered low-threat if they meet any one of the following:

a. Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in the table below for the specified depth below ground surface. The limits from 0 to 5 fbg protect from ingestion, dermal contact, and outdoor inhalation of volatile and particulate emissions. The >5 to 10 fbg limits protect from inhalation of volatile emissions only; the ingestion and dermal contact pathways not considered significant. In addition, if exposure to construction workers or utility trench workers is reasonably anticipated, the concentration limits for Utility Worker shall also be satisfied.

Constituent	Residential		Commercial/Industrial		Utility Worker	Site Data	
	0 – 5 fbg (mg/kg)	Volatilization to outdoor air (5 – 10 fbg) (mg/kg)	0 – 5 fbg (mg/kg)	Volatilization to outdoor air (5 – 10 fbg) (mg/kg)	0 – 10 fbg (mg/kg)	0-5 fbg mg/kg	>5-10 fbg mg/kg
Benzene	1.9	2.8	8.2	12	14	16	0.54
Ethylbenzene	21	32	89	134	314	120	3.6
Naphthalene	9.7	9.7	45	45	219	42	0.007
PAH*	0.063	NA	0.68	NA	4.5	NA	NA

* Based on the seven carcinogenic polycyclic aromatic hydrocarbons (PAHs) as benzo(a)pyrene toxicity equivalent [BaPe]. The PAH screening level is only applicable where soil is affected by either waste oil and/or Bunker C fuel.
NA = Not applicable

b. Maximum concentrations of petroleum constituents in soil are less than levels that a site-specific risk assessment demonstrates will have no significant risk of adversely affecting human health.

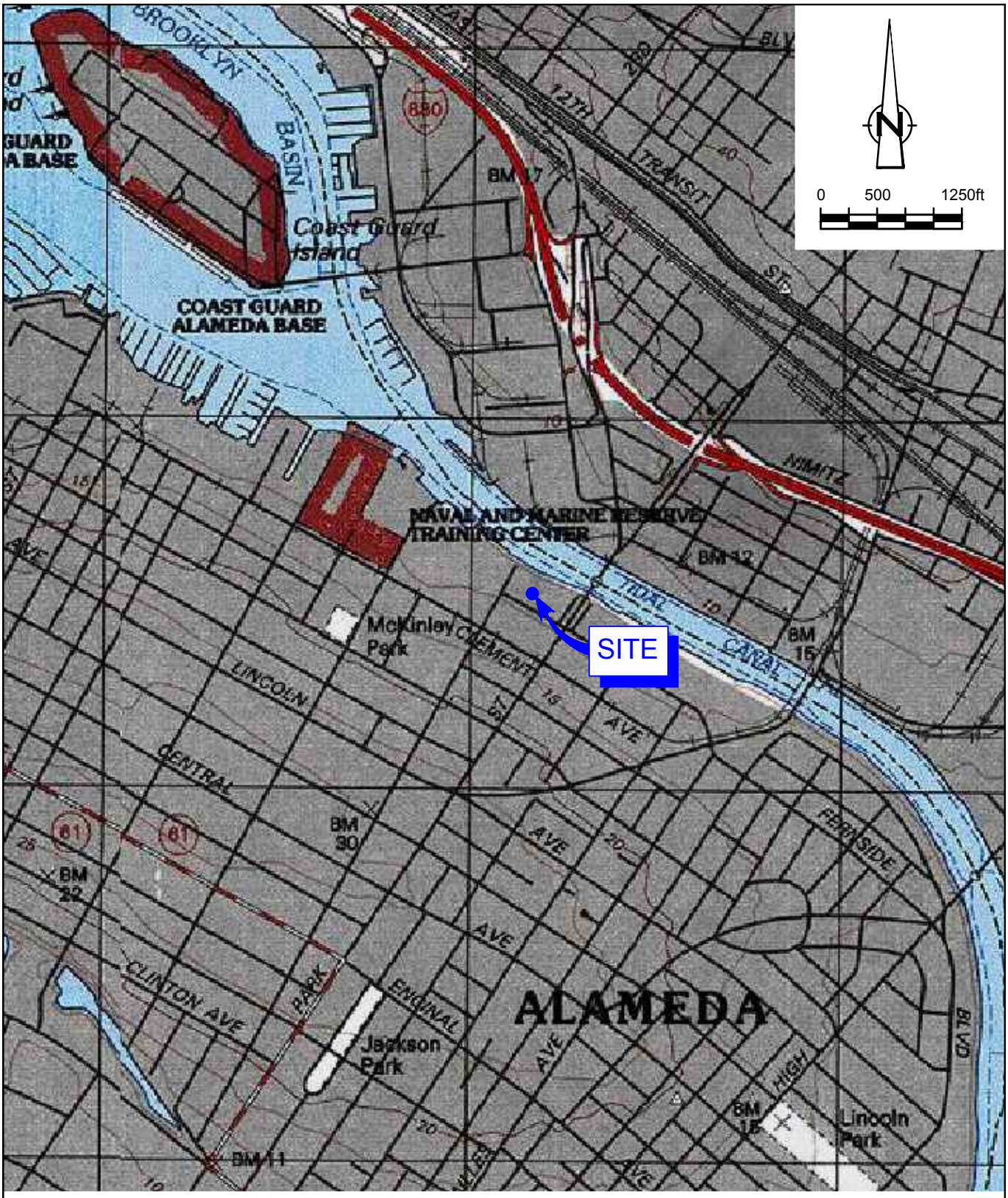
c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health.

Satisfied: The site satisfies criteria (b). As discussed in Section 2.8.3, the most recent sub-slab vapor results are all below ESLs for indoor air under commercial/industrial land use adjusted by a factor of 100 to account for attenuation between sub-slab and indoor air (Table E, SFRWQCB, 2008). While there are highly elevated concentrations observed in the vapor well samples collected at 5 fbg, sub-slab results show low level vapor impact in near surface soil suggesting vapor intrusion from deeper soil (5 fbg) into the site buildings is not a risk. Additionally the site is capped with asphalt and concrete further limiting the upward migration of soil vapors. It is unlikely that redevelopment of the site will occur anytime in the near future, however, upon request CRA can prepare a soil management plan that can help guide future redevelopment at the site.

4.0 RECOMMENDATIONS

Based on the information presented in this and previous reports, site conditions meet the general and media-specific criteria of a low-threat UST release case established in the *Low-Threat Policy*, and therefore pose a low threat to human health, safety, and the

environment. Therefore, on behalf of Chevron, CRA respectfully requests ACEH grant case closure.

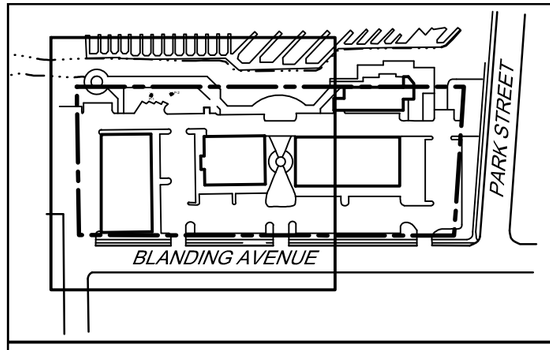


SOURCE: TOPO! MAPS.

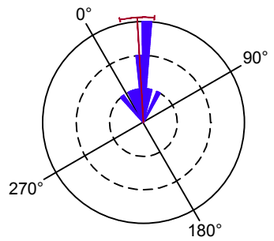
figure 1

VICINITY MAP
FORMER SIGNAL OIL BULK PLANT (CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
Alameda, California

631916D-2014.3(034)GN-WA001 NOV 10/2014



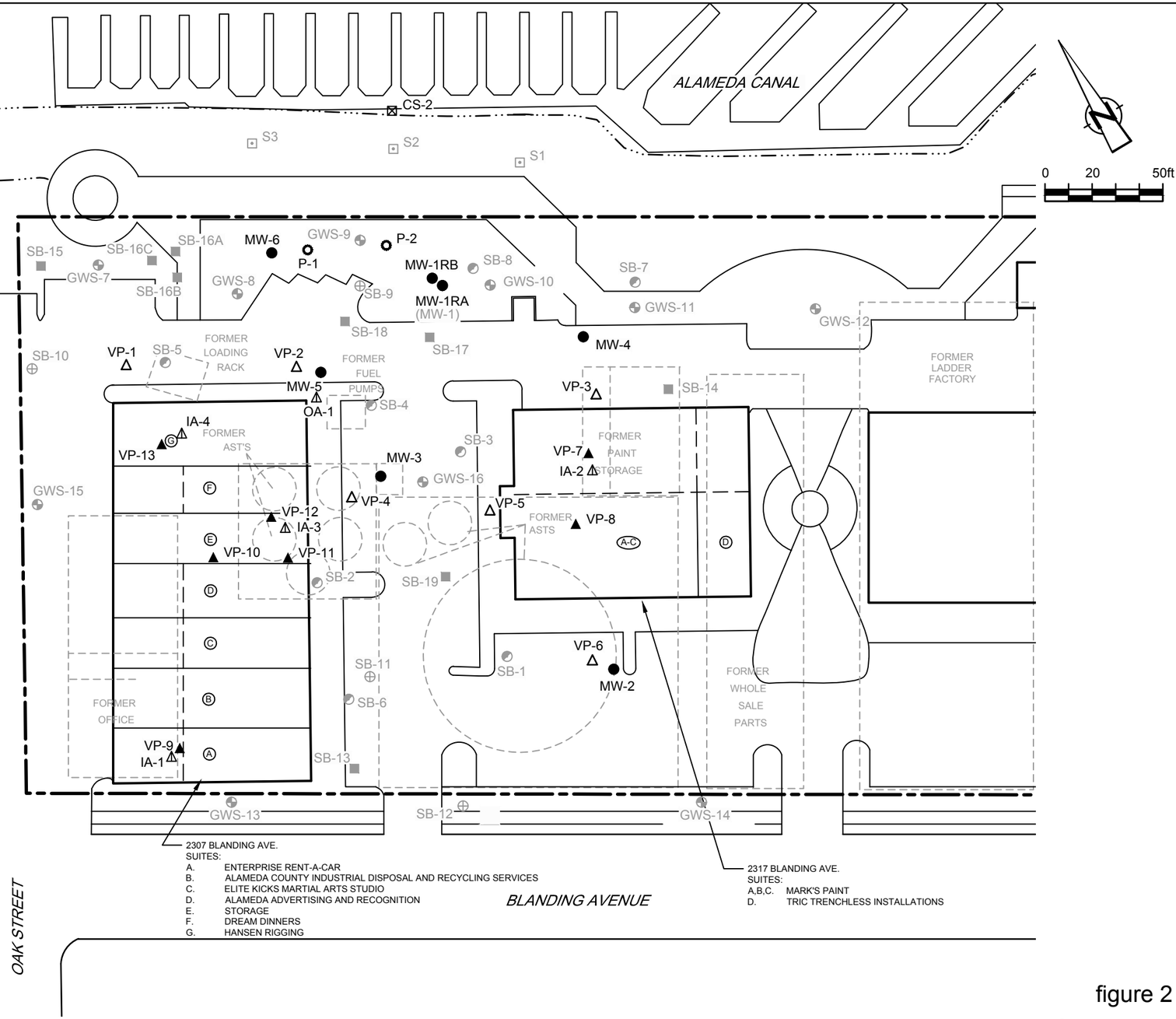
KEY PLAN
SCALE: 1"=250'



HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2014

LEGEND

- ▲ SUB-SLAB VAPOR POINT
- ● MONITORING WELL LOCATION
- △ VAPOR WELL
- ■ SOIL BORING (CRA, AUGUST, 2008)
- ◪ SOIL BORING (GEOMATRIX, FEBRUARY 1995)
- ⊕ SOIL BORING (RRM, OCTOBER 1998)
- ◍ SHALLOW GROUNDWATER SAMPLE (GEOMATRIX, APRIL 1995)
- ⊠ CANAL GRAB SURFACE WATER SAMPLE (RRM, OCTOBER 1998)
- ⊡ GRAB SOIL SAMPLE (CAMBRIA, JANUARY 2004)
- ⬚ SITE FEATURES NOTED ON SANBORN FIRE INSURANCE MAP, DATED 1932
- ⧋ INDOOR AND OUTDOOR AIR SAMPLING LOCATION
- P-1 ⭘ PIEZOMETER LOCATION



NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.

figure 2

SITE PLAN
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
Alameda, California

A
NORTH

A'
SOUTHWEST

FORMER FUEL PUMP

FORMER TANK

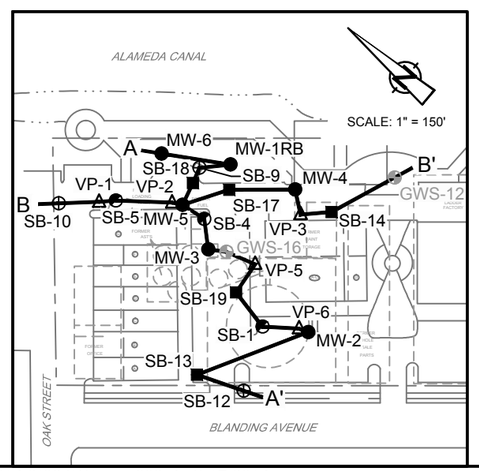
PROPERTY BOUNDARY

MW-6 | MW-1RB* | SB-9 | SB-18 | MW-5 (INTERSECTION WITH B-B') | SB-4 | MW-3 | GWS-16 | VP-5 | SB-19 | SB-1 | VP-6 | MW-2 | SB-13 | SB-12

ELEVATION (feet AMSL)

APPROXIMATE DEPTH (feet below grade)

SCALE: HORZ. 1" = 50'
VERT. 1" = 10'



LEGEND

- MW-2 — WELL DESIGNATION
- GROUND SURFACE
- OBSERVATION WELL INSTALLATION
- STRATIGRAPHIC BOUNDARY
- CL — TYPICAL SOIL CLASSIFICATION
- SCREENED INTERVAL
- BOTTOM OF BORING
- TPHd / TPHg / BENZENE / MTBE / DATE — APPROXIMATE SOIL SAMPLE LOCATION; HYDROCARBON CONCENTRATIONS IN SOIL (mg/kg)
- TPHd / TPHg / BENZENE / MTBE / DATE — APPROXIMATE GROUNDWATER SAMPLE LOCATION; HYDROCARBON CONCENTRATIONS IN GROUNDWATER (µg/L)
- DATE ▼ — GROUNDWATER DEPTH

- *AS* - ASPHALT
- *FILL*
- *CL/ML* - CLAY, SANDY CLAY, CLAYEY SILT, SANDY SILT WITH CLAY
- *SP/SM/SC/SW* - SAND, SAND WITH CLAY, CLAYEY SAND, CLAYEY SAND WITH GRAVEL, SILTY SAND, SILTY SAND WITH CLAY AND GRAVEL

- 180 — TPHd ESL ISOCONTOUR FOR SHALLOW COMMERCIAL/INDUSTRIAL SOILS WHERE GROUNDWATER IS NOT A POTENTIAL DRINKING WATER SOURCE (DASHED WHERE INFERRED)
- 180 — TPHg ESL ISOCONTOUR FOR SHALLOW COMMERCIAL/INDUSTRIAL SOILS WHERE GROUNDWATER IS NOT A POTENTIAL DRINKING WATER SOURCE (DASHED WHERE INFERRED)

ND NOT DETECTED
NA NOT ANALYZED
* HYDROCARBON CONCENTRATIONS ARE FROM MW-1RA

figure 3

GEOLOGIC CROSS-SECTION A-A'
FORMER SIGNAL OIL BULK PLANT (CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
Alameda, California

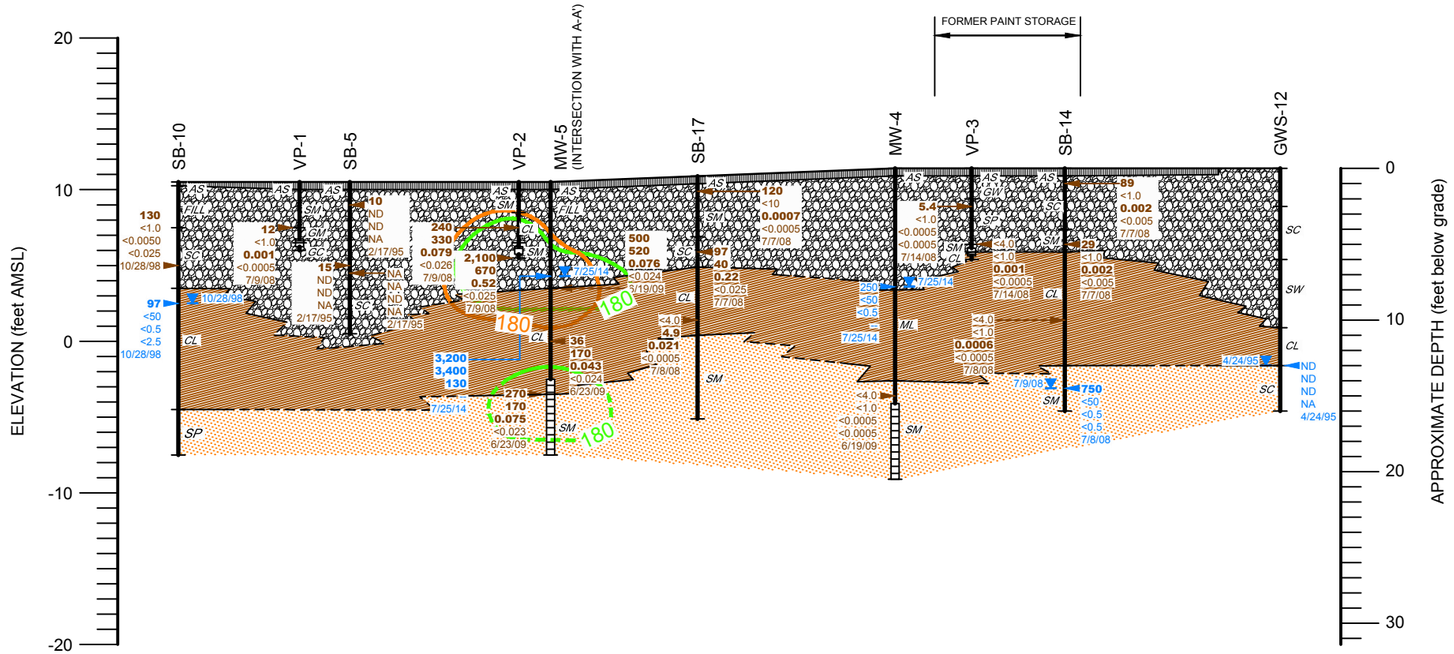
631916D-2014.3(034)GN-WA003 DEC 17/2014

B

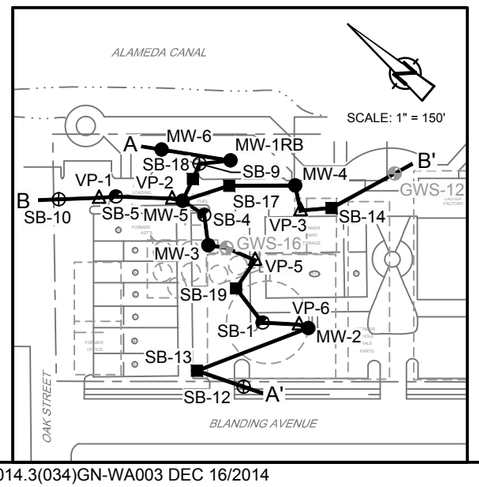
NORTHWEST

B'

EAST



SCALE: HORZ. 1" = 50'
VERT. 1" = 10'



LEGEND

- MW-5 — WELL DESIGNATION
- GROUND SURFACE
- OBSERVATION WELL INSTALLATION
- STRATIGRAPHIC BOUNDARY
- CL — TYPICAL SOIL CLASSIFICATION
- SCREENED INTERVAL
- BOTTOM OF BORING
- TPHd / TPHg / BENZENE / MTBE / DATE — APPROXIMATE SOIL SAMPLE LOCATION; HYDROCARBON CONCENTRATIONS IN SOIL (mg/kg)
- TPHd / TPHg / BENZENE / MTBE / DATE — APPROXIMATE GROUNDWATER SAMPLE LOCATION; HYDROCARBON CONCENTRATIONS IN GROUNDWATER (µg/L)
- DATE — GROUNDWATER DEPTH

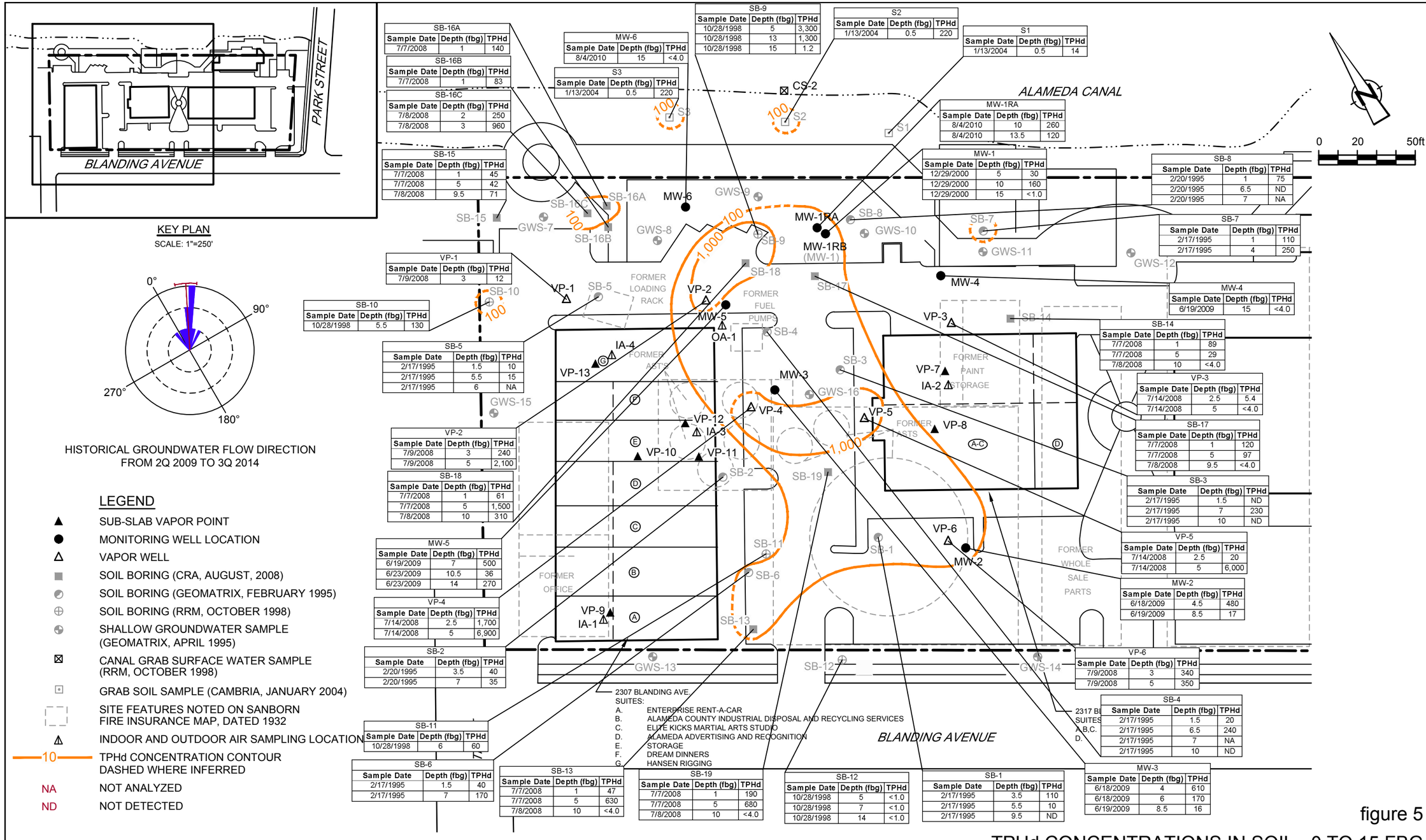
- *AS* - ASPHALT
- *FILL*
- *CL/ML* - CLAY, SANDY CLAY, CLAYEY SILT, SANDY SILT WITH CLAY
- *SP/SM/SC/SW* - SAND, SAND WITH CLAY, CLAYEY SAND, CLAYEY SAND WITH GRAVEL, SILTY SAND, SILTY SAND WITH CLAY AND GRAVEL

- ND — NOT DETECTED
- NA — NOT ANALYZED

- 180 — TPHd ESL ISOCONTOUR FOR SHALLOW COMMERCIAL/INDUSTRIAL SOILS WHERE GROUNDWATER IS NOT A POTENTIAL DRINKING WATER SOURCE (DASHED WHERE INFERRED)
- 180 — TPHg ESL ISOCONTOUR FOR SHALLOW COMMERCIAL/INDUSTRIAL SOILS WHERE GROUNDWATER IS NOT A POTENTIAL DRINKING WATER SOURCE (DASHED WHERE INFERRED)

figure 4

GEOLOGIC CROSS-SECTION B-B'
FORMER SIGNAL OIL BULK PLANT (CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
Alameda, California



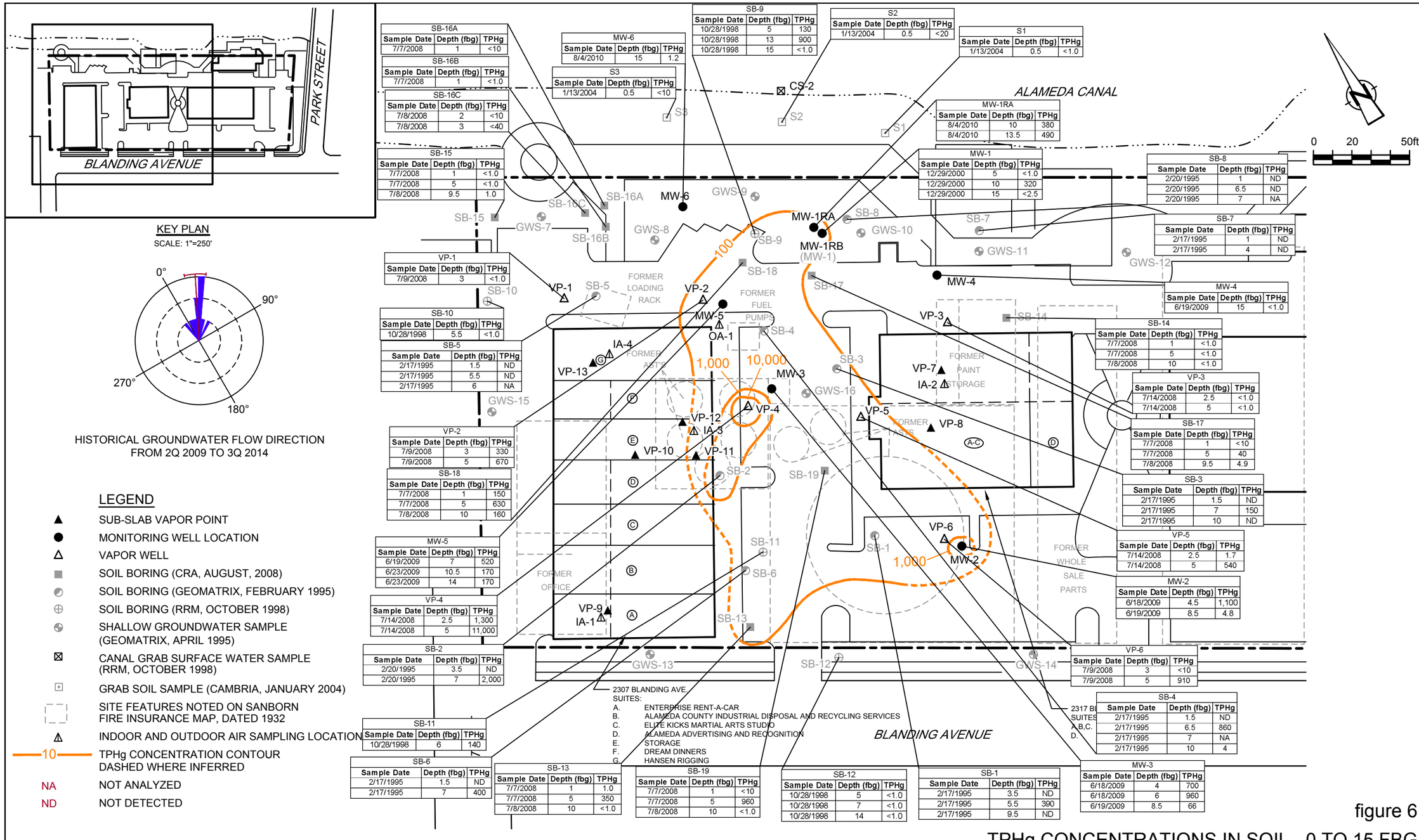
CONCENTRATIONS ARE IN MILLIGRAMS PER KILOGRAM (mg/kg)

NOTES:
- WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09). ALL OTHER LOCATIONS ARE APPROXIMATE.
- TPHd = TOTAL PETROLEUM HYDROCARBONS AS DIESEL; HIGHEST CONCENTRATION USED FOR CONTOURING.

figure 5

TPHd CONCENTRATIONS IN SOIL - 0 TO 15 FBG
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
Alameda, California

631916D-2014.3(034)GN-WA004 DEC 17/2014



SB-16A		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	<10

SB-16B		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	<1.0

SB-16C		
Sample Date	Depth (fbg)	TPHg
7/8/2008	2	<10
7/8/2008	3	<40

SB-15		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	<1.0
7/7/2008	5	<1.0
7/8/2008	9.5	1.0

MW-6		
Sample Date	Depth (fbg)	TPHg
8/4/2010	15	1.2

S3		
Sample Date	Depth (fbg)	TPHg
1/13/2004	0.5	<10

SB-9		
Sample Date	Depth (fbg)	TPHg
10/28/1998	5	130
10/28/1998	13	900
10/28/1998	15	<1.0

S2		
Sample Date	Depth (fbg)	TPHg
1/13/2004	0.5	<20

S1		
Sample Date	Depth (fbg)	TPHg
1/13/2004	0.5	<1.0

MW-1RA		
Sample Date	Depth (fbg)	TPHg
8/4/2010	10	380
8/4/2010	13.5	490

MW-1		
Sample Date	Depth (fbg)	TPHg
12/29/2000	5	<1.0
12/29/2000	10	320
12/29/2000	15	<2.5

SB-8		
Sample Date	Depth (fbg)	TPHg
2/20/1995	1	ND
2/20/1995	6.5	ND
2/20/1995	7	NA

SB-7		
Sample Date	Depth (fbg)	TPHg
2/17/1995	1	ND
2/17/1995	4	ND

MW-4		
Sample Date	Depth (fbg)	TPHg
6/19/2009	15	<1.0

VP-1		
Sample Date	Depth (fbg)	TPHg
7/9/2008	3	<1.0

SB-10		
Sample Date	Depth (fbg)	TPHg
10/28/1998	5.5	<1.0

SB-5		
Sample Date	Depth (fbg)	TPHg
2/17/1995	1.5	ND
2/17/1995	5.5	ND
2/17/1995	6	NA

SB-14		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	<1.0
7/7/2008	5	<1.0
7/8/2008	10	<1.0

VP-3		
Sample Date	Depth (fbg)	TPHg
7/14/2008	2.5	<1.0
7/14/2008	5	<1.0

SB-17		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	<10
7/7/2008	5	40
7/8/2008	9.5	4.9

SB-3		
Sample Date	Depth (fbg)	TPHg
2/17/1995	1.5	ND
2/17/1995	7	150
2/17/1995	10	ND

VP-5		
Sample Date	Depth (fbg)	TPHg
7/14/2008	2.5	1.7
7/14/2008	5	540

MW-2		
Sample Date	Depth (fbg)	TPHg
6/18/2009	4.5	1,100
6/19/2009	8.5	4.8

VP-2		
Sample Date	Depth (fbg)	TPHg
7/9/2008	3	330
7/9/2008	5	670

SB-18		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	150
7/7/2008	5	630
7/8/2008	10	160

MW-5		
Sample Date	Depth (fbg)	TPHg
6/19/2009	7	520
6/23/2009	10.5	170
6/23/2009	14	170

VP-4		
Sample Date	Depth (fbg)	TPHg
7/14/2008	2.5	1,300
7/14/2008	5	11,000

SB-2		
Sample Date	Depth (fbg)	TPHg
2/20/1995	3.5	ND
2/20/1995	7	2,000

SB-11		
Sample Date	Depth (fbg)	TPHg
10/28/1998	6	140

SB-6		
Sample Date	Depth (fbg)	TPHg
2/17/1995	1.5	ND
2/17/1995	7	400

SB-13		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	1.0
7/7/2008	5	350
7/8/2008	10	<1.0

SB-19		
Sample Date	Depth (fbg)	TPHg
7/7/2008	1	<10
7/7/2008	5	960
7/8/2008	10	<1.0

SB-12		
Sample Date	Depth (fbg)	TPHg
10/28/1998	5	<1.0
10/28/1998	7	<1.0
10/28/1998	14	<1.0

SB-1		
Sample Date	Depth (fbg)	TPHg
2/17/1995	3.5	ND
2/17/1995	5.5	390
2/17/1995	9.5	ND

VP-6		
Sample Date	Depth (fbg)	TPHg
7/9/2008	3	<10
7/9/2008	5	910

SB-4		
Sample Date	Depth (fbg)	TPHg
2/17/1995	1.5	ND
2/17/1995	6.5	860
2/17/1995	7	NA
2/17/1995	10	4

MW-3		
Sample Date	Depth (fbg)	TPHg
6/18/2009	4	700
6/18/2009	6	960
6/19/2009	8.5	66

2307 BLANDING AVE.
SUITES:
A. ENTERPRISE RENT-A-CAR
B. ALAMEDA COUNTY INDUSTRIAL DISPOSAL AND RECYCLING SERVICES
C. ELITE KICKS MARTIAL ARTS STUDIO
D. ALAMEDA ADVERTISING AND RECOGNITION
E. STORAGE
F. DREAM DINNERS
G. HANSEN RIGGING

2317 BL
SUITES
A,B,C.
D.

KEY PLAN
SCALE: 1"=250'

HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2014

LEGEND

- ▲ SUB-SLAB VAPOR POINT
- ● MONITORING WELL LOCATION
- △ VAPOR WELL
- ■ SOIL BORING (CRA, AUGUST, 2008)
- ◪ SOIL BORING (GEOMATRIX, FEBRUARY 1995)
- ⊕ SOIL BORING (RRM, OCTOBER 1998)
- ◍ SHALLOW GROUNDWATER SAMPLE (GEOMATRIX, APRIL 1995)
- ⊠ CANAL GRAB SURFACE WATER SAMPLE (RRM, OCTOBER 1998)
- ⊡ GRAB SOIL SAMPLE (CAMBRIA, JANUARY 2004)
- SITE FEATURES NOTED ON SANBORN FIRE INSURANCE MAP, DATED 1932
- ⚠ INDOOR AND OUTDOOR AIR SAMPLING LOCATION
- 10 TPHg CONCENTRATION CONTOUR DASHED WHERE INFERRED
- NA NOT ANALYZED
- ND NOT DETECTED

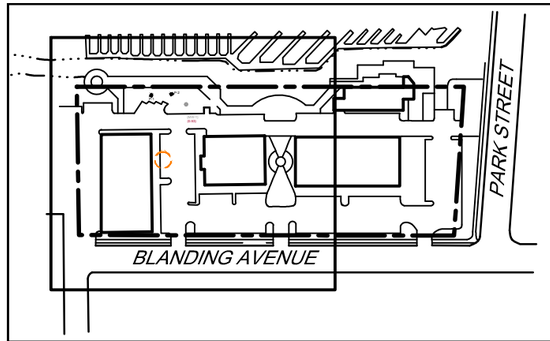
CONCENTRATIONS ARE IN MILLIGRAMS PER KILOGRAM (mg/kg)

NOTES:
- WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09). ALL OTHER LOCATIONS ARE APPROXIMATE.
- TPHg = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE; HIGHEST CONCENTRATION USED FOR CONTOURING.

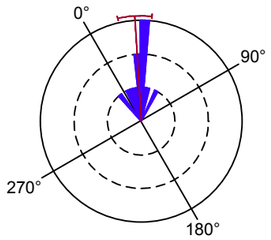
figure 6

TPHg CONCENTRATIONS IN SOIL - 0 TO 15 FBG
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
Alameda, California

631916D-2014.3(034)GN-WA005 DEC 17/2014



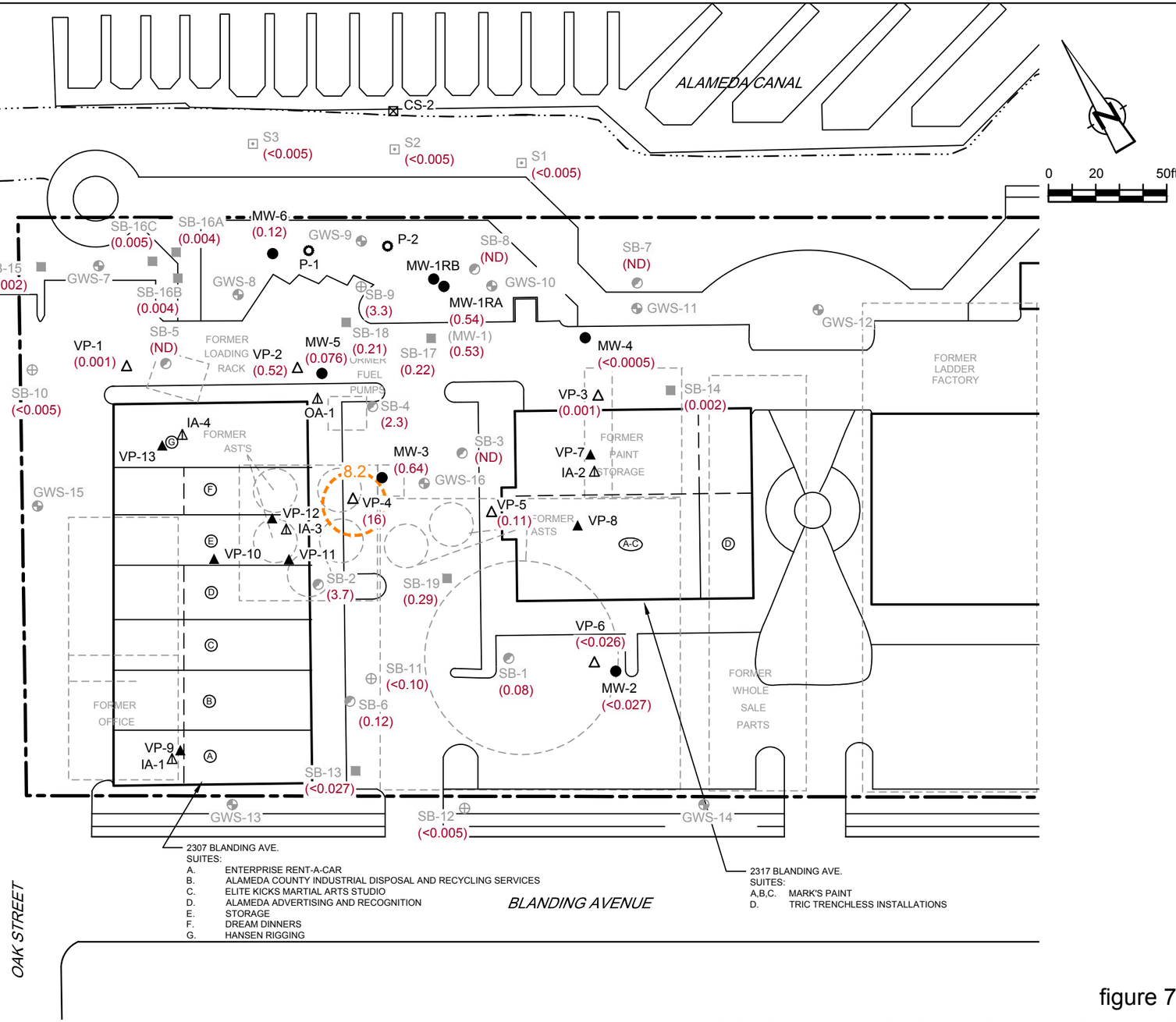
KEY PLAN
SCALE: 1"=250'



HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2014

LEGEND

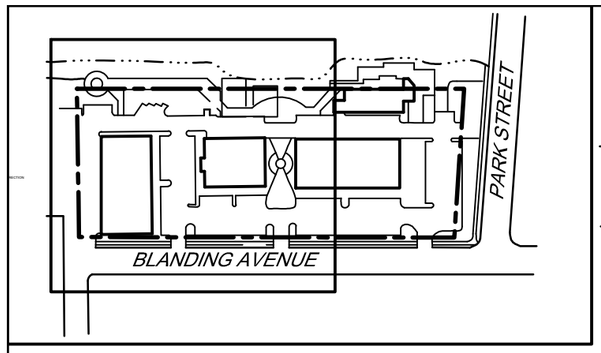
- ▲ SUB-SLAB VAPOR POINT
- ● MONITORING WELL LOCATION
- △ VAPOR WELL
- ■ SOIL BORING (CRA, AUGUST, 2008)
- ◪ SOIL BORING (GEOMATRIX, FEBRUARY 1995)
- ⊕ SOIL BORING (RRM, OCTOBER 1998)
- ◍ SHALLOW GROUNDWATER SAMPLE (GEOMATRIX, APRIL 1995)
- ⊠ CANAL GRAB SURFACE WATER SAMPLE (RRM, OCTOBER 1998)
- ⊡ GRAB SOIL SAMPLE (CAMBRIA, JANUARY 2004)
- ⬚ SITE FEATURES NOTED ON SANBORN FIRE INSURANCE MAP, DATED 1932
- ⚠ INDOOR AND OUTDOOR AIR SAMPLING LOCATION
- P-1 ⭘ PIEZOMETER LOCATION
- 8.2 BENZENE CONCENTRATION CONTOUR (DASHED WHERE INFERRED) EXCEEDING LTCP COMMERCIAL/INDUSTRIAL VALUE FOR DIRECT CONTACT AND OUTDOOR EXPOSURE (8.2 mg/kg)
- (3.7) BENZENE CONCENTRATIONS ARE IN MILLIGRAMS PER LITER (mg/kg)



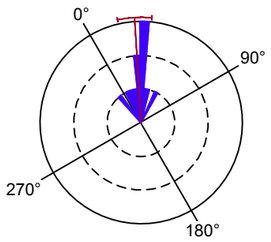
NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.

figure 7

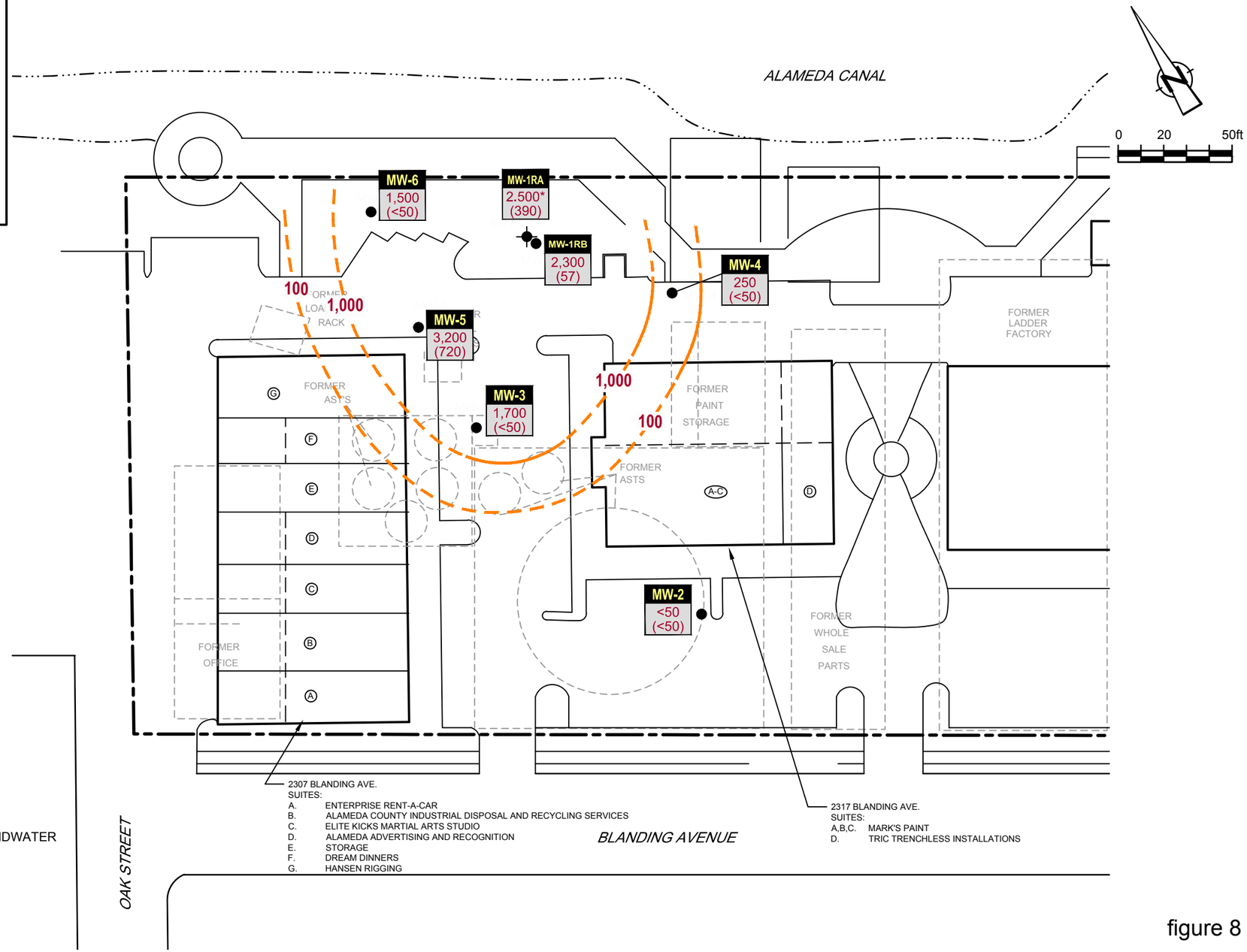
BENZENE CONCENTRATIONS IN SOIL - 0 TO 15 FBG
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California



KEY PLAN
SCALE: 1"=250'



HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2014



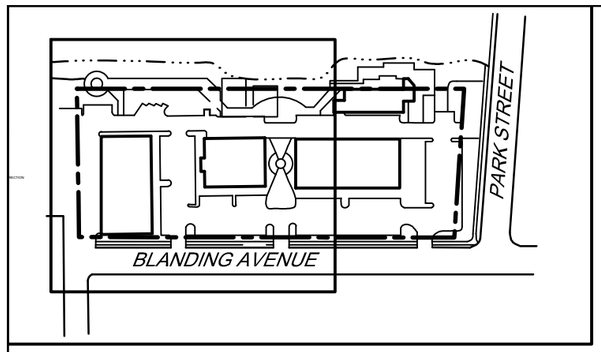
LEGEND

- MONITORING WELL LOCATION
- SHALLOW ZONE MONITORING WELL LOCATION
- 1,000 — TPHd CONCENTRATION CONTOUR LINE, DASHED WHERE INFERRED
- WELL DESIGNATION
- WELL / TPHd (TPHd) — TPHd CONCENTRATION IN GROUNDWATER IN MICROGRAMS PER LITER (µg/L); TPHd WITH SILICA GEL CONCENTRATION IN GROUNDWATER IN MICROGRAMS PER LITER (µg/L)
- * NOT USED IN CONTOURING; CONSTRUCTED IN SHALLOW SAND ZONE
- SITE FEATURES NOTED ON SANBORN FIRE INSURANCE MAP, DATED 1932

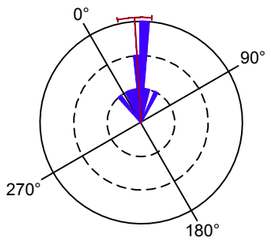
NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.

figure 8

TPHd CONCENTRATION CONTOUR MAP
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY (CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
Alameda, California
July 25, 2014



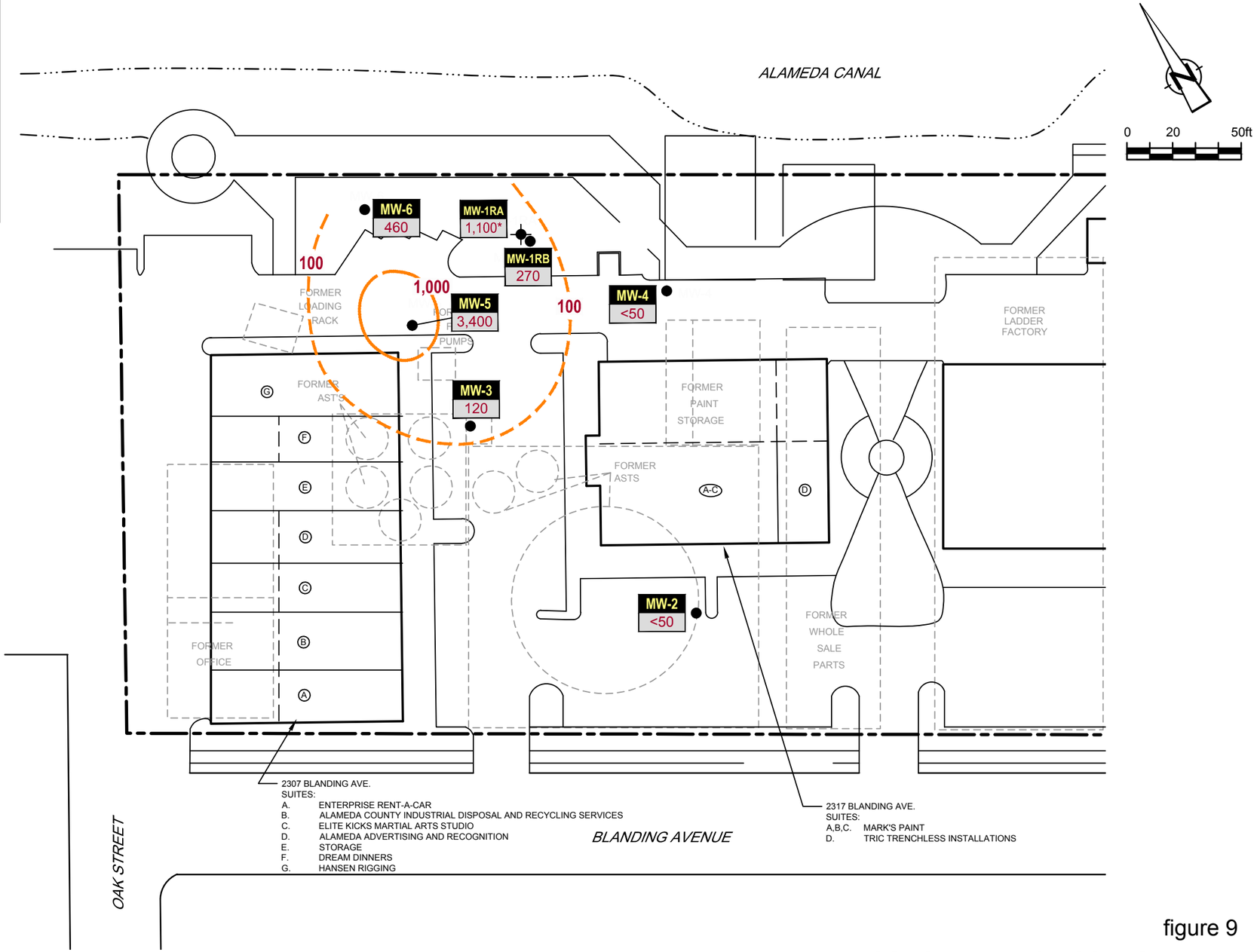
KEY PLAN
SCALE: 1"=250'



HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2014

LEGEND

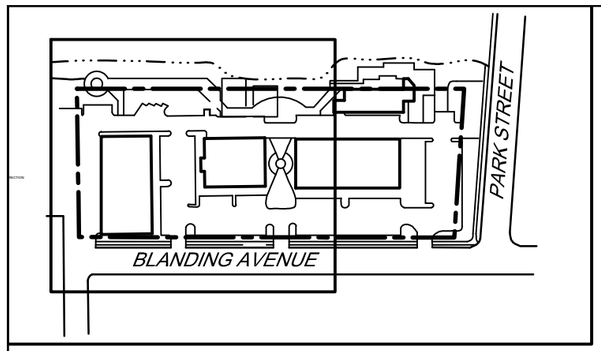
- MONITORING WELL LOCATION
- SHALLOW ZONE MONITORING WELL LOCATION
- 100 — TPHg CONCENTRATION CONTOUR LINE, DASHED WHERE INFERRED
- WELL / TPHg — WELL DESIGNATION; TPHg CONCENTRATION IN GROUNDWATER IN MICROGRAMS PER LITER (µg/L)
- * NOT USED IN CONTOURING; CONSTRUCTED IN SHALLOW SAND ZONE
- SITE FEATURES NOTED ON SANBORN FIRE INSURANCE MAP, DATED 1932



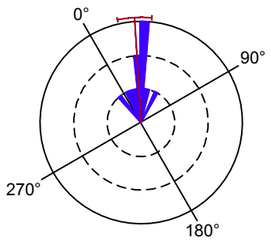
NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.

figure 9

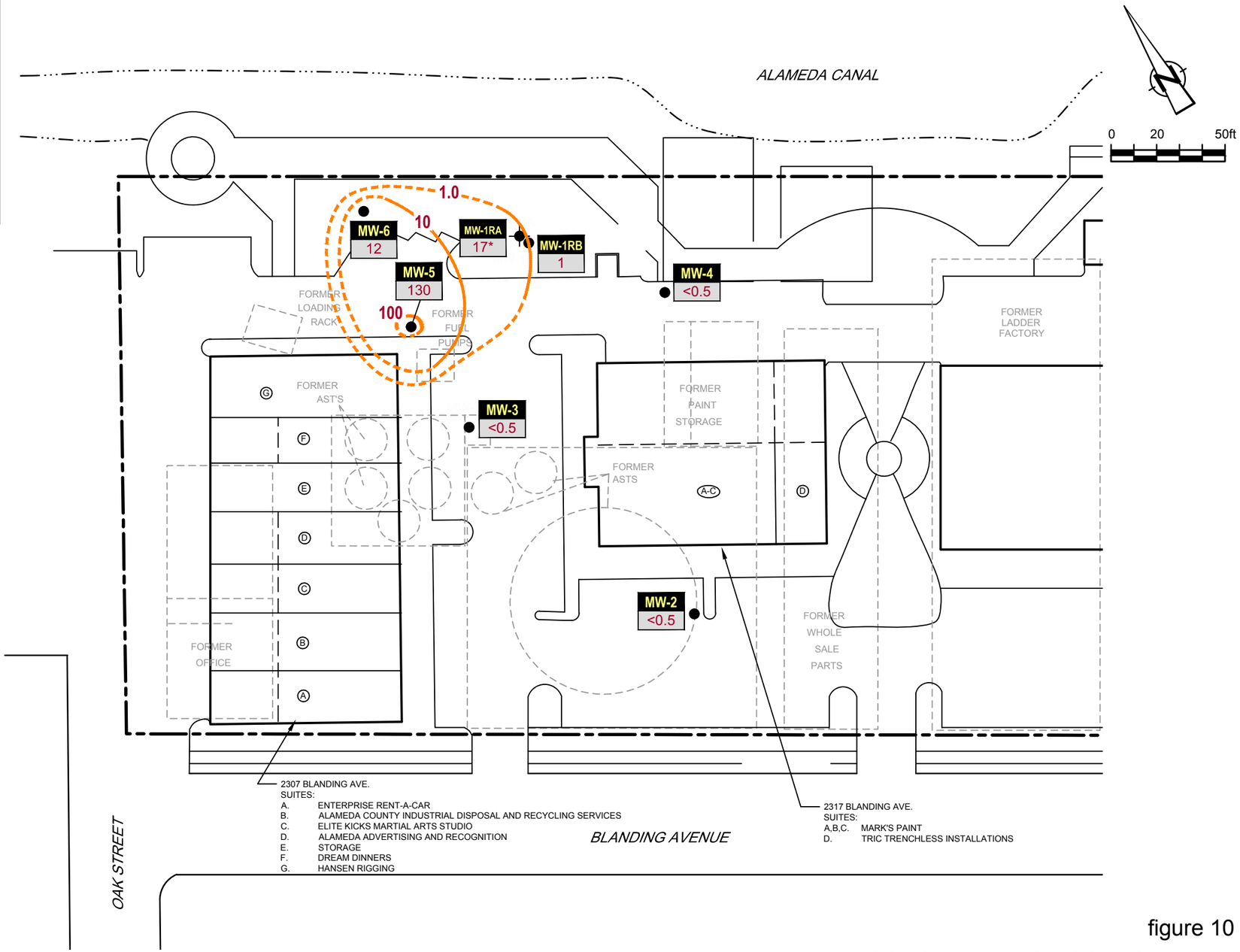
TPHg CONCENTRATION CONTOUR MAP
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY (CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
Alameda, California
July 25, 2014



KEY PLAN
SCALE: 1"=250'



HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2014



LEGEND

- MONITORING WELL LOCATION
- SHALLOW ZONE MONITORING WELL LOCATION
- 10 — BENZENE CONCENTRATION CONTOUR LINE, DASHED WHERE INFERRED
- WELL / BENZ — WELL DESIGNATION; BENZENE CONCENTRATION IN GROUNDWATER IN MICROGRAMS PER LITER (µg/L)
- * NOT USED IN CONTOURING; CONSTRUCTED IN SHALLOW SAND ZONE
- SITE FEATURES NOTED ON SANBORN FIRE INSURANCE MAP, DATED 1932

NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.

figure 10

BENZENE CONCENTRATION CONTOUR MAP
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY (CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
Alameda, California
July 25, 2014

TABLE 1

SOIL ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Concentrations reported in milligram per kilogram - mg/kg

Boring ID	*Depth (fbg)*	*Sample Date*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*m+p-Xylene*	*o-Xylene*	*Total Xylenes*	*MTBE*	*Acetone*	*Carbon Disulfide*	*2-Butanone*	*Isopropyl-benzene*	*n-Propyl-benzene*	*1,3,5 -Trimethyl-benzene*	*tert-Butyl-benzene*	*1,2,4-Trimethyl-benzene*	*sec-Butyl-benzene*	*p-Isopropyl-toluene*	*n-Butyl-benzene*	*Naphthalene*
Low-Threat Policy - Direct Contact and Outdoor Air Exposure																							
0 to 5 fbg, Residential			NE	NE	1.9	NE	21	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	9.7
5 to 10 fbg, Residential, Outdoor Air			NE	NE	2.8	NE	32	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	9.7
0 to 5 fbg, C/I			NE	NE	8.2	NE	89	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	45
5 to 10 fbg, C/I, Outdoor Air			NE	NE	12	NE	134	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	45
0 to 10 fbg, Utility Worker			NE	NE	14	NE	314	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	219
SB-1	3.5	2/17/1995	110	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-1	5.5	2/17/1995	10	390	0.08[1]	0.20[1]	0.58[1]	--	--	0.86[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-1	9.5	2/17/1995	ND	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-2	3.5	2/20/1995	40	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-2	7	2/20/1995	35	2,000	3.7[1]	34[1]	14[1]	--	--	46[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-3	1.5	2/17/1995	ND	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-3	7	2/17/1995	230	150	ND[1]	0.46[1]	0.58[1]	--	--	0.51[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-3	10	2/17/1995	ND	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-4	1.5	2/17/1995	20	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-4	6.5	2/17/1995	240	860	2.0[1]	0.81[1]	3.6[1]	--	--	13[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-4	7	2/17/1995	--	--	2.3[2]	8.7[2]	3.5[2]	--	--	35[2]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-4	10	2/17/1995	ND	4	0.34[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-5	1.5	2/17/1995	10	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-5	5.5	2/17/1995	15	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-5	6	2/17/1995	--	--	ND[2]	ND[2]	ND[2]	--	--	ND[2]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-6	1.5	2/17/1995	40	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-6	7	2/17/1995	170	400	ND[1]	0.12[1]	0.56[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-7	1	2/17/1995	110	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-7	4	2/17/1995	250	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-8	1	2/20/1995	75	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-8	6.5	2/20/1995	ND	ND	ND[1]	ND[1]	ND[1]	--	--	ND[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-8	7	2/20/1995	--	--	ND[2]	ND[2]	ND[2]	--	--	ND[2]	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-9	5	10/28/1998	3,300[3]	130	0.36[1]	<0.12[1]	<0.12[1]	--	--	0.28[1]	<0.62[1]	--	--	--	--	--	--	--	--	--	--	--	--
SB-9	13	10/28/1998	1,300[3]	900	3.3[1]	<1.2[1]	2.1[1]	--	--	2.0[1]	<12[4]	--	--	--	--	--	--	--	--	--	--	--	--
SB-9	15	10/28/1998	1.2[3]	<1.0	0.22[1]	<0.0050[1]	<0.0050[1]	--	--	<0.0050[1]	<0.025[1]	--	--	--	--	--	--	--	--	--	--	--	--
SB-10	5.5	10/28/1998	130[3]	<1.0	<0.0050[1]	<0.0050[1]	<0.0050[1]	--	--	<0.0050[1]	<0.025[1]	--	--	--	--	--	--	--	--	--	--	--	--
SB-11	6	10/28/1998	60[3]	140	<0.10[1]	0.12[1]	0.24[1]	--	--	0.49[1]	<0.50[1]	--	--	--	--	--	--	--	--	--	--	--	--
SB-12	5	10/28/1998	<1.0	<1.0	<0.0050[1]	<0.0050[1]	<0.0050[1]	--	--	<0.0050[1]	<0.025[1]	--	--	--	--	--	--	--	--	--	--	--	--
SB-12	7	10/28/1998	<1.0	<1.0	<0.0050[1]	<0.0050[1]	<0.0050[1]	--	--	<0.0050[1]	<0.025[1]	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 1

SOIL ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Boring ID	*Depth (fbg)*	*Sample Date*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*m+p-Xylene*	*o-Xylene*	*Total Xylenes*	*MTBE*	*Acetone*	*Carbon Disulfide*	*2-Butanone*	*Isopropyl-benzene*	*n-Propyl-benzene*	*1,3,5 - Trimethyl-benzene*	*tert-Butyl-benzene*	*1,2,4-Trimethyl-benzene*	*sec-Butyl-benzene*	*p-Isopropyl-toluene*	*n-Butyl-benzene*	*Naphthalene*
Low-Threat Policy - Direct Contact and Outdoor Air Exposure																							
0 to 5 fbg, Residential			NE	NE	1.9	NE	21	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	9.7
5 to 10 fbg, Residential, Outdoor Air			NE	NE	2.8	NE	32	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	9.7
0 to 5 fbg, C/I			NE	NE	8.2	NE	89	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	45
5 to 10 fbg, C/I, Outdoor Air			NE	NE	12	NE	134	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	45
0 to 10 fbg, Utility Worker			NE	NE	14	NE	314	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	219
											Concentrations reported in milligram per kilogram - mg/kg												
SB-12	14	10/28/1998	<1.0	<1.0	<0.0050[1]	<0.0050[1]	<0.0050[1]	--	--	<0.0050[1]	<0.025[1]	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	5	12/29/2000	30	<1.0	<0.0050	<0.0050	<0.0050	--	--	0.017	<0.050	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	10	12/29/2000	160	320	0.40	1.6	0.90	--	--	1.1	<1.2	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	15	12/29/2000	<1.0	<2.5	0.53	0.021	0.028	--	--	0.065	<0.12	--	--	--	--	--	--	--	--	--	--	--	--
S1	0.5	1/13/2004	14	<1.0	<0.0005	<0.001	<0.001	--	--	<0.001	<0.0005	--	--	--	--	--	--	--	--	--	--	--	--
S2	0.5	1/13/2004	220	<20	<0.0005	<0.001	<0.001	--	--	<0.001	<0.0005	--	--	--	--	--	--	--	--	--	--	--	--
S3	0.5	1/13/2004	220	<10	<0.0005	<0.001	<0.001	--	--	<0.001	<0.0005	--	--	--	--	--	--	--	--	--	--	--	--
VP-1	3	7/9/2008	12	<1.0	0.001	0.003	0.002	0.004	0.002	--	<0.0005	<0.007	<0.001	<0.004	0.001	0.003	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001
VP-2*	3	7/9/2008	240	330	0.079	0.080	0.080	0.18	0.066	--	<0.026	<0.36	<0.051	<0.21	0.23	0.51	0.088	0.098	0.29	0.18	<0.051	0.22	0.28
VP-2	5	7/9/2008	2,100	670	0.52	0.16	0.36	0.46	0.085	--	<0.025	0.44	<0.50	<0.20	4.6	9.9	0.065	0.84	0.11	1.8	0.051	4.4	0.48
VP-3	2.5	7/14/2008	5.4	<1.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0009	--	<0.0005	<0.007	<0.0009	<0.004	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009
VP-3	5	7/14/2008	<4.0	<1.0	0.001	<0.0009	<0.0009	<0.0009	<0.0009	--	<0.0005	0.039	<0.0009	0.007	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009
VP-4	2.5	7/14/2008	1,700	1,300	5.0	0.54	13	8.1	0.60	--	<0.024	0.65	<0.048	<0.19	3.7	5.9	4.1	0.32	41	1.4	2.5	2.0	3.4
VP-4	5	7/14/2008	6,900	11,000	**16**	2.4	**120**	15	2.8	--	<0.093	<1.3	<0.19	<0.74	27	48	11	3.0	5.0	11	13	23	42
VP-5	2.5	7/14/2008	20	1.7	0.0008	<0.001	<0.001	<0.001	<0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	0.001	<0.001	<0.001	0.001	<0.001	0.001	0.001	0.010
VP-5	5	7/14/2008	6,000	540	0.11	0.051	0.11	0.23	0.072	--	<0.023	<0.33	<0.047	<0.19	1.1	1.6	0.13	<0.047	0.33	0.37	0.42	0.37	0.83
VP-6	3	7/9/2008	340	<10	<0.0005	<0.001	<0.001	<0.001	<0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
VP-6	5	7/9/2008	350	910	<0.026	<0.053	0.31	0.37	<0.053	--	<0.026	<0.37	<0.053	0.33	2.1	3.3	0.10	0.060	<0.053	1.1	0.26	1.7	2.9
SB-13	1	7/7/2008	47	1.0	<0.0005	<0.001	<0.001	0.002	<0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001
SB-13	5	7/7/2008	630	350	<0.027	<0.054	<0.054	<0.054	<0.054	--	<0.027	<0.38	<0.054	<0.22	0.12	0.14	<0.054	<0.054	<0.054	0.23	<0.054	0.12	0.16
SB-13	10	7/8/2008	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
SB-14	1	7/7/2008	89	<1.0	0.002	0.004	0.002	0.005	0.003	--	<0.0005	0.018	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001	<0.001
SB-14	5	7/7/2008	29	<1.0	0.002	0.003	0.002	0.003	0.002	--	<0.0005	0.026	<0.001	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
SB-14	10	7/8/2008	<4.0	<1.0	0.0006	0.001	<0.001	0.002	0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001
SB-15	1	7/7/2008	45	<1.0	0.0007	0.001	<0.001	0.001	<0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
SB-15	5	7/7/2008	42	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
SB-15	9.5	7/8/2008	71	1.0	0.002	0.006	0.005	0.012	0.006	--	<0.0005	<0.007	<0.001	<0.004	0.001	0.001	0.001	<0.001	0.002	<0.001	0.008	<0.001	0.001
SB-16A	1	7/7/2008	140	<10	0.004	0.012	0.008	0.024	0.013	--	<0.0005	<0.007	<0.001	<0.004	0.001	0.001	0.001	<0.001	0.003	<0.001	0.007	<0.001	<0.001

TABLE 1

SOIL ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Boring ID	*Depth (fbg)*	*Sample Date*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*m+p-Xylene*	*o-Xylene*	*Total Xylenes*	*MTBE*	*Acetone*	*Carbon Disulfide*	*2-Butanone*	*Isopropyl-benzene*	*n-Propyl-benzene*	*1,3,5 -Trimethyl-benzene*	*tert-Butyl-benzene*	*1,2,4-Trimethyl-benzene*	*sec-Butyl-benzene*	*p-Isopropyl-toluene*	*n-Butyl-benzene*	*Naphthalene*
Low-Threat Policy - Direct Contact and Outdoor Air Exposure																							
0 to 5 fbg, Residential			NE	NE	1.9	NE	21	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	9.7
5 to 10 fbg, Residential, Outdoor Air			NE	NE	2.8	NE	32	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	9.7
0 to 5 fbg, C/I			NE	NE	8.2	NE	89	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	45
5 to 10 fbg, C/I, Outdoor Air			NE	NE	12	NE	134	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	45
0 to 10 fbg, Utility Worker			NE	NE	14	NE	314	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	219
											Concentrations reported in milligram per kilogram - mg/kg												
SB-16B	1	7/7/2008	83	<1.0	0.004	0.013	0.012	0.035	0.019	--	<0.0005	<0.007	<0.0009	<0.004	0.002	0.002	0.002	<0.0009	0.006	<0.0009	0.015	<0.0009	<0.0009
SB-16C	2	7/8/2008	250	<10	0.003	0.009	0.006	0.018	0.011	--	<0.0005	<0.007	<0.001	<0.004	0.001	0.001	0.002	<0.001	0.004	<0.001	0.007	<0.001	<0.001
SB-16C	3	7/8/2008	960	<40	0.005	0.008	0.006	0.018	0.011	--	<0.0005	0.063	0.002	0.012	0.001	0.002	0.003	<0.001	0.006	<0.001	0.01	<0.001	0.001
SB-17	1	7/7/2008	120	<10	0.0007	0.001	<0.001	0.002	0.001	--	<0.0005	0.015	0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001
SB-17	5	7/7/2008	97	40	0.22	0.053	0.63	1.3	0.19	--	<0.025	<0.35	<0.050	<0.20	0.14	0.35	0.73	<0.050	2.7	0.063	0.18	0.13	0.96
SB-17	9.5	7/8/2008	<4.0	4.9	0.021	0.003	0.025	0.013	0.003	--	<0.0005	0.015	<0.001	<0.004	0.016	0.015	0.003	0.001	0.002	0.005	0.003	0.004	0.007
SB-18	1	7/7/2008	61	150	0.0008	0.002	0.003	0.005	0.003	--	<0.0005	<0.007	0.002	<0.004	0.003	0.003	<0.001	0.005	0.002	0.013	0.003	0.005	0.013
SB-18	5	7/7/2008	1,500	630	0.21	<0.052	0.053	0.098	<0.052	--	<0.026	<0.37	<0.052	<0.21	0.36	0.61	0.089	<0.052	0.57	0.44	0.45	0.72	4.9
SB-18	10	7/8/2008	310	160	0.056	<0.049	<0.049	<0.049	<0.049	--	<0.024	<0.34	<0.049	<0.19	0.10	0.11	<0.049	<0.049	<0.049	0.053	0.079	0.095	<0.049
SB-19	1	7/7/2008	190	<10	0.001	0.002	<0.001	0.002	0.001	--	<0.0005	<0.008	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.002	<0.001	<0.001
SB-19	5	7/7/2008	680	960	0.29	0.92	3.9	7.6	3.3	--	<0.023	0.43	<0.047	<0.19	4.5	4.7	3.2	0.28	5.3	1.4	42	2.0	3.8
SB-19	10	7/8/2008	<4.0	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.001	--	<0.0005	<0.007	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-2	4.5	6/18/2009	480	1,100	<0.027	<0.055	0.19	--	--	0.19	<0.027	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	8.5	6/19/2009	17	4.8	<0.0005	<0.001	<0.001	--	--	<0.001	<0.0005	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 1

SOIL ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Boring ID	*Depth (fbg)*	*Sample Date*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*m+p-Xylene*	*o-Xylene*	*Total Xylenes*	*MTBE*	*Acetone*	*Carbon Disulfide*	*2-Butanone*	*Isopropyl-benzene*	*n-Propyl-benzene*	*1,3,5 - Trimethyl-benzene*	*tert-Butyl-benzene*	*1,2,4-Trimethyl-benzene*	*sec-Butyl-benzene*	*p-Isopropyl-toluene*	*n-Butyl-benzene*	*Naphthalene*
Low-Threat Policy - Direct Contact and Outdoor Air Exposure																							
0 to 5 fbg, Residential			NE	NE	1.9	NE	21	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	9.7
5 to 10 fbg, Residential, Outdoor Air			NE	NE	2.8	NE	32	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	9.7
0 to 5 fbg, C/I			NE	NE	8.2	NE	89	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	45
5 to 10 fbg, C/I, Outdoor Air			NE	NE	12	NE	134	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	45
0 to 10 fbg, Utility Worker			NE	NE	14	NE	314	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	219
								Concentrations reported in milligram per kilogram - mg/kg															
MW-3	4	6/18/2009	610	700	0.64	0.099	6.1	--	--	0.85	<0.026	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	6	6/18/2009	170	960	0.39	0.069	2.5	--	--	0.67	<0.025	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	8.5	6/19/2009	16	66	0.062	0.003	0.058	--	--	0.012	<0.0005	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	15	6/19/2009	<4.0	<1.0	<0.0005	<0.0009	<0.0009	--	--	<0.0009	<0.0005	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	7	6/19/2009	500	520	0.076	<0.049	0.061	--	--	<0.080	<0.024	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	10.5	6/23/2009	36	170	0.043	<0.048	<0.048	--	--	0.048	<0.024	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	14	6/23/2009	270	170	0.075	<0.047	<0.047	--	--	<0.047	<0.023	--	--	--	--	--	--	--	--	--	--	--	--
MW-1RA[5]	10	8/4/2010	260[3]	380	0.54	<0.050	0.43	--	--	0.12	<0.025	--	--	--	--	--	--	--	--	--	--	--	--
MW-1RA[5]	13.5	8/4/2010	120[3]	490	0.24	<0.050	0.068	--	--	0.057	<0.025	--	--	--	--	--	--	--	--	--	--	--	--
MW-6	15	8/4/2010	<4.0[3]	1.2	0.12	0.002	0.003	--	--	0.003	<0.0005	--	--	--	--	--	--	--	--	--	--	--	--
	ESLs		180	180	0.27	9.3	4.7	11	11	11	8.4	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	2.8

Abbreviations and Notes:

fbg = Feet below grade
TPHd = Total petroleum hydrocarbons as diesel by EPA Method 8015
TPHg = Total petroleum hydrocarbons as gasoline by EPA Method 8015
<x = not detected at or above stated laboratory reporting limit
[1] = EPA Method 8020
[2] = EPA Method 8240
[3] = Additional analyses were performed with silica gel cleanup
[4] = RRM reported as a false positive associated with EPA Method 8020
[5] = The GC/MS volatile analysis was performed according to the high level soil method due to the level of non-target compounds. Therefore, the reporting limits were raised.
[6] = Benzene detected at 2.3 mg/kg, toluene detected at 8.7 mg/kg, ethylbenzene detected at 8.7 mg/kg, and total xylenes detected at 35 mg/kg.
-- = Not Analyzed
* 1,2,3-Trichlorobenzene also detected at 0.067 mg/kg
ND = Not detected
VOCs = Volatile organic compounds by EPA method 8260B
Note: Other VOCs not included in the table were not detected in any of the samples.
ESL = Environmental screening level for shallow soil (<3m fbg) at commercial/industrial sites where groundwater is not a current or potential source of drinking water (Table B)-RWQCB May 2008
NE = Not established
Benzene, toluene, ethylbenzene, and xylenes EPA Method 8260B
MTBE = Methyl tertiary butyl ether EPA Method 8260B

TABLE 2

SOIL ANALYTICAL DATA - METALS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON BULK PLANT 206127)
2301-2311 BLANDING AVENUE, ALAMEDA, CALIFORNIA

Boring ID	*Depth (ft)*	*Sample Date*	*Mercury*	*Thallium*	*Arsenic*	*Selenium*	*Antimony*	*Barium*	*Beryllium*	*Cadmium*	*Chromium*	*Cobalt*	*Copper*	*Lead*	*Molybdenum*	*Nickel*	*Silver*	*Vanadium*	*Zinc*
			Concentrations reported in milligram per kilogram (mg/kg)																
SB-1	3	2/17/1995	0.43	7	**6.1**	ND	2	110	0.2	0.7	39	9.6	51	110	ND	30	0.1	37	210
SB-2	2	2/20/1995	0.7	ND	**9.7**	ND	2	120	0.1	ND	89	11	170	77	0.7	49	0.1	35	280
SB-3	1	2/17/1995	0.71	6	**68**	ND	2	56	0.2	ND	12	7.4	19	22	0.3	16	0.2	32	90
SB-4	1	2/17/1995	0.63	4	**46**	ND	2	59	0.2	ND	17	9.3	36	30	0.7	22	0.3	34	110
SB-5	1	2/17/1995	0.37	3	**12**	ND	1	46	0.2	ND	19	7.7	21	12	ND	22	0.2	32	74
SB-6	1	2/17/1995	0.94	8	**130**	ND	4	67	0.2	ND	16	8.7	31	32	1.1	23	0.7	34	100
SB-7	1.5	2/17/1995	0.16	ND	ND	ND	2	150	0.1	0.3	36	7.1	44	89	ND	24	0.1	47	200
SB-8	0.5	2/20/1995	0.09	ND	**4.5**	ND	2	88	0.2	ND	23	7.8	30	30	ND	15	ND	29	110
VP-1	3	7/9/2008	0.0756	<1.25	**2.32**	<0.961	<0.980	92.6	0.225	<0.137	5.68	2.95	23	42.1	0.565	6.08	0.184	27.6	117
VP-2	3	7/9/2008	0.247	<1.26	**6.78**	<0.970	<0.990	137	0.392	<0.139	17.9	7.01	47.4	185	1.04	15.8	0.302	38.3	167
VP-2	5	7/9/2008	0.025	<1.21	**1.78**	<0.933	<0.952	78.8	0.166	<0.133	24.9	4.13	7.19	9.67	0.463	9.17	<0.162	22.2	10.7
VP-3	2.5	7/14/2008	0.285	2.26	**9.45**	<0.980	2.64	164	0.235	<0.700	101	7	175	189	3.26	45.7	0.393	51.3	**690**
VP-3	5	7/14/2008	0.155	<1.22	**3.46**	<0.942	<0.962	94.5	0.149	<0.135	34.5	3.47	13.7	19.5	<0.423	33.7	<0.163	23.6	45.5
VP-4	2.5	7/14/2008	0.883	<1.25	**8.37**	<0.961	4.15	1,090	0.221	2.44	41.4	3.41	139	903	0.743	21.4	0.351	27.9	**1,670**
VP-4	5	7/14/2008	0.0134	<1.25	**3.19**	<0.961	<0.980	70.4	0.149	<0.137	34.4	2.46	5.91	16.3	<0.431	13.7	<0.167	32.6	15.5
VP-5	2.5	7/14/2008	0.256	2.24	**5.74**	<0.970	1.23	198	0.3	<0.139	29.4	7.44	40.8	63.9	0.582	26.1	0.421	61.7	190
VP-5	5	7/14/2008	0.0849	<1.26	**3.2**	<0.970	<0.990	94.2	0.136	<0.139	27.6	3.17	11.2	21.9	<0.436	10.8	<0.168	25.5	138
VP-6	3	7/9/2008	0.154	<1.27	**5.86**	<0.980	<1.00	80.6	0.562	<0.140	18.6	7.43	27.7	50.6	1.08	29.3	0.203	27.9	88.5
VP-6	5	7/9/2008	0.0342	<1.25	**3.72**	<0.961	<0.980	188	0.325	<0.137	46.4	2.12	11.1	5.24	<0.431	42.2	<0.167	39.1	29.3
SB-13	1	7/7/2008	0.118	<1.25	**21.6**	<0.961	<0.980	105	0.265	0.329	34.7	6.84	28.4	141	0.559	20.2	<0.167	30.5	144
SB-13	5	7/7/2008	0.0529	<1.26	**3.27**	<0.970	<0.990	98.2	0.364	<0.137	55.2	5.13	8.47	4.08	<0.436	48.7	<0.168	32.1	23
SB-13	10	7/8/2008	0.0223	<1.26	**3.14**	<0.970	<0.990	127	0.3	<0.139	52.1	5.77	12.5	3.8	<0.436	45	<0.168	36.6	30.2
SB-14	1	7/7/2008	0.114	<1.25	**8.17**	<0.961	<0.980	111	0.242	<0.139	29.9	8.27	59.4	115	1.02	28.9	<0.167	42.4	369
SB-14	5	7/7/2008	0.0353	<1.21	**5.39**	<0.933	<0.952	53.4	0.272	<0.139	12	5.29	15.3	14	<0.419	4.9	<0.162	25.2	84.6
SB-14	10	7/8/2008	0.028	<1.27	**3.04**	<0.980	<1.00	397	0.306	<0.140	51.4	9.57	11.8	3.29	<0.440	51.1	0.547	37.2	28.8
SB-15	1	7/7/2008	0.117	<1.27	**7.1**	<0.980	1.75	126	0.303	0.267	71.5	11.3	116	107	0.809	**167**	0.191	42.7	283
SB-15	5	7/7/2008	0.157	<1.22	**34.7**	<0.942	<0.962	112	0.249	0.169	41.5	7.66	58.7	74.1	0.888	27.5	<0.163	30.4	153
SB-15	9.5	7/8/2008	<0.0109	<1.25	**3.23**	<0.961	<0.980	132	0.362	<0.137	43.9	3.25	11.7	5.77	0.673	42.1	<0.167	27.6	30.1
SB-16A	1	7/7/2008	0.14	<1.27	**22.2**	<0.980	<1.00	230	0.459	0.263	45.9	9.07	184	115	0.958	34.3	0.387	37.4	**1,340**
SB-16B	1	7/7/2008	0.112	<1.22	**9.6**	<0.942	5.8	181	0.228	<0.135	275	12.7	180	125	10.6	129	0.469	42.7	**876**
SB-16C	2	7/8/2008	0.219	<1.27	**9.74**	<0.980	2.4	184	0.229	0.272	66.3	6.54	**254**	204	1.63	39.1	0.363	36.1	408
SB-16C	3	7/8/2008	0.233	<1.27	**12.5**	<0.980	<1.0	183	0.263	2.61	49.5	4.8	90.7	264	1.25	39.4	0.247	31.4	268

TABLE 2

SOIL ANALYTICAL DATA - METALS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON BULK PLANT 206127)
2301-2311 BLANDING AVENUE, ALAMEDA, CALIFORNIA

Boring ID	*Depth (ft)*	*Sample Date*	*Mercury*	*Thallium*	*Arsenic*	*Selenium*	*Antimony*	*Barium*	*Beryllium*	*Cadmium*	*Chromium*	*Cobalt*	*Copper*	*Lead*	*Molybdenum*	*Nickel*	*Silver*	*Vanadium*	*Zinc*
			Concentrations reported in milligram per kilogram (mg/kg)																
SB-17	1	7/7/2008	0.144	<1.25	**4.49**	<0.961	<0.980	121	0.322	0.316	63.1	9.16	65.2	81.5	0.678	49.5	0.177	38.3	162
SB-17	5	7/7/2008	0.0337	<1.22	**2.47**	<0.942	<0.962	87.8	0.209	<0.137	26.2	5.37	12.2	22.4	<0.423	10.7	<0.163	24.1	38.5
SB-17	9.5	7/8/2008	<0.0113	1.52	**14.9**	<0.961	<0.980	118	0.154	<0.137	48.5	6.3	12.2	3.69	<0.431	47.6	0.34	38.5	29
SB-18	1	7/7/2008	0.0528	<1.27	**3.1**	<0.980	<1.00	106	0.293	<0.136	53.7	7.41	43.5	30.5	<0.440	42.1	<0.170	31.8	58.1
SB-18	5	7/7/2008	0.361	<1.25	**3.14**	<0.961	<0.980	117	0.206	0.605	30.4	7.15	32.9	164	0.544	12.9	0.338	24	478
SB-18	10	7/8/2008	0.0163	4.78	**6.05**	<0.942	<0.962	82.3	0.123	<0.135	48	5.14	13.6	3.56	<0.423	44.8	0.244	35.9	27.2
SB-19	1	7/7/2008	0.184	<1.21	**8.31**	0.965	3.11	313	0.455	**60.6**	29.7	6.81	26.7	353	0.438	24.4	0.296	25.3	318
SB-19	5	7/7/2008	0.033	<1.22	**3.63**	<0.942	<0.962	114	0.397	<0.133	52.9	6.51	10.2	10.4	<0.423	66.6	<0.163	39.7	30.9
SB-19	10	7/8/2008	0.0568	<1.25	**1.78**	<0.961	<0.980	91.8	0.145	<0.137	54.1	5.19	11.1	2.9	<0.431	44.3	0.201	35.7	29.8
	ESLs		10	16	1.6	10	40	1,500	8.0	7.4	750*	80	230	750	40	150	40	200	600

Abbreviations / Notes
CAM 17 Metals by EPA Method 6010B/7471A
<x = not detected at or above the stated laboratory reporting limit
Concentrations in **bold** indicate that the constituent exceed their respective ESL
ND = Not detected at or above the stated laboratory reporting limit
ESL = Environmental screening level for shallow soil (<3m fbg) at commercial/industrial sites where groundwater is not a current or potential source of drinking water (Table B)-RWQCB May 2008
* ESL is for Chromium III

TABLE 3

HISTORICAL GRAB GROUNDWATER ANALYTICAL DATA
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON BULK PLANT 206127)
2301-2311 BLANDING AVENUE, ALAMEDA, CALIFORNIA

Boring/ Well ID	*Sample Date*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*m+p Xylene*	*o-Xylene*	*Total Xylenes*	*MTBE*	*Vinyl Chloride*	*cis-1,2-DCE*	*TCE*	*Isopropyl-benzene*	*n-Propyl-benzene*	*1,3,5-Trimethyl-benzene*	*tert-Butyl-benzene*	*1,2,4-Trimethyl-benzene*	*sec-Butyl-benzene*	*p-Isopropyl-toluene*	*n-Butyl-benzene*	*Naphthalene*	*TBA*	*Acetone*	*Metals*
Concentrations in micrograms per liter (µg/L)																									
GWS-7	4/24/1995	ND	ND	ND	ND	ND	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-8	4/24/1995	60	3700	36	6.9	27	--	--	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-9	4/24/1995	1,200	22,000	6,200	140	1,100	--	--	1,200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-10	4/24/1995	240.00	11,000	880	40	100	--	--	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-11	4/24/1995	70.00	140	ND	1	1.4	--	--	8.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-12	4/24/1995	ND	ND	ND	0.06	ND	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-13	4/24/1995	ND	ND	ND	ND	ND	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-14	4/24/1995	ND	ND	ND	ND	ND	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-15	4/24/1995	ND	ND	ND	ND	ND	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GWS-16	4/24/1995	ND	70	ND	ND	2	--	--	1.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
***SB-9	10/28/1998	**83,000** **62,000**	14,000	1,400	58	490	--	--	630	260/<10[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
***SB-10	10/28/1998	97 <50	<50	<0.50	<0.50	<0.50	--	--	<0.50	<2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
***SB-11	10/28/1998	270 170	310	<0.50	0.69	1.6	--	--	2.4	<2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
***SB-12	10/28/1998	<50	<50	<0.50	<0.50	<0.50	--	--	<0.50	<2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-13	7/8/2008	**600**	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	**3.0**	<1.0	<0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<6.0	--
SB-14	7/8/2008	**750**	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.5	<1.0	<0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<6.0	--
SB-15	7/8/2008	**430**	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	**0.8**	**1.0**	**69**	**5.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<6.0	--
SB-18	7/8/2008	**19,000**	**3,800**	**590**	**18**	**7.0**	**15**	**3.0**	--	<0.5	<1.0	<0.8	<1.0	**45**	**67**	**1.0**	**2.0**	**3.0**	**5.0**	**2.0**	**5.0**	**2.0**	**15**	**35**	--
SB-19	7/8/2008	**1,600**	**650**	**3.0**	**8.0**	**9.0**	**26**	**16**	--	<0.5	<1.0	<0.8	<1.0	**4.0**	**4.0**	**5.0**	<1.0	**13**	<1.0	**58**	<1.0	**2.0**	<5.0	**6.0**	--
MW-1	7/8/2008	**2,800**	**120**	**0.8**	<0.5	<0.5	<0.5	<0.5	--	<0.5	<1.0	<0.8	<1.0	<1.0	<1.0	<1.0	**1.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	**8.0**	ND[2]
ESLs		210	210	46	130	43	100*			1,800	3.8	590	360	NE	NE	NE	NE	NE	NE	NE	NE	24	18,000	1,500	1,000**

Abbreviations/notes:
TPHg/TPHd = Total petroleum hydrocarbons as gasoline/diesel by EPA Method 8015
VOCs = Volatile Organic Compounds by EPA Method 8260B
MTBE = Methyl tertiary butyl ether
cis-1,2-DCE = cis-1,2-Dichloroethene
TCE = Trichloroethene
TBA = Tertiary butyl alcohol
<x = not detected at or above stated laboratory detection limit
- - = Not analyzed
ND = Not detected; detection limits vary
[1] Total xylenes

TABLE 3

HISTORICAL GRAB GROUNDWATER ANALYTICAL DATA
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON BULK PLANT 206127)
2301-2311 BLANDING AVENUE, ALAMEDA, CALIFORNIA

[2] EPA Method 8020/ EPA Method 8260
* ESL is for total xylenes
NE = Not established
** ESL for barium
*** Samples analyzed using EPA Method 8015Mod/8020. TPHD analyzed using silica gel cleanup. TPHd wan twice for samples SB-9 through SB-11.
Note:
GWS-7 through GWS-16 were converted from milligrams per liter to micrograms per liter for consistancy.
BTEX were analyzed using EPA Method 8020 at samples GWS-7 through GWS-16 and SB-9 through SB-12. MTBE was analyzed using EPA Method 8020 at samples SB-9 through SB-12 unless otherwise noted.

TABLE 4

SOIL VAPOR ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Vapor Well	*Sample Date*	*TPHd* ($\mu g/m^3$)	*TPHg* ($\mu g/m^3$)	*Benzene* ($\mu g/m^3$)	*Toluene* ($\mu g/m^3$)	*Ethyl-benzene* ($\mu g/m^3$)	*m,p-Xylene* ($\mu g/m^3$)	*Naphthalene* ($\mu g/m^3$)	*Chloromethane* ($\mu g/m^3$)	*Bromomethane* ($\mu g/m^3$)	*Hexane* ($\mu g/m^3$)	*Cyclohexane* ($\mu g/m^3$)	*Heptane* ($\mu g/m^3$)	*Cumene* ($\mu g/m^3$)	*Propyl-benzene* ($\mu g/m^3$)	*1,3,5-Trimethyl-benzene* ($\mu g/m^3$)	*4-Ethyl-toluene* ($\mu g/m^3$)	O_2 (%)	N_2 (%)	CO_2 (%)	CH_4 (%)	*He* (%)
Soil Vapor Wells																						
VP-1	08/19/08	13,000	**1,300,000**	**300**	140	240	540	--	<160	<75	9,400	12,000	27,000	1,600	2,800	<95	660	17	--	4.00	--	<0.12
	10/22/09	--	<88	<3.4	<4.1	<4.7	<4.7	--	<8.9	<4.2	<3.8	<3.7	<4.4	<5.3	<5.3	<5.3	<5.3	9.4	--	5.70	--	<0.11
	06/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/16/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VP-2	08/19/08	24,000	**1,500,000**	140	<86	130	300	--	<190	<89	5,500	19,000	12,000	900	1,700	<110	370	8.9	--	11.00	--	<0.11
	10/22/09	--	<95	<3.7	<4.4	<5.0	<5.0	--	<9.6	<4.5	<4.1	<4.0	<4.8	<5.7	<5.7	<5.7	<5.7	13	--	8.00	--	<0.12
	06/29/10	--	<280	<4.3	<5	<5.9	<5.9	<28	--	--	--	--	--	--	--	--	--	16	79	5.10	0.0005	<0.14
	06/29/10[1]	--	820	<4.3	<5.0	<5.8	<5.8	<28	--	--	--	--	--	--	--	--	--	16	79	5.10	<0.00027	<0.13
	11/16/10[2]	--	<160	<3.8	<4.4	<5.1	<5.1	<25	--	--	--	--	--	--	--	--	--	18	79	3.10	<0.00024	<0.12
VP-3	08/19/08	**53,000E**	**4,100,000**	<700	<830	<960	1,200	--	<1,800	<850	38,000	47,000	77,000	4,000	5,700	1,200	<1100	1.7	--	11.00	--	<0.11
	10/22/09	--	**1,800,000**	<130	<150	<180	<180	--	<330	<160	6,200	6,200	1,800	<200	<200	<200	<200	1.4	--	8.10	--	<0.12
	06/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/16/10	--	**340,000**	<38	<45	<52	<52	<250	--	--	--	--	--	--	--	--	--	4.1	87	8.10	0.66	<0.12
VP-4	08/19/08	**91,000S**	**220,000,000**	**1,100,000**	49,000	**570,000**	**70,000**	--	**3,900,000**	**70,000**	8,400,000	3,600,000	5,100,000	57,000	84,000	<19,000	37,000	0.55	--	16.00	--	<0.13
	10/22/09	--	**140,000,000**	**1,100,000**	<48,000	**650,000**	**71,000**	--	<100,000	<49,000	7,700,000	3,400,000	4,900,000	64,000	110,000	<62,000	<62,000	0.64	--	15.00	--	<0.13
	10/22/09[1]	--	**130,000,000**	**1,000,000**	<46,000	**540,000**	57,000	--	<100,000	<47,000	7,300,000	3,200,000	4,600,000	<59,000	92,000	<59,000	<59,000	0.62	--	14.00	--	<0.12
	06/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/16/10	--	**130,000,000**	**830,000**	30,000	**470,000**	44,000	<25,000	--	--	--	--	--	--	--	--	--	1.1	43	12.00	41	0.28
VP-5	08/19/08	**110,000S**	**29,000,000**	**28,000**	<4,400	<5,000	<5,000	--	<9,600	<4,500	630,000	430,000	660,000	7,000	<5,700	<5,700	<5,700	2.0	--	15.00	--	<0.12
	10/22/09	--	**20,000,000**	**16,000**	<4,800	<5,500	<5,500	--	<10,000	<4,900	370,000	310,000	490,000	12,000	15,000	<6,200	<6,200	1.3	--	17.00	--	<0.13
	06/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/16/10	--	**18,000,000**	**11,000**	1,600	<1600	1,600	<8000	--	--	--	--	--	--	--	--	--	1.5	82	16.00	0.030	<0.11
	11/16/10[1]	--	**18,000,000**	**12,000**	1,500	<1600	1,700	<8000	--	--	--	--	--	--	--	--	--	1.4	82	16.00	0.030	<0.11
VP-6	08/19/08	**96,000S**	**150,000,000**	**20,000**	<10,000	<12,000	<12,000	--	**1,200,000**	**25,000**	3,300,000	3,200,000	2,800,000	17,000	<14,000	<14,000	<14,000	3.9	--	9.80	--	<0.11
	08/19/08[1]	22,000	**840,000**	100	<86	130	290	--	<190	<89	4,400	9,800	12,000	890	1,700	<110	390	9.2	--	10.00	--	<0.11
	06/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/16/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE 4

SOIL VAPOR ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Vapor Well	Sample Date	TPHd ($\mu g/m^3$)	TPHg ($\mu g/m^3$)	Benzene ($\mu g/m^3$)	Toluene ($\mu g/m^3$)	Ethyl-benzene ($\mu g/m^3$)	m,p-Xylene ($\mu g/m^3$)	Naphthalene ($\mu g/m^3$)	Chloromethane ($\mu g/m^3$)	Bromomethane ($\mu g/m^3$)	Hexane ($\mu g/m^3$)	Cyclohexane ($\mu g/m^3$)	Heptane ($\mu g/m^3$)	Cumene ($\mu g/m^3$)	Propyl-benzene ($\mu g/m^3$)	1,3,5-Trimethyl-benzene ($\mu g/m^3$)	4-Ethyl-toluene ($\mu g/m^3$)	O_2 (%)	N_2 (%)	CO_2 (%)	CH_4 (%)	He (%)
Sub-Slab Soil Vapor Probes																						
VP-7	07/24/09	--	<95	<3.7	<4.4	<5.0	<5.0	--	<9.6	<4.5	<4.1	<4.0	<4.8	<5.7	<5.7	<5.7	<5.7	19	--	0.60	--	<0.12
	06/29/10	--	<240	<3.7	<4.3	<5.0	<5.0	<24	--	--	--	--	--	--	--	--	--	21	78	0.30	<0.00023	0.21
	11/16/10	--	<260[3]	<4.1	<4.9	<5.6	<5.6	<27	--	--	--	--	--	--	--	--	--	20	79	0.50	<0.00026	0.54
VP-8	07/24/09	--	490	<3.5	<4.1	<4.8	<4.8	--	<9.1	<4.3	<3.9	<3.8	<4.5	<5.4	<5.4	<5.4	<5.4	21	--	0.56	--	<0.11
	07/24/09[1]	--	8,200	7	48	24	100	--	<9.1	<4.3	<3.9	<3.8	<4.5	<5.4	14	33	79	21	--	0.56	--	<0.11
	06/29/10	--	310	24	71	5.9	47	<25	--	--	--	--	--	--	--	--	--	20	79	0.61	<0.00024	0.57
	06/29/10[1]	--	340	24	70	5.3	44	<25	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/16/10	--	<250[3]	<3.9	<4.6	<5.2	<5.2	<25	--	--	--	--	--	--	--	--	--	19	79	0.98	<0.00024	1.10
VP-9	07/24/09	--	8,800	<3.8	38	<5.3	19	--	<9.8	<4.6	<4.2	<4.1	<4.9	<5.8	<5.8	<5.8	<5.8	15	--	0.14	--	29.00
	10/22/09	--	<90	<3.5	<4.1	<4.8	<4.8	--	<9.1	<4.3	<3.9	<3.8	<4.5	<5.4	<5.4	<5.4	<5.4	20	--	0.73	--	<0.11
	06/29/10	--	<230	<3.6	<4.3	<4.9	<5.0	<24	--	--	--	--	--	--	--	--	--	19	80	1.10	<0.00023	<0.11
	11/16/10	--	<250[3]	<3.9	<4.6	<5.3	<5.3	<26	--	--	--	--	--	--	--	--	--	19	80	1.20	<0.00024	<0.12
VP-10	07/24/09	--	2,500B	<3.7	7	52	130	--	<9.6	<4.5	<4.1	<4.0	12	<5.7	12	21	59	17	--	0.48	--	16.00
	10/22/09	--	2,100	16	6.1	12	<5.2	--	<10	<4.7	100	45	91	<5.9	<5.9	<5.9	<5.9	20	--	0.29	--	2.40
	06/29/10	--	<250	<3.8	<4.5	<5.2	<5.2	<25	--	--	--	--	--	--	--	--	--	19	73	0.43	<0.00024	7.30
	11/16/10	--	260[3]	<4.0	6.3	<5.4	<5.4	<26	--	--	--	--	--	--	--	--	--	18	72	0.42	<0.00025	10.00
VP-11	07/24/09	--	450B	<3.9	13	<5.2	8	--	<10	<4.7	<4.3	<4.2	<5.0	<5.9	<5.9	<5.9	<5.9	16	--	0.26	--	22.00
	10/22/09	--	<99	<3.9	<4.6	<5.2	<5.2	--	<10	<4.7	<4.3	<4.2	<5.0	<5.9	<5.9	<5.9	<5.9	14	--	4.00	--	<0.12
	06/29/10	--	<240	<3.8	<4.5	<5.1	<5.1	<25	--	--	--	--	--	--	--	--	--	18	80	1.90	<0.00024	<0.12
	11/16/10	--	<260	<4.0	<4.7	<5.4	<5.4	<26	--	--	--	--	--	--	--	--	--	18	80	1.70	<0.00025	<0.12
	11/16/10[1]	--	<260[3]	<4.0	<4.7	<5.4	<5.4	<26	--	--	--	--	--	--	--	--	--	18	80	1.70	<0.00025	<0.12
VP-12	07/24/09	--	190B	<3.6	<4.2	<4.9	<4.9	--	<9.2	<4.3	<3.9	<3.8	<4.6	<5.5	<5.5	<5.5	<5.5	19	--	0.73	--	0.43
	07/24/09[1]	--	1,600B	<3.6	<4.2	<4.9	<4.9	--	<9.2	<4.3	<3.9	<3.8	<4.6	<5.5	<5.5	<5.5	<5.5	19	--	0.73	--	0.44
	10/22/09	--	<95	<3.7	<4.4	<5.0	<5.0	--	<9.6	<4.5	<4.1	<4.0	<4.8	<5.7	<5.7	<5.7	<5.7	18	--	1.40	--	<0.12
	06/29/10	--	<220	<3.5	<4.1	<4.8	<4.8	<23	--	--	--	--	--	--	--	--	--	20	80	0.45	<0.00022	<0.11
	11/16/10	--	<240[3]	<3.8	<4.5	<5.2	<5.2	<25	--	--	--	--	--	--	--	--	--	20	80	0.50	<0.00024	<0.12
VP-13	07/24/09	--	8,600B	<3.6	200	<5.0	9	--	<9.4	<4.4	<4.0	<3.9	<4.7	<5.6	<5.6	<5.6	<5.6	15	--	0.16	--	26.00
	10/22/09	--	<95	<3.7	<4.4	<5.0	<5.0	--	<9.6	<4.5	<4.1	<4.0	<4.8	<5.7	<5.7	<5.7	<5.7	20	--	1.30	--	<0.12
	06/29/10	--	<240	<3.8	<4.4	<5.1	<5.1	<25	--	--	--	--	--	--	--	--	--	16	82	2.00	<0.00024	<0.12
	11/16/10	--	450[3]	<3.9	<4.6	<5.3	<5.3	<26	--	--	--	--	--	--	--	--	--	15	78	2.60	<0.00024	4.70
SFRWQCB ESLs [a]		***29,000***	***29,000***	***280***	***180,000***	***3,300***	***58000[4]***	***240***	***53,000***	***2,900***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***
SFRWQCB ESLs [b]		***1,400***	***1,400***	***14***	***8,800***	***160***	***2,900[4]***	***12***	***2,600***	***150***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***

TABLE 4

SOIL VAPOR ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Vapor Well	Sample Date	TPHd ($\mu g/m^3$)	TPHg ($\mu g/m^3$)	Benzene ($\mu g/m^3$)	Toluene ($\mu g/m^3$)	Ethyl-benzene ($\mu g/m^3$)	m,p-Xylene ($\mu g/m^3$)	Naphthalene ($\mu g/m^3$)	Chloromethane ($\mu g/m^3$)	Bromomethane ($\mu g/m^3$)	Hexane ($\mu g/m^3$)	Cyclohexane ($\mu g/m^3$)	Heptane ($\mu g/m^3$)	Cumene ($\mu g/m^3$)	Propyl-benzene ($\mu g/m^3$)	1,3,5-Trimethyl-benzene ($\mu g/m^3$)	4-Ethyl-toluene ($\mu g/m^3$)	O_2 (%)	N_2 (%)	CO_2 (%)	CH_4 (%)	He (%)

Abbreviations and Notes:

Bold = indicates that measured concentration exceeds the ESL for shallow soil gas under commercial/industrial land use.
Underline = indicates that measured concentration exceeds the ESL for indoor air under commercial/industrial land use adjusted by a factor of 100 to account for attenuation between sub-slab and indoor air.
TPHd = Total petroleum hydrocarbons as diesel by EPA Method TO-17
TPHg = Total petroleum hydrocarbons as gasoline by EPA Method TO-3 (8/19/08) or TO-15 GC/MS
Volatile Organic Compounds by EPA Method TO-15
Oxygen ($O_{2)}$, nitrogen (N_2), carbon dioxide ($CO_{2),}$ methane (CH_4) and helium (He) by ASTM Method D-1946
NE = Not established
NS = Not sampled due to the presence of water in vapor well
B = Compound present in laboratory blank greater than reporting limit, background subtraction not per
[a] = Environmental Screening Levels for shallow soil gas associated with potential vapor intrusion concerns at commercial/industrial sites (Table E, SFRWQCB, 2008).
[b] = Environmental Screening Levels for indoor air under commercial/industrial land use adjusted by a factor of 100 to account for attenuation between sub-slab and indoor air (Table E, SFRWQCB, 2008).
[1] = Field duplicate sample
[2] = TPHg analysis by TO-15 APH
[3] = Estimated value due to laboratory error
[4] = ESL is for total xylenes
< = Not detected at or above stated laboratory reporting limit
-- = Not analyzed

TABLE 5

INDOOR AND OUTDOOR AIR ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Vapor Well	*Sample Date*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*m,p-Xylene*	*Naphthalene*	*O_2*	*N_2*	*CO_2*	*CH_4*	*He*
		($\mu g/m^3$)										
IA-1	06/29/10	**290**	**0.52**	4.50	0.27	0.97	<4.0	--	--	--	--	--
	11/16/10[2]	**220**	**1.70**	7.70	0.61	2.20	<4.1	22	78	0.042	0.00021	<0.078
IA-2	06/29/10	**490**	**0.57**	5.20	**2.30**	8.3	<4.1	--	--	--	--	--
	11/16/10[2]	**390**	**0.97**	15.00	**1.80**	5.7	<4.4	22	78	0.048	0.00021	<0.084
IA-3	07/09/10	**110**	**0.39**	1.80	0.27	0.92	<4.3	22	78	0.040	0.00019	<0.082
	07/09/10[3]	**100**	**0.41**	2.00	0.26	0.91	<4.3	--	--	--	--	--
	11/16/10[2]	**530**	**4.20**	35.00	**6.00**	23.00	<4.2	22	78	0.046	0.00021	<0.081
IA-4	06/29/10	**490**	**1.80**	16.00	**2.10**	7.9	<4.0	--	--	--	--	--
	11/16/10[2]	**200**	**0.77**	4.40	0.74	2.5	<4.4	22	78	0.041	0.00020	<0.084
OA-1	06/29/10	<160	**0.24**	0.78	0.15	0.48	<4.0	--	--	--	--	--
	11/16/10[2]	**110**	**0.61**	2.10	0.38	1.20	<4.1	22	78	0.043	0.00021	<0.078
SFRWQCB ESLs		***14***	***0.14***	***88.00***	***1.60***	***29[1]***	***0.12***	***NE***	***NE***	***NE***	***NE***	***NE***

Abbreviations and Notes:

Bold = indicates that measured concentration exceeds the ESL for indoor air under commercial/industrial land use.
TPHg = Total petroleum hydrocarbons as gasoline by EPA Method TO-15 GC/MS SIM.
Volatile organic compounds by EPA Method TO-15 GC/MS SIM.
Oxygen (O_2), nitrogen (N_2), carbon dioxide (CO_2), methane (CH_4) and helium (He) by ASTM Method D-1946.
ESLs = Environmental Screening Levels associated with ambient and indoor air at commercial/industrial sites (Table E, SFRWQCB, 2008).
[1] = ESL is for total xylenes.
[2] = Samples analyzed by Modified TO-15 APH
[3] = Field duplicate sample
NE = Not established.
< = Not detected at or above stated laboratory reporting limit.
-- = Not analyzed/not applicable.

TABLE 6

WELL CONSTRUCTION SPECIFICATIONS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON BULK PLANT 206127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Well ID	*Date Installed*	*TOC*	*Total Depth (fbg)*	*Casing Diameter [1] (inches)*	*Slot Size (inches)*	*Screen Interval (fbg)*	*Filter Pack (fbg)*	*Status*
Monitoring Wells								
MW-1	8/15/1990	13.49	19.5	2	0.020	4-19	3-19.5	Replaced w/MW-1RB
MW-1RA	8/4/2010	13.02	13	2	0.020	8-13	7-13	Active
MW-1RB	8/4/2010	13.21	20	2	0.020	16.5-20	15.5-20	Active
MW-2	6/19/2009	10.63	18	2	0.020	10.5-15.5	10-16	Active
MW-3	6/19/2009	10.72	18.5	2	0.020	13.5-18.5	12.5-18.5	Active
MW-4	6/19/2009	11.40	20.5	2	0.020	15.5-20.5	14.5-20.5	Active
MW-5	6/23/2009	10.50	18	2	0.020	13-18	12-18	Active
MW-6	8/4/2010	12.98	20	2	0.020	16.5-20	15.5-20	Active
Piezometer Wells								
P-1	9/28/2012	13.23	20	1	0.020	16.5-20	15.5-20	Active
P-2	9/28/2012	13.51	12	1	0.020	7-12	6-12	Active
Vapor Wells								
VP-1	7/9/2008	NS	4.25	1	0.020	3.75-4.25	3.5-4.5	Vapor only
VP-2	7/9/2008	NS	4.75	1	0.020	4.25-4.75	4-5	Vapor only
VP-3	7/14/2008	NS	5.75	1	0.020	5.25-5.75	5-6	Vapor only
VP-4	7/14/2008	NS	5.75	1	0.020	5.25-5.75	5-6	Vapor only
VP-5	7/14/2008	NS	5.75	1	0.020	5.25-5.75	5-6	Vapor only
VP-6	7/9/2008	NS	5.75	1	0.020	5.25-5.75	5-6	Vapor only
Sub-Slab Vapor Probes								
VP-7	7/17/2009	NS	0.5	0.25	NA	NA	NA	Vapor only
VP-8	7/17/2009	NS	0.5	0.25	NA	NA	NA	Vapor only
VP-9	7/22/2009	NS	0.5	0.25	NA	NA	NA	Vapor only
VP-10	7/22/2009	NS	0.5	0.25	NA	NA	NA	Destroyed
VP-11	7/17/2009	NS	0.5	0.25	NA	NA	NA	Destroyed
VP-12	7/22/2009	NS	0.5	0.25	NA	NA	NA	Destroyed
VP-13	7/22/2009	NS	0.5	0.25	NA	NA	NA	Vapor only

Abbreviations / Notes

TOC = Top of casing elevation (feet above mean sea level)
[1] = Schedule 40 PVC casing material
fbg = Feet below grade
NA = Not applicable
NS = Not surveyed

Appendix A

Boring Logs

Log of Boring No. SB1

PROJECT: PARK STREET LANDING Alameda, California	ELEVATION AND DATUM: Ground surface
BORING LOCATION:	DATE STARTED: 2/17/95 / DATE FINISHED: 2/17/95
DRILLING CONTRACTOR: Precision Sampling	TOTAL DEPTH: 10 feet bgs. / MEASURING POINT: Ground surface
DRILLING METHOD: Direct push	DEPTH TO WATER: FIRST --- / COMPL. --- / 24 HRS. --
DRILLING EQUIPMENT: XD 1	LOGGED BY: T. F. Wood
SAMPLING METHOD: Enviro Core System	RESPONSIBLE PROFESSIONAL: A. L. Spencer / REG. NO. RG 5713
HAMMER WEIGHT: --- / DROP: ---	

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
					Asphalt	
1					CLAYEY SAND with GRAVEL (SC) Very dark gray (10YR 3/1); moist; 40% fine to medium sand; 40% fine to coarse subangular gravel; 20% medium plasticity fines; firm	
2						
3	SB1-3.0			7		
	SB1-3.5			7		
4					CLAYEY SAND (SC) Dark greenish gray (5BG 4/1); moist; 60-70% fine to medium sand; 30-40% medium plasticity fines; firm	
5	SB1-5.0			357		
	SB1-5.5			491		
6						
7						
8					Color change to dark gray (5Y 4/1); mottled with dark greenish gray (5BG 4/1)	
9	SB1-9.5			9		
	SB1-10.0			15		
10					Bottom of boring at 10 feet bgs	
11						
12						
13						
14						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. SB2

BORING LOCATION:

ELEVATION AND DATUM: Ground surface

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 2/20/95

DATE FINISHED: 2/20/95

DRILLING METHOD: Direct push

TOTAL DEPTH: 10 feet bgs

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD 2

DEPTH TO WATER	FIRST	COMPL.	24 HRS.
	---	---	--

SAMPLING METHOD: Enviro Core System

LOGGED BY: T. F. Wood

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
		core cut			Concrete - sidewalk	
1					POORLY GRADED SAND with CLAY AND GRAVEL (SP-SC) Dark brown (10YR 3/3); moist; 70% fine to medium sand (trace coarse sand); 20% fine to coarse angular gravel; 10% low to medium plasticity fines; loose	
2	SB2-2.0			0		
3	SB2-3.5			0		
4	SB2-4.0			0		
5					---?---?---?--- SANDY LEAN CLAY (CL) Dark greenish gray (5BG 4/1); moist; 60-65% fines; 35-40% fine to medium sand; medium plasticity; firm	
6						
7	SB2-7.0			848		
8						
9	SB2-9.5			158		
10	SB2-10.0			178	Bottom of boring at 10 feet bgs	
11						
12						
13						
14						

B-1 (11/92)

2436.02.003

Geomatrix Consultants

Project No. 2436.02

Figure ---

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. SB3

BORING LOCATION:

ELEVATION AND DATUM: Ground surface

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 2/17/95

DATE FINISHED: 2/17/95

DRILLING METHOD: Direct push

TOTAL DEPTH: 10 feet bgs

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD 1

DEPTH TO WATER	FIRST	COMPL.	24 HRS.
	---	---	--

SAMPLING METHOD: Enviro Core System

LOGGED BY: T. F. Wood

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
					Asphalt	
1	SB3-1.0			7	CLAYEY SAND with GRAVEL (SC) Very dark gray (10YR 3/1); dry; 40% fine to medium sand; 40% fine to coarse angular gravel; 20% medium plasticity fines; loose	
1	SB3-1.5			36		
2						
3						
4					SANDY LEAN CLAY (CL) Dark greenish gray (5BG 4/1); moist; 60 -65% fines; 35-40% fine sand; medium plasticity; firm	
5						
6	SB3-6.5			244		
7	SB3-7.0			338		
8						
9					Mottled with dark gray (5Y 4/1)	
9	SB3-9.5			11		
10	SB3-10.0			19	Bottom of boring at 10 feet bgs	
11						
12						
13						
14						

B-1 (11/92)

2436.02.004

Geomatrix Consultants | Project No. 2436.02 | Figure ---

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. SB4

BORING LOCATION:

ELEVATION AND DATUM: Ground surface

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 2/17/95 | DATE FINISHED: 2/17/95

DRILLING METHOD: Direct push

TOTAL DEPTH: 10 feet bgs | MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD 1

DEPTH TO WATER | FIRST: --- | COMPL.: --- | 24 HRS.: --

SAMPLING METHOD: Enviro Core System

LOGGED BY: T. F. Wood

HAMMER WEIGHT: --- | DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer | REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
					Asphalt	
1	SB4-1.0			59	CLAYEY SAND with GRAVEL (SC) Very dark gray (10YR 3/1) to dark yellowish brown (10YR 4/4); dry; 40% fine to coarse sand; 40% fine to coarse angular gravel; 20% medium plasticity fines; loose	
1	SB4-1.5			19		
2						
3						
4					SANDY LEAN CLAY (CL) Dark greenish gray (5BG 4/1); moist; 60-65% fines; 35-40% fine sand; medium plasticity fines; firm	
5						
6	SB4-6.5			726		
7	SB4-7.0			1247	Black mottling	
8						
9	SB4-9.5			270		
10	SB4-10.0			111	Bottom of boring at 10 feet bgs	
11						
12						
13						
14						

B-1 (11/92)

Geomatrix Consultants | Project No. 2436.02 | Figure ---

2436.02.005

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. SB5

BORING LOCATION:

ELEVATION AND DATUM: Ground surface

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 2/17/95

DATE FINISHED: 2/17/95

DRILLING METHOD: Direct push

TOTAL DEPTH: 10 feet bgs

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD 1

DEPTH TO WATER: FIRST ---; COMPL. ---; 24 HRS. --

SAMPLING METHOD: Enviro Core System

LOGGED BY: T. F. Wood

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION (NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.)	REMARKS
					Surface Elevation:	
					Asphalt	
1	SB5-1.0			532	POORLY GRADED SAND with CLAY AND GRAVEL (SP-SC) Dark yellowish brown (10YR4/4); dry, 60% fine to coarse sand;	
1	SB5-1.5			1643	30% fine to coarse angular gravel; 10% medium plasticity fines; loose	
2						
3					Color change to dark brown (7.5YR 3/2)	Brick and plastic pieces present
4					CLAYEY SAND (SC) Black (2.5YR 2.5/0); moist; 60-65% fine sand; 35-40% medium plasticity fines; soft	
5	SB5-5.5			2350		
6	SB5-6.0			1763		
7					Color change to dark greenish gray (5BG 4/1)	
8						
9	SB5-9.5			86		
10	SB5-10.0			240	Bottom of boring at 10 feet bgs	
11						
12						
13						
14						

B-1 (11/92)

Geomatrix Consultants | Project No. 2436.02 | Figure ---

2436.02.006

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. SB6

BORING LOCATION:

ELEVATION AND DATUM: Ground surface

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 2/17/95 | DATE FINISHED: 2/17/95

DRILLING METHOD: Direct push

TOTAL DEPTH: 10 feet bgs | MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD 1

DEPTH TO WATER | FIRST --- | COMPL. --- | 24 HRS. --

SAMPLING METHOD: Enviro Core System

LOGGED BY: T. F. Wood

HAMMER WEIGHT: --- | DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer | REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	Sample	Blows/ Foot	PID Reading (ppm)	DESCRIPTION (NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.)	REMARKS
					Surface Elevation:	
					Asphalt	
1	SB6-1.0			26	CLAYEY SAND with GRAVEL (SC) Very dark gray (10YR 3/1); dry; 40% fine to medium sand; 40% fine to coarse angular gravel; 20% medium plasticity fines; loose	
1	SB6-1.5			36		
2						
3						
4					SANDY LEAN CLAY (CL) Dark greenish gray (5BG 4/1); moist; 60-65% fines; 35-40% fine sand; medium plasticity; firm	
5						
6						
7	SB6-7.0			248		
8	SB6-8.0			26		
9					Black mottling	
9	SB6-9.5			86		
10	SB6-10.0			32	Bottom of boring at 10 feet bgs	
11						
12						
13						
14						

B-1 (11/92)

Geomatrix Consultants | Project No. 2436.02 | Figure --

2436.02.007

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. SB7

BORING LOCATION:

ELEVATION AND DATUM: Ground surface

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 2/17/95

DATE FINISHED: 2/17/95

DRILLING METHOD: Direct push

TOTAL DEPTH: 10 feet bgs

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD 1

DEPTH TO WATER: FIRST ---; COMPL. ---; 24 HRS. --

SAMPLING METHOD: Enviro Core System

LOGGED BY: T. F. Wood

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
0					Asphalt	
1	SB7-1.0			13		Poor recovery-- Unable to log
1	SB7-1.5			3		
2					?	
3						Concrete in shoe
4	SB7-4.0			15		
5						
6					?	
7	SB7-7.0			17		
8						
9	SB7-9.5			94		
10	SB7-10.0			19		
10					Bottom of boring at 10 feet bgs	
11						
12						
13						
14						

B-1 (11/92)

Geomatrix Consultants | Project No. 2436.02 | Figure ---

2436.02.008

Log of Boring No. SB8

PROJECT: PARK STREET LANDING Alameda, California	
BORING LOCATION: Approx. 15 feet N of North corner of trash house	ELEVATION AND DATUM: Ground surface
DRILLING CONTRACTOR: Precision Sampling	DATE STARTED: 2/20/95 / DATE FINISHED: 2/20/95
DRILLING METHOD: Direct push	TOTAL DEPTH: 10 feet bgs / MEASURING POINT: Ground surface
DRILLING EQUIPMENT: XD 2	DEPTH TO WATER: FIRST ---, COMPL. ---, 24 HRS. --
SAMPLING METHOD: Enviro Core System	LOGGED BY: T. F. Wood
HAMMER WEIGHT: --- / DROP: ---	RESPONSIBLE PROFESSIONAL: A. L. Spencer / REG. NO. RG 5713

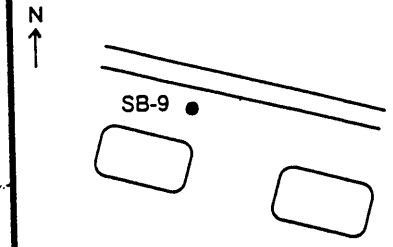
DEPTH (feet)	SAMPLES: Sample No.	Sample	Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
1	SB8-0.5			37	POORLY GRADED SAND with CLAY AND GRAVEL (SP-SC) Dark brown (10YR 3/3); moist; 70% fine to medium sand (trace coarse sand); 15-20% fine to coarse angular gravel; 10-15% low to medium plasticity fines; loose	Samples SB8-0.5 and SB8-1.0 collected from new hole approximately 1 foot north of SB8 due to poor recovery. New hole only 18 inches deep -- samples collected with split spoon
	SB8-1.0			10		
2						
3						
4					? Increase in fine gravel to 40%; decrease in sand to 55% fine to coarse sand; decrease in fines to 5%	
5						
6	SB8-6.5			+9999		
	SB8-7.0			974	? ? ? CLAYEY SAND (SC) Black (5Y 2.5/1); moist; 80-90% fine to medium sand; 10-20% medium plasticity fines; firm	Rock in shoe
7						
8						One 1 inch subrounded gravel at gradational contact
9	SB8-9.5			451	SANDY LEAN CLAY (CL) Dark greenish gray (5BG 4/1); moist; 60-70% fines; 30-40% fine sand; medium plasticity; firm	
	SB8-10.0			463		
10					Bottom of boring at 10 feet bgs at 10:40	
11						
12						
13						
14						

B-1 (11/92)

Geomatrix Consultants | Project No. 2436.02 | Figure ---

2436.02.009

WELL/BORING LOCATION MAP



REMEDIATION RISK MANAGEMENT, INC. | WELL/BORING:SB-9

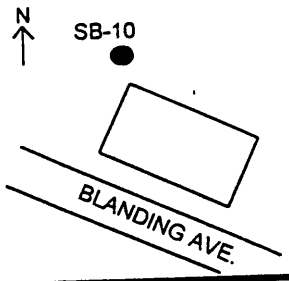
DATE:10/28/98	DRILLING METHOD:GEOPROBE
PROJECT:AA46	SAMPLING METHOD:CONTINUOUS CORE
CLIENT:CHEVRON	BORING DIAMETER:2"
LOCATION:BLANDING AVE.	BORING DEPTH:16'
CITY:ALAMEDA	WELL CASING:Temporary 1" sch 40 PVC
CO./STATE:ALAMEDA	WELL SCREEN:
DRILLER:ECA	SAND PACK:

WATER LEVEL:	6.59	6.60'	
TIME:	13:55	14:10	
DATE:	10/28/98	10/28/98	

DESCRIPTION/LOGGED BY:DR

WELL/BORING COMPLETION	FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / ft.	FIELD TEST HNU	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	USCS SYMBOL	DESCRIPTION
CEMENTGROUT				P			2				Fill	0-3": Asphalt 3"-3':Fill Material; native clayey sandy soil with debris
			D			SB-9 4-5'	4				CL	3'-13.5':Sandy Clay; greenish gray; 80% low to moderate plasiticity clayey fines; 20% fine sand;roots common
		▼	D		162	SB-9 5-6'	6					
					137		8					
			M			SB-9 9-10.5'	10					
					287		12					@13': 40% fine sand
			M		323	SB-9 13-14'						
					158		14				SP	13.5-16': Sand; greenish gray; trace clayey silty fines; fine sand
			W		4.4		16					16': Bottom of Boring
							18					
							20					
							22					
							24					
							26					
							28					
							30					
							32					
							34					
							36					
							38					
							40					
							42					
							44					

WELL/BORING LOCATION MAP



REMEDIATION RISK MANAGEMENT, INC. | WELL/BORING:SB-10

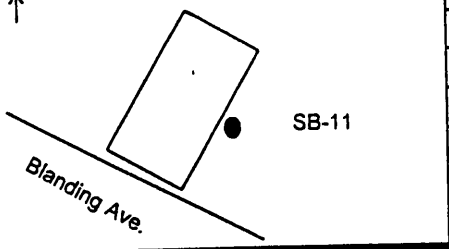
DATE:10/28/98	DRILLING METHOD:GEOPROBE
PROJECT:AA46	SAMPLING METHOD:CONTINUOUS CORE
CLIENT:CHEVRON	BORING DIAMETER:2"
LOCATION:BLANDING AVE.	BORING DEPTH:18'
CITY:ALAMEDA	WELL CASING:Temporary 1" sch 40 PVC
CO./STATE:ALAMEDA	WELL SCREEN:
DRILLER:ECA	SAND PACK:

WATER LEVEL:	9.60'		
TIME:	14:05		
DATE:	10/28/98		

DESCRIPTION/LOGGED BY:DR

WELL/BORING COMPLETION	FIRST ▽	STABILIZED ▼	MOISTURE	DENSITY BLOWS / ft.	FIELD TEST HNU	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	USCS SYMBOL	DESCRIPTION
CEMENT GROUT				P			0					0-3":Asphalt;
			D			SB-10 3-4'	2				Fill	3"-3':fill is a siltiy to clayey sand; olive brown
							4					
			D			SB-10 5.5-6.5'	6				SC	3-7':Clayey Sand: dark brown; 20% clayey fines; 80% fine sand; organic matter; dark brown to black
		▼			1.0		8					
			M		1.0	SB-10 6.5-7'	10				CL	7-14':Sandy Clay:dark brown; low plasticity clayey fines; 25% fine sand; roots common
			M				12					
					1.7		14					14-16': No Recovery
			W			SB-10 17-18'	16					16-18':Sand: greenish gray; trace fines; fine sand
					1.0		18				SP	18': Bottom of Boring
							20					
							22					
							24					
							26					
							28					
							30					
							32					
							34					
							36					
							38					
							40					
							42					
							44					

WELL/BORING LOCATION MAP



REMEDIATION RISK MANAGEMENT, INC. | WELL/BORING:SB-11

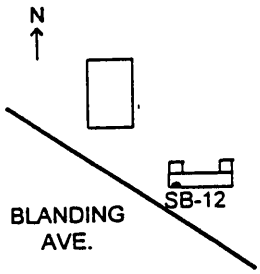
DATE:10/28/98	DRILLING METHOD:GEOPROBE
PROJECT:AA46	SAMPLING METHOD:CONTINUOS CORE
CLIENT:CHEVRON	BORING DIAMETER:2"
LOCATION:BLANDING AVE	BORING DEPTH:~15'
CITY:ALAMEDA	WELL CASING:Temporary 1" sch 40 PVC
CO./STATE:ALAMEDA	WELL SCREEN:
DRILLER:ECA	SAND PACK:

WATER LEVEL:	8.19'	7.57'	6.50'
TIME:	09:30	09:47	10:10
DATE:	10/28/98	10/28/98	10/28/98

DESCRIPTION/LOGGED BY:DR

WELL/BORING COMPLETION	FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / ft.	FIELD TEST HNU	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	USCS SYMBOL	DESCRIPTION
CEMENTGROUT				p			0					0-3":Asphalt
			D		16.8	SB-11 2.5-3.5'	2				Fill	3"-5.5':Fill: baserock-native-debris; silty to clayey sand; olive brown; 15% silty to clayey fines; 85% sand
			D				4					
		▼	M		0.3	SB-11 6-7'	6				CL	5.5-14': Sandy Clay: greenish gray; 85% moderate plasticity clayey fines; 15% sand; some iron-oxide staining as veinlets
						SB-11 7-8'	8					
			W		1.0	SB-11 10-11'	10					@11':Increase in sand content to 20-25%; fine sand
					0.3		12					@13':25% fine sand; occasional sand stringers and root holes
			W		0.3	SB-11 14-15'	14				SP	@14': Sand; greenish gray; trace clayey to silty fines; fine sand
												15': Bottom of Boring
							16					
							18					
							20					
							22					
							24					
							26					
							28					
							30					
							32					
							34					
							36					
							38					
							40					
							42					
							44					

WELL/BORING LOCATION MAP



REMEDIATION RISK MANAGEMENT, INC. | WELL/BORING:SB-12

DATE:10/28/98	DRILLING METHOD:GEOPROBE
PROJECT:AA46	SAMPLING METHOD:CONTINUOS CORE
CLIENT:CHEVRON	BORING DIAMETER:2"
LOCATION:BLANDING AVE.	BORING DEPTH:~15'
CITY:ALAMEDA	WELL CASING:Temporary 1" sch 40 PVC
CO./STATE:ALAMEDA	WELL SCREEN:
DRILLER:CA	SAND PACK:

WATER LEVEL:	4.63'		
TIME:	11:35		
DATE:	10/28/98		
DESCRIPTION/LOGGED BY:DR			

WELL/BORING COMPLETION	FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / ft.	FIELD TEST HNU	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	USCS SYMBOL	
CEMENTGROUT			D	P		SB-12 2-3'	2				Fill	Planter Fill Top Soil; silty to clayey sand; olive brown
			M		1.0	SB-12 6-7'	4					
					1.0	SB-12 7-8'	6				CL	4-12.5':Sandy Clay: dark grayish brown; low plasticity 80% fines; 20% fine sand
			M		1.0		8					@9':Sandy Clay: olive yellow;; low plasticity 80% fines; 25% fine sand
			VM			SB-12 14-15'	10					@11':Sandy Clay: greenish gray; low plasticity 80% fines; 20% fine sand
					1.0		12				SC	12.5-14.5': Clayey Sand; greenish gray; 25% fines; 75% sand
							14				SP	14.5-15': Sand; greenish gray; trace fines
							16					15': Bottom of Boring
							18					
							20					
							22					
							24					
							26					
							28					
							30					
							32					
							34					
							36					
							38					
							40					
							42					
							44					

Conestoga Rovers & Associates
10969 Trade Center Drive, Suite 107
Rancho Cordova, CA
Telephone: 916-889-8900
Fax: 916-889-8999

BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	SB-13
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	07-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	08-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 inches	**SCREENED INTERVALS**	NA
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	15.0 fbg (08-Jul-08) ▽
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Hand-Augered/Airknifed to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
43.2		SB-13 -1					**Silty SAND :**Dark brown; dry; 60% sand, 25% silt, 10% gravel, 5% clay; low plasticity.		
					SM				
249		SB-13 -5		5			**Silty SAND :**Greenish grey; moist; 50% sand, 30% silt, 10% sand, 10% gravel; medium plasticity.		
								9.0	Portland Type I/II
		SB-13 -10		10			**CLAY :** Greenish grey; moist; 55% clay, 30% silt, 15% sand; medium plasticity.		
					CL			13.0	
							Silty SAND : Greenish grey; wet; 65% sand, 20% silt, 15% sand; medium plasticity; poorly graded medium to fine grained sand.		
					SM		▽		
				15				16.0	Bottom of Boring @ 16 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	SB-14
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	07-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	08-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 inches	**SCREENED INTERVALS**	NA
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	14.5 fbg (08-Jul-08) ▽
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Hand-Augered/Airknifed to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
2.0		SB-14 -1			SC		**Clayey SAND :**Dark brown; dry; 65% sand, 15% clay, 10% silt, 10% gravel; low plasticity.		
								4.0	
					SM		**Silty SAND:**Black; moist; 45% sand, 30% silt, 25% clay; low plasticity.		
1.6		SB-14 -5		5				5.5	
					CL		**CLAY:** Grey; moist; 55% clay, 30% silt, 15% sand (well-sorted fined grained); medium plasticity;		Portland Type I/II
		SB-14 -10		10				10.5	
					CL		**CLAY with sand:** Grey; moist; 55% clay, 30% silt, 15% sand; medium plasticity.	11.5	
					CL		**Sandy CLAY:**Brown; moist; 50% clay, 35% sand, 15% silt; medium plasticity.	13.0	
					SM		**Silty SAND:**Brown with grey mottling; moist 55% sand, 30% silt, 10% clay; low plasticity.		
							▽	14.5	
				15	SM		**Silty SAND:**Brown; wet; 75% sand, 15% silt, 10% clay; low plasticity.	16.0	Bottom of Boring @ 16 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	SB-15
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	07-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	08-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 inches	**SCREENED INTERVALS**	NA
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	15.0 fbg (08-Jul-08) ▽
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Hand-Augered/Airknifed to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
0		SB-15 -1			SM		**Silty SAND :**Dark brown; moist; 65% sand, 20% silt, 15% clay, 5% gravel; low plasticity.		
								4.0	
0.4		SB-15 -5		5	SC		**Clayey SAND:**Black; moist; 60% sand, 20% clay, 10% silt, 10% gravel; low plasticity.		
							Clayey SAND: Dark brown; moist; 60% sand, 20% clay, 10% silt, 10% gravel; low plasticity.		
52.1		SB-15 -9.5							Portland Type I/II
				10			**CLAY with sand:** Green; moist; 45% clay, 30% sand, 20% silt, 5% gravel; medium plasticity.	9.5	
					CL				
								14.5	
				15	SM		**Silty SAND:**Greenish grey; wet; 55% sand (medium to fine grained), 30% silt, 10% clay; low plasticity. ▽		
								16.0	Bottom of Boring @ 16 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--1\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

Conestoga Rovers & Associates
10969 Trade Center Drive, Suite 107
Rancho Cordova, CA
Telephone: 916-889-8900
Fax: 916-889-8999

BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	SB-16
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	07-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	08-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 inches	**SCREENED INTERVALS**	NA
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	NA ▽
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
					SM		**Silty SAND:** Brown; dry; 50% sand, 20 gravel, 20% silt, 10% clay; low plasticity.	3.0	
							Refusal at 3 feet.		Bottom of Boring @ 3 fbg

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	SB-17
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	07-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	08-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 inches	**SCREENED INTERVALS**	NA
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA
REMARKS	Hand-Augered/Airknifed to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
1.7		SB-17 -1			SM		**Silty SAND :**Grey; moist; 60% sand, 20% silt, 10% clay, 10% gravel; low plasticity.	4.0	
122		SB-17 -5		5	SC		**Clayey SAND:**Black; moist; 55% sand, 20% clay, 15% silt, 10% gravel (coarse angular); low plasticity.	6.0	
		SB-17 -9.5		10	CL		**CLAY with sand:** Greenish grey; moist; 45% 5 clay, 25% silt, 20% sand; medium plasticity.	10.5	Portland Type I/II
				15	SM		**Silty SAND:**Greenish grey; moist 55% sand (medium to fine grained), 30% silt, 10% clay; low plasticity.	16.0	Bottom of Boring @ 16 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	SB-18
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	07-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	08-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 inches	**SCREENED INTERVALS**	NA
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	14.5 fbg (08-Jul-08)
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA
REMARKS	Hand-Augered/Airknifed to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
56.3		SB-18 -1			SM		**Silty SAND :**Grey; moist; 60% sand, 20% silt, 10% clay, 10% gravel; low plasticity.	4.0	
114		SB-18 -5		5	SC		**Clayey SAND:**Black; moist; 55% sand, 20% clay, 15% silt, 10% gravel (coarse angular); low plasticity.	6.0	
		SB-18 -9.5		10	CL		**CLAY with sand:** Grey with green mottling; moist; 45% clay, 30% sand, 20% silt, 5% gravel; medium plasticity.	10.5	Portland Type I/II
				15	SM		**Silty SAND:**Greenish grey; moist 55% sand (medium to fine grained), 30% silt, 10% clay; low plasticity. Brown with grey mottling; moist 55% sand, 30% silt, 10% clay; low plasticity. Brown; wet; 75% sand, 15% silt, 10% clay; low plasticity.	16.0	Bottom of Boring @ 16 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--1\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	SB-19
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	07-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	08-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2 inches	**SCREENED INTERVALS**	NA
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	14.5 fbg (08-Jul-08)
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA
REMARKS	Hand-Augered/Airknifed to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
362		SB-19 -1			SM		**Silty SAND :**Dark brown; moist; 60% sand, 20% silt, 10% clay, 10% gravel; low plasticity; conrete fragements. Brown; wet; 75% sand, 15% silt, 10% clay; low plasticity.		
1,373		SB-19 -5		5			Black; moist; 60% sand, 20% silt, 10% clay, 10% gravel; low plasticity. Grey; moist; 60% sand, 20% silt, 10% clay, 10% gravel; low plasticity. Greenish grey; moist; 70% sand, 20% silt, 10% clay; low plasticity.	7.0	
		SB-19 -10		10	CL		**CLAY with sand:** Greenish grey with balck mottling; moist; 45% clay, 30% sand, 25% silt; medium plasticity.		Portland Type I/II
				15	SM		**Silty SAND:**Greenish grey; wet; 65% sand (poorly graded), 20% silt, 15% clay; low plasticity.	14.0 16.0	Bottom of Boring @ 16 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

PROJECT: PARK STREET LANDING Alameda, California	**Log of Boring No. GWS-7A**
BORING LOCATION: Northwest corner by canal	ELEVATION AND DATUM: Gravel sidewalk
DRILLING CONTRACTOR: Precision Sampling	DATE STARTED: 4/24/95 / DATE FINISHED: ---
DRILLING METHOD: Direct push	TOTAL DEPTH: 6 feet / MEASURING POINT: Ground surface
DRILLING EQUIPMENT: XD-3	DEPTH TO WATER / FIRST: --- / COMPL.: --- / 24 HRS.: --
SAMPLING METHOD: Enviro Core System	LOGGED BY: S. L. Anich
HAMMER WEIGHT: --- / DROP: ---	RESPONSIBLE PROFESSIONAL: A. L. Spencer / REG. NO.: RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
0					Gravel sidewalk	
2					CLAYEY SAND (SC) Very dark grayish brown (10Y 3/2), dry, 60% medium sand, 30% low plasticity fines, 10% small gravel, loose	
3					Gray concrete and brick fragments	
4					GRANULAR MATERIAL Black (7.5YR 2.5/1), moist, 60% fine to medium grains, 35% low plasticity fines, 5% small gravel, loose	
6					Refusal at 6 feet bgs	
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8						
9						
10						
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12						
13						
14						

PROJECT: PARK STREET LANDING Alameda, California	**Log of Boring No. GWS-7B**
BORING LOCATION: Northwest corner by canal	ELEVATION AND DATUM: Gravel sidewalk
DRILLING CONTRACTOR: Precision Sampling	DATE STARTED: 4/24/95 / DATE FINISHED: ---
DRILLING METHOD: Direct push	TOTAL DEPTH: 6 feet / MEASURING POINT: Ground surface
DRILLING EQUIPMENT: XD-3	DEPTH TO WATER / FIRST: --- / COMPL.: --- / 24 HRS.: --
SAMPLING METHOD: Enviro Core System	LOGGED BY: S. L. Anich
HAMMER WEIGHT: --- / DROP: ---	RESPONSIBLE PROFESSIONAL: A. L. Spencer / REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
0					Gravel sidewalk	
1						
2					CLAYEY SAND (SC) Very dark grayish brown (10Y 3/2), dry, 60% medium sand, 30% low plasticity fines, 10% small gravel, loose	
3					Gray concrete / brick	
4					GRANULAR MATERIAL Black (7.5YR 2.5/1), moist, 60% fine to medium grains, 35% low plasticity fines, 5% small gravel, loose	
5	GWS7 5'					
6					Refusal at 6 feet bgs	
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13						
14						

PROJECT: PARK STREET LANDING Alameda, California	**Log of Boring No. GWS-7**	
BORING LOCATION: Northwest corner of property	ELEVATION AND DATUM: Gravel sidewalk	
DRILLING CONTRACTOR: Precision Sampling	DATE STARTED: 4/24/95	DATE FINISHED: 4/24/95 1000 hrs.
DRILLING METHOD: Direct push	TOTAL DEPTH: 15 feet	MEASURING POINT: Ground surface
DRILLING EQUIPMENT: XD-3	DEPTH TO WATER bgs: FIRST 9 feet; COMPL. 9.6 feet; 24 HRS. --	
SAMPLING METHOD: Enviro Core System	LOGGED BY: S. L. Anich	
HAMMER WEIGHT: --- DROP: ---	RESPONSIBLE PROFESSIONAL: A. L. Spencer	REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
0					CLAYEY SAND (SC) Very dark grayish brown (10YR 3/2), dry, 60% medium sand, 30% low plasticity fines, 10% small gravel, loose	
3					GRANULAR MATERIAL Black (7.5YR 2.5/1), loose, dry	
4					CLAYEY SAND (SC) Light olive brown (2.5Y 5/3), dry, 60% fine to medium sand, 35% low plasticity fines, 5% small gravel, loose	
6					CLAYEY SAND (SC) Light olive brown (2.5Y 5/3) with brick fragments, moist, 60% fine sand, 35% low plasticity fines, 5% small gravel, loose	
8					LEAN CLAY with SAND (CL) Black (10YR 2/1), moist, 80% fines, 20% sand, low plasticity, soft	
10					▽	
11					1-inch lense of coarse gravel	
12					LEAN CLAY (CL) Black (10YR 4/1), wet, 95% fines, 5% sand, high plasticity, hard	
13					LEAN CLAY (CL) Greenish gray gley (5G 5/1), moist, 95% fines, 5% sand, medium plasticity	
14						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-7 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15					LEAN CLAY (CL) (continued) Orange mottling Bottom of boring at 15 feet bgs	
16						
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PROJECT: PARK STREET LANDING Alameda, California	**Log of Boring No. GWS-8**	
BORING LOCATION: Sidewalk, northwest corner	ELEVATION AND DATUM: Grassy area	
DRILLING CONTRACTOR: Precision Sampling	DATE STARTED: 4/24/95	DATE FINISHED: 4/24/95 - 1130 hrs
DRILLING METHOD: Direct push	TOTAL DEPTH: 16 feet	MEASURING POINT: Ground surface
DRILLING EQUIPMENT: XD-3	DEPTH TO WATER: FIRST ---; COMPL. 9' 0"; 24 HRS. --	
SAMPLING METHOD: Enviro Core System	LOGGED BY: S. L. Anich	
HAMMER WEIGHT: --- DROP: ---	RESPONSIBLE PROFESSIONAL: A. L. Spencer	REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
1						No recovery in upper 2 feet
2					CLAYEY SAND (SC) Very dark gray (10YR 3/1) with abundant organics (roots, grass), moist, 65% medium sand, 25% low plasticity fines, 10% fine to coarse gravel, loose	
3						
4						
5						
6					Increased sand content to 80%, 20% low plasticity fines	
7						
8					LEAN CLAY with SAND (CL) Black (10YR 2/1), moist, 75% fines, 25% fine sand, low plasticity	
9						
10					LEAN CLAY (CL) Greenish gray (10GY 5/1), moist, 95% fines, 5% fine sand, low plasticity	
11						
12						
13						
14						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-8 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					LEAN CLAY (CL) (continued) Increase sand content to 20%	
15					CLAYEY SAND (SC) Light olive brown (2.5Y 5/4) with green and brown mottling, moist, 60% fine sand, 40% low plasticity fines	
16					Bottom of boring at 16 feet bgs	
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PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-9

BORING LOCATION: Along canal - middle	ELEVATION AND DATUM: Sidewalk (gravel)		
DRILLING CONTRACTOR: Precision Sampling	DATE STARTED: 4/24/95	DATE FINISHED: 4/24/95 - 1330 hrs	
DRILLING METHOD: Direct push	TOTAL DEPTH: 16 feet	MEASURING POINT: Ground surface	
DRILLING EQUIPMENT: XD-3	DEPTH TO WATER: FIRST ---	COMPL. ---	24 HRS. --
SAMPLING METHOD: Enviro Core System	LOGGED BY: S. L. Anich		
HAMMER WEIGHT: --- DROP: ---	RESPONSIBLE PROFESSIONAL: A. L. Spencer	REG. NO. RG 5713	

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
1						No recovery in upper 3 feet
2						
3					SANDY LEAN CLAY with GRAVEL (CL) Very dark gray (10YR 3/1), dry, 60% fines, 25% fine to medium sand, 15% medium gravel, low plasticity	
4					CLAYEY SAND with GRAVEL (SC) Very dark gray (10YR 3/1), calcium deposits, dry, 60% fine to medium sand, 25% low plasticity fines, 15% fine gravel, loose	
5						
6					Increase sand content to 80% ▽	
7					LEAN CLAY with SAND (CL) Black (10YR 2/1), moist, 85% fines, 15% fine sand, low plasticity	
8					Increase sand content to 30%	
9					LEAN CLAY (CL) Greenish gray (10GY 5/1), moist, 95% fines, 5% fine sand, low plasticity	
10					Orange mottling	
11						
12						
13					Increase sand content to 30%	
14						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-9 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15					LEAN CLAY (CL) (continued)	
16					CLAYEY SAND (SC) Greenish gray (10Y 5/1) with orange mottling, moist, 60% fine sand, 40% low plasticity fines	
17					Bottom of boring at 16 feet bgs	
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PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-10

BORING LOCATION: Along canal - middle

ELEVATION AND DATUM: Gravel sidewalk

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 4/24/95

DATE FINISHED: 4/24/95 - 1430 hrs

DRILLING METHOD: Direct push

TOTAL DEPTH: 16 feet

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD-3

DEPTH TO WATER	FIRST	COMPL.	24 HRS.
	---	---	--

SAMPLING METHOD: Enviro Core System

LOGGED BY: S. L. Anich

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
1						No recovery in upper 2 feet
2					CLAYEY SAND (SC) Very dark gray (10YR 3/1), moist, 70% fine sand, 25% low plasticity fines, 5% fine to coarse subangular gravel	
3						
4						
5					Increase gravel content to 15%	
6				>1200		
7					SANDY LEAN CLAY (CL) Black (5Y 2.5/1), moist, 60-70% fines, 30-40% fine to coarse sand, low plasticity, soft	
8					Increase moisture	
9					LEAN CLAY (CL) Dark greenish gray (5G 4/1), moderate amount yellow to brown organics, moist, 80-90% fines, 10-20% fine to coarse sand, trace fine gravel, low plasticity, firm	
10						
11					Organics and orange mottling	
12						
13						
14						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-10 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15				>1200	LEAN CLAY (CL) (continued)	
16					POORLY GRADED SAND WITH CLAY (SP - SC) Gray (N5/), moist, 90% fine to medium sand, 10% low plasticity fines, loose Bottom of boring at 16 feet bgs	
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31						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-11

BORING LOCATION: Along canal - southeast side

ELEVATION AND DATUM: Gravel sidewalk

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 4/24/95

DATE FINISHED: 4/24/95 - 1530 hrs

DRILLING METHOD: Direct push

TOTAL DEPTH: 16 feet

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD-3

DEPTH TO WATER	FIRST	COMPL.	24 HRS.
	---	---	--

SAMPLING METHOD: Enviro Core System

LOGGED BY: S. L. Anich

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
0					GRAVEL SIDEWALK	No recovery in upper 1 1/2 feet
1						
2					SANDY LEAN CLAY (CL) Very dark grayish brown (10YR 3/2), moist, 60% fines, 30% fine to coarse sand, 10% subangular gravel, low plasticity, soft	
3					Increase organic content, wood fragments	
4						
5				1300		
6					LEAN CLAY with SAND (CL) Black (10YR 2/1) with tan mottling, moist, 85% fines, 15% fine to coarse sand, trace fine to coarse gravel, low plasticity, medium hard	
7				50		
8					LEAN CLAY (CL) Bluish gray (10B 6/1), moist, 90% fines, 10% medium to coarse sand, low plasticity, firm	
9						
10					Color change to pale olive with green and orange mottling	
11				50		
12					Increase sand content to 25%	
13						
14						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-11 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15				100	SANDY LEAN CLAY (CL) Greenish gray (10Y 5/1), moist, 60% fines, 40% fine to coarse sand, low plasticity, firm	
16					CLAYEY SAND (SC) Dark bluish gray (10B 4/1), moist, 70% fine to coarse sand, 30% low plasticity fines, dense	
					Bottom of boring at 16 feet bgs	
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PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-12

BORING LOCATION: Along canal - southeast side	ELEVATION AND DATUM: Gravel sidewalk		
DRILLING CONTRACTOR: Precision Sampling	DATE STARTED: 4/24/95	DATE FINISHED: 4/24/95 - 1630 hrs	
DRILLING METHOD: Direct push	TOTAL DEPTH: 16 feet	MEASURING POINT: Ground surface	
DRILLING EQUIPMENT: XD-3	DEPTH TO WATER	FIRST: ---	COMPL.: --- / 24 HRS.: --
SAMPLING METHOD: Enviro Core System	LOGGED BY: S. L. Anich		
HAMMER WEIGHT: --- / DROP: ---	RESPONSIBLE PROFESSIONAL: A. L. Spencer	REG. NO. RG 5713	

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
1						No recovery in upper 2 1/2 feet
2						
3					CLAYEY SAND (SC) Dark gray (7.5YR 4/1), moist, 70% fine to coarse sand, 25% low plasticity fines, 5% rounded and subangular gravel, medium density, glass fragments	
4					Increase in low plasticity fines to 30%	
5					White "chalky" mottling or inclusions	
6					WELL-GRADED SAND (SW) Light olive brown (2.5Y 5/3), moist, 95% fine to coarse sand, 5% low plasticity fines, loose	
7				700		
8						
9					Color change to very dark gray (2.5Y 3/1), increase low plasticity fines to 20%	
10						
11				50	LEAN CLAY with SAND (CL) Olive (5Y 5/4) with green mottling, moist, 85% fines, 15% fine to medium sand, low plasticity , soft	
12					Increase sand content to 30% with orange mottling	
13					CLAYEY SAND (SC) Olive (5Y 5/4) with green and orange mottling, very moist, 65% fine to coarse sand, 35% low plasticity fines	
14						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-12 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15					CLAYEY SAND (SC) (continued) Increase sand content to 80% and color change to greenish gray (10GY 5/1)	
16					Bottom of boring at 16 feet bgs	
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-13

BORING LOCATION: Along Blanding Ave., N side of driveway, next to bldg

ELEVATION AND DATUM: Vegetated area

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 4/25/95

DATE FINISHED: 4/25/95 - 1045 hrs

DRILLING METHOD: Direct push

TOTAL DEPTH: 16 feet

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD-3

DEPTH TO WATER	FIRST	COMPL.	24 HRS.
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SAMPLING METHOD: Enviro Core System

LOGGED BY: S. L. Anich

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
1						Did not encounter petroleum-like odors; however, PID readings were measured. No recovery in upper 2 1/2 feet.
2					CLAYEY SAND (SC) Black (2.5Y 2.5/1), orange organic nodules, very moist, 60-70% fine to coarse sand, 30-40% low plasticity fines, loose	
3					Color change to olive brown (2.5Y 4/3)	
4					LEAN CLAY (CL) Dark grayish brown (2.5Y 4/2), organic nodules (roots, black nodules), moist, 80-90% fines, 10-20% fine to medium sand, low plasticity, firm	
5					Gravel content to 5% (medium, angular)	
6				162	CLAYEY SAND (SC) Dark greenish gray (10GY 4/1), moist, 70% fine to coarse sand, 30% low plasticity fines, dense	
7					ATD ▽	
8				120	CLAYEY SILT (ML) Greenish gray (5GY 5/1), moist, 90-95% fines, 5-10% fine to medium sand, low plasticity, firm	
9				120		
10				170	Orange mottling and organic nodules, increasing clay content	
11				190		
12				380	CLAYEY SAND (SC) Dark greenish gray (10Y 4/1), moist, 60 % fine to coarse sand, 40% low plasticity fines, including 10% silt, medium dense	
13					LEAN CLAY (CL) Olive gray (5Y 4/2), moist, 80% fines, 20% fine to coarse sand, low plasticity	
14				650		

B-1 (11/92)

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-13 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15					WELL-GRADED SAND with CLAY (SW-SC) Dark greenish gray (10GY 4/1), moist, 90% fine to coarse sand, 40% low plasticity fines, loose Color change to olive brown (2.5Y 4/4)	
16					Bottom of boring at 16 feet bgs	
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-14

BORING LOCATION: Along Blanding Ave., south side of driveway

ELEVATION AND DATUM: Vegetated area

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 4/25/95

DATE FINISHED: 4/25/95 - 930 hrs

DRILLING METHOD: Direct push

TOTAL DEPTH: 16 feet

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD-3

DEPTH TO WATER	FIRST	COMPL.	24 HRS.
	---	---	--

SAMPLING METHOD: Enviro Core System

LOGGED BY: S. L. Anich

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
1						Did not encounter petroleum-like odors; however, PID readings were measured. No recovery in upper 2 1/2 feet.
2						
3					CLAYEY SAND (SC) Reddish black (10R 2.5/1), moist, 60-70% fine to coarse sand, 30-40% low plasticity fines, loose	
4					Increased sand content to 80-85%, color change to brown (10YR 5/3)	
				80		
5					SANDY LEAN CLAY (CL) Light yellowish brown (2.5Y 6/4), moist, 60% fines, 30% fine to coarse sand, 10% fine gravel, low plasticity, firm	
6						
7					Color change to pale olive (5Y 6/4)), increase fines to 75%	
8					CLAYEY SAND (SC) Greenish gray (5G 5/1) with orange mottling and black organic pockets, moist, 60-70% fine to coarse sand, 30-40% low plasticity fines, medium dense to dense	
9				160		
10				271	LEAN CLAY with SAND (CL) Olive (5Y 5/3) with orange mottling and black organic pockets (some roots), moist, 80% fines (including silt), 20% fine to medium sand, low plasticity, firm	
11					▽	
12				600	CLAYEY SAND (SC) Olive (5Y 5/6) with orange and black mottling, very moist, 60-70% fine to coarse sand, 30-40% low plasticity fines, medium dense	
13						
14				25		

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-14 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15					SANDY LEAN CLAY (CL) Dark greenish gray (5G 3/1), moist, 70% fines, 30% fine to coarse sand, low plasticity, dense	
16					WELL-GRADED SAND with CLAY (SW-SC) Olive (5Y 4/3), moist, 90% fine to coarse sand, 10% low plasticity fines, loose	
17					Bottom of boring at 16 feet bgs	
18						
19						
20						
21						
22						
23						
24						
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26						
27						
28						
29						
30						
31						

PROJECT: PARK STREET LANDING Alameda, California	**Log of Boring No. GWS-15**
BORING LOCATION: North side of property--driveway	ELEVATION AND DATUM: Asphalt driveway
DRILLING CONTRACTOR: Precision Sampling	DATE STARTED: 4/25/95 / DATE FINISHED: 4/25/95 - 1200 hrs
DRILLING METHOD: Direct push	TOTAL DEPTH: 16 feet / MEASURING POINT: Ground surface
DRILLING EQUIPMENT: XD-3	DEPTH TO WATER: FIRST ---, COMPL. ---, 24 HRS. --
SAMPLING METHOD: Enviro Core System	LOGGED BY: S. L. Anich
HAMMER WEIGHT: --- / DROP: ---	RESPONSIBLE PROFESSIONAL: A. L. Spencer / REG. NO. RG 5713

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
1						No recovery in upper 2 1/2 feet
2						
3				300	GRAVEL CLAYEY SAND (SC) Very dark grayish brown (10YR 3/2), moist, 70-80% fine to coarse sand, 20-30% low plasticity fines, loose	
4						
5				8700	LEAN CLAY with SAND (CL) Black (10YR 2/1), some orange organic nodules, moist, 60-70% fines (5-10% silt), 30-40% fine to coarse sand, low plasticity, soft	
6				250		
7					CLAYEY SAND (SC) Dark yellowish brown (10YR 4/4), moist to very moist, 75-85% fine to coarse sand, 15-25% low plasticity fines, loose to medium dense	
8				50	SANDY LEAN CLAY (CL) Olive (5Y 5/3), moist, 70% fines, 30% fine to coarse sand, low plasticity, firm	
9				122	Decreasing sand content to 20%	
10					Black organic nodules, greenish gray (5G 5/1) pockets, orange mottling	
11				200		
12				+9000		
13					Increasing sand content to 30-40%, color change to yellowish brown (10YR 5/6)	
14				1200		

B-1 (11/92)

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-15 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION (NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.)	REMARKS
15			470		SANDY LEAN CLAY (CL) (Continued) CLAYEY SAND (SC) Light olive brown (2.5Y 5/4) black organic nodules, green mottling, moist, 60% fine to coarse sand, 40% low plasticity fines, soft to firm,	
16					Increase sand content to 70-80% Bottom of boring at 16 feet bgs	
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

B-2 (11/92)

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-16

BORING LOCATION: Main driveway

ELEVATION AND DATUM: Asphalt driveway

DRILLING CONTRACTOR: Precision Sampling

DATE STARTED: 4/25/95

DATE FINISHED: 4/25/95 - 1415 hrs

DRILLING METHOD: Direct push

TOTAL DEPTH: 21.5 feet

MEASURING POINT: Ground surface

DRILLING EQUIPMENT: XD-3

DEPTH TO WATER	FIRST	COMPL.	24 HRS.
	---	---	--

SAMPLING METHOD: Enviro Core System

LOGGED BY: S. L. Anich

HAMMER WEIGHT: ---

DROP: ---

RESPONSIBLE PROFESSIONAL: A. L. Spencer

REG. NO. RG 5713

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
1						No recovery in upper 2 1/2 feet
2						
					GRAVEL	
3				1000	CLAYEY SAND (SC) Black (7.5YR 2.5/1), moist, 70% fine to coarse sand, 30% low plasticity fines, loose to medium dense	
4					Increased sand content to 80%	
5						
6				200	SANDY LEAN CLAY (CL) Dark greenish gray (5GY 4/1), moist, 60-70 % fines, 30-40% fine to coarse sand, low plasticity, medium hard	
7						
8						
9					Orange organic nodules	
10					LEAN CLAY with SAND (CL) Olive (5Y 5/4), with green and orange mottling, moist, 70-80% fines, 20-30% fine to coarse sand, low plasticity, hard	
11				14		
12					WELL-GRADED SAND with CLAY (SW-SC) Greenish gray (5G 5/1), moist, 85-90% fine to coarse sand, 10-15% low plasticity fines, loose to medium dense	
13				8		
14						

B-1 (11/92)

PROJECT: PARK STREET LANDING
Alameda, California

Log of Boring No. GWS-16 (cont.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
15					WELL-GRADED SAND with CLAY (SW-SC) (Continued) Increase sand content to 90-95%	
16						
17					Color change to olive (5Y 4/3)	
18						
19					Orange mottling	
20						
21						
22					Bottom of boring at 21.5 feet bgs	
23						
24						
25						
26						
27						
28						
29						
30						
31						

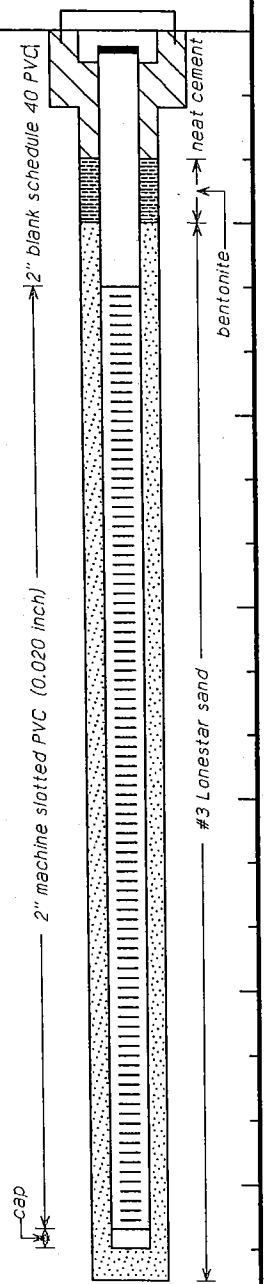
Gettler-Ryan, Inc.

Log of Boring MW-1

PROJECT: *Former Chevron Service Station No. 20-6127*	LOCATION: *2801-2337 Blanding Avenue, Alameda, CA*
GR PROJECT NO. : *346498.03*	CASING ELEVATION: *10.62 Ft. (MSL)*
DATE STARTED: *12/29/00*	WL (ft. bgs): *17* DATE: *12/29/00* TIME: *16:50*
DATE FINISHED: *12/29/00*	WL (ft. bgs): *8* DATE: *12/30/00* TIME: *11:00*
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *19.5 feet*
DRILLING COMPANY: *Gregg Drilling*	GEOLOGIST: *Andrew Smith*

DEPTH (feet)	PID (ppm)	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						Native material.
					CL	CLAY WITH SAND (CL) - very dark brown (7.5YR 2.5/2), moist, soft; 85% clay, 15% fine sand.
3						Trace of coarse gravel.
	57	MW-1-5				Concrete fragments at 4.5 feet.
6					SC	CLAYEY SAND (SC) - dark brown (7.5YR 3/2), moist, very loose; 75% fine to medium sand, 15% clay, 10% silt.
9	98	MW-1-10				
12					SP	POORLY GRADED SAND (SP) - blueish gray (Gley 5B6/1), moist, very loose; 95% fine to medium sand, 5% silt.
15	118	MW-1-15				Color changes to black (7.5YR, N 2/0) at 14.5 feet. Color changes to blueish gray (Gley 5B6/1) at 15 feet.
18	109	MW-1-19				Saturated at 17.5 feet.
21						Bottom of boring at 19.5 feet bgs.

WELL DIAGRAM



JOB NUMBER: *346498.03*

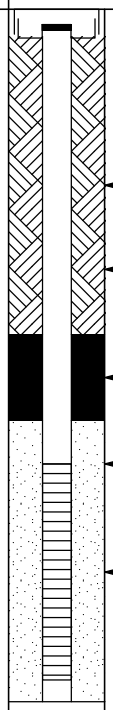
Conestoga-Rovers & Associates
2000 Opportunity Drive, Suite 110
Roseville, CA
Telephone: (916) 677-3407
Fax: (916) 677-3687

BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	MW-2
JOB/SITE NAME	Former Signal Oil Bulk Plant 20-6127	**DRILLING STARTED**	18-Jun-09
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	19-Jun-09
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	30-Jun-09
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	10.87 ft above msl
DRILLING METHOD	Direct Push / Hollow-Stem Auger	**TOP OF CASING ELEVATION**	10.63 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVAL**	10.5 to 15.5 fbg
LOGGED BY	E. Namba	**DEPTH TO WATER (First Encountered)**	11.5 fbg (18-Jun-09)
REVIEWED BY	G. Barclay	**DEPTH TO WATER (Static)**	4.0 fbg (19-Jun-09)
REMARKS	Cleared to 8 fbg with air-knife		

PID (ppm)	SAMPLE ID	DEPTH (fbg)	U.S.C.S.	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)
				Asphalt	0.5
0.0			SM	**Silty SAND with gravel:** Brown; dry	
				▼	4.0
189	MW-2- 4.5		ML	**Sandy SILT:** Grey; dry	5.0
		5	SM	**Silty SAND:** Greyish green; dry	7.0
0.0	MW-2- 7.5		ML	**Sandy SILT with clay:** Greyish green with brown; dry; moderate plasticity	
0.0	MW-2- 8.5			Grey staining observed	
		10		Less grey staining observed	
0.0				▽	11.5
0.0			SM	**Silty SAND with clay:** Grey; wet; fine grain; grey staining observed; decreasing clay content with depth	
0.0	MW-2- 13				
		15			
0.0	MW-2- 15.5				16.0

WELL DIAGRAM



WELL LOG (PID) C:\DOCUMENTS AND SETTINGS\NALLEN\DESKTOP\631916-GINT.GPJ DEFAULT.GDT 8/26/09

Conestoga-Rovers & Associates
2000 Opportunity Drive, Suite 110
Roseville, CA
Telephone: (916) 677-3407
Fax: (916) 677-3687

BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	MW-3
JOB/SITE NAME	Former Signal Oil Bulk Plant 20-6127	**DRILLING STARTED**	18-Jun-09
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	19-Jun-09
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	30-Jun-09
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	11.08 ft above msl
DRILLING METHOD	Direct Push / Hollow-Stem Auger	**TOP OF CASING ELEVATION**	10.72 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVAL**	13.5 to 18.5 fbg
LOGGED BY	E. Namba	**DEPTH TO WATER (First Encountered)**	8.5 fbg (18-Jun-09)
REVIEWED BY	G. Barclay	**DEPTH TO WATER (Static)**	4.8 fbg (19-Jun-09)
REMARKS	Cleared to 8 fbg with air-knife		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	
					SM		**Silty SAND**: Dark brown; dry		
206		MW-3- 4		5					
								6.0	Portland Type I/II
141		MW-3- 6					**Sandy SILT**: Grayish green; dry; moderate plasticity		
							Clayey SILT Moist; moderate to high plasticity		2" diam., Schedule 40 PVC
12		MW-3- 8.5					Wet at 8.5 fbg		
				10	ML				
0.0									Bentonite Seal
								14.0	Monterey Sand #2/12
				15			**Silty SAND**: Grayish green; wet		
0.0		MW-3- 15.5			SM				2"-diam., 0.020" Slotted Schedule 40 PVC
							Decreasing silt content with depth. Brown at 17 fbg		
0.0		MW-3- 18						18.5	Bottom of Boring @ 18.5 fbg

WELL LOG (PID) C:\DOCUMENTS AND SETTINGS\NALLEN\DESKTOP\631916-GINT.GPJ DEFAULT.GDT 8/26/09

Conestoga-Rovers & Associates
2000 Opportunity Drive, Suite 110
Roseville, CA
Telephone: (916) 677-3407
Fax: (916) 677-3687

BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	MW-4
JOB/SITE NAME	Former Signal Oil Bulk Plant 20-6127	**DRILLING STARTED**	18-Jun-09
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	19-Jun-09
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	30-Jun-09
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	11.65 ft above msl
DRILLING METHOD	Direct Push / Hollow-Stem Auger	**TOP OF CASING ELEVATION**	11.40 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVAL**	15.5 to 20.5 fbg
LOGGED BY	E. Namba	**DEPTH TO WATER (First Encountered)**	17.0 fbg (18-Jun-09)
REVIEWED BY	G. Barclay	**DEPTH TO WATER (Static)**	6.8 fbg (19-Jun-09)
REMARKS	Cleared to 8 fbg with air-knife		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Portland Type I/II
							Gravelly SILT: Brown; dry; low to moderate plasticity; coarse		
0.0		MW-4- 5		5	ML		**Sandy SILT:** Dark brown; damp		
0.0							**Clayey SILT with sand:** Light green to brown; moderate plasticity Slight grey staining		2" diam., Schedule 40 PVC
0.0		MW-4- 10		10			Light brown with some light green; iron oxide staining		
								14.0	Bentonite Seal
							Silty SAND: Light green to light brown; damp; fine grain		
0.0		MW-4- 15		15	SM		Wet; decreasing silt content with depth		Monterey Sand #2/12
0.0		MW-4- 19.5		20			Greyish brown		2"-diam., 0.020" Slotted Schedule 40 PVC
								20.5	Bottom of Boring @ 20.5 fbg

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Conestoga-Rovers & Associates
2000 Opportunity Drive, Suite 110
Roseville, CA
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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	MW-5
JOB/SITE NAME	Former Signal Oil Bulk Plant 20-6127	**DRILLING STARTED**	23-Jun-09
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	23-Jun-09
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	30-Jun-09
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	11.01 ft above msl
DRILLING METHOD	Direct Push / Hollow-Stem Auger	**TOP OF CASING ELEVATION**	10.50 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVAL**	13 to 18 fbg
LOGGED BY	E. Namba	**DEPTH TO WATER (First Encountered)**	14.0 fbg (18-Jun-09)
REVIEWED BY	G. Barclay	**DEPTH TO WATER (Static)**	5.9 fbg (23-Jun-09)
REMARKS	Cleared to 8 fbg with air-knife		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Portland Type I/II
				5			**FILL:** Silty Gravel; coarse; dark brown; dry; bricks and debris		
404		MW-5- 7					**Sandy CLAY:** Greenish grey; dry; moderate to high plasticity; fine grain Moist	7.0	2" diam., Schedule 40 PVC
78.1 98.4		MW-5- 10.5		10	CL				Bentonite Seal
12.8		MW-5- 14		15	SM		**Silty SAND:** Greenish grey; wet	14.0	Monterey Sand #2/12
							Decreasing silt content with depth		2"-diam., 0.020" Slotted Schedule 40 PVC
3.4		MW-5- 17.5						18.0	Bottom of Boring @ 18 fbg

WELL LOG (PID) C:\DOCUMENTS AND SETTINGS\NALLEN\DESKTOP\631916-GINT.GPJ DEFAULT.GDT 8/26/09

Conestoga Rovers & Associates
10969 Trade Center Drive, Suite 107
Rancho Cordova, California
Telephone: 916-889-8900
Fax: 916-889-8999

BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	MW-1RA
JOB/SITE NAME	Former Signal Oil Bulk Plant (Chevron 20-6127)	**DRILLING STARTED**	04-Aug-10
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	04-Aug-10
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Penecore	**GROUND SURFACE ELEVATION**	13.68 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	13.02 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVALS**	8 to 13 fbg
LOGGED BY	B. Yifru	**DEPTH TO WATER (First Encountered)**	8.0 fbg (04-Aug-10) ▽
REVIEWED BY	G. Barclay	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Cleared to 8 fbg with Air Knife		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
				0			**FILL:** concrete fragments and debris; brown; moist		Portland Type I/II
				5					2" diam., Schedule 40 PVC
									Bentonite Seal
								7.5	
1,149							**Sandy SILT with clay:** dark grey; moist; low plasticity; fine sand ▽		Monterey Sand #2/12
							@ 8 fbg: wet		
816		MW-1R A -S-10		10	ML		@ 10 fbg: greenish grey		2"-diam., 0.020" Slotted Schedule 40 PVC
305									
249									
360		MW-1R A -S-13.5					@ 13 fbg: mottled	14.0	
49.0				15			**Silty SAND with clay:** greenish grey; fine sand		
370							**SAND with silt:** wet		Portland Type I/II
4.9					SP				
1.1									
1.5									
0.8				20				20.0	Bottom of Boring @ 20 fbg

WELL LOG (PID) I:\CHEVRON\6319--\631916~1\634E63~1\631916-GINT-082010.GPJ DEFAULT.GDT 9/15/10

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	MW-1RB
JOB/SITE NAME	Former Signal Oil Bulk Plant (Chevron 20-6127)	**DRILLING STARTED**	04-Aug-10
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	04-Aug-10
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Penecore	**GROUND SURFACE ELEVATION**	13.65 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	13.21 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVALS**	16.5 to 20 fbg
LOGGED BY	B. Yifru	**DEPTH TO WATER (First Encountered)**	8.0 fbg (04-Aug-10) ▽
REVIEWED BY	G. Barclay	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Cleared to 8 fbg with Air Knife; re-installed well, previously MW-1		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
				5			Please refer to boring log MW-1RA for lithology. ▽		2" diam., Schedule 40 PVC Portland Type I/II Bentonite Seal Monterey Sand #2/12 2"-diam., 0.020" Slotted Schedule 40 PVC
				10					
				15					
				20				20.0	Bottom of Boring @ 20 fbg

WELL LOG (PID) I:\CHEVRON\6319--\631916~1\634E63~1\631916-GINT-082010.GPJ DEFAULT.GDT 9/15/10

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	MW-6
JOB/SITE NAME	Former Signal Oil Bulk Plant (Chevron 20-6127)	**DRILLING STARTED**	04-Aug-10
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	04-Aug-10
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Penecore	**GROUND SURFACE ELEVATION**	13.21 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	12.98 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVALS**	16.5 to 20 fbg
LOGGED BY	B. Yifru	**DEPTH TO WATER (First Encountered)**	8.0 fbg (04-Aug-10)
REVIEWED BY	G. Barclay	**DEPTH TO WATER (Static)**	NA
REMARKS	Cleared to 8 fbg with Air Knife		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)
				5			**FILL:** concrete fragments and debris; brown; moist	
1,421							**Sandy SILT with clay:** dark grey; moist; low plasticity	7.0
							@ 8 fbg: Wet	
1,054				10				
471					ML		@ 10 fbg: greenish grey	
888								
1,053								
82							@ 13 fbg: mottled	
71.7							**Silty SAND with clay:** greenish grey	14.0
10.0		MW-6- S-15		15			**SAND with silt:** wet; fine sand	
8.0								
0.9					SP			
0.0							@ 18.5 fbg: light brown	
0.0				20				20.0

WELL DIAGRAM

- 2" diam., Schedule 40 PVC
- Portland Type I/II
- Bentonite Seal
- Monterey Sand #2/12
- 2"-diam., 0.020" Slotted Schedule 40 PVC

Bottom of Boring @ 20 fbg

WELL LOG (PID) I:\CHEVRON\6319--\631916~1\634E63~1\631916-GINT-082010.GPJ DEFAULT.GDT 9/15/10

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	VP-1
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	09-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	09-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hand-Auger/Airknife	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	3.25 inches	**SCREENED INTERVALS**	3.75 to 4.25 fbg
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
					SM		**Silty SAND with gravel** Brown; dry; 45% sand, 25% silt, 15% clay, 15% coarse gravel; low plasticity; 1/2-3/4 inch subangular pebbles.		Portland Type I/II 1/4"-inner diam. Nylaflow® tubing Bentonite Seal
		VP-1- 3			GM		**Silty GRAVEL with sand** Brown; dry; 45% gravel, 30% sand, 15% silt, 10% clay; low plasticity.	3.0	Monterey Sand #3
					GC		**Clayey GRAVEL with sand** Brown; dry; 60% gravel, 20% clay, 10% silt, 10% sand; low plasticity.	4.0 4.5	1"-diam., 0.020" Slotted Schedule 40 PVC Bottom of Boring @ 4.5 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	VP-2
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	09-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	09-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hand-Auger/Airknife	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	3.25 inches	**SCREENED INTERVALS**	4.25 to 4.75 fbg
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
					SM		**Silty SAND :**Brown; dry; 45% sand, 35% silt, 20% clay; low plasticity.		Portland Type I/II
									1/4"-inner diam. Nylaflow® tubing
		VP-2- 3			CL		**CLAY with sand :**Brown; dry; 45% clay, 30% silt, 25% sand; medium plasticity.	2.0	Bentonite Seal
649		VP-2- 5			SM		**Silty SAND :**Brown; moist; 55% sand, 30% silt, 15% clay; low plasticity.	4.0	Monterey Sand #3
				5				5.0	1"-diam., 0.020" Slotted Schedule 40 PVC
									Bottom of Boring @ 5 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	VP-3
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	14-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	14-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hand-Auger/Airknife	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	3.25 inches	**SCREENED INTERVALS**	5.25 to 5.75 fbg
LOGGED BY	B. Campbell	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
					GW		**GRAVEL with sand:** Brown; dry; 60% gravel, 30% sand, 5% clay, 5% silt; low plasticity.		Portland Type I/II
									1/4"-inner diam. Nylaflow® tubing
1.5		VP-3- 2.5					**Silty SAND with gravel:** Dark brown; moist; 30% sand, 30% silt, 30% gravel,10% clay; low-medium plasticity.	2.0	
					SP				Bentonite Seal
				5				5.0	
4.5		VP-3- 5			SM		**Silty SAND with clay:** Dark brown; moist; 40% sand, 35% silt, 25% clay; medium plasticity.		Monterey Sand #3
					CL		**CLAY:** Grey; moist; 55% clay, 35% silt, 25% clay; medium plasticity.	5.5	1"-diam., 0.020" Slotted Schedule 40 PVC
								6.0	Bottom of Boring @ 6 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	VP-4
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	14-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	14-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hand-Auger/Airknife	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	3.25 inches	**SCREENED INTERVALS**	5.25 to 5.75 fbg
LOGGED BY	B. Campbell	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
					GM		**Silty GRAVEL with sand** Brown; dry; 45% gravel, 40% sand, 10% silt, 5% clay; low plasticity.		Portland Type I/II
									1/4"-inner diam. Nylaflow® tubing
								2.0	
121		VP-4- 2.5					**Silty SAND with clay:** Brown; moist; 40% sand, 35% silt, 25% clay; medium plasticiy.		
					SM				Bentonite Seal
								4.5	
							CLAY: Brown; moist; 50 % clay, 30% sand, 20% silt; medium plasticity.		
408		VP-4- 5		5	CL				Monterey Sand #3
									1"-diam., 0.020" Slotted Schedule 40 PVC
								6.0	Bottom of Boring @ 6 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	VP-5
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	14-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	14-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hand-Auger/Airknife	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	3.25 inches	**SCREENED INTERVALS**	5.25 to 5.75 fbg
LOGGED BY	B. Campbell	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
					GM		**Silty GRAVEL with sand**:Brown; dry; 45% gravel, 40% sand, 10% silt, 5% clay; low plasticity.		Portland Type I/II 1/4"-inner diam. Nylaflow® tubing
45		VP-5- 2.5							Bentonite Seal
					CL		**CLAY with sand**:Brown; moist; 55% clay, 25% silt, 10% sand, 10% gravel; medium plasticity.	4.0	
566		VP-5- 5		5	CL		**CLAY with sand**:Brown; moist; 50% clay, 20% silt, 30% sand; medium plasticity.	5.0	Monterey Sand #3 1"-diam., 0.020" Slotted Schedule 40 PVC
								6.0	Bottom of Boring @ 6 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319-\631916-\632941-1\BORING-1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/ WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	VP-6
JOB/SITE NAME	Former Signal Oil Bulk Plant	**DRILLING STARTED**	09-Jul-08
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	09-Jul-08
PROJECT NUMBER	631916 (20-6127)	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Woodward Drilling Co. Inc.	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hand-Auger/Airknife	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	3.25 inches	**SCREENED INTERVALS**	5.25 to 5.75 fbg
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
					GM		**Silty GRAVEL with sand** Brown; dry; 45% gravel, 40% sand, 10% silt, 5% clay; low plasticity; 1-10 inch conrete fragments.		Portland Type I/II
3.2		VP-6- 3							1/4"-inner diam. Nylaflow® tubing
									Bentonite Seal
					CL		**CLAY with sand**:Brown; moist; 55% clay, 25% silt, 10% sand, 10% gravel; medium plasticity.	3.5	
		VP-6- 5		5				5.0	Monterey Sand #3
					CL		**Sandy CLAY**:Brown; moist; 50% clay, 20% silt, 30% sand; medium plasticity.		1"-diam., 0.020" Slotted Schedule 40 PVC
								6.0	Bottom of Boring @ 6 fbg

WELL LOG (PID) \\RAC-S1\SHARED\CHEVRON\6319--\631916~1\632941~1\BORING~1\20-6127 BORING LOGS.GPJ DEFAULT.GDT 7/9/09

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	P-1
JOB/SITE NAME	Former Signal Oil Bulk Plant (Chevron 20-6127)	**DRILLING STARTED**	27-Sep-12
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	28-Sep-12
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Vapor Tech Services	**GROUND SURFACE ELEVATION**	13.43 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	13.23 ft above msl
BORING DIAMETER	6"	**SCREENED INTERVAL**	16.5 to 20 fbg
LOGGED BY	W. Martinez	**DEPTH TO WATER (First Encountered)**	17.0 fbg (28-Sep-12)
REVIEWED BY	Greg Barclay, P.G. 6260	**DEPTH TO WATER (Static)**	7.6 fbg (02-Oct-12)
REMARKS	Cleared to 8 fbg with air knife, hollow stem auger to total depth, Perched groundwater encountered at 8fbg		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Grass	0.5	
							FILL: concrete debris, trace mica; dusky red; moist.		
				5				5.0	
47.9					MH		**SILT with sand:** soft, fine sand, trace mica; greenish gray; moist; low plasticity.		Portland Type I/II
							@ 8 fbg dark greenish gray; wet (perched water); low plasticity.	9.0	
				10	CH		**Sandy CLAY:** stiff, fine sand, grades to more silt with sand; dark greenish gray; moist; medium plasticity.		
					MH		**SILT with sand:** stiff, fine sand; gray; moist; medium plasticity.	12.0	
							Silty SAND: medium dense, fine sand; pale green; moist; low plasticity.	13.0	Bentonite Seal
				15	SM		@ 17 fbg: loose; greenish gray; wet.		Monterey Sand #2/12
									1"-diam., 0.020" Slotted Schedule 40 PVC
				20				20.0	Bottom of Boring @ 20 fbg

WELL LOG (PID) I:\PROJECT FILES\6-CHAR\63----\6319--\631916\631916-GINT\631916-GINT.GPJ DEFAULT.GDT 11/19/12

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	P-2
JOB/SITE NAME	Former Signal Oil Bulk Plant (Chevron 20-6127)	**DRILLING STARTED**	27-Sep-12
LOCATION	2301-2311 Blanding Avenue, Alameda, CA	**DRILLING COMPLETED**	28-Sep-12
PROJECT NUMBER	631916	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Vapor Tech Services	**GROUND SURFACE ELEVATION**	13.82 ft above msl
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	13.51 ft above msl
BORING DIAMETER	6"	**SCREENED INTERVAL**	7 to 12 fbg
LOGGED BY	W. Martinez	**DEPTH TO WATER (First Encountered)**	8.6 fbg (28-Sep-12)
REVIEWED BY	Greg Barclay, P.G. 6260	**DEPTH TO WATER (Static)**	8.5 fbg (02-Oct-12)
REMARKS	Cleared to 8 fbg with air knife, hollow stem auger to total depth		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Grass	0.5	Portland Type I/II
				5			**FILL:** Concrete debris; reddish brown; moist; low plasticity.		Bentonite Seal
								6.0	Monterey Sand #2/12
					SM		**Silty SAND:** soft, fine sand with increasing clay; greenish gray; moist; medium plasticity.		1"-diam., 0.020" Slotted Schedule 40 PVC
				10			@ 10 fbg: No Recovery		Bentonite Seal
								13.0	Bottom of Boring @ 13 fbg

WELL LOG (PID) I:\PROJECT FILES\6-CHAR\63----\6319--\631916\631916-GINT\631916-GINT.GPJ DEFAULT.GDT 11/19/12

Appendix B

Groundwater Monitoring and Sampling Data Tables

TABLE 1

GROUNDWATER MONITORING AND SAMPLING DATA
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
CHEVRON BULK PLANT 206127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

					HYDROCARBONS			*PRIMARY VOCS*				
Location	Date	*TOC*	*DTW*	*GWE*	*TPH-DRO*	*TPH-DRO w/ Si Gel*	*TPH-GRO*	*B*	*T*	*E*	*X*	*MTBE by SW8260*
	Units	*ft*	*ft*	*ft-amsl*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*
MW-1	07/21/2010	13.49	9.47	4.02	440	-	65 J	<0.5	<0.5	<0.5	<0.5	<0.5
MW-1	10/22/2010[1]	13.49	-	-	-	-	-	-	-	-	-	-
MW-1RA	10/28/2010	13.02	9.23	3.79	-	4,000	6,400	830	22	65	20	-
MW-1RA	01/14/2011	13.02	7.20	5.82	-	1,500	790	160	2	1	1	-
MW-1RA	04/19/2011	13.02	7.42	5.60	-	3,000	3,800	600	9	18	9	-
MW-1RA	06/30/2011	13.02	7.51	5.51	-	3,700	6,800	780	13	36	13	-
MW-1RA	10/14/2011	13.02	7.96	5.06	6,900	360	6,800	1,300	19	51	14	-
MW-1RA	01/18/2012	13.02	7.34	5.68	4,300	1,400	6,400	1,300	17	38	12	-
MW-1RA	04/19/2012	13.02	5.23	7.79	3,700	400	3,100	120	<5	<5	<5	-
MW-1RA	07/23/2012	13.02	7.92	5.10	6,000	1,000	-	-	-	-	-	-
MW-1RA	07/27/2012[4]	13.02	8.50	4.52	-	-	4,800	640	9	20	7	-
MW-1RA	01/19/2013	13.02	7.30	5.72	3,000	270	1,500	180	<5	<5	<5	-
MW-1RA	07/15/2013	13.02	8.09	4.93	4,200	630	3,700	430	8	5	2	-
MW-1RA	01/09/2014	13.02	7.05	5.97	3,300	150	910	130	2	3	4	-
MW-1RA	**07/25/2014**	**13.02**	**8.04**	**4.98**	**2,500**	**390**	**1,100**	**17**	**<0.5**	**<0.5**	**<0.5**	**-**
MW-1RB	10/28/2010	13.21	9.00	4.21	-	1,600	650	3	<0.5	0.8	<0.5	-
MW-1RB	01/14/2011	13.21	10.97	2.24	-	960	150	1	<0.5	<0.5	<0.5	-
MW-1RB	04/19/2011	13.21	12.11	1.10	-	1,200	190	6	<0.5	<0.5	<0.5	-
MW-1RB	06/30/2011	13.21	11.86	1.35	-	1,900	310	9	<0.5	<0.5	<0.5	-
MW-1RB	10/14/2011	13.21	12.14	1.07	4,000	57	300	15	<0.5	<0.5	<0.5	-
MW-1RB	01/18/2012	13.21	14.71	-1.50	2,400	260	340	11	<0.5	<0.5	<0.5	-

TABLE 1

GROUNDWATER MONITORING AND SAMPLING DATA
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
CHEVRON BULK PLANT 206127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

					HYDROCARBONS			*PRIMARY VOCS*				
Location	Date	*TOC*	*DTW*	*GWE*	*TPH-DRO*	*TPH-DRO w/ Si Gel*	*TPH-GRO*	*B*	*T*	*E*	*X*	*MTBE by SW8260*
	Units	*ft*	*ft*	*ft-amsl*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*
MW-1RB	04/19/2012	13.21	8.33	4.88	2,800	53	180	1	<0.5	<0.5	<0.5	-
MW-1RB	07/23/2012	13.21	8.96	4.25	2,700	<50	-	-	-	-	-	-
MW-1RB	07/27/2012[4]	13.21	8.45	4.76	-	-	990	89	1	0.8	0.7	-
MW-1RB	01/19/2013	13.21	8.65	4.56	2,000	62	200	2	<0.5	<0.5	<0.5	-
MW-1RB	07/15/2013	13.21	8.18	5.03	2,000	<50	230	<0.5	<0.5	<0.5	<0.5	-
MW-1RB	01/09/2014	13.21	7.78	5.43	1,400	<50	150	<0.5	<0.5	<0.5	<0.5	-
MW-1RB	**07/25/2014**	**13.21**	**9.96**	**3.25**	**2,300**	**57**	**270**	**1**	**<0.5**	**<0.5**	**<0.5**	**-**
MW-2	07/21/2010	10.63	4.12	6.51	65 J	-	<50	<0.5	<0.5	<0.5	<0.5	-
MW-2	10/22/2010	10.63	4.31	6.32	-	58	<50	<0.5	<0.5	<0.5	<0.5	-
MW-2	10/28/2010[2]	10.63	3.65	6.98	-	-	-	-	-	-	-	-
MW-2	01/14/2011	10.63	3.12	7.51	-	68	<50	<0.5	<0.5	<0.5	<0.5	-
MW-2	04/19/2011	10.63	3.51	7.12	-	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-2	06/30/2011	10.63	3.74	6.89	-	120	<50	<0.5	<0.5	<0.5	<0.5	-
MW-2	10/14/2011	10.63	3.52	7.11	160	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-2	01/18/2012	10.63	3.85	6.78	140	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-2	04/19/2012	10.63	3.16	7.47	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-2	07/23/2012[3]	10.63	-	-	-	-	-	-	-	-	-	-
MW-2	07/27/2012	10.63	3.40	7.23	-	-	<50	<0.5	<0.5	<0.5	<0.5	-
MW-2	01/19/2013	10.63	3.45	7.18	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-2	07/15/2013	10.63	3.75	6.88	150	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-2	01/09/2014[3]	10.63	-	-	-	-	-	-	-	-	-	-
MW-2	**07/25/2014**	**10.63**	**3.96**	**6.67**	**<50**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**-**

TABLE 1

GROUNDWATER MONITORING AND SAMPLING DATA
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
CHEVRON BULK PLANT 206127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

					HYDROCARBONS			*PRIMARY VOCS*				
Location	Date	*TOC*	*DTW*	*GWE*	*TPH-DRO*	*TPH-DRO w/ Si Gel*	*TPH-GRO*	*B*	*T*	*E*	*X*	*MTBE by SW8260*
	Units	*ft*	*ft*	*ft-amsl*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*
MW-3	07/21/2010	10.72	5.09	5.63	640	-	65 J	0.6 J	<0.5	<0.5	<0.5	-
MW-3	10/22/2010	10.72	5.32	5.40	-	570	73	<0.5	<0.5	<0.5	<0.5	-
MW-3	10/28/2010[2]	10.72	4.74	5.98	-	-	-	-	-	-	-	-
MW-3	01/14/2011	10.72	4.11	6.61	-	1,000	91	<0.5	<0.5	<0.5	<0.5	-
MW-3	04/19/2011	10.72	5.03	5.69	-	1,200	180	<0.5	<0.5	<0.5	<0.5	-
MW-3	06/30/2011	10.72	4.97	5.75	-	740	<50	<0.5	<0.5	<0.5	<0.5	-
MW-3	10/14/2011	10.72	4.52	6.20	1,800	<50	88	<0.5	<0.5	<0.5	<0.5	-
MW-3	01/18/2012	10.72	5.22	5.50	1,700	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-3	04/19/2012	10.72	4.63	6.09	3,000	50	260	<0.5	<0.5	<0.5	<0.5	-
MW-3	07/23/2012	10.72	4.89	5.83	1,200	<50	**-**	**-**	**-**	**-**	**-**	-
MW-3	07/27/2012[4]	10.72	4.58	6.14	-	-	<50	<0.5	<0.5	<0.5	<0.5	-
MW-3	01/19/2013	10.72	4.52	6.20	1,600	<50	69	<0.5	<0.5	<0.5	<0.5	-
MW-3	07/15/2013[5]	10.72	4.54	6.18	1,500	<50	110	<0.5	<0.5	<0.5	<0.5	-
MW-3	01/09/2014	10.72	4.21	6.51	1,500	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-3	**07/25/2014**	**10.72**	**4.95**	**5.77**	**1,700**	**<50**	**120**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**-**
MW-4	07/21/2010	11.40	6.72	4.68	<50	-	<50	<0.5	<0.5	<0.5	<0.5	-
MW-4	10/22/2010	11.40	6.87	4.53	-	91	<50	<0.5	<0.5	<0.5	<0.5	-
MW-4	10/28/2010[2]	11.40	6.38	5.02	-	-	-	-	-	-	-	-
MW-4	01/14/2011	11.40	5.32	6.08	-	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-4	04/19/2011	11.40	7.65	3.75	-	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-4	06/30/2011	11.40	6.93	4.47	-	<50	<50	<0.5	<0.5	<0.5	<0.5	-

TABLE 1

GROUNDWATER MONITORING AND SAMPLING DATA
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
CHEVRON BULK PLANT 206127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

					HYDROCARBONS			*PRIMARY VOCS*				
Location	Date	*TOC*	*DTW*	*GWE*	*TPH-DRO*	*TPH-DRO w/ Si Gel*	*TPH-GRO*	*B*	*T*	*E*	*X*	*MTBE by SW8260*
	Units	*ft*	*ft*	*ft-amsl*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*
MW-4	10/14/2011	11.40	5.66	5.74	440	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-4	01/18/2012	11.40	8.36	3.04	330	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-4	04/19/2012	11.40	6.40	5.00	360	<50	<50	<0.5	0.5	<0.5	<0.5	-
MW-4	07/23/2012[3]	11.40	-	-	-	-	-	-	-	-	-	-
MW-4	07/27/2012	11.40	6.39	5.01	-	-	<50	<0.5	<0.5	<0.5	<0.5	-
MW-4	01/19/2013	11.40	6.78	4.62	380	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-4	07/15/2013	11.40	5.83	5.57	530	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-4	01/09/2014	11.40	5.19	6.21	240	<50	<50	<0.5	<0.5	<0.5	<0.5	-
MW-4	**07/25/2014**	**11.40**	**7.80**	**3.60**	**250**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**-**
MW-5	07/21/2010	10.50	5.76	4.74	2,000	-	1,500	80	2	1	2	-
MW-5	10/22/2010	10.50	5.94	4.56	-	1,500	830	47	<0.5	1	<0.5	-
MW-5	10/28/2010[2]	10.50	5.17	5.33	-	-	-	-	-	-	-	-
MW-5	01/14/2011	10.50	4.40	6.10	-	1,800	2,100	61	4	1	6	-
MW-5	04/19/2011	10.50	5.69	4.81	-	2,000	2,200	73	4	1	6	-
MW-5	06/30/2011	10.50	5.82	4.68	-	3,200	2,900	99	6	1	7	-
MW-5	10/14/2011	10.50	4.51	5.99	4,600	89	2,300	76	5	1	5	-
MW-5	01/18/2012	10.50	5.98	4.52	3,700	460	3,500	140	7	2	10	-
MW-5	04/19/2012	10.50	5.40	5.10	3,600	310	2,000	87	5	1	5	-
MW-5	07/23/2012	10.50	5.29	5.21	4,300	380	-	-	-	-	-	-
MW-5	07/27/2012[4]	10.50	5.08	5.42	-	-	1,800	48	3	0.7	4	-
MW-5	01/19/2013	10.50	5.38	5.12	4,200	400	3,500	100	7	<5	7	-
MW-5	07/15/2013	10.50	5.78	4.72	3,800	850	3,900	130	8	2	11	-

TABLE 1

GROUNDWATER MONITORING AND SAMPLING DATA
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
CHEVRON BULK PLANT 206127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

					HYDROCARBONS			*PRIMARY VOCS*				
Location	Date	*TOC*	*DTW*	*GWE*	*TPH-DRO*	*TPH-DRO w/ Si Gel*	*TPH-GRO*	*B*	*T*	*E*	*X*	*MTBE by SW8260*
	Units	*ft*	*ft*	*ft-amsl*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*
MW-5	01/09/2014	10.50	4.20	6.30	4,000	670	3,600	130	9	2	13	-
MW-5	**07/25/2014**	**10.50**	**6.20**	**4.30**	**3,200**	**720**	**3,400**	**130**	**9**	**2**	**14**	**-**
MW-6	10/28/2010	12.98	8.35	4.63	-	300	620	7	<0.5	1	2	-
MW-6	01/14/2011	12.98	7.58	5.40	-	560	120	3	<0.5	<0.5	<0.5	-
MW-6	04/19/2011	12.98	9.90	3.08	-	590	240	7	<0.5	<0.5	<0.5	-
MW-6	06/30/2011	12.98	9.97	3.01	-	640	200	3	<0.5	<0.5	<0.5	-
MW-6	10/14/2011	12.98	7.40	5.58	1,700	<50	510	10	<0.5	<0.5	<0.5	-
MW-6	01/18/2012	12.98	9.82	3.16	1,300	<50	300	7	<0.5	<0.5	<0.5	-
MW-6	04/19/2012	12.98	8.02	4.96	1,600	<50	290	7	0.6	<0.5	<0.5	-
MW-6	07/23/2012	12.98	9.69	3.29	1,600	73	-	-	-	-	-	-
MW-6	07/27/2012[4]	12.98	8.39	4.59	-	-	450	9	<0.5	<0.5	0.6	-
MW-6	01/19/2013	12.98	8.92	4.06	830	<50	250	3	<0.5	<0.5	<0.5	-
MW-6	07/15/2013	12.98	7.70	5.28	2,400	<50	660	13	<0.5	<0.5	<0.5	-
MW-6	01/09/2014	12.98	6.85	6.13	1,400	<50	490	10	<0.5	<0.5	<0.5	-
MW-6	**07/25/2014**	**12.98**	**9.85**	**3.13**	**1,500**	**<50**	**460**	**12**	**<0.5**	**<0.5**	**<0.5**	**-**
QA	07/21/2010	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5
QA	10/22/2010	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5
QA	10/28/2010	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-
QA	01/14/2011	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-
QA	04/19/2011	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-
QA	06/30/2011	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-

TABLE 1

GROUNDWATER MONITORING AND SAMPLING DATA
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
CHEVRON BULK PLANT 206127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

					HYDROCARBONS			*PRIMARY VOCS*				
Location	Date	*TOC*	*DTW*	*GWE*	*TPH-DRO*	*TPH-DRO w/ Si Gel*	*TPH-GRO*	*B*	*T*	*E*	*X*	*MTBE by SW8260*
	Units	*ft*	*ft*	*ft-amsl*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*
QA	10/14/2011	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-
QA	01/18/2012	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-
QA	04/19/2012	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-
QA	07/23/2012	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-
QA	01/19/2013	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-
QA	07/15/2013	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-
QA	01/09/2014	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-
QA	**07/25/2014**	**-**	**-**	**-**	**-**	**-**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**-**

Abbreviations and Notes:

TOC = Top of casing

DTW = Depth to water

GWE = Groundwater elevation

(ft-amsl) = Feet above mean sea level

ft = Feet

µg/L = Micrograms per liter

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

B = Benzene

T = Toluene

E = Ethylbenzene

X = Xylenes (Total)

MTBE = Methyl tert butyl ether

TABLE 1

GROUNDWATER MONITORING AND SAMPLING DATA
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
CHEVRON BULK PLANT 206127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

					HYDROCARBONS			*PRIMARY VOCS*				
Location	Date	*TOC*	*DTW*	*GWE*	*TPH-DRO*	*TPH-DRO w/ Si Gel*	*TPH-GRO*	*B*	*T*	*E*	*X*	*MTBE by SW8260*
	Units	*ft*	*ft*	*ft-amsl*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*

-- = Not available / not applicable

<x = Not detected above laboratory method detection limit

J = Estimated concentration

* TOC elevations for all wells were surveyed on July 30, 2009, by Morrow Surveying. Vertical Datum is NAVD 88 from GPS observations. TOC elevations were surveyed on January 25, 2001, by Virgil Chacez Land Surveying. The benchmark used for the survey was a City of Alameda benchmark being a cut square at the centerline return, south corner of Oak and Blanding, (Benchmark Elevation = 8.236 feet, NGVD 29).

1 Destroyed and re-installed as MW-1RB.

2 Monitored only for the 10/28/10 Special Event

3 Inaccessible.

4 Due to laboratory error, a second set of samples had to be collected for TPHg and BTEX on 7/27/12 for wells MW1RA, MW1RB, MW-3, MW-5 and MW-6.

5 No purge sample collected due to limited access.

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron #206127 (Former Signal Oil Marine Terminal)

2301-2337 Blanding Avenue

Alameda, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)
MW-1										
01/23/01[1]	--	7.16	--	1,100[2,3]	5,210[4]	868	<50.0	<50.0	<50.0	<250
04/09/01	10.62	8.12	2.50	1,200[6]	3,000[5]	920	<20	<20	<20	<100
07/30/01	10.62	9.15	1.47	550[3,8]	2,000[7]	730	13	<5.0	<5.0	<25
10/08/01	10.62	7.86	2.76	2,200[9]	1,200	120	2.4	5.9	6.4	<2.5
01/13/02	10.62	7.02	3.60	3,300[3]	930	320	0.78	0.87	3.8	<2.5
04/08/02	10.62	9.60	1.02	1,200[3]	960	50	1.4	2.6	9.0	<2.5
07/31/02	10.62	9.27	1.35	2,800[3]	930	64	1.4	1.9	11	<5.0
10/15/02	10.62	8.00	2.62	1,000[3]	620	25	0.78	1.4	4.3	<2.5
01/14/03	10.62	7.05	3.57	960[3]	1,600	20	1.3	1.3	<1.5	<2.5
04/15/03	10.62	8.02	2.60	920[3]	870	56	1	1.4	3.1	<2.5
07/16/03[10]	10.62	10.08	0.54	1,400[3]	780	85	1	0.8	0.7	<0.5
10/18/03[10]	10.62	8.51	2.11	1,200[3]	640	42	0.8	<0.5	0.5	<0.5
01/22/04[10]	10.62	8.95	1.67	1,500[3]	440	18	<0.5	<0.5	<0.5	<0.5
04/23/04[10]	10.62	8.95	1.67	2,200[3]	410	10	<0.5	<0.5	<0.5	<0.5
07/23/04[10]	10.62	9.21	1.41	1,800[3]	400	6	<0.5	<0.5	<0.5	<0.5
10/22/04[10]	10.62	8.36	2.26	2,200[3]	150	2	<0.5	<0.5	<0.5	<0.5
01/28/05[10]	10.62	7.09	3.53	1,200[3]	55	8	<0.5	<0.5	<0.5	<0.5
04/26/05[10]	10.62	7.84	2.78	480[3]	<50	5	<0.5	<0.5	<0.5	<0.5
07/15/05[10]	10.62	8.12	2.50	610[3,11]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/14/05[10]	10.62	8.07	2.55	920[3,12]	<50	10	<0.5	<0.5	<0.5	<0.5
01/12/06[10]	10.62	6.98	3.64	960[3,12]	<50	6	<0.5	<0.5	<0.5	<0.5
04/13/06[10]	10.62	7.04	3.58	1,200[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/13/06[10]	10.62	7.13	3.49	1,200[3]	92	14	<0.5	<0.5	<0.5	<0.5
10/17/06[10]	10.62	7.64	2.98	990[3]	<50	3	<0.5	<0.5	<0.5	<0.5
01/16/07[10]	10.62	7.09	3.53	840[3]	83	4	<0.5	<0.5	<0.5	<0.5
04/17/07[10]	10.62	7.11	3.51	1,200[3]	57	<0.5	<0.5	<0.5	<0.5	<0.5
07/17/07[10]	10.62	7.41	3.21	1,100[3]	120	8	<0.5	<0.5	<0.5	<0.5
10/16/07[10]	10.62	7.55	3.07	750[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/16/08[10]	10.62	6.98	3.64	1,700[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/16/08[10]	10.62	7.36	3.26	1,100[3]	62	<0.5	<0.5	<0.5	<0.5	<0.5
07/16/08[10]	10.62	7.89	2.73	580[3]	93	3	<0.5	<0.5	<0.5	<0.5
10/15/08[10]	10.62	7.46	3.16	740[3]	56	0.7	<0.5	<0.5	0.8	<0.5

Table 1
Groundwater Monitoring Data and Analytical Results
Chevron #206127 (Former Signal Oil Marine Terminal)
2301-2337 Blanding Avenue
Alameda, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)
MW-1 (cont)										
01/21/09[10]	10.62	7.19	3.43	390[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/15/09[10]	10.62	6.93	3.69	1,400[3]	80	0.7	<0.5	<0.5	<0.5	<0.5
07/03/09[10]	13.49	8.08	5.41	1,300[3]	51	<0.5	<0.5	<0.5	<0.5	<0.5
10/01/09[10]	13.49	9.52	3.97	1,500[3]	86	<0.5	<0.5	<0.5	<0.5	<0.5
01/19/10[10]	13.49	7.64	5.85	340[3,15]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/26/10[10]	**13.49**	**9.20**	**4.29**	**820[3]**	**66**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
MW-2										
06/30/09[1]	10.63	3.80	6.83	--	--	--	--	--	--	--
07/03/09[14]	10.63	3.91	6.72	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	--
10/01/09[14]	10.63	4.11	6.52	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	--
01/19/10[14]	10.63	3.90	6.73	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	--
04/26/10[14]	**10.63**	**4.08**	**6.55**	**<50[3]**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	--
MW-3										
06/30/09[1]	10.72	4.61	6.11	--	--	--	--	--	--	--
07/03/09[14]	10.72	4.57	6.15	170[3]	310	1	<0.5	2	<0.5	--
10/01/09[14]	10.72	5.22	5.50	1,000[3]	52	<0.5	<0.5	<0.5	<0.5	--
01/19/10[14]	10.72	4.84	5.88	1,800[3]	120	2	<0.5	<0.5	<0.5	--
04/26/10[14]	**10.72**	**4.86**	**5.86**	**1,700[3]**	**170**	**2**	**<0.5**	**<0.5**	**<0.5**	--
MW-4										
06/30/09[1]	11.40	6.02	5.38	--	--	--	--	--	--	--
07/03/09[14]	11.40	5.85	5.55	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	--
10/01/09[14]	11.40	6.95	4.45	370[3]	<50	<0.5	<0.5	<0.5	<0.5	--
01/19/10[14]	11.40	6.22	5.18	110[3]	<50	<0.5	<0.5	<0.5	<0.5	--
04/26/10[14]	**11.40**	**6.61**	**4.79**	**210[5,17]**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	--

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron #206127 (Former Signal Oil Marine Terminal)

2301-2337 Blanding Avenue

Alameda, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)
MW-5										
06/30/09[1]	10.50	5.20	5.30	--	--	--	--	--	--	--
07/03/09[14]	10.50	5.17	5.33	110[3]	930	33	2	0.6	3	--
10/01/09[14]	10.50	5.66	4.84	2,500[3]	1,800	57	3	0.9	5	--
01/19/10[14]	10.50	5.48	5.02	2,600[3]	2,200	74	4	1	5	--
04/26/10[14]	**10.50**	**5.91**	**4.59**	**1,700[3]**	**2,200**	**94**	**4**	**2**	**5**	--
CS-2										
07/30/01	--	--	--	140[3,5]	<50	<0.50	<0.50	<0.50	<0.50	<2.5
10/08/01	--	--	--	53[9]	<50	<0.50	<0.50	<0.50	<1.5	<2.5
01/13/02	--	--	--	<50[3]	<50	<0.50	<0.50	<0.50	<1.5	<2.5
04/08/02	--	--	--	77[3]	<50	<0.50	<0.50	<0.50	<1.5	<2.5
07/31/02	--	--	--	<50[3]	<50	<0.50	<0.50	<0.50	<1.5	<2.5
10/15/02	--	--	--	<50[3]	<50	<0.50	<0.50	<0.50	<1.5	<2.5
01/14/03	--	--	--	<50[3]	<50	<0.50	<0.50	<0.50	<1.5	<2.5
04/15/03	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<1.5	<2.5
07/16/03[10]	--	--	--	<50[3]	<50	<0.5	0.7	<0.5	0.6	<0.5
10/18/03[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/22/04[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/23/04[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/23/04[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/22/04[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/28/05[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/26/05[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/15/05[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/14/05[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/12/06[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/13/06[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/13/06[10]	--	--	--	140[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/17/06[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/16/07[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/17/07[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron #206127 (Former Signal Oil Marine Terminal)

2301-2337 Blanding Avenue

Alameda, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)
CS-2 (cont)										
07/17/07[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/16/07[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/16/08[10]	--	--	--	85[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/16/08[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/16/08[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/15/08[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/21/09[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/15/09[10]	--	--	--	86[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/03/09[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/01/09[10]	--	--	--	<50[3]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/19/10[10]	--	--	--	210[3,16]	<50	<0.5	<0.5	<0.5	<0.5	<0.5
TRIP BLANK										
TB-LB										
01/23/01	--	--	--	--	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50
04/09/01	--	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5
07/30/01	--	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5
QA										
10/08/01	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
01/13/02	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
04/08/02	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
07/31/02	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
10/15/02	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
01/14/03	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
04/15/03	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5
07/16/03[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/18/03[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/22/04[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/23/04[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/23/04[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/22/04[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron #206127 (Former Signal Oil Marine Terminal)

2301-2337 Blanding Avenue

Alameda, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)
QA (cont)										
01/28/05[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/26/05[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/15/05[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/14/05[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/12/06[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/13/06[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/13/06[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/17/06[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/16/07[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/17/07[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/17/07[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/16/07[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/16/08[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/16/08[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/16/08[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/15/08[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/21/09[10]	--	--	--	--	<50[13]	<0.5	<0.5	<0.5	<0.5	<0.5
04/15/09[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
07/03/09[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/01/09[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
01/19/10[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
04/26/10[10]	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron #206127 (Former Signal Oil Marine Terminal)

2301-2337 Blanding Avenue

Alameda, California

EXPLANATIONS:

TOC = Top of Casing
(ft.) = Feet
DTW = Depth to Water
GWE = Groundwater Elevation
(msl) = Mean sea level
TPH = Total Petroleum Hydrocarbons
DRO = Diesel Range Organics
GRO = Gasoline Range Organics
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes
MTBE = Methyl Tertiary Butyl Ether
(µg/L) = Micrograms per liter
-- = Not Measured/Not Analyzed
CS-2 = Creek Sample
QA = Quality Assurance/Trip Blank

* TOC elevations for all wells were surveyed on July 30, 2009, by Morrow Surveying. Vertical Datum is NAVD 88 from GPS observations.
TOC elevations were surveyed on January 25, 2001, by Virgil Chavez Land Surveying. The benchmark used for the survey was a City of Alameda benchmark being a cut square at the centerline return, south corner of Oak and Blanding, (Benchmark Elevation = 8.236 feet, NGVD 29).

1 Well development performed.
2 Laboratory report indicates unidentified hydrocarbons <C16.
3 Analyzed with silica gel cleanup.
4 Laboratory report indicates weathered gasoline C6-C12.
5 Laboratory report indicates discrete peaks.
6 Laboratory report indicates diesel C9-C24 + unidentified hydrocarbons <C16.
7 Laboratory report indicates gasoline C6-C12.
8 Laboratory report indicates unidentified hydrocarbons C9-C24.
9 Analysis performed without silica gel cleanup although was requested on the Chain of Custody.
10 BTEX and MTBE by EPA Method 8260.
11 Laboratory report indicates the observed sample pattern is not typical of #2 fuel/diesel. It elutes in the DRO range later than #2 fuel.
12 Laboratory report indicates the observed sample pattern includes #2 fuel/diesel and an additional pattern which elutes later in the DRO range.
13 Laboratory report indicates the original analysis was performed on an instrument where the ending calibration standard failed the method criteria. The sample was originally analyzed approximately 60 minutes after the LCS/LCSD. The LCS/LCSD showed good GRO recovery and the surrogate recovery for this sample was 85%. The sample was reanalyzed from a vial with headspace since only 1 vial was submitted. The results for the original and the reanalysis were similar. The reanalysis was reported.
14 BTEX by EPA Method 8260.
15 Laboratory report indicates DRO was detected in the method blank at a concentration of 38 µg/L. Results from the reextraction are within limits. The hold time had expired prior to the reextraction therefore, all results are reported from the original extract. Similar results were obtained in both extracts.
16 Laboratory report indicates DRO was detected in the method blank at a concentration of 38 µg/L. Results from the reextraction are within limits. The hold time had expired prior to the reextraction therefore, all results are reported from the original extract. The DRO result for the reextract is 96 µg/L.
17 Laboratory report indicates DRO was detected in the method blank at a concentration of 47 µg/L. Results from the reextraction are within limits. The hold time had expired prior to the reextraction therefore, all results are reported from the original extract. Similar results were obtained in both extracts.

Table 2

Groundwater Analytical Results - Metals

Chevron #206127 (Former Signal Oil Marine Terminal)

2301-2337 Blanding Avenue

Alameda, California

WELL ID/ DATE	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Lead (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)	Mercury (µg/L)
MW-2																	
07/03/09	<9.7	<7.2	28.1	<1.4	<2.0	14.6	<2.1	<2.7	<6.9	<4.9	10.6	<8.9	<2.3	<14.0	12.6	11.6	<0.056
MW-3																	
07/03/09	<9.7	<7.2	143	<1.4	<2.0	8.5	<2.1	3.3	<6.9	<4.9	7.8	<8.9	<2.3	<14.0	13.8	18.8	<0.056
MW-4																	
07/03/09	<9.7	<7.2	83.5	<1.4	<2.0	10.0	<2.1	<2.7	<6.9	<4.9	4.5	<8.9	<2.3	<14.0	6.3	15.8	<0.056
MW-5																	
07/03/09	<9.7	32.7	148	<1.4	<2.0	<3.4	<2.1	3.1	<6.9	<4.9	3.6	<8.9	<2.3	<14.0	<2.5	19.2	<0.056

EXPLANATIONS

(µg/L) = Micrograms per liter

ANALYTICAL METHODS:

Metals analyzed by EPA Method SW-846 6010B

Mercury analyzed by Method SW-7470A

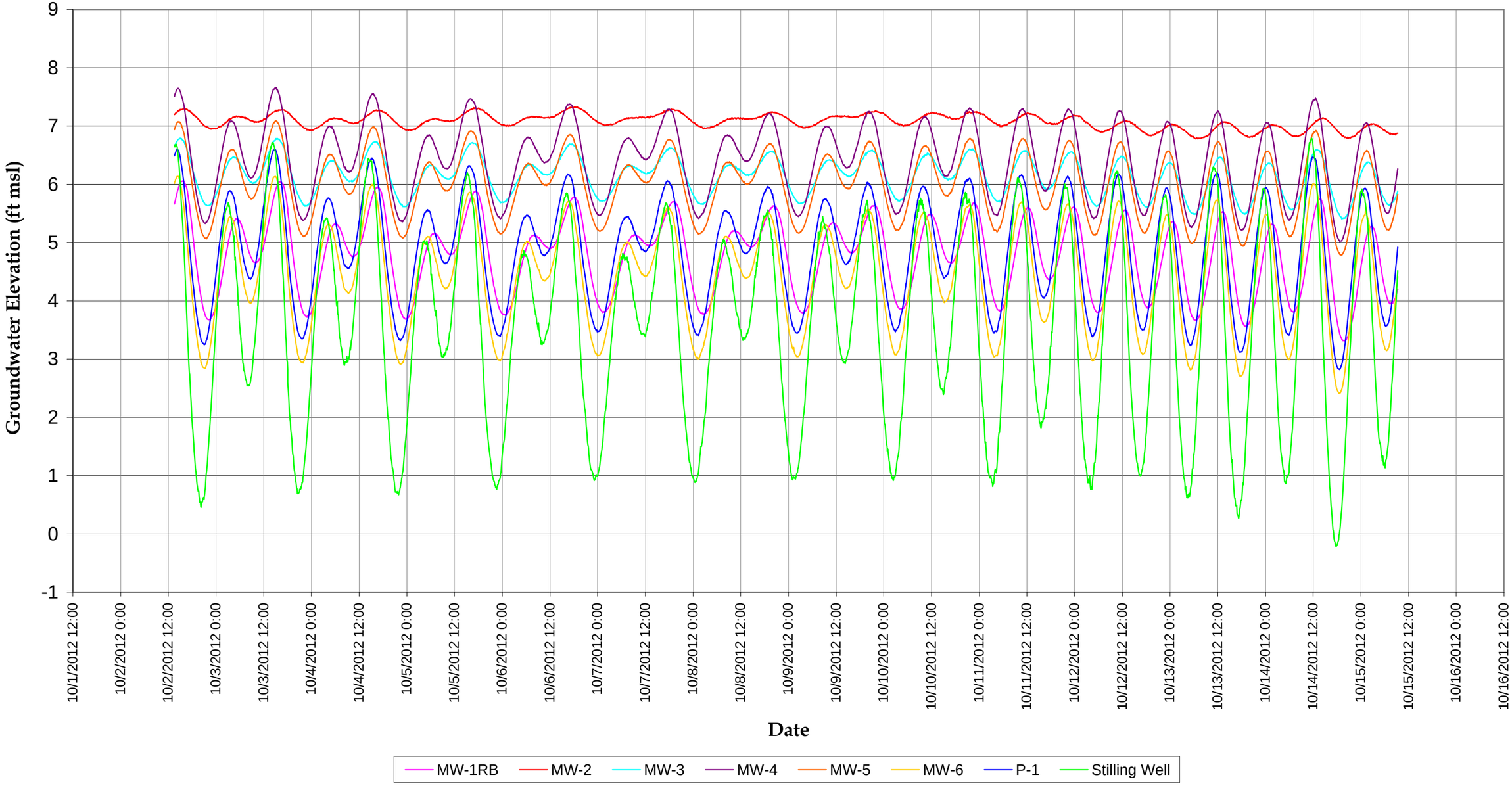
Appendix C

Mass Flux

GRAPH A - TIDAL STUDY DATALOGGER REVIEW

FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY

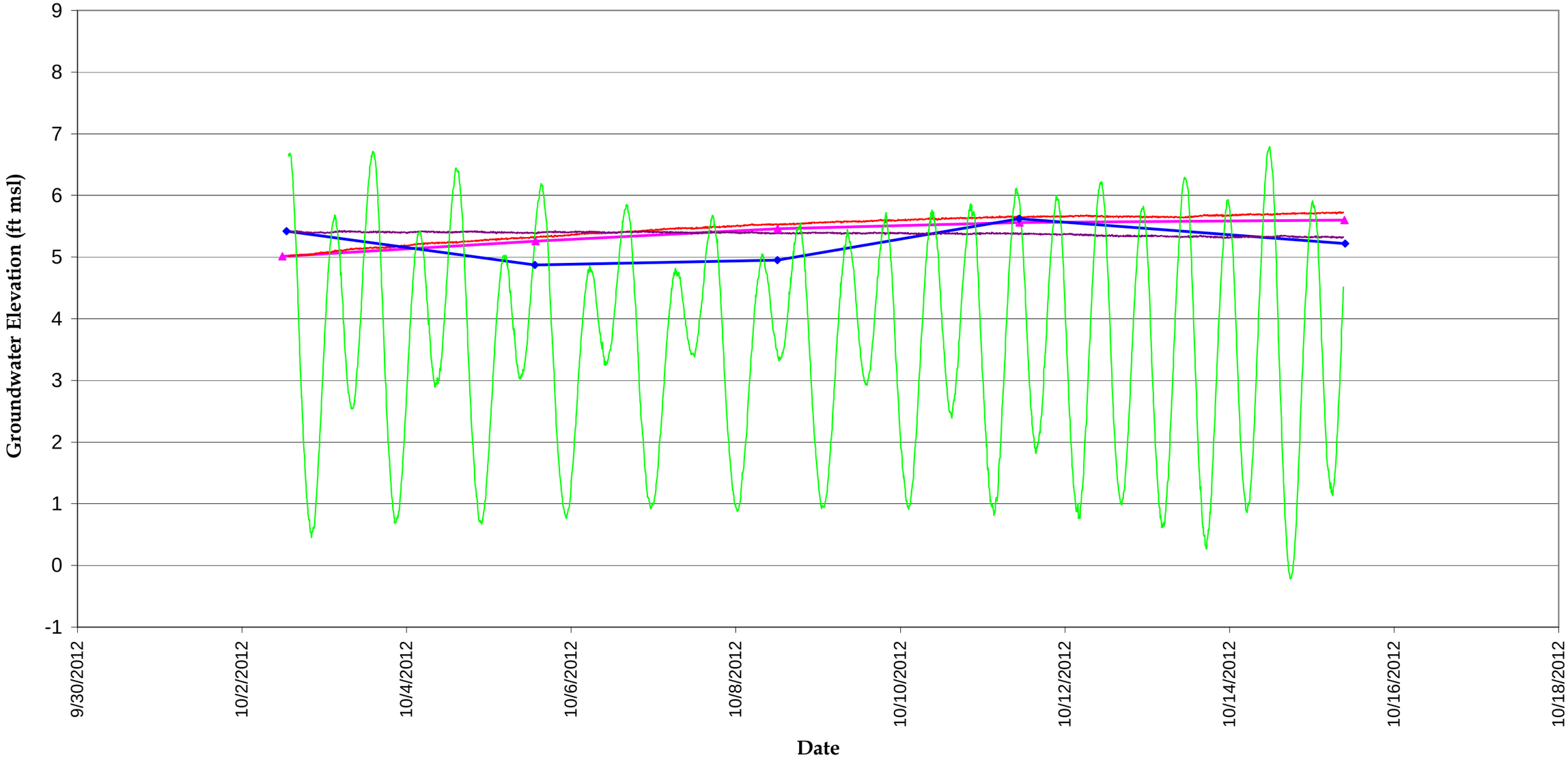
CHEVRON FACILITY 206127, 2301-2311 BLANDING AVENUE, ALAMEDA, CALIFORNIA



GRAPH B - TIDAL STUDY WELLS MW-1RA AND P-2 REVIEW

FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY

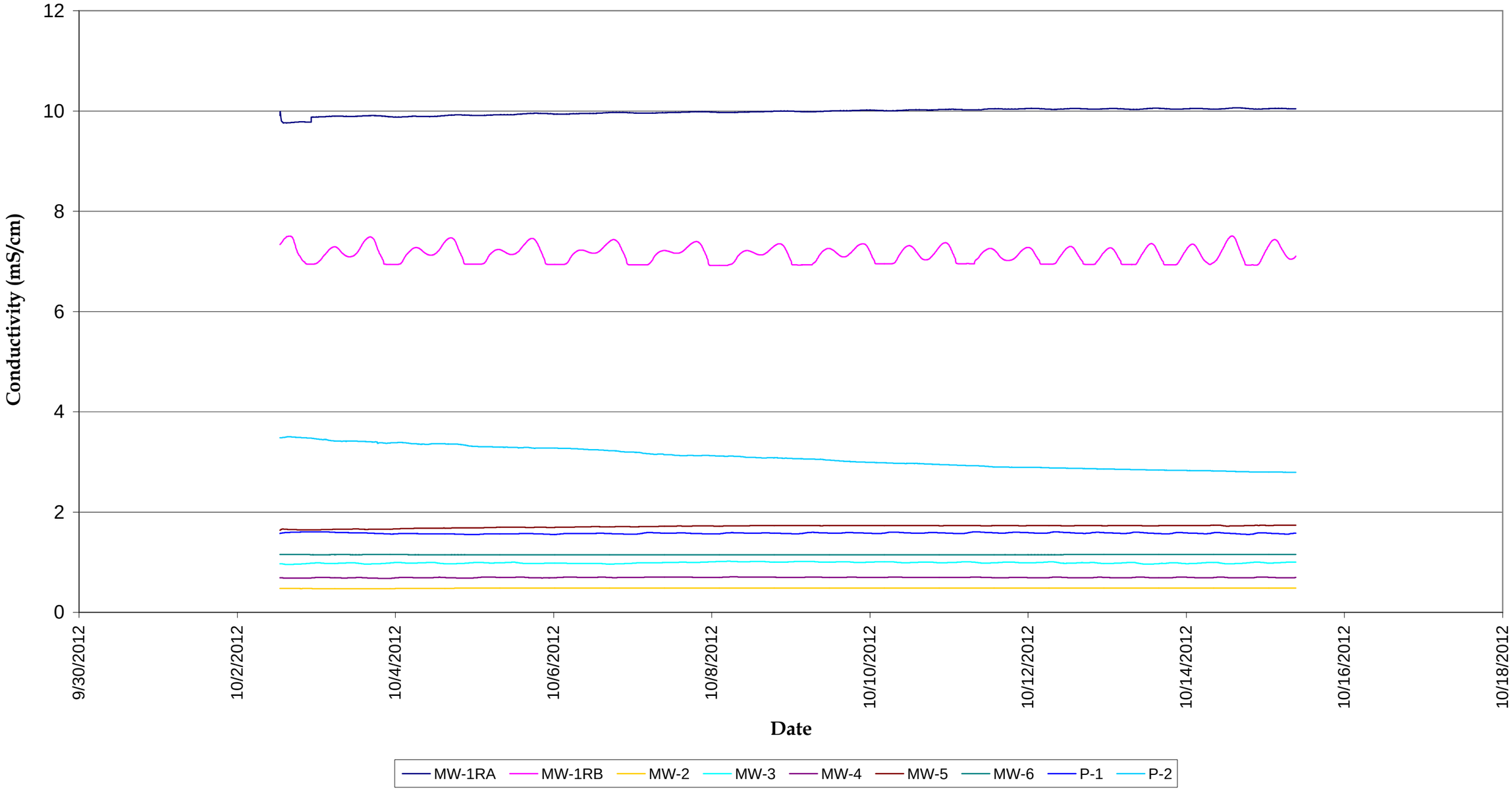
CHEVRON FACILITY 206127, 2301-2311 BLANDING AVENUE, ALAMEDA, CALIFORNIA

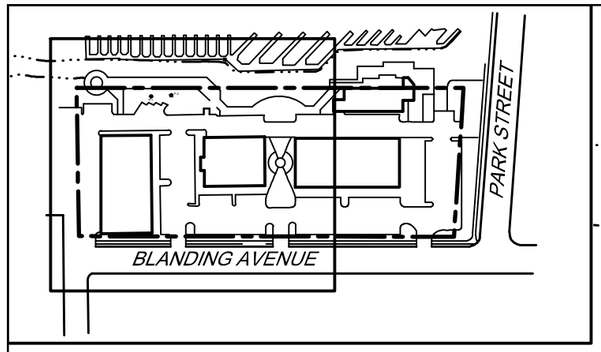


GRAPH C - TIDAL STUDY CONDUCTIVITY REVIEW

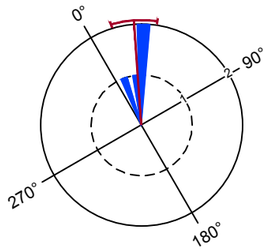
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY

CHEVRON FACILITY 206127, 2301-2311 BLANDING AVENUE, ALAMEDA, CALIFORNIA





KEY PLAN
SCALE: 1"=250'



HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2010

LEGEND

- ▲ SUB-SLAB VAPOR POINT
- ● MONITORING WELL LOCATION
- △ VAPOR WELL
- ■ SOIL BORING (CRA, AUGUST, 2008)
- ◪ SOIL BORING (GEOMATRIX, FEBRUARY 1995)
- ⊕ SOIL BORING (RRM, OCTOBER 1998)
- ◍ SHALLOW GROUNDWATER SAMPLE (GEOMATRIX, APRIL 1995)
- ⊠ CANAL GRAB SURFACE WATER SAMPLE (RRM, OCTOBER 1998)
- ⊡ GRAB SOIL SAMPLE (CAMBRIA, JANUARY 2004)
- ⬚ SITE FEATURES NOTED ON SANBORN FIRE INSURANCE MAP, DATED 1932
- ⚠ INDOOR AND OUTDOOR AIR SAMPLING LOCATION
- P-1 ⭘ PIEZOMETER LOCATION
- ⬓ STILLING WELL LOCATION
- A —— A' LOCATION OF CROSS-SECTION

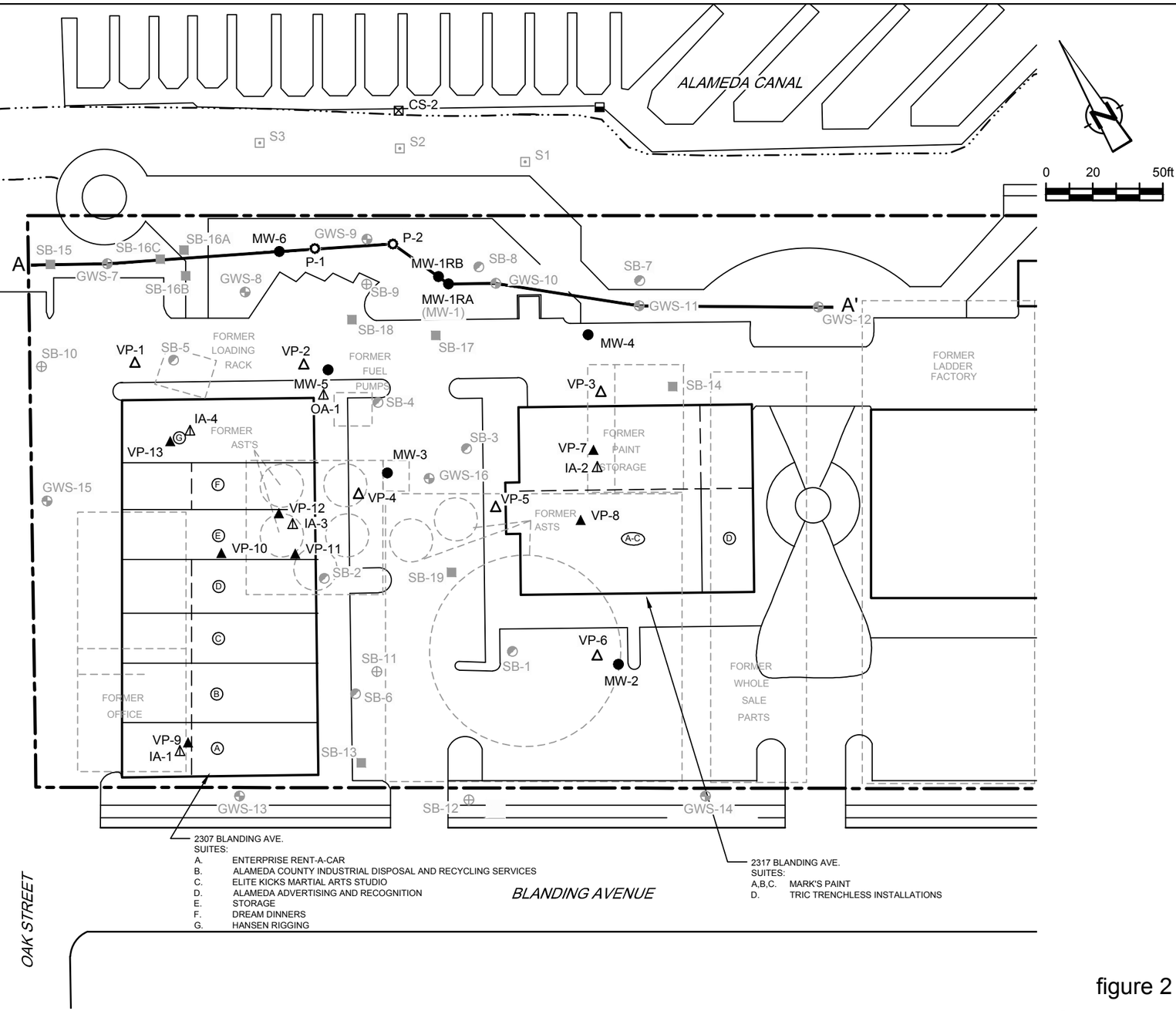
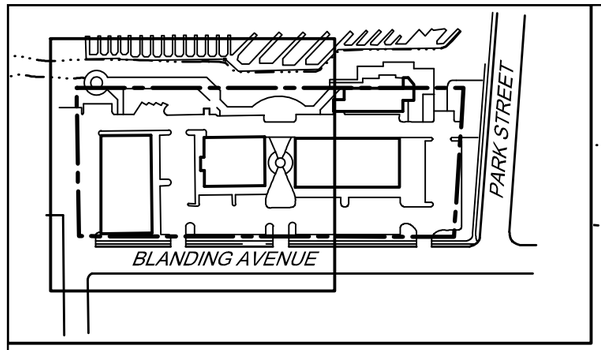


figure 2

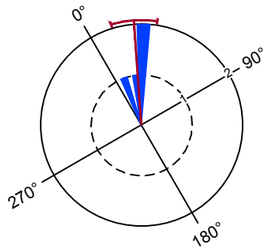
SITE PLAN
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California

NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.

631916-2012(029)GN-WA002 NOV 16/2012



KEY PLAN
SCALE: 1"=250'



HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2010

LEGEND

- ▲ SUB-SLAB VAPOR POINT
- ● MONITORING WELL LOCATION
- △ VAPOR WELL
- ■ SOIL BORING (CRA, AUGUST, 2008)
- ◪ SOIL BORING (GEOMATRIX, FEBRUARY 1995)
- ⊕ SOIL BORING (RRM, OCTOBER 1998)
- ◍ SHALLOW GROUNDWATER SAMPLE (GEOMATRIX, APRIL 1995)
- ⊠ CANAL GRAB SURFACE WATER SAMPLE (RRM, OCTOBER 1998)
- ⊡ GRAB SOIL SAMPLE (CAMBRIA, JANUARY 2004)
- ⬚ SITE FEATURES NOTED ON SANBORN FIRE INSURANCE MAP, DATED 1932
- ⚠ INDOOR AND OUTDOOR AIR SAMPLING LOCATION
- P-1 PIEZOMETER LOCATION
- ⬓ STILLING WELL LOCATION
- 7.50 GROUNDWATER ELEVATION CONTOUR, IN FEET ABOVE MEAN SEA LEVEL (MSL), DASHED WHERE INFERRED
- (7.32) GROUNDWATER ELEVATION
- 0.017 GROUNDWATER FLOW DIRECTION AND GRADIENT (ft/ft)
- * NOT USED IN CONTOURING

NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.

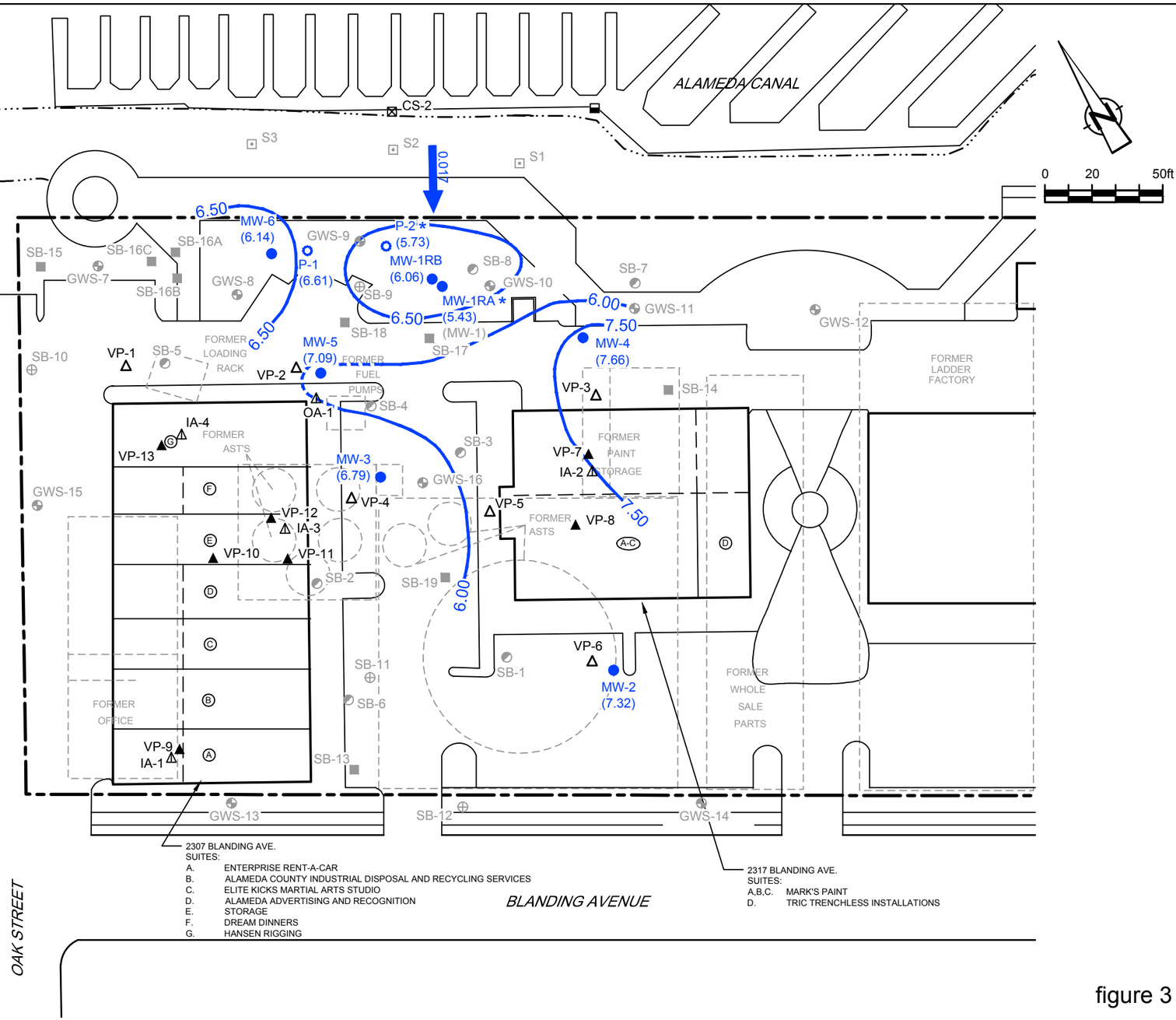
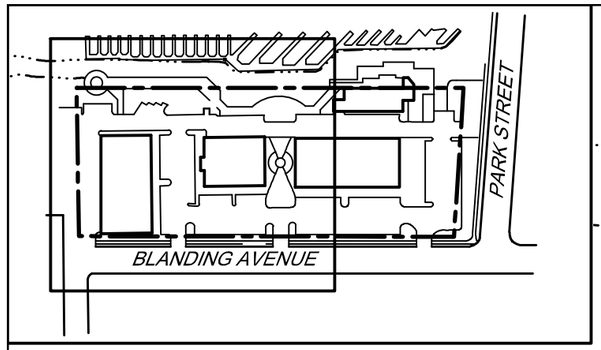
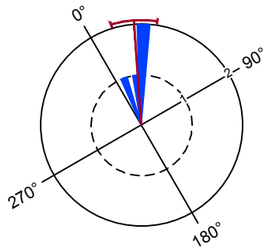


figure 3

TIDAL STUDY MAXIMUM GROUNDWATER ELEVATION - OCTOBER 2, 2012
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California



KEY PLAN
SCALE: 1"=250'



HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2010

LEGEND

- ▲ SUB-SLAB VAPOR POINT
- ● MONITORING WELL LOCATION
- △ VAPOR WELL
- ■ SOIL BORING (CRA, AUGUST, 2008)
- ◪ SOIL BORING (GEOMATRIX, FEBRUARY 1995)
- ⊕ SOIL BORING (RRM, OCTOBER 1998)
- ◍ SHALLOW GROUNDWATER SAMPLE (GEOMATRIX, APRIL 1995)
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- ⚠ INDOOR AND OUTDOOR AIR SAMPLING LOCATION
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- ⬓ STILLING WELL LOCATION
- 7.50 GROUNDWATER ELEVATION CONTOUR, IN FEET ABOVE MEAN SEA LEVEL (MSL), DASHED WHERE INFERRED
- (7.32) GROUNDWATER ELEVATION
- 0.017 GROUNDWATER FLOW DIRECTION AND GRADIENT (ft/ft)
- * NOT USED IN CONTOURING

NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.

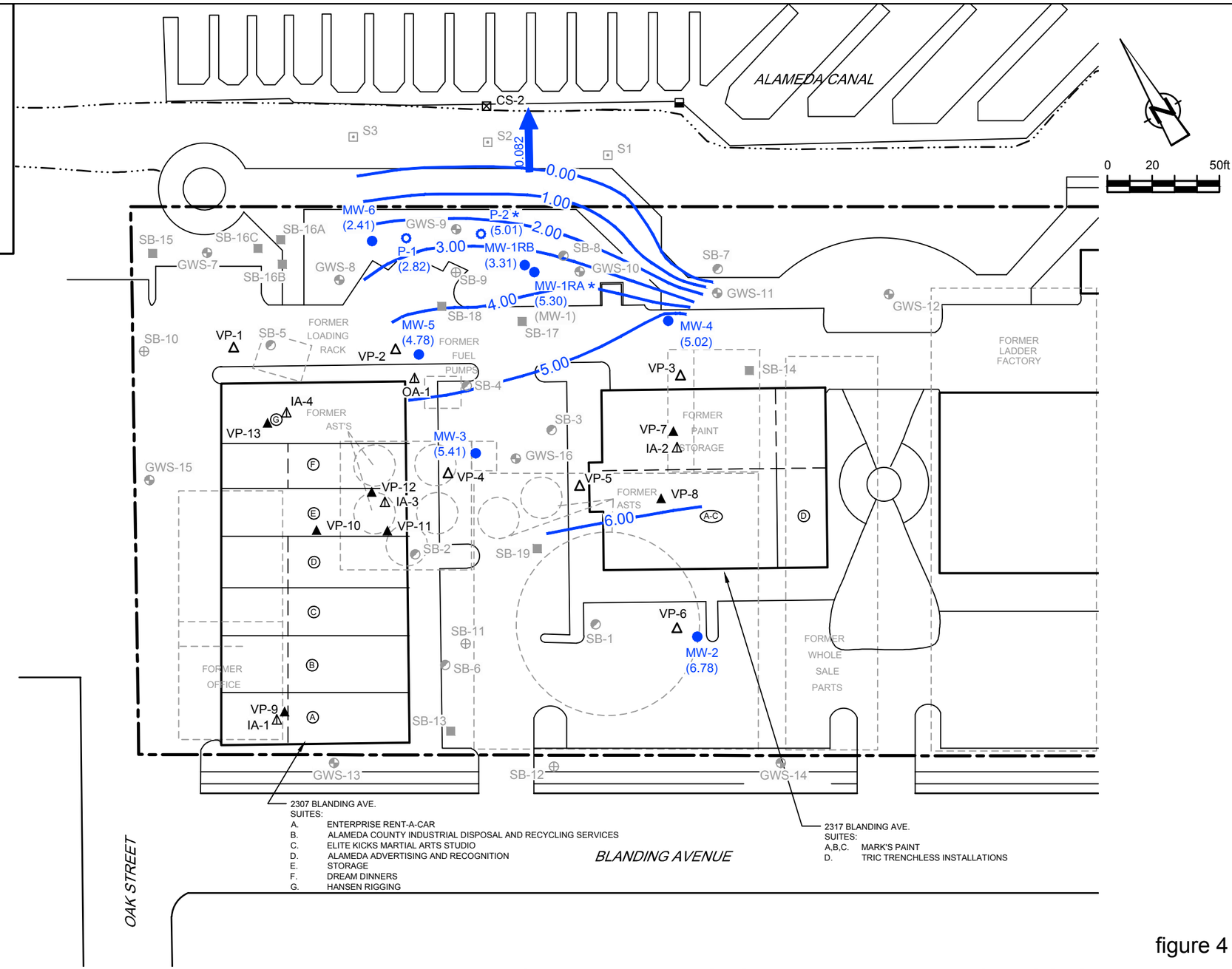
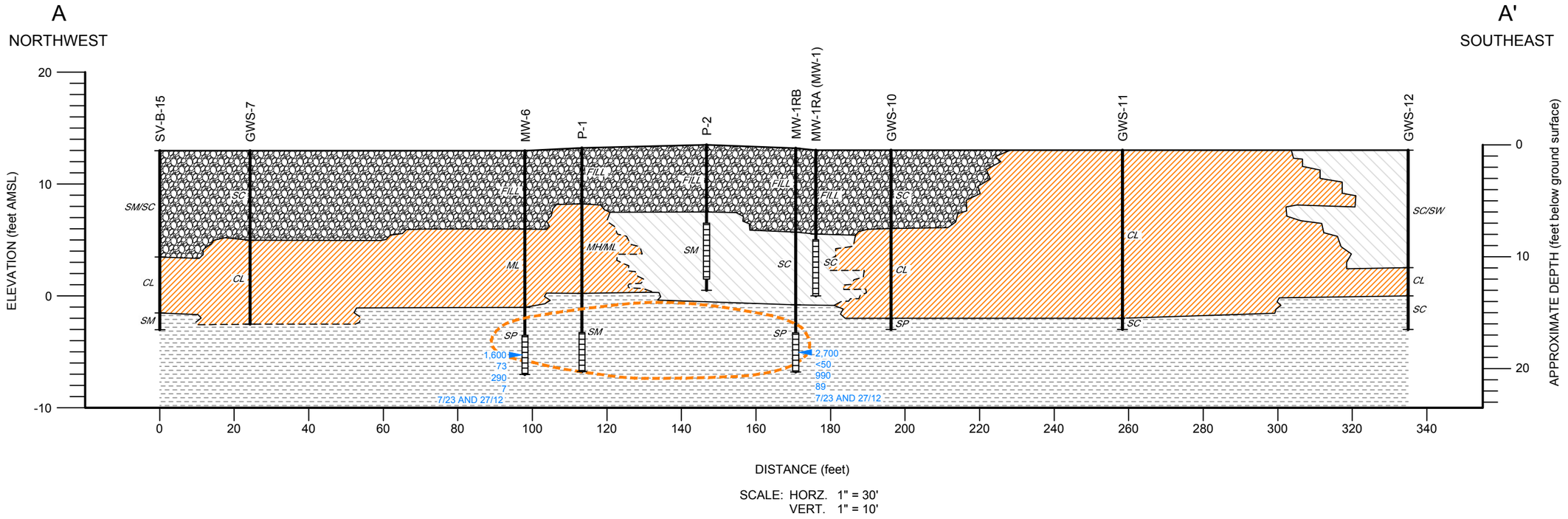
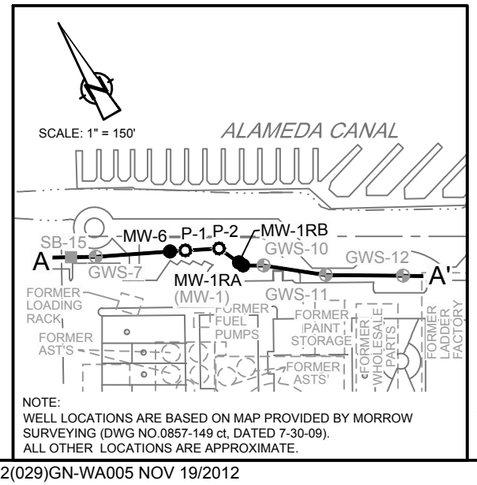


figure 4

TIDAL STUDY MINIMUM GROUNDWATER ELEVATION - OCTOBER 14, 2012
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California



SCALE: HORZ. 1" = 30'
VERT. 1" = 10'



NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.

LEGEND

MW-6 — WELL DESIGNATION
GROUND SURFACE
OBSERVATION WELL INSTALLATION
STRATIGRAPHIC BOUNDARY
ML — TYPICAL SOIL CLASSIFICATION
SCREENED INTERVAL
BOTTOM OF BORING
APPROXIMATE GROUNDWATER SAMPLE LOCATION
TPHd
TPHd(SiGel)
TPHg
BENZENE
DATE
HYDROCARBON CONCENTRATIONS IN GROUNDWATER (µg/L)
CONTOUR

- FILL
- LOW PERMEABILITY SOILS
- MODERATE PERMEABILITY SOILS
- HIGH PERMEABILITY SOILS

figure 5

GEOLOGIC CROSS SECTION A-A'
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California

TABLE 2

MANUAL DEPTH TO WATER MEASUREMENTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(FORMER CHEVRON 20-6127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

WELL ID	*DATE*	*TIME*	*Depth to Water*
MW-1RA	10/02/12	13:01	7.60
	10/05/12	13:22	8.15
	10/08/12	12:07	8.07
	10/11/12	10:38	7.40
	10/15/12	9:42	7.80
MW-1RB	10/02/12	11:49	8.00
	10/05/12	13:12	7.61
	10/08/12	11:53	7.66
	10/11/12	10:30	7.41
	10/15/12	9:39	8.95
MW-2	10/02/12	12:48	3.53
	10/05/12	12:45	3.30
	10/08/12	11:30	3.35
	10/11/12	10:04	3.28
	10/15/12	11:12	3.58
MW-3	10/02/12	12:20	4.30
	10/05/12	13:00	4.33
	10/08/12	11:40	4.39
	10/11/12	10:22	4.19
	10/15/12	9:29	4.75
MW-4	10/02/12	12:30	6.15
	10/05/12	inaccessible- blocked by car	
	10/08/12	inaccessible- blocked by car	
	10/11/12	10:12	5.35
	10/15/12	10:17	5.90
MW-5	10/02/12	12:39	5.43
	10/05/12	13:17	4.61
	10/08/12	11:57	4.82
	10/11/12	10:33	4.18
	10/15/12	10:58	4.50
MW-6	10/02/12	11:30	8.00
	10/05/12	13:06	7.57
	10/08/12	11:48	7.98
	10/11/12	10:27	6.86
	10/15/12	9:19	8.10

TABLE 2

MANUAL DEPTH TO WATER MEASUREMENTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(FORMER CHEVRON 20-6127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

WELL ID	*DATE*	*TIME*	*Depth to Water*
P-1	10/02/12	11:39	7.61
	10/05/12	13:30	7.69
	10/08/12	12:11	8.38
	10/11/12	10:43	7.14
	10/15/12	9:24	8.28
P-2	10/02/12	11:48	8.50
	10/05/12	13:35	8.25
	10/08/12	12:16	8.05
	10/11/12	10:46	7.95
	10/15/12	9:34	7.91
STILLING	10/02/12	14:42	5.28
	10/15/12	10:45	5.43

Appendix D

Degradation Calculations

Table A - Summary of Degradation Rate Calculations
Former Signal Oil Bulk Plant (Chevron Facility 206127), 2301-2311 Blanding Avenue, Alameda, CA

Well	Analyte	Maximum Concentration (ug/L)	Current Concentration (ug/L)	Half-Life (years)	Date to Reach WQG
MW-1	TPHd	3,300	440	6.12	May 2027
	TPHg	5,210	65	NA	Met
	Benzene	920	<0.5	NA	Met
MW-1RA	TPHd	4,000	3,700	NA	NA
	TPHg	6,800	6,800	NA	NA
	Benzene	830	780	NA	NA
MW-1RB	TPHd	1,900	1,900	NA	NA
	TPHg	650	310	NA	NA
	Benzene	9	9	NA	NA
MW-3	TPHd	1,800	50	NA	Met
	TPHg	310	<50	NA	Met
	Benzene	2	<0.5	NA	Met
MW-5	TPHd	3,200	720	3.80	Jan 2026
	TPHg	3,900	3,400	NA	Stable
	Benzene	140	130	NA	Stable
MW-6	TPHd	640	640	NA	NA
	TPHg	620	200	NA	NA
	Benzene	7	3	NA	NA

Predicted Time to Reach Environmental Screening Levels in Well MW-3

Former Signal Oil Bulk Plant (Chevron Facility 206127), 2301-2311 Blanding Avenue, Alameda, California

Calculate "Date to Reach Environmental Screening Level" given the first-order decay equation:

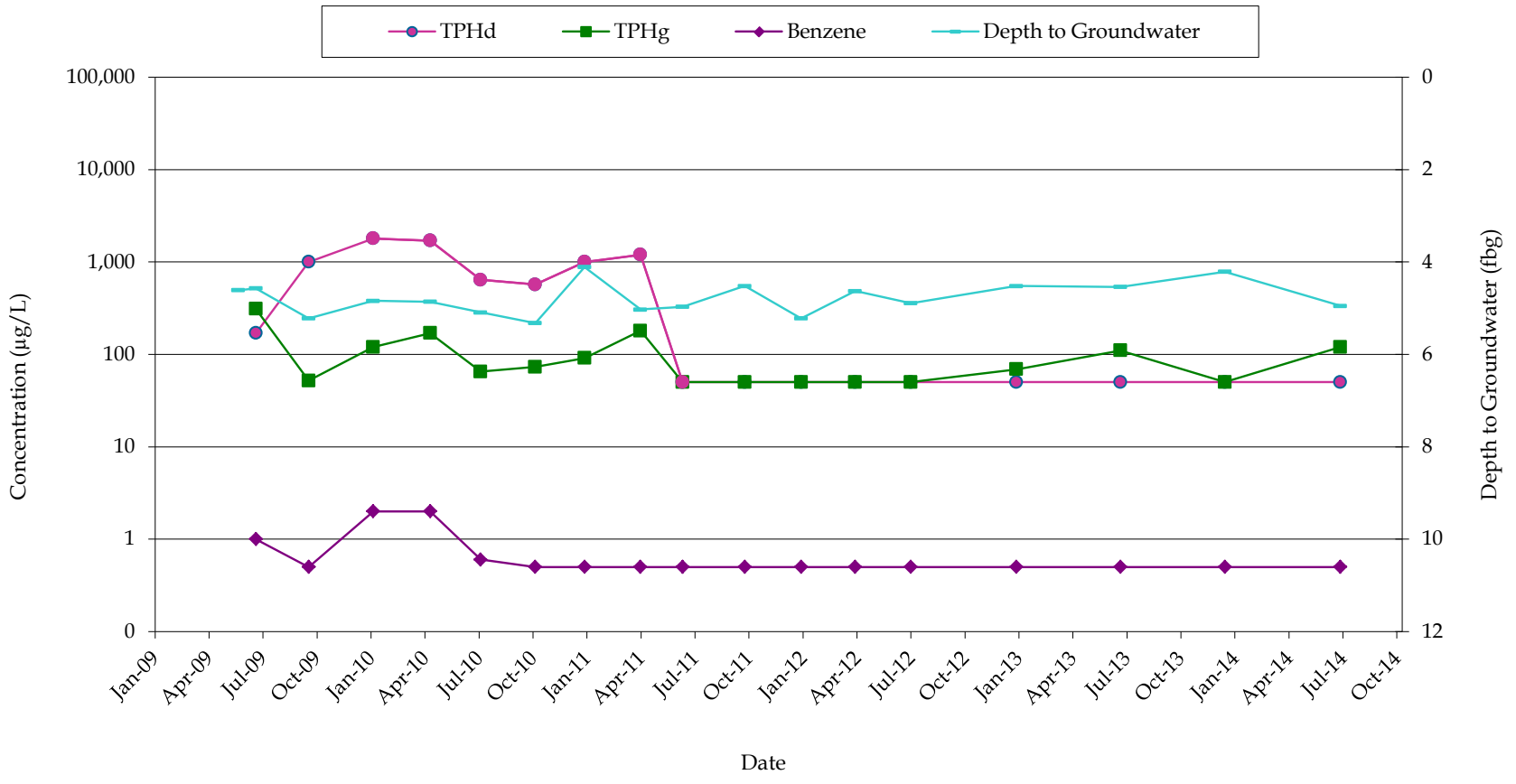
$y = b\,e^{ax}$ **===>** $x = \ln(y/b) / a$

where: y = concentration in µg/L; a = decay constant
b = concentration at time (x); x = time in days

	Constituent	Total Petroleum Hydrocarbons as Diesel (TPHd)	Total Petroleum Hydrocarbons as Gasoline (TPHg)	Benzene
Environmental Screening Level (ESL):	y	100	100	1
Constant:	b	NA	NA	NA
Constant:	a	NA	NA	NA
Starting date for current trend:		NA	NA	NA

Calculate

Attenuation Half Life (years):	(-ln(2)/a)/365.25	NA	NA	NA
Estimated Date to Reach ESL:	(x = ln(y/b) / a)	NA	NA	NA



FORMER SIGNAL OIL BULK TERMINAL
CHEVRON FACILITY 206127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

MW-3: TPHd with SGC, TPHg BENZENE, AND DEPTH TO GROUNDWATER VERSUS TIME

Predicted Time to Reach Environmental Screening Levels in Well MW-5

Former Signal Oil Bulk Plant (Chevron Facility 206127), 2301-2311 Blanding Avenue, Alameda, California

Calculate "Date to Reach Environmental Screening Level" given the first-order decay equation:

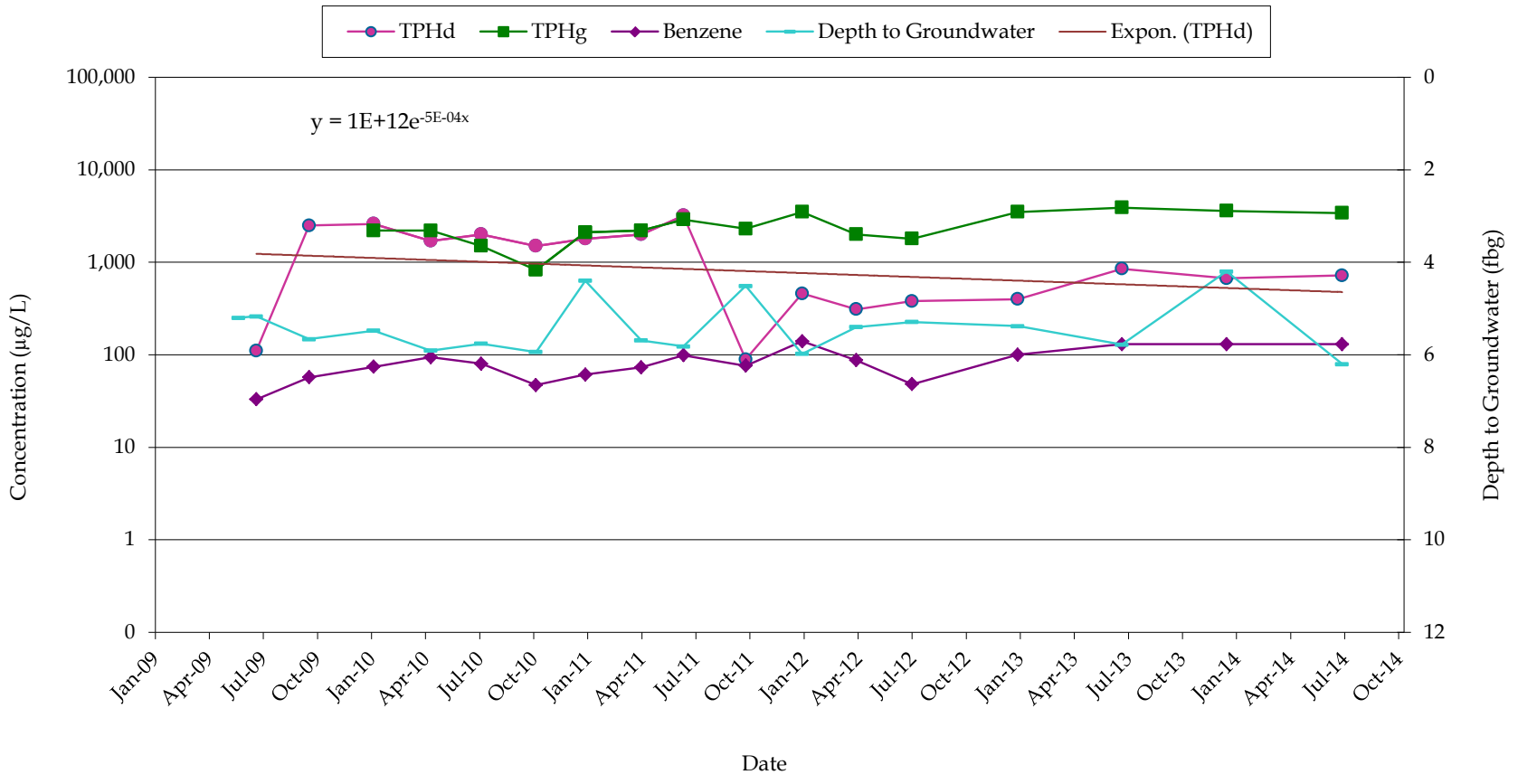
$y = b\,e^{ax}$ **===>** $x = \ln(y/b) / a$

where: y = concentration in µg/L; a = decay constant
b = concentration at time (x); x = time in days

	Constituent	Total Petroleum Hydrocarbons as Diesel (TPHd)	Total Petroleum Hydrocarbons as Gasoline (TPHg)	Benzene
Environmental Screening Level (ESL):	y	100	100	1
Constant:	b	1.00E+12	NA	NA
Constant:	a	-5.00E-04	NA	NA
Starting date for current trend:		7/3/2009	NA	NA

Calculate

Attenuation Half Life (years):	(-ln(2)/a)/365.25	3.80	NA	NA
Estimated Date to Reach ESL:	(x = ln(y/b) / a)	Jan 2026	NA	NA



FORMER SIGNAL OIL BULK TERMINAL
CHEVRON FACILITY 206127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

MW-5: TPHd with SGC, TPHg BENZENE, AND DEPTH TO GROUNDWATER VERSUS TIME

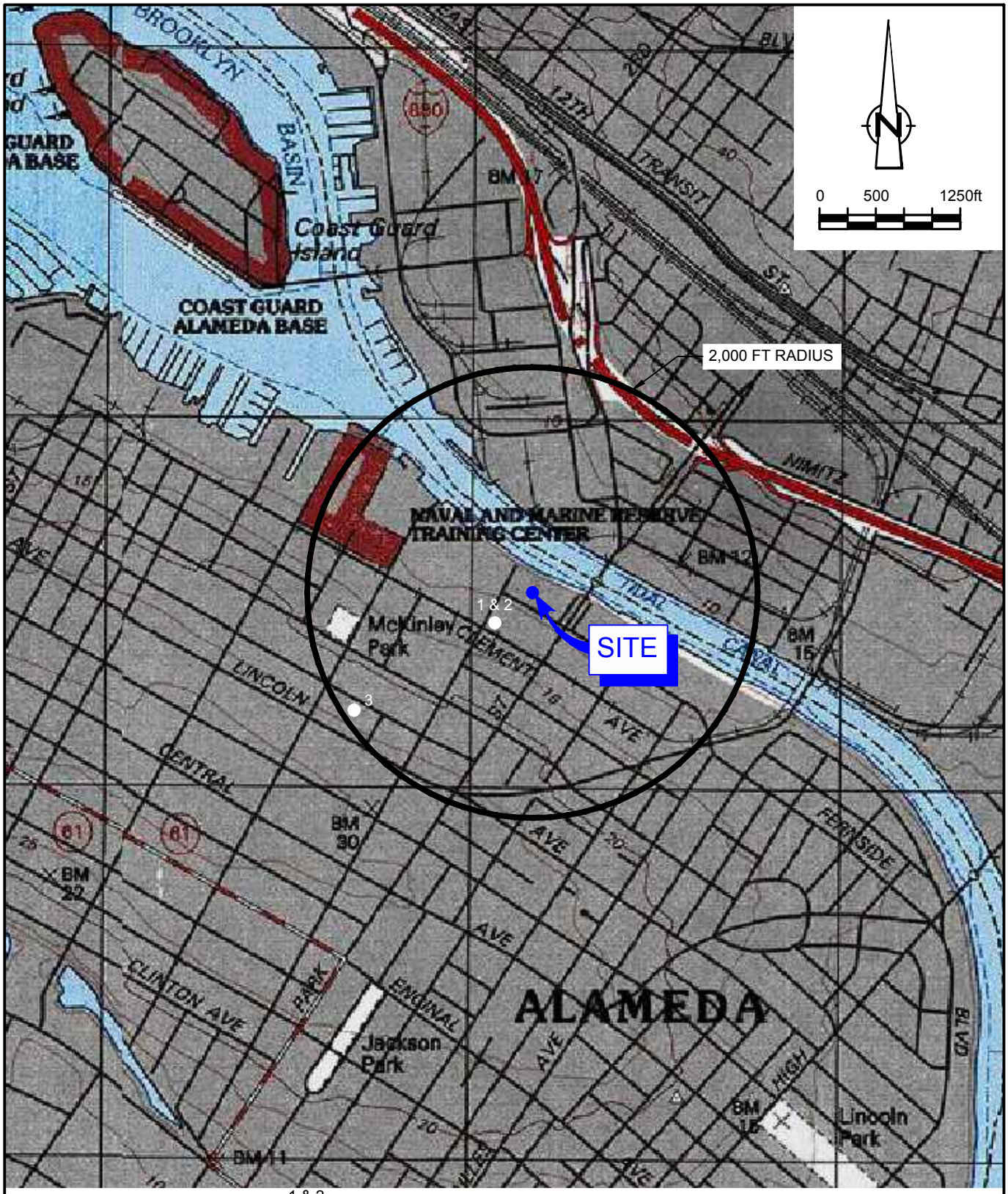
Appendix E

Sensitive Receptor Survey

SENSITIVE RECEPTOR AND WELL SURVEY
FORMER SIGNAL OIL BULK PLANT
(FORMER CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

ID on Map	*Sensitive Receptor Type*	*DWR Well Drillers Report Number*	*Address*	*Owner*	*Well Type*	*Date Installed*	*Depth (fbg)*	*Screened (fbg)*	*Approximate Distance From Site*
	Surface Water	NA	Alameda Canal		NA	NA	NA	NA	20 feet north
1	Well	32164	2307 Clement Avenue	Bob Tennant	Industrial	4/9/1977	80	20-80; 40-80	310 feet southwest
2	Well	32163	2307 Clement Avenue	Bob Tennant	Industrial	4/9/1977	71	20-71; 30-71	340 feet southwest
3	School	NA	2226 Pacific Avenue	Alameda Christian School	NA	NA	NA	NA	1775 feet southwest

Notes and Abbreviations
fbg = feet below grade
NA = not applicable
Well locations provided by the California Department of Water Resources (June 2011)



SOURCE: TOPO! MAPS.

● 1 & 2 TWO INDUSTRIAL WELLS LOCATED AT 2307 CLEMENT AVE.
● 3 ALAMEDA CHRISTIAN SCHOOL

figure 5

SENSITIVE RECEPTOR AND WELL SURVEY MAP
FORMER SIGNAL OIL BULK PLANT (CHEVRON FACILITY 20-6127)
2301-2311 BLANDING AVENUE
Alameda, California