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February 28, 2014

Mr. Mark Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Dear Mr. Detterman:

Attached for your review is the *Site Conceptual Model and Data Gap Work Plan* for former Chevron-branded service station 94612, located at 3616 San Leandro Street in Oakland, California (**Case #:** RO0000233). This report was prepared by Stantec Consulting Services Inc. (Stantec), upon whose assistance and advice I have relied. I declare under penalty of perjury that the information and/or recommendations contained in the attached report are true and correct, to the best of my knowledge.

If you have any further questions, please do not hesitate to contact me or the Stantec project manager, Travis Flora, at (408) 356-6124 ext. 238, or travis.flora@stantec.com.

Sincerely,

Carryl MacLeod

Carryl MacLeod
Project Manager

Site Conceptual Model and Data Gap Work Plan

Former Chevron-branded
Service Station 94612
3616 San Leandro Street
Oakland, California
Case #: RO0000233

Stantec

Prepared for:
Chevron Environmental
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Prepared by:
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February 28, 2014

SITE CONCEPTUAL MODEL AND DATA GAP WORK PLAN
Former Chevron-branded Service Station 94612, 3616 San Leandro Street, Oakland, California
February 28, 2014

This document entitled Site Conceptual Model and Data Gap Work Plan was prepared by Stantec Consulting Services Inc. for the account of Chevron Environmental Management Company. The material in it reflects Stantec's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec Consulting Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

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Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1.0 Introduction

On behalf of Chevron Environmental Management Company (Chevron), Stantec Consulting Services Inc. (Stantec) is pleased to submit this *Site Conceptual Model and Data Gap Work Plan* for former Chevron-branded service station 94612, which was located at 3616 San Leandro Street, Oakland, Alameda County, California (the Site - shown on **Figure 1**). This report was prepared at the request of Alameda County Environmental Health (ACEH) in an email dated January 24, 2014. The ACEH correspondence is included as **Appendix A**.

This report is organized into the following sections summarizing:

- Site background;
- Extent of petroleum hydrocarbons;
- Potential receptors and exposure pathways;
- Low-Threat Underground Storage Tank (UST) Case Closure Policy (LTCP) evaluation;
- Data gap analysis; and
- Data gap work plan.

A focused Site conceptual model (SCM) was requested by ACEH and is included in **Appendix B**. The focused SCM includes many of the elements that would normally be described in the sections indicated above. So that information is not duplicated, the majority of the information is included in the focused SCM, with references to the appendix included in this text. In addition, ACEH provided guidance on sensitive receptor surveys, preferential pathways, and focused SCMs. Information from that guidance that is relevant to the LTCP evaluation has been included in the focused SCM and this report.

2.0 Site Background

2.1 SITE DESCRIPTION AND LAND USE

The Site is a former Chevron-branded service station located on the northern corner at the intersection of San Leandro Street and 37th Avenue in Oakland, California. The Site is currently comprised of two parcels (Alameda County Assessor's Parcel Number (APN) 33-2178-9-1 and APN 33-2178-10) owned by separate private parties. A one-story commercial building occupies the northwestern parcel, while the southeastern parcel is a paved parking lot. A Chevron-branded service station operated at the Site from approximately 1967 until 1976. Stantec reviewed ACEH files, and specific dates of operational history are unclear.

Former Site features consisted of three gasoline USTs (two 10,000-gallon and one 5,000-gallon) located in the northwestern portion of the Site, a 1,000-gallon waste oil UST located in the northern portion of the Site, two fuel dispenser islands located in the southern portion of the Site, associated product piping, and a station building with two hydraulic hoists located in the center of the Site. In 1976, the service station was closed and all Site features including USTs, dispenser islands, hydraulic hoists, and conveyance lines were removed. The Site remained a vacant lot until the existing building was constructed in approximately 1988. A Site Plan is shown on **Figure 2**.

Land use near the Site consists of a mixture of commercial and residential properties. The Site is bounded to the northwest by a residence, to the northeast by a Bay Area Rapid Transit (BART) parking lot and elevated rail tracks, on the southeast by 37th Avenue followed by a commercial building, and on the southwest by San Leandro Street followed by a mixed commercial and residential area.

2.2 REGIONAL AND LOCAL GEOLOGY AND HYDROGEOLOGY

Soil boring and well construction logs are included in **Appendix C**. Well construction details and an assessment of whether Second Quarter 2013 groundwater samples were collected when groundwater elevations were measured across the well screen intervals are presented in **Table 1**. Historical groundwater elevation data are presented in **Table 2**. Based on a review of historical soil boring logs and hydrologic data, there is no evidence of multiple shallow aquifers (groundwater-bearing zones) at the Site. A groundwater elevation contour map (based on Second Quarter 2013 data) is shown on **Figure 3**, and a Rose Diagram illustrating the direction of groundwater flow from First Quarter 1993 to Second Quarter 2013 (61 sampling events) is shown on **Figure 4**. A description of the regional and local geology and hydrogeology is included in the focused SCM in **Appendix B**.

As requested by ACEH, the Rose Diagram (shown on **Figure 4**) was revised to include additional historical data. Stantec began with First Quarter 1993 data, as only well VH-1 was monitored prior to that, and a groundwater flow direction could not be determined. The variability in groundwater flow direction seen on the Rose Diagram is likely caused by utilizing historical data prior to the 1995 installation of well MW-4, which acts as a control point, and improves the

accuracy of interpreted flow directions. Upon installation of well MW-4, the variability in groundwater flow direction decreased, and a predominant groundwater flow direction to the south-southwest was established. With the inclusion of additional historical data beginning in 1993, the vector mean groundwater flow direction is approximately 9 degrees different than what it was utilizing historical data from 2010 to present.

2.3 RELEASE HISTORY

The release history is described in the focused SCM in **Appendix B**.

2.4 PREVIOUS INVESTIGATIONS AND REMEDIATION

Historical groundwater monitoring data and analytical results are summarized in **Table 2**, **Table 3**, **Table 4**, **Table 5**, and **Table 6**. Historical soil analytical results are summarized in **Table 7**. Historical soil vapor analytical results are summarized in **Table 8** and **Table 9**. Locations of historical soil borings, monitoring wells, and soil vapor probes are shown on **Figure 2**. Soil boring and well construction logs are included in **Appendix C**.

In 1976, all Site features associated with the former service station were removed. This includes three gasoline USTs (two 10,000-gallon and one 5,000-gallon) located in the northwestern portion of the Site, a 1,000-gallon waste oil UST located in the northern portion of the Site, two fuel dispenser islands located in the southern portion of the Site, associated product piping, and a station building with two hydraulic hoists located in the center of the Site (CRA, 2009). Further documentation on these activities could not be found in ACEH records, and it is unknown if soil sampling or excavation of impacted soil, if present, was conducted.

In February 1988, Rogers/Pacific oversaw advancement of three on-site geotechnical soil borings (B-1 through B-3) to total depths of 21.5 feet below ground surface (bgs; borings B-1 and B-3) and 26.5 feet bgs (boring B-2). A strong gasoline odor was observed in saturated soil in all three borings at a depth of approximately 20 feet bgs. No soil samples were collected for laboratory analysis during this investigation (Vonder Harr Hydrology [Vonder Harr], 1988).

In August 1988, Vonder Harr oversaw installation of one on-site groundwater monitoring well (VH-1) to a total approximate depth of 30 feet bgs. Total petroleum hydrocarbons as gasoline range organics (TPH-GRO) were not detected above laboratory reporting limits (LRLs) in any soil sample collected during this investigation, while the maximum concentration of benzene in soil (0.042 milligrams per kilogram [mg/kg]) was detected in the sample collected at 20.5 feet bgs (Vonder Harr, 1988).

In February 1993, Groundwater Technology, Inc. (GTI) oversaw installation of two on-site groundwater monitoring wells (MW-2 and MW-3) to a total depth of approximately 20 feet bgs. Petroleum hydrocarbons were not detected above LRLs in any soil sample collected during this investigation (GTI, 1993).

In August 1995, GTI oversaw installation of one off-site groundwater monitoring well (MW-4) to a total depth of approximately 20 feet bgs and advancement of one on-site soil boring (SB-1) to a total depth of 21.5 feet bgs. The maximum concentration of TPH-GRO in soil (16 mg/kg) was detected in the sample collected from boring SB-1 at 21.5 feet bgs, while benzene was not detected above LRLs in any soil sample collected. A grab groundwater sample was collected from boring SB-1 at 18 feet bgs, and TPH-GRO and benzene were detected at concentrations of 21,000 micrograms per liter (µg/L) and 240 µg/L, respectively (GTI, 1995).

In June 1998, oxygen release compound (ORC) was installed in wells VH-1, MW-2, and MW-3 (Chevron, 1998). Based on available historical information, it is believed that ORC was only applied on this one occasion; however, this was never specifically documented. After installation of the ORC, dissolved oxygen (DO) levels in wells VH-1, MW-2, and MW-3 were not significantly different than the levels in down-gradient background well MW-4 (Gettler-Ryan Inc. [G-R], 2000), indicating the ORC had little success in increasing DO levels to stimulate aerobic biodegradation.

In February 1999, G-R oversaw advancement of two on-site soil borings (VB-1 and VB-2) and subsequent collection of soil vapor samples from each of the borings at a depth of approximately 3 feet bgs. No soil samples were collected for laboratory analysis during this investigation. Soil vapor samples were analyzed for toxic organics (G-R, 1999). All detected concentrations were below soil gas California Regional Water Quality Control Board – San Francisco Bay Region (RWQCB) Environmental Screening Levels (ESLs) for commercial land use and do not indicate a vapor intrusion risk at the Site.

In July 2001, G-R oversaw advancement of three on-site soil borings (GP-1 through GP-3) to total depths of 15 feet bgs (borings GP-2 and GP-3) and 16 feet bgs (boring GP-1). Petroleum hydrocarbons were not detected above LRLs in any soil sample collected during this investigation; although, a soil sample was not collected from GP-1 at 15.5 feet bgs where the reported PID reading was 1,413 parts per million (ppm). Elevated PID readings were not present at total depth in soil borings GP-2 and GP-3 (G-R, 2002).

In March 2002, G-R oversaw advancement of three off-site, down-gradient soil borings (HA-1 through HA-3) to total depths of 9.5 feet bgs (boring HA-2) and 10 feet bgs (borings HA-1 and HA-3). Petroleum hydrocarbons were not detected above LRLs in any soil sample collected from borings HA-2 and HA-3. Minor detections of toluene, ethylbenzene, and total xylenes were detected in the soil sample collected from boring HA-1 at 5 feet bgs; however, TPH-GRO and benzene were not detected above LRLs in this sample. Grab groundwater samples were collected from soil borings HA-1 through HA-3 at total depth, and petroleum hydrocarbons were not detected above LRLs in any of the groundwater samples (G-R, 2002).

In May 2008, CRA oversaw installation of four on-site soil vapor probes (VP-1 through VP-4) to total depths of 6 feet bgs and advancement of three on-site soil borings (SB-2 through SB-4) to total depths of 12 feet bgs. Of the soil samples collected during this investigation, only methyl *tertiary*-butyl ether (MtBE) was detected above LRLs, and it was detected at a maximum

concentration of 0.001 mg/kg in the sample collected from boring SB-4 at 12 feet bgs (within saturated zone), which is below the soil ESL for MtBE (0.023 mg/kg). Grab groundwater samples were collected from boreholes VP-3 and VP-4 and borings SB-2 through SB-4 at a depth of 10.5 feet bgs, and maximum concentrations of TPH-GRO, total petroleum hydrocarbons as diesel range organics (TPH-DRO), and benzene (1,100 µg/L, 560 µg/L, and 36 µg/L, respectively) were detected in the sample collected from borehole VP-3. Soil vapor sampling was conducted at vapor probes VP-1 through VP-4 in June 2008. Maximum concentrations of TPH-GRO and TPH-DRO in soil vapor (4.5 micrograms per cubic meter [µg/m^3] and 1,200 µg/m^3, respectively) were detected in the sample collected from vapor probe VP-4, while the maximum concentration of benzene (8.2 µg/m^3) was detected in the sample collected from vapor probe VP-1 (CRA, 2008). All concentrations were below soil gas ESLs for commercial and residential land use and do not indicate a vapor intrusion risk at the Site or the adjacent residential properties.

2.5 OFF-SITE SOURCES

All off-site sources are described in the focused SCM in **Appendix B**.

3.0 Extent of Petroleum Hydrocarbons

3.1 VERTICAL EXTENT OF PETROLEUM HYDROCARBONS

3.1.1 Vertical Extent of Petroleum Hydrocarbons in Soil

Historical soil sample analytical results are presented in **Table 7**. A description of the vertical extent of petroleum hydrocarbons in soil is included in the focused SCM in **Appendix B**.

3.1.2 Vertical Extent of Petroleum Hydrocarbons in Groundwater

A description of the vertical extent of petroleum hydrocarbons in groundwater is included in the focused SCM in **Appendix B**.

3.2 LATERAL EXTENT OF PETROLEUM HYDROCARBONS

3.2.1 Lateral Extent of Petroleum Hydrocarbons in Soil

A description of the lateral extent of petroleum hydrocarbons in soil is included in the focused SCM in **Appendix B**.

3.2.2 Lateral Extent of Petroleum Hydrocarbons in Groundwater

Historical groundwater analytical results are included in **Table 2** through **Table 6**. . A figure showing the Second Quarter 2013 groundwater analytical data plotted on a Site map is included as **Figure 5**. A TPH-GRO isoconcentration map is shown on **Figure 6**. A benzene isoconcentration map is shown on **Figure 7**. These maps illustrate the approximate lateral extent of these compounds in groundwater based on the monitoring well network. A description of the lateral extent of petroleum hydrocarbons in groundwater is included in the focused SCM in **Appendix B**.

3.2.3 Plume Stability

Hydrographs based on current and historical groundwater elevations and analytical results are included in **Appendix D**. Plume stability is described in the focused SCM in **Appendix B**.

4.0 Potential Receptors and Exposure Pathways

An evaluation was conducted to identify complete and potentially complete exposure pathways relevant to human health risks at the Site based on analyses of the following components:

- Current and future land uses;
- Water well, surface water, and conduit surveys;
- Potentially exposed populations; and
- Complete and potentially complete exposure pathways.

4.1 CURRENT AND FUTURE LAND USES

A description of current and future land uses for the Site is included in the focused SCM in **Appendix B**.

4.2 WATER SURVEY

The Site is located in the East Bay Plain groundwater basin, which has been designated as having existing beneficial uses for municipal, domestic, industrial process, industrial service, and agricultural water supply (RWQCB, 2011).

4.2.1 Groundwater Wells

Information on historical well surveys is included in the focused SCM in **Appendix B**.

4.2.2 Surface Water Bodies

A description of the surface water bodies located within a 0.5-mile radius of the Site Is included in the focused SCM in **Appendix B**.

4.3 CONDUIT SURVEY

A Site Plan showing the location of utilities in the vicinity and down-gradient of the Site is shown on **Figure 2**. Information on historical conduit surveys is included in the focused SCM in **Appendix B**.

4.4 POTENTIALLY EXPOSED POPULATIONS

4.4.1 On-site Current or Potential Populations

A description of on-site current or potential populations is included in the focused SCM in **Appendix B**.

4.4.2 Off-site Current or Potential Populations

A description of off-site current or potential populations is included in the focused SCM in **Appendix B**.

4.4.3 Potential Sensitive Populations

A description of the potential sensitive populations located within 0.5-miles of the Site is included in the focused SCM in **Appendix B**. Additionally, the potential sensitive populations located within a 0.5-mile radius of the Site are listed in the following table:

Potential Sensitive Receptor	Address	Distance from Site (miles)	Direction from Site
Ascend Elementary School	3709 E. 12th St.	0.05	E
Las Bougainvilleas Retirement Community	1223 37th Ave.	0.08	NE
DeColores Head Start	1155 35th Ave.	0.11	N-NE
Twenty-Four Hour Oakland PTC	3500 E. 9th St.	0.13	SW
Arise High School	3301 E. 12th St.	0.16	NW
St. Elizabeth Elementary and Middle Schools	1516 33rd Ave.	0.32	N
St. Elizabeth High School	1530 34th Ave.	0.33	N
Oakland Charter Middle School	3001 International Blvd.	0.43	NW
Fruitvale Health Care Center	3020 E. 15th St.	0.45	NW
Lazear Elementary School	824 29th Ave.	0.48	W-NW
Rose Garden Residential Care	1615 High St.	0.48	E

4.5 EXPOSURE PATHWAY ANALYSIS

The exposure pathway analysis for the Site is detailed in the focused SCM in **Appendix B** and a graphical representation is shown on **Figure 8**.

4.6 RISK EVALUATION

A risk evaluation is included in the focused SCM in **Appendix B**.

5.0 Low-Threat UST Case Closure Policy Evaluation

This section presents the low-risk general and media-specific criteria defined by the State Water Resource Control Board's (SWRCB's) LTCP, effective August 17, 2012, under Resolution No. 2012-0016 (SWRCB, 2012a) and includes an evaluation of the Site compared to these criteria. The completed SWRCB LTCP Checklist is included as **Appendix E**.

5.1 GENERAL CRITERIA

- **Is the unauthorized release located within the service area of a public water system?**

  Yes. The Site is located within the service area of the East Bay Municipal Utility District.

- **Does the unauthorized release consist only of petroleum?**

  Yes. The constituents of concern (COCs) at the Site are petroleum hydrocarbons associated with gasoline hydrocarbons from a former service station, including TPH-GRO, benzene, toluene, ethylbenzene, and total xylenes (BTEX compounds), and MtBE.

- **Has the unauthorized ("primary") release from the UST system been stopped?**

  Yes. As detailed in Section 2.4, all Site features associated with the former service station were removed in 1976. This includes three gasoline USTs (two 10,000-gallon and one 5,000-gallon) located in the northwestern portion of the Site, a 1,000-gallon waste oil UST located in the northern portion of the Site, two fuel dispenser islands located in the southern portion of the Site, associated product piping, and a station building with two hydraulic hoists located in the center of the Site (CRA, 2009).

  Dissolved-phase petroleum hydrocarbon concentrations associated with the Site are decreasing, indicating that there is no longer a petroleum hydrocarbon source propagating on Site.

- **Has free product been removed to the maximum extent practicable (per CCR Chapter 16 Section 2655 a-c)?**

  Not applicable. Free product has not been observed or documented in any Site wells to-date; therefore, no free product removal activities have been conducted at any Site wells.

- **Has a Conceptual Site Model (CSM) that assesses the nature, extent, and mobility of the release been developed?**

  Yes. The focused SCM in **Appendix B** is the CSM assessing the nature, extent, and mobility of the release.

- **Has secondary source been removed to the extent practicable?**

  Yes. Historical remedial efforts at the Site have consisted of installation of ORC in wells VH-1, MW-2, and MW-3 in June 1998. Dissolved-phase petroleum hydrocarbon concentrations associated with the Site are decreasing, indicating that there is no longer a petroleum hydrocarbon source propagating on Site that would warrant further remediation.

- **Has soil or groundwater been tested for MtBE and results reported in accordance with Health and Safety Code section 25296.15?**

  Yes. MtBE was analyzed in soil samples collected in association with the Site beginning in July 2001. MtBE was routinely analyzed in groundwater during monitoring and sampling events since Fourth Quarter 1995. Results have been reported to ACEH and uploaded to GeoTracker™.

- **Does nuisance as defined by Water Code section 13050 exist at the site? A "nuisance" is defined as anything which meets the following (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property; (2) Affects at the same time an entire community or neighborhood; (3) Occurs during, or as a result of, the treatment or disposal of wastes.**

  No. The conditions of "nuisance" as defined by Water Code section 13050 do not exist at the Site.

- **Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?**

  No.

5.2 MEDIA-SPECIFIC CRITERIA

5.2.1 Groundwater-Specific Criteria

Current Site conditions appear to satisfy groundwater-specific criteria scenario #2 based on representative groundwater data collected at the Site which delineates the current extent of the dissolved-phase plume within 250 feet in length, there is no free product, there is no supply well or surface water body identified within 1,000 feet of the plume, and dissolved benzene and MtBE concentrations are below 3,000 µg/L and 1,000 µg/L, respectively. However, following discussions with ACEH, further down-gradient assessment of the dissolved-phase plume is being requested to evaluate potential stratification of the dissolved-phase plume within the coarse-grained unit reported from approximately 16 to 20 feet bgs.

5.2.2 Petroleum Vapor Intrusion to Indoor Air Criteria

Current Site conditions satisfy criteria "a" based on scenario #4 for a bioattenuation zone (Direct Measurement of Soil Gas Concentrations) as follows:

1. **There is a minimum of five vertical feet of soil between the soil vapor measurement and the foundation of an existing building or ground surface of future construction.**

   Soil vapor samples were collected beneath the current on-site building from vapor probes VP-1 through VP-4 in June 2008. These probes have screen interval depths ranging from 5.25 to 5.75 feet bgs.

2. **TPH (TPHg + TPHd) is less than 100 mg/kg (measured in at least two depths within the five-foot zone).**

   TPH concentrations were below LRLs and therefore less than 100 mg/kg in all historical soil samples collected from 0 to 5 feet bgs.

3. **Oxygen is greater than or equal to four percent measured at the bottom of the five-foot zone.**

   Oxygen was measured in soil vapor samples collected from vapor probes VP-1 through VP-4, and all oxygen levels were greater than 4 percent, but less than levels that would indicate leakage of outside air.

Because conditions satisfy the criteria for a bioattenuation zone, soil gas screening levels for low-threat consideration are 85,000 µg/m^3 benzene, 1,100,000 µg/m^3 ethylbenzene, and 93,000 µg/m^3 naphthalene for the more conservative residential land use; although, it is likely that this Site will continue to be used for commercial purposes. Benzene and ethylbenzene concentrations in soil vapor samples collected from probes VP-1 through VP-4 (shown in **Table 9**) are below these screening levels.

Soil vapor samples collected from probes VP-1 through VP-4 were not analyzed for naphthalene; however, the naphthalene concentration that would potentially be present can be back-calculated using the maximum concentrations of TPH-GRO and TPH-DRO in the soil vapor samples and the Leaking Underground Fuel Tank (LUFT) Guidance Manual average naphthalene percentages in gasoline and diesel of 0.25 percent and 0.26 percent, respectively (SWRCB, 2012b). Maximum concentrations of TPH-GRO and TPH-DRO in the soil vapor samples were 4.5 µg/m^3 and 1,200 µg/m^3, respectively, in the sample collected from probe VP-4. This amounts to approximately 3.13 µg/m^3 naphthalene [(0.0025*4.5 µg/m^3 TPH-GRO)+(0.0026*1,200 µg/m^3 TPH-DRO) = 3.13 µg/m^3 naphthalene]. Therefore, concentrations of naphthalene in the soil vapor samples collected from probes VP-1 through VP-4 are also below the screening levels and Site conditions satisfy the LTCP petroleum vapor intrusion to indoor air criteria.

5.2.3 Direct Contact and Outdoor Air Exposure Criteria

The current Site conditions satisfy the LTCP direct contact and outdoor air exposure criteria.

The concentrations of benzene and ethylbenzene in the upper 10 feet of soil are less than the limits for direct contact and outdoor air exposure specified in Table 1 of the LTCP.

It does not appear that soil samples were analyzed for naphthalene from 0 to 10 feet bgs as specified in the LTCP; however, benzene exclusion criteria are considered conservative for naphthalene given that naphthalene is less volatile than benzene and is typically present in gasoline at much lower fractions than benzene (SWRCB, 2012c). Using SWRBC staff precedent from recent case closure reviews, "the relative concentration of naphthalene in soil can be conservatively estimated using published relative concentrations of naphthalene and benzene in gasoline." The lack of naphthalene data is not considered a data gap and Site conditions can be assessed by using benzene concentrations (SWRCB, 2013). Gasoline mixtures contain approximately 3% benzene and 0.25% naphthalene (Potter, Thomas L. and Simmons, Kathleen E., 1998); therefore, benzene can be directly substituted for naphthalene concentrations with an approximate safety factor of ten. As previously described, the concentrations of benzene in the upper 10 feet of soil are less than the limits for direct contact and outdoor air exposure specified in Table 1 of the LTCP; therefore, it is anticipated that the estimated naphthalene concentrations across the Site are also below the criteria presented in Table 1 of the LTCP.

Polynuclear aromatic hydrocarbons (PAHs) were not historically included in the analytical suite for soil; however, the groundwater sample collected from well MW-3 in August 2011 was analyzed for PAHs and all were below LRLs, with the exception of naphthalene, which was detected at a concentration of 2 µg/L. This is below the ESL for naphthalene in groundwater that is a current or potential source of drinking water. There is no evidence to suggest a release from the former waste oil UST is impacting soil and groundwater, and the LTCP checklist provided by ACEH on GeoTracker™ states that the Site meets the criteria for direct contact and outdoor air exposure set forth in the LTCP (SWRCB, 2014). Therefore, further analysis of PAHs is not warranted.

6.0 Data Gap Analysis

Groundwater down-gradient of the Site will be evaluated at a depth interval that corresponds to a coarse-grained unit reported in some historical boring and well logs from approximately 16 to 20 feet bgs. This data will be used to evaluate whether the Site meets groundwater-specific criteria set forth in the LTCP.

7.0 Data Gap Work Plan

Stantec is proposing the advancement of two off-site soil borings (SB-5 and SB-6) for the purpose of describing lithology and the subsequent collection of groundwater samples to evaluate the down-gradient extent of petroleum hydrocarbons in groundwater within the coarse-grained soil layer reported at approximately 16 to 20 feet bgs and to evaluate whether the Site meets the groundwater-specific criteria set forth in the LTCP. The locations of the proposed borings are shown on **Figure 9**.

7.1 PRELIMINARY FIELD ACTIVITIES

7.1.1 Permitting and Notifications

Stantec will obtain all necessary permits from ACEH and the City of Oakland. Because the proposed locations will be located in the street or sidewalk, a right-of-way (ROW) encroachment permit will be required. A Traffic Control Plan will be prepared and implemented according to the guidelines established in the City of Oakland ROW encroachment permit. These permitting requirements can take several weeks to several months to complete.

As required by law, Underground Service Alert (USA) - North will be notified at least 48 hours before any intrusive activities. In addition to notifying USA - North, Stantec will retain the service of a private utility locating contractor to determine if underground utilities are located near the proposed boring locations.

7.1.2 Health and Safety

Stantec will generate a Site-specific health and safety plan (HASP) as required by the State of California General Industry Safety Order 5192 and Title 29 of the Code of Federal Regulations, Section 1910.120. The HASP will outline potential hazards to Stantec personnel and subcontractors during the field activities described herein. Job safety analyses (JSAs) for tasks to be performed by Stantec personnel (e.g., driving, oversight of boring advancement, etc.) will be included. The HASP will also include required personal protective equipment (PPE) to be worn by all Stantec field personnel for each task. In addition, Stantec will produce a Journey Management Plan (JMP) in an attempt to prevent losses associated with motor vehicle incidents driving to and from the Site. A copy of Stantec's HASP and JMP will be available on Site during all field activities.

Subcontractors will also develop a Site-specific HASP and JSAs for tasks applicable to their scope of work (e.g., driving, advancing borings, etc.). Appropriate subcontractor HASPs will also be available on Site.

7.2 FIELD ACTIVITIES

7.2.1 Boring Advancement

Stantec will contract a California-licensed (C-57) driller to advance each of the proposed soil borings (SB-5 and SB-6; shown on **Figure 9**) to a depth of approximately 20 feet bgs. Field activities will be performed under the direction of a State of California professional geologist. Detailed field records of all activities will be recorded by Stantec field personnel and will include Site conditions, sampling processes, names of field personnel, pertinent dates and times, etc.

To minimize the risk of disturbance to potentially undetectable subsurface utilities, each soil boring location will be cleared by hand auger or air knife to a depth of 8 feet bgs. The borings will be advanced beyond 8 feet bgs to approximately 20 feet bgs using a limited access GeoProbe® drill rig. The proposed locations may be adjusted due to the presence of multiple utilities at or near the proposed locations, and the completion depth may be adjusted based on conditions observed in the field.

7.2.2 Soil Sampling

Soil borings will be advanced to total depth using a dual tube sampler, which is capable of retaining soil columns approximately 4 feet long and 1.5 to 2 inches in diameter. The sampler contains an acetate liner that retains a relatively undisturbed soil core. Stantec field personnel will log soil cores for lithological content using the Unified Soil Classification System (USCS) as a guide and for relative moisture content, composition, photoionization detector (PID) readings, and other notable field observations. Portions of each soil core will be placed in a Ziploc® bag and field-screened using a PID to evaluate the presence of volatile organic compound (VOCs) that may collect in the headspace of the bag. As this investigation is proposed to evaluate groundwater only, soil samples will not be collected and submitted for laboratory analysis.

7.2.3 Groundwater Sampling

Following advancement of each soil boring to total depth, a temporary pre-packed groundwater monitoring well screen will be installed, and groundwater samples will be collected. Due to the activities being performed in San Leandro Street, a specific minimum time will not be established to allow each temporary well to stabilize, but each well will be purged a minimum of one casing volume and up to three casing volumes, as time permits, in order to collect a more representative groundwater sample. During groundwater sampling, a depth-to-groundwater (DTW) measurement will be collected and used to calculate the casing volume prior to collecting the groundwater sample. During this process, groundwater quality parameters, including temperature, pH, conductivity, DO, and oxidation-reduction potential (ORP) will be recorded in order to evaluate whether the collected groundwater is representative of the aquifer. Groundwater samples will be collected in sample containers appropriate for the specified analyses, sealed, labeled, and placed into an ice-filled cooler for preservation.

Groundwater samples will be transported and submitted under chain-of-custody protocol to Eurofins Lancaster Laboratories, Inc. (Lancaster), a State of California-certified analytical laboratory, and analyzed for the following constituents of concern:

- TPH-GRO and TPH-DRO (by United States Environmental Protection Agency (US EPA) Method 8015B; and
- BTEX compounds and MtBE by US EPA Method 8260B (SW-846).

7.2.4 Boring Completion Activities

After each soil boring has been advanced to the proposed depth and representative groundwater samples have been collected, each soil boring will be completed to ground surface with cement grout. The cement grout will consist of approximately 95 percent Portland cement and 5 percent bentonite powder, unless otherwise specified in the City of Oakland encroachment permit.

7.3 WASTE MANAGEMENT

Investigation-derived waste (e.g., soil cuttings, decontamination water, purge water, etc.) generated during the proposed field activities will be placed in Department of Transportation-approved 55-gallon drums. A composite sample will be collected from the drums and submitted to Lancaster for waste characterization purposes. The drums will be properly labeled and stored on Site pending receipt of analytical results and profile evaluation by CRA. CRA will arrange removal and disposal of all waste.

7.4 REPORT PREPARATION

Data gathered during the investigation activities proposed herein will be documented in an additional investigation report. The report will include a summary of field activities; tabulated groundwater analytical data; a Site location map; an updated Site plan showing the final locations of the soil borings; boring logs with geologic descriptions; certified laboratory analysis reports and chain-of-custody documentation; updates to relevant sections of the focused SCM based on new data; a discussion of the findings based on the new data; and conclusions and recommendations, as appropriate.

Results from the investigation will be used to evaluate whether the Site meets groundwater-specific criteria set forth in the LTCP. If additional data gaps are identified, further assessment may be recommended. If it is determined that the Site meets LTCP criteria, the report will also include a low-threat closure request, and all further assessment will cease.

7.5 SCHEDULE OF ACTIVITIES

Stantec will begin planning and scheduling the proposed investigation activities following approval of this work plan by ACEH. Stantec anticipates completing the pre-field planning,

health and safety plan, and ROW encroachment permit acquisition over a span of approximately two months. Following pre-field activities, Stantec anticipates completing the field work over a span of approximately one week. Final certified laboratory analysis reports will be obtained approximately 2 to 4 weeks following submission of the samples to the laboratory. Stantec will submit the additional investigation report to ACEH approximately 45 days following the receipt of all final certified laboratory analysis reports.

8.0 References

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Potter, Thomas L. and Simmons, Kathleen E. 1998. Composition of Petroleum Mixtures. Volume 2 of Total Petroleum Hydrocarbon Criteria Working Group Series.

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Vonder Harr, 1988. Letter to Ms. Kay Huffman, Chevron USA re: Former Chevron SS #9-4612, San Leandro St. at 37th, Oakland, California. September 16.

TABLES

Table 1
Well Details / Screen Interval Assessment
Second Quarter 2013
Former Chevron-Branded Service Station 94612
3616 San Leandro Street, Oakland, California

Well ID	Date Installed	Well Type	Casing Diameter (inches)	Top of Casing (feet above msl)	Construction Well Depth (feet bgs)	Current Well Depth[1] (feet bgs)	Current Depth to Groundwater[1] (feet below TOC)	Screen Interval (feet bgs)	Screen Interval Assessment
VH-1	08/09/88	Monitoring	4	27.91	30.00	28.47	8.98	10-30	Depth-to-groundwater above screen interval.
MW-2	02/01/93	Monitoring	2	28.05	20.00	19.34	9.66	5-20	Depth-to-groundwater within screen interval.
MW-3	02/01/93	Monitoring	2	29.04	20.00	18.02	9.40	5-20	Depth-to-groundwater within screen interval.
MW-4	08/15/95	Monitoring	2	27.27	20.00	17.83	8.58	7-20	Depth-to-groundwater within screen interval.

Notes:
bgs = below ground surface
msl = mean sea level
TOC = top of casing
[1] = As measured prior to groundwater sampling on May 8, 2013.

Table 2
Groundwater Monitoring Data and Analytical Results
Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-MO (µg/L)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MtBE (µg/L)	TOG (µg/L)
VH-1												
08/10/88	--	13.00	--	--	--	11,000	3,300	200	520	540	--	--
06/01/89	--	10.32	--	--	--	15,000	2,200	120	540	310	--	--
09/15/89	--	15.69	--	--	--	5,600	1,900	90	350	160	--	--
12/08/89	--	14.77	--	--	--	11,000	1,900	69	270	99	--	--
03/07/91	--	11.26	--	--	--	4,500	820	39	120	77	--	--
09/24/91	--	12.98	--	--	--	3,300	520	19	39	27	--	--
01/08/92	--	13.77	--	--	--	5,000	600	34	81	76	--	--
04/20/92	--	8.18	--	--	--	7,400	670	60	110	140	--	--
03/26/93	27.85	6.71	21.14	--	--	4,900	600	40	72	94	--	--
05/27/93	27.85	8.58	19.27	--	--	13,000	1,600	120	230	220	--	--
08/18/93	27.85	10.46	17.39	--	--	2,700	210	10	8.1	18	--	--
11/03/93	27.85	12.57	15.28	--	--	4,600	680	42	35	68	--	--
02/10/94	27.85	9.08	18.77	--	--	1,900	260	19	22	29	--	--
05/12/94	27.85	8.09	19.76	--	--	2,000	390	28	3.9	29	--	--
08/26/94	27.85	10.75	17.10	--	--	4,900	500	<5.0	23	31	--	--
11/14/94	27.85	9.45	18.40	--	--	760	69	<2.0	<2.0	2.2	--	--
02/01/95	27.85	5.97	21.88	--	--	1,300	120	5.9	<0.5	13	--	--
05/12/95	27.85	7.71	20.14	--	--	4,400	460	31	45	49	--	--
08/22/95	27.85	9.26	18.59	--	--	2,900	310	15	28	32	--	--
12/19/95	27.85	8.80	19.05	--	--	930	53	<2.5	<2.5	<2.5	39	--
01/31/96	27.85	5.50	22.35	--	--	3,700	320	<10	41	40	180	--
04/30/96	27.85	8.04	19.81	--	--	3,900	270	<20	<20	<20	120	--
08/01/96	27.85	9.18	18.67	--	--	2,700	140	11	18	28	200	--
10/30/96	27.85	10.76	17.09	--	--	2,700	140	<12	<12	<12	280	--
02/07/97	27.85	8.10	19.75	--	--	220	13	0.6	<0.5	1.6	15	--
05/07/97	27.85	9.52	18.33	--	--	5,200	33	12	21	26	330	--
07/22/97	27.85	10.42	17.43	--	--	4,200	80	<10	16	24	400	--
11/03/97	27.85	11.00	16.85	--	--	2,400	150	6.8	6.5	9.5	510	--
01/28/98	27.85	7.10	20.75	--	--	850	69	4.8	5.0	11	38/48[12]	--
05/08/98	27.85	7.71	20.14	--	--	4,200	200	30	40	42	310/200[12]	--
07/29/98	27.85	9.45	18.40	--	--	3,800	54	10	27	30	35/290[12]	--
11/06/98	27.85	10.70	17.15	--	--	4,800	100	20	12	23	360/210[12]	--
02/09/99[5]	27.85	5.98	21.87	--	--	2,950	79.5	<10	<10	<10	435/312[12]	--
05/13/99	27.85	8.14	19.71	--	--	4,180	147	12.8	16.5	20.3	433245[12]	--
09/07/99	27.85	9.91	17.94	--	--	2,750	57.6	<5.0	6.53	<5.0	297/233[12]	--
11/24/99	27.85	10.49	17.36	--	--	2,550	38	3.18	2.54	5.21	216[1,12]	--
02/25/00	27.85	6.65	21.20	--	--	120	2.7	<0.5	<0.5	<0.5	20.5/11.9[12]	--

Table 2
Groundwater Monitoring Data and Analytical Results
Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

WELL ID/ DATE		TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-MO (µg/L)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MtBE (µg/L)	TOG (µg/L)
VH-1 (cont)													
05/10/00		27.85	8.09	19.76	--	--	1,400[8]	63	3.3	3.1	4.9	230/110[12]	--
7/31/00[11]		27.85	9.55	18.30	--	--	360[8]	22	2.7	1.6	3.1	100/88[12]	--
10/30/00[11]		27.85	9.94	17.91	--	--	987[10]	47.0	1.00	<0.500	1.80	153/130[12]	--
02/05/01		27.91	8.68	19.23	--	--	2,670	42.7	<5.00	<5.00	<5.00	225/160[12]	--
05/07/01[11]		27.91	8.30	19.61	--	--	1,800[6]	100	8.2	10	7.9	440/110[12]	--
08/06/01[11]		27.91	9.82	18.09	--	--	1,000[6]	67	6.1	2.1	7.1	270/140[12]	--
11/12/01[11]		27.91	10.62	17.29	--	--	220	1.2	<0.50	<0.50	<1.5	63/61[12]	--
02/11/02[11]		27.91	8.08	19.83	--	--	1,700	33	<5.0	6.3	3.8	64/52[12]	--
05/13/02[11]		27.91	8.70	19.21	--	--	2,700	54	4.1	5.6	6.2	100/80[12]	--
08/09/02[11]		27.91	9.41	18.50	--	--	2,400	37	2.4	1.2	3.4	86/89[12]	--
11/07/02[11]		27.91	10.57	17.34	--	--	150	1.3	<0.50	<0.50	<1.5	56/50[12]	--
02/04/03[11]		27.91	8.28	19.63	--	--	1,700	40	3.1	7.8	5.0	100/53[12]	--
05/05/03[11]		27.91	7.50	20.41	--	--	2,100	44	3.4	3.7	5.2	96/62[12]	--
09/06/03[11,14]		27.91	9.60	18.31	--	--	690	7	0.6	<0.5	0.6	59	--
11/14/03[11,14]		27.91	9.92	17.99	--	--	1,000	3	0.6	2	0.7	47	--
02/13/04[14,15]		27.91	7.93	19.98	--	--	2,400	30	2	4	3	47	--
05/13/04[14]		27.91	8.67	19.24	--	--	1,900	49	4	3	5	74	--
08/17/04[14]		27.91	9.65	18.26	--	--	1,800	11	1	0.9	2	58	--
11/10/04		27.91	INACCESSIBLE		--	--	--	--	--	--	--	--	--
02/08/05[14]		27.91	7.83	20.08	--	--	2,700	26	3	4	5	48	--
06/03/05[14]		27.91	8.20	19.71	--	--	3,100	40	5	6	9	45	--
08/05/05[14]		27.91	10.10	17.81	--	--	2,500	34	4	0.6	6	46	--
12/02/05[14]		27.91	8.98	18.93	--	--	3,500	69	7	2	8	57	--
03/03/06[14]	NP[18]	27.91	7.25	20.66	--	--	4,100	37	6	6	8	40	--
05/31/06[14]	NP[18]	27.91	8.17	19.74	--	--	4,100	33	5	3	8	34	--
08/18/06[14]		27.91	9.12	18.79	--	--	3,300	23	4	1	5	33	--
11/17/06[14]		27.91	9.27	18.64	--	--	3,200	18	3	0.6	3	33	--
02/09/07[14]	NP[18]	27.91	8.38	19.53	--	--	3,600	23	4	2	5	28	--
05/11/07[14]	NP[18]	27.91	8.38	19.53	--	--	3,200	14	3	1	5	26	--
08/10/07[14]	NP[18]	27.91	9.50	18.41	--	--	2,400	10	2	0.6	3	21	--
11/08/07[14]	NP[18]	27.91	9.66	18.25	--	--	3,000	10	2	0.5	2	18	--
02/07/08[14]	NP[18]	27.91	7.15	20.76	--	--	4,000	14	3	5	5	14	--
05/02/08[14]	NP[18]	27.91	8.95	18.96	--	--	3,000	14	3	2	4	17	--
07/31/08[14]	NP[18]	27.91	9.68	18.23	--	--	2,700	13	2	0.8	3	14	--
11/13/08[14]	NP[18]	27.91	10.18	17.73	--	--	2,500	6	1	<0.5	1	12	--
02/02/09[14]	NP[18]	27.91	9.91	18.00	--	--	4,000	7	1	<0.5	1	12	--
05/01/09[14]	NP[18]	27.91	9.16	18.75	--	--	3,900	20	3	3	6	15	--
08/10/09[14]	NP[18]	27.91	9.67	18.24	--	--	1,400	6	1	<0.5	1	11	--
01/29/10[14]	NP[18]	27.91	7.23	20.68	--	--	3,700	24	4	5	5	13	--

Table 2
Groundwater Monitoring Data and Analytical Results
Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

WELL ID/ DATE		TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-MO (µg/L)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MtBE (µg/L)	TOG (µg/L)
VH-1 (cont)													
08/23/10[14]	NP[18]	27.91	9.28	18.63	--	--	3,600	18	3	2	4	9	--
08/22/11[14]		27.91	9.28	18.63	--	--	3,400	12	2	0.8	3	7	--
05/10/12[14]	NP[18]	27.91	8.26	19.65	--	--	3,100	12	3	2	4	6	--
05/08/13[14]	**NP[18]**	**27.91**	**8.98**	**18.93**	**--**	**--**	**3,500**	**12**	**2**	**1**	**5**	**5**	**--**
MW-2													
02/16/93		27.51	--	--	--	--	9,200	720	110	250	170	--	--
03/26/93		27.51	7.62	19.89	--	--	--	--	--	--	--	--	--
05/27/93		27.51	9.47	18.04	--	--	360	5.3	2.1	1.8	2.5	--	--
08/18/93		27.51	11.05	16.46	--	--	9,400	1,100	76	110	100	--	--
11/03/93		27.51	12.95	14.56	--	--	8,600	390	20	2.7	120	--	--
02/10/94		27.51	9.79	17.72	--	--	2,700	370	38	44	41	--	--
05/12/94		27.51	8.92	18.59	--	--	3,800	650	76	15	62	--	--
08/26/94		27.51	11.37	16.14	--	--	16,000	1,300	270	28	120	--	--
11/14/94		27.51	10.03	17.48	--	--	5,100	390	10	43	27	--	--
02/01/95		27.51	7.04	20.47	--	--	6,900	520	82	170	110	--	--
05/12/95		27.51	8.75	18.76	--	--	7,700	510	83	110	100	--	--
08/22/95		27.51	10.16	17.35	--	--	4,500	220	16	61	47	--	--
12/19/95		27.51	9.46	18.05	--	--	2,900	240	<10	19	18	220	--
01/31/96		27.51	5.60	21.91	--	--	3,900	320	18	72	39	<25	--
04/30/96		27.51	8.83	18.68	--	--	5,600	200	36	55	47	170	--
08/01/96		27.51	10.26	17.25	--	--	6,200	190	15	62	59	220	--
10/30/96		27.51	11.48	16.03	--	--	5,700	190	<25	67	36	260	--
02/07/97		27.51	9.40	18.11	--	--	8,300	210	34	70	59	330	--
05/07/97		27.51	9.94	17.57	--	--	6,900	190	12	38	37	530	--
07/22/97		27.51	11.15	16.36	--	--	10,000	18	25	62	41	630	--
11/03/97		27.51	11.58	15.93	--	--	6,500	260	8.5	26	14	590/9.6[4,12]	--
01/28/98		27.51	8.13	19.38	--	--	6,700	65	13	67	54	280/94[12]	--
05/08/98		27.51	8.62	18.89	--	--	5,500	91	38	43	61	220/62[12]	--
07/29/98		27.51	10.45	17.06	--	--	3,600	41	8.9	3.6	14	16/94[12]	--
11/06/98		27.51	11.62	15.89	--	--	6,900	77	<5.0	14	17	290/110[12]	--
02/09/99[5]		27.51	6.90	20.61	--	--	8,070	75.6	<10	<10	<10	397/144[12]	--
05/13/99		27.51	9.30	18.21	--	--	5,890	120	<5.0	12.5	26.6	401/69.4[12]	--
09/07/99		27.51	10.94	16.57	--	--	5,820	41.2	<5.0	14.6	<5.0	260/145[12]	--
11/24/99		27.51	11.53	15.98	--	--	5,940	40.9	<10	10.8	<10	120[1,12]	--
02/25/00		27.51	6.51	21.00	--	--	6,370	101	9.37	39.8	33.2	321/121[12]	--
05/10/00		27.51	9.02	18.49	--	--	6,100[8]	110	13	27	31	560/120[12]	--
07/31/00[11]		27.51	10.33	17.18	--	--	3,000[8]	75	14	28	28	200/130[12]	--

Table 2
Groundwater Monitoring Data and Analytical Results
Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-MO (µg/L)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MtBE (µg/L)	TOG (µg/L)
MW-2 (cont)												
10/30/00[11]	27.51	10.56	16.95	--	--	6,810[10]	162	<5.00	8.05	<15.0	372/140[12]	--
02/05/01[11]	28.05	9.58	18.47	--	--	5,860	28.4	6.86	16.2	11.8	285/140[12]	--
05/07/01[11]	28.05	9.20	18.85	--	--	4,700[6]	120	15	30	42	540/88[12]	--
08/06/01[11]	28.05	10.74	17.31	--	--	3,700[6]	120	<20	28	33	490/110[12]	--
11/12/01[11]	28.05	11.45	16.60	--	--	7,000	29	<10	27	22	93/98[12]	--
02/11/02[11]	28.05	9.06	18.99	--	--	5,900	43	15	24	27	90/86[12]	--
05/13/02[11]	28.05	9.64	18.41	--	--	5,500	26	5.2	23	26	120/47[12]	--
08/09/02[11]	28.05	10.29	17.76	--	--	5,700	26	3.7	26	50	100/69[12]	--
11/07/02[11]	28.05	11.27	16.78	--	--	5,900	33	4.4	23	21	<100/69[12]	--
02/04/03[11]	28.05	9.13	18.92	--	--	5,400	22	4.7	13	14	<50/55[12]	--
05/05/03[11]	28.05	8.38	19.67	--	--	4,500	23	4.7	12	15	<50/31[12]	--
09/06/03[11,14]	28.05	10.40	17.65	--	--	3,200	13	2	7	7	54	--
11/14/03[11,14]	28.05	10.62	17.43	--	--	4,000	11	2	7	6	55	--
02/13/04[14,15]	28.05	8.79	19.26	--	--	6,200	6	2	8	8	31	--
05/13/04[14]	28.05	9.56	18.49	--	--	3,200	6	3	13	11	34	--
08/17/04[14]	28.05	10.48	17.57	--	--	4,300	7	1	6	5	46	--
11/10/04[14]	28.05	9.53	18.52	--	--	3,000	5	1	6	7	37	--
02/08/05[14]	28.05	8.71	19.34	--	--	4,700	3	2	10	8	22	--
06/03/05[14]	28.05	9.01	19.04	--	--	4,100	4	3	15	11	23	--
08/05/05[14]	28.05	9.76	18.29	--	--	3,500	4	1	<0.5	8	23	--
12/02/05[14]	28.05	9.64	18.41	--	--	2,900	4	2	3	3	24	--
03/03/06[14]	28.05	8.04	20.01	--	--	3,800	5	6	4	5	9	--
05/31/06[14]	28.05	9.01	19.04	--	--	4,600	2	1	3	3	8	--
08/18/06[14]	28.05	9.91	18.14	--	--	4,300	2	1	11	7	14	--
11/17/06[14]	28.05	9.95	18.10	--	--	4,600	2	0.7	7	4	14	--
02/09/07[14]	28.05	9.10	18.95	--	--	3,600	1	0.6	3	3	9	--
05/11/07[14]	28.05	9.12	18.93	--	--	3,600	2	1	5	5	8	--
08/10/07[14]	28.05	10.20	17.85	--	--	3,600	1	1	7	4	9	--
11/08/07[14]	28.05	10.35	17.70	--	--	3,600	2	0.7	5	2	7	--
02/07/08[14]	28.05	7.92	20.13	--	--	5,000	1	1	5	3	5	--
05/02/08[14]	28.05	9.49	18.56	--	--	3,300	1	0.9	3	2	4	--
07/31/08[14]	28.05	10.35	17.70	--	--	3,000	2	0.6	2	1	5	--
11/13/08[14]	28.05	10.81	17.24	--	--	3,800	2	0.5	2	0.8	4	--
02/02/09[14]	28.05	9.97	18.08	--	--	3,500	2	0.6	2	1	5	--
05/01/09[14]	28.05	9.70	18.35	--	--	3,900	2	1	4	3	4	--
08/10/09[14]	28.05	10.38	17.67	--	--	3,100	2	0.8	2	1	4	--
01/29/10[14]	28.05	7.98	20.07	--	--	3,200	1	0.8	2	1	5	--
08/23/10[14]	28.05	10.03	18.02	--	--	3,500	1	0.6	1	0.7	3	--

Table 2
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Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-MO (µg/L)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MtBE (µg/L)	TOG (µg/L)
MW-2 (cont)												
08/22/11[14]	28.05	9.73	18.32	--	--	3,700	1	0.6	1	0.9	3	--
05/10/12[14]	28.05	8.95	19.10	--	--	2,600	0.8	0.8	1	1	2	--
05/08/13[14]	**28.05**	**9.66**	**18.39**	**--**	**--**	**2,800**	**0.9**	**0.5**	**0.5**	**0.7**	**2**	**--**
MW-3												
02/16/93	28.50	--	--	--	--	3,500	<0.5	8.1	4.6	7.7	--	--
03/26/93	28.50	7.18	21.32	--	--	--	--	--	--	--	--	--
05/27/93	28.50	9.33	19.17	--	--	4,200	580	84	150	100	--	--
08/18/93	28.50	12.00	16.50		1,400	910	12	3.7	6.2	3.8	--	<5,000
11/03/93	28.50	13.29	15.21	--	--	5,300	29	1.9	0.6	27	--	--
02/10/94	28.50	9.63	18.87	--	<50	63	<0.5	0.7	<0.5	<0.5	--	--
05/12/94	28.50	8.77	19.73	--	84	<50	<0.5	0.5	<0.5	<0.5	--	--
08/26/94	28.50	11.42	17.08	--	--	2,100	12	<0.5	5.0	0.5	--	--
11/14/94	28.50	10.07	18.43	--	--	140	0.78	<0.5	<0.5	<0.5	--	--
02/01/95	28.50	6.29	22.21	--	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--
05/12/95	28.50	8.07	20.43	--	540[2]	330	13	1.1	1.9	0.69	--	--
08/22/95	28.50	9.95	18.55	--	550[2]	980	32	<1.0	<1.0	<1.0	--	--
12/19/95	28.50	9.40	19.10	--	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/31/96	28.50	5.05	23.45	--	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
04/30/96	28.50	8.40	20.10	--	240[2]	320	2.4	<0.5	0.75	<0.5	7.8	--
08/01/96	28.50	9.80	18.70	--	470[2]	980	9.6	<0.5	0.98	2.2	54	--
10/30/96	28.50	11.48	17.02	--	760[2]	2,000	14	<10	<10	<10	140	--
02/07/97	28.50	8.60	19.90	--	61[2]	200[2]	<0.5	<0.5	<0.5	<0.5	8.9	--
05/07/97	28.50	9.01	19.49	--	550[2]	3,500	14	3.9	3.6	8.0	160	--
07/22/97	28.50	11.12	17.38	--	800[2]	3,500	55	<10	<10	<10	150	--
11/03/97	28.50	11.51	16.99	--	910[2]	4,100	140	<5.0	<5.0	<5.0	380	--
01/28/98	28.50	7.34	21.16	--	--	1,100	24	<1.2	<1.2	2.8	33/6.1[12]	--
05/08/98	28.50	8.06	20.44	--	250[2]	990	3.6	7.7	0.7	2.2	37/7.5[12]	--
07/29/98	28.50	10.25	18.25	--	290[2]	1,200	13	<0.5	<0.5	1.4	11/28[12]	--
11/06/98	28.50	11.39	17.11	--	390[2]	2,600	5.3	<2.5	<2.5	3.0	91/41[12]	--
02/09/99[5]	28.50	6.10	22.40	--	184[2]	406	<1.0	4.03	<1.0	<1.0	17.7/1.97[12]	--
05/13/99	28.50	9.12	19.38	--	--	615	13.8	1.05	<0.5	<0.5	43.5/21.2[12]	--
09/07/99	28.50	10.73	17.77	--	528[2]	2,710	<5.0	<5.0	<5.0	<5.0	96.3/57.9[12]	--
11/24/99	28.50	11.13	17.37	--	1,070[2]	5,530	<5.0	<5.0	5.59	<5.0	66[1,12]	--
02/25/00	28.50	6.28	22.22	--	--	189	4.68	<0.5	<0.5	<0.5	11.9/<2.0[12]	--
03/01/00	28.50	6.70	21.80	--	380[2]	--	--	--	--	--	--	--
05/10/00	28.50	8.60	19.90	--	830[7]	1,600[6]	22	<10	<10	<10	100/51[12]	--
07/31/00[11]	28.50	10.07	18.43	--	490[7]	2,200[6]	76	10	<5.0	13	230/52[12]	--

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MW-3 (cont)												
10/30/00[11]	28.50	10.53	17.97	--	580[9]	3,320[10]	<5.00	<5.00	<5.00	<15.0	147/64[12]	--
02/05/01[11]	29.04	9.26	19.78	--	--	3,960	<5.00	6.02	<5.00	<5.00	159/70[12]	--
05/07/01[11]	29.04	8.75	20.29	--	--	2,800[6]	61	12	<10	20	230/49[12]	--
05/10/01[11]	29.04	8.83	20.21	--	390[13]	--	--	--	--	--	--	--
08/06/01[11]	29.04	10.45	18.59	--	870[7]	1,600[6]	39	14	1.3	5.6	130/43[12]	--
11/12/01[11]	29.04	11.22	17.82	--	1,400	3,100	3.6	23	2.3	5.6	40/46[12]	--
02/11/02[11]	29.04	8.38	20.66	--	700	4,000	10	<5.0	4.2	5.5	44/42[12]	--
05/13/02[11]	29.04	9.20	19.84	--	730	2,500	18	<5.0	<5.0	5.2	44/32[12]	--
08/09/02[11]	29.04	10.17	18.87	--	560	2,700	17	<5.0	<5.0	<10	45/33[12]	--
11/07/02[11]	29.04	11.13	17.91	--	660	2,600	24	<5.0	2.0	4.8	51/37[12]	--
02/04/03[11]	29.04	8.60	20.44	--	370	2,200	13	1.5	2.7	5.0	<50/24[12]	--
05/05/03[11]	29.04	7.82	21.22	--	580	2,100	14	1.8	2.0	3.9	<20/19[12]	--
09/06/03[11,14]	29.04	10.25	18.79	--	780	1,800	2	0.6	0.6	1	28	--
11/14/03[11,14]	29.04	10.52	18.52	--	860	2,000	1	0.6	0.6	0.9	30	--
02/13/04[14,15]	29.04	8.28	20.76	--	590	3,600	1	0.6	1	2	21	--
05/13/04[14]	29.04	9.17	19.87	--	670	1,600	1	<0.5	0.5	1	20	--
08/17/04[14]	29.04	10.25	18.79	--	900	2,500	1	<0.5	<0.5	0.7	25	--
11/10/04[14]	29.04	9.23	19.81	--	780	1,500	1	0.6	0.5	1	27	--
02/08/05[14]	29.04	8.12	20.92	--	530	2,500	1	0.6	2	3	11	--
06/03/05[14]	29.04	8.57	20.47	--	600	1,700	1	<0.5	0.7	1	9	--
08/05/05[14]	29.04	10.60	18.44	--	530[16]	980	0.6	<0.5	<0.5	0.8	9	--
12/02/05[14]	29.04	9.58	19.46	--	1,400[17]	2,400	1	2	0.8	1	7	--
03/03/06[14]	29.04	7.58	21.46	--	530	2,300	0.8	1	<0.5	1	4	--
05/31/06[14]	29.04	8.53	20.51	--	480	2,700	0.6	<0.5	<0.5	0.8	4	--
08/18/06[14]	29.04	9.71	19.33	--	410	2,700	<0.5	<0.5	<0.5	0.6	6	--
11/17/06[14]	29.04	9.81	19.23	--	390	2,600	<0.5	<0.5	<0.5	1	4	--
02/09/07[14]	29.04	8.88	20.16	--	640	2,100	<0.5	<0.5	<0.5	1	3	--
05/11/07[14]	29.04	8.71	20.33	--	350	1,400	<0.5	<0.5	<0.5	2	2	--
08/10/07[14]	29.04	9.98	19.06	--	340	1,300	<0.5	<0.5	<0.5	1	2	--
11/08/07[14]	29.04	10.11	18.93	--	440	1,400	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/07/08[14]	29.04	7.28	21.76	--	320	2,100	<0.5	0.7	1	2	0.7	--
05/02/08[14]	29.04	9.18	19.86	--	260	1,300	<0.5	<0.5	<0.5	<0.5	2	--
07/31/08[14]	29.04	10.13	18.91	--	500	2,900	<0.5	<0.5	<0.5	<0.5	1	--
11/13/08[14]	29.04	10.58	18.46	--	880	1,800	<0.5	<0.5	<0.5	<0.5	2	--
02/02/09[14]	29.04	9.58	19.46	--	310[19]	2,000	<0.5	<0.5	<0.5	<0.5	2	--
05/01/09[14]	29.04	9.40	19.64	--	51[20]	1,500	<0.5	<0.5	<0.5	<0.5	2	--
08/10/09[14]	29.04	10.21	18.83	--	470	1,300	<0.5	<0.5	<0.5	<0.5	3	--
01/29/10[14]	29.04	7.39	21.65	--	420	2,600	<0.5	<0.5	2	1	1	--
08/23/10[14]	29.04	9.70	19.34	--	410	2,000	<0.5	<0.5	<0.5	<0.5	2	--

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MW-3 (cont)												
08/22/11[14]	29.04	9.96	19.08	<41/<40[21]	500/250[21]	2,500	<0.5	<0.5	<0.5	<1	2	--
05/10/12[14]	29.04	8.50	20.54	--	350/160[21]	1,300	<0.5	<0.5	<0.5	<0.5	1	--
05/08/13[14]	**29.04**	**9.40**	**19.64**	**--**	**460/140[21,22]**	**1,700**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**2**	**--**
MW-4												
08/22/95	27.27	9.11	18.16	--	--	9,600	100	<10	<10	<10	--	--
12/19/95	27.27	8.30	18.97	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/31/96	27.27	5.60	21.67	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
04/30/96	27.27	7.00	20.27	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
08/01/96	27.27	9.15	18.12	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
10/30/96	27.27	10.74	16.53	--	--	110	<0.5	<0.5	<0.5	<0.5	<2.5	--
02/07/97	27.27	7.80	19.47	--	--	80	<0.5	<0.5	<0.5	<0.5	4.1	--
05/07/97	27.27	5.85	21.42	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
07/22/97	27.27	10.05	17.22	--	--	150	<0.5	<0.5	<0.5	<0.5	<2.5	--
11/03/97	27.27	10.72	16.55	--	--	52	0.9	<0.5	<0.5	<0.5	--[3]	--
01/28/98	27.27	6.51	20.76	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5/<2.0[12]	--
05/08/98	27.27	7.02	20.25	--	--	56	<0.5	<0.5	<0.5	<0.5	<2.5/<2.0[12]	--
07/29/98	27.27	8.95	18.32	--	--	<50	0.9	<0.5	<0.5	<0.5	<2.5/<2.0[12]	--
11/06/98	27.27	10.59	16.68	--	--	72	<0.5	<0.5	<0.5	<0.5	<2.5/<2.0[12]	--
02/09/99	27.27	5.86	21.41	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.0/<1.1[12]	--
05/13/99	27.27	7.95	19.32	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0/<2.0[12]	--
09/07/99	27.27	9.48	17.79	--	--	70.2	<0.5	<0.5	<0.5	<0.5	<2.0/<1.0[12]	--
11/24/99	27.27	10.05	17.22	--	--	227	<0.5	<0.5	<0.5	<0.5	<0.5[12]	--
02/25/00	27.27	INACCESSIBLE		--	--	--	--	--	--	--	--	--
03/01/00	27.27	6.17	21.10	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5/<2.0[12]	--
05/10/00	27.27	INACCESSIBLE - CAR PARKED OVER WELL				--	--	--	--	--	--	--
07/31/00	27.27	9.37	17.90	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5/<2.0[12]	--
10/30/00	27.27	9.47	17.80	--	--	54.0[10]	<0.500	<0.500	<0.500	<1.50	<2.50/<2.0[12]	--
02/05/01	27.27	INACCESSIBLE - CAR PARKED OVER WELL				--	--	--	--	--	--	--
05/07/01	27.27	7.81	19.46	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5/<2.0[12]	--
08/06/01	27.27	9.78	17.49	--	--	<50	1.1	0.52	<0.50	1.1	6.0/<2.0[12]	--
11/12/01	27.27	10.41	16.86	--	--	93	<0.50	<0.50	<0.50	<1.5	<2.5/<2[12]	--
02/11/02	27.27	7.64	19.63	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<2[12]	--
05/13/02	27.27	8.32	18.95	--	--	54	<0.50	0.84	<0.50	<1.5	<2.5/<2[12]	--
08/09/02	27.27	9.25	18.02	--	--	54	<0.50	<0.50	<0.50	<1.5	<2.5/<2[12]	--
11/07/02	27.27	10.42	16.85	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<2[12]	--
02/04/03	27.27	7.75	19.52	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<0.5[12]	--
05/05/03	27.27	6.90	20.37	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5/<0.5[12]	--

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MW-4 (cont)												
09/06/03[14]	27.27	9.50	17.77	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/14/03[14]	27.27	9.80	17.47	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/13/04[14]	27.27	7.36	19.91	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/13/04[14]	27.27	8.28	18.99	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/17/04[14]	27.27	9.63	17.64	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/10/04[14]	27.27	8.46	18.81	--	--	52	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/08/05[14]	27.27	7.20	20.07	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
06/03/05[14]	27.27	7.61	19.66	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/05/05[14]	27.27	9.44	17.83	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
12/02/05[14]	27.27	8.35	18.92	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
03/03/06[14]	27.27	6.45	20.82	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/31/06[14]	27.27	7.51	19.76	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/18/06[14]	27.27	8.42	18.85	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/17/06[14]	27.27	8.96	18.31	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/09/07[14]	27.27	7.73	19.54	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/11/07[14]	27.27	7.60	19.67	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/10/07[14]	27.27	9.01	18.26	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/08/07[14]	27.27	9.26	18.01	--	--	<50	<0.5	<0.5	<0.5	1	1	--
02/07/08[14]	27.27	6.38	20.89	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/02/08[14]	27.27	8.12	19.15	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
07/31/08[14]	27.27	9.28	17.99	--	--	75	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/13/08[14]	27.27	9.93	17.34	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/02/09[14]	27.27	9.02	18.25	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/01/09[14]	27.27	8.29	18.98	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/10/09[14]	27.27	9.50	17.77	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
01/29/10[14]	27.27	6.57	20.70	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/23/10[14]	27.27	8.96	18.31	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/22/11[14]	27.27	8.85	18.42	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/10/12[14]	27.27	7.55	19.72	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/08/13[14]	**27.27**	**8.58**	**18.69**	**--**	**--**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**--**
TRIP BLANK												
05/27/93	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--
08/18/93	--	--	--	--	1,400	<50	<0.5	<0.5	<0.5	<1.5	--	<5,000
11/03/93	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
02/10/94	--	--	--	--	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--
05/12/94	--	--	--	--	84	<50	<0.5	<0.5	<0.5	<0.5	--	--
08/26/94	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--

Table 2
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Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-MO (µg/L)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MtBE (µg/L)	TOG (µg/L)
TRIP BLANK (cont)												
11/14/94	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
02/01/95	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
05/12/95	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
08/22/95	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
12/19/95	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/31/96	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
04/30/96	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
08/01/96	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
10/30/96	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
02/07/97	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
05/07/97	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
07/22/97	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/28/98	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.0[12]	--
05/08/98	--	--	--	--	--	--	--	--	--	--	<2.0[12]	--
07/29/98	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.0[12]	--
11/06/98	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
02/09/99	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.0	--
05/13/99	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0/<2.0[12]	--
09/07/99	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.0	--
11/24/99	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
02/25/00	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
03/01/00	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
05/10/00	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
07/31/00	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
10/30/00	--	--	--	--	--	<50.0	<0.500	<0.500	<0.500	<1.50	<2.50	--
02/05/01	--	--	--	--	--	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	--
05/07/01	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
05/10/01	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
08/06/01	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
QA				--								
11/12/01	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
02/11/02	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
05/13/02	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
08/09/02	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
11/07/02	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
02/04/03	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
05/05/03	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
09/06/03[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/14/03[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--

Table 2
Groundwater Monitoring Data and Analytical Results
Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-MO (µg/L)	TPH-DRO (µg/L)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MtBE (µg/L)	TOG (µg/L)
QA (cont)				--								
02/13/04[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/13/04[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/17/04[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/10/04[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/08/05[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
06/03/05[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/05/05[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
12/02/05[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
03/03/06[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/31/06[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/18/06[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/17/06[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/09/07[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/11/07[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/10/07[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/08/07[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/07/08[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/02/08[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
07/31/08[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/13/08[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/02/09[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/01/09[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/10/09[14]	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/08/13[14]	**--**	**--**	**--**	**--**	**--**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**--**

Table 2
Groundwater Monitoring Data and Analytical Results
Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

EXPLANATIONS:

Groundwater monitoring data and laboratory analytical results prior to May 10, 2000 were compiled from reports prepared by Blaine Tech Services, Inc.
Groundwater monitoring data and laboratory analytical results from May 10, 2000 to May 10, 2012 were provided by Gettler-Ryan Inc.
Current groundwater monitoring data was provided by Gettler-Ryan Inc. Current laboratory analytical results were provided by Eurofins Lancaster Laboratories.

TOC = Top of Casing
(ft.) = Feet
GWE = Groundwater Elevation
(msl) = Mean sea level
DTW = Depth to Water
TPH = Total Petroleum Hydrocarbons
MO = Motor Oil
DRO = Diesel Range Organics
GRO = Gasoline Range Organics
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes
MtBE = Methyl tertiary-butyl ether
TOG = Total Oil and Grease
(µg/L) = Micrograms per liter
NP = No purge
-- = Not Measured/Not Analyzed
QA = Quality Assurance/Trip Blank

* TOC elevations were re-surveyed on March 8, 2001, by Virgil Chavez Land Surveying. The benchmark for the survey was a City of Oakland benchmark, being a cut square top of curb at the centerline return at the northwest corner of East 14th and 37th Avenue, (Benchmark Elevation = 38.21 feet, NGVD 29).

1 Lab could not get a good ion chromatogram match for MtBE. See laboratory report.

2 Chromatogram pattern indicates an unidentified hydrocarbon.

3 No value for MtBE could be determined; see lab report for analyses.

4 Confirmation run.

5 ORC was installed.

6 Laboratory report indicates gasoline C6-C12.

7 Laboratory report indicates unidentified hydrocarbons <C16.

8 Laboratory report indicates gasoline C6-C12 + unidentified hydrocarbons <C6.

9 Laboratory report indicates unidentified hydrocarbons >C16.

10 Laboratory report indicates hydrocarbon pattern present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel.

11 ORC in well.

12 MtBE by EPA Method 8260.

13 Laboratory report indicates unidentified hydrocarbons C9-C17.

14 BTEX and MtBE by EPA Method 8260.

15 ORC removed from well.

16 Laboratory report indicates the observed sample pattern is not typical of #2 fuel/diesel. It eludes in the TPH-DRO range earlier and later than #2 fuel.

17 Laboratory report indicates the observed sample pattern is not typical of #2 fuel/diesel. It eludes in the TPH-DRO range earlier than #2 fuel.

18 No purge; unable to access well with truck.

19 Laboratory report indicates the LCS/LCSD recovery for the TPH-DRO analysis is outside the QC limits. Results from the reextraction are within the limits. The hold time had expired prior to the reextraction so all results are reported from the original extract. Similar results were obtained in both extracts.

20 Laboratory report indicates the surrogate data is outside the QC limits. Results from the reextraction are within the limits. The hold time had expired prior to the reextraction. Therefore, all results are reported from the original extract. The TPH-DRO result for the reextraction was 190 ug/L.

21 Analyzed with silica gel cleanup.

22 Laboratory report indicates the reverse surrogate, capric acid, is present at <1%.

Table 3
Groundwater Analytical Results - Oxygenate Compounds
Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

WELL ID	DATE	ETHANOL (µg/L)	TBA (µg/L)	DIPE (µg/L)	EtBE (µg/L)	TAME (µg/L)
VH-1	02/05/01	<500	<50	<2.0	<2.0	<2.0
MW-2	02/05/01	<500	<50	<2.0	<2.0	<2.0
MW-3	02/05/01	<500	<50	<2.0	<2.0	<2.0
	08/22/11	<50	<5	<0.5	<0.5	<0.5

Table 3
Groundwater Analytical Results - Oxygenate Compounds
Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

EXPLANATIONS:

TBA = Tertiary-Butyl Alcohol
DIPE = Di-Isopropyl Ether
EtBE = Ethyl Tertiary-Butyl Ether
TAME = Tertiary-Amyl Methyl Ether
(µg/L) = Micrograms per liter
-- = Not Analyzed

ANALYTICAL METHOD:
EPA Method 8260 for Oxygenate Compounds

Table 4
Groundwater Analytical Results - Metals and PPL Volatiles
Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

WELL ID/ DATE	Cadmium (µg/L)	Chromium (µg/L)	Lead (µg/L)	Nickel (µg/L)	Zinc (µg/L)	n-Butylbenzene (µg/L)	sec-Butylbenzene (µg/L)	tert-Butylbenzene (µg/L)	Naphthalene (µg/L)
MW-3									
08/22/11	2.6	173	8.3	308	123	3	3	4	2

EXPLANATIONS:

(µg/L) = Micrograms per liter
PPL = priority pollutant list
Only metals and PPL volatiles with historically detected concentrations are shown.

ANALYTICAL METHODS:

PPL volatiles by EPA Method 8260B
Wear metals by EPA Method 6010B

Table 5
Groundwater Analytical Results - PCBs
Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

WELL ID/ DATE	PCB- 1016 (µg/L)	PCB- 1221 (µg/L)	PCB- 1232 (µg/L)	PCB- 1242 (µg/L)	PCB- 1248 (µg/L)	PCB- 1254 (µg/L)	PCB- 1260 (µg/L)
MW-3							
08/22/11	<0.099	<0.099	<0.099	<0.099	<0.099	<0.099	<0.15

EXPLANATIONS:

(µg/L) = Micrograms per liter
PCBs = Polychlorinated Biphenyls

ANALYTICAL METHODS:

PCBs by EPA Method 8082

Table 6
Grab Groundwater Analytical Results
Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

Borehole/ Sample ID	Sample Depth (feet bgs)	Date Collected	TPH-GRO (µg/L)	TPH-DRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MtBE (µg/L)	1,2-DCA (µg/L)	1,2-DBA (µg/L)
SB-1	18	08/15/95	**21,000**	--	**240**	**760**	**900**	**2,800**	--	--	--
HA-1	10	03/05/02	<50	--	<0.50	<0.50	<0.50	<1.5	<2.5	--	--
HA-2	9.5	03/05/02	<50	--	<0.50	<0.50	<0.50	<1.5	<2.5	--	--
HA-3	10	03/05/02	<50	--	<0.50	<0.50	<0.50	<1.5	<2.5	--	--
VP-3	10.5	05/29/08	**1,100**	**560**	**36**	**3**	**13**	**2**	**15**	<0.5	<0.5
VP-4	10.5	05/29/08	<50	<290	<0.5	<0.5	<0.5	<0.5	**5**	<0.5	<0.5
SB-2	10.5	05/28/08	<50	**350**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SB-3	10.5	05/29/08	**71**	<290	<0.5	<0.5	<0.5	<0.5	**11**	<0.5	<0.5
SB-4	10.5	05/29/08	<50	<290	<0.5	<0.5	<0.5	<0.5	**13**	<0.5	<0.5
ESLs [(1)]			**100**	**100**	**1**	**40**	**30**	**20**	**5**	**0.5**	**0.05**

Notes:

(1) California Regional Water Quality Control Board, San Francisco Bay Region, *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater* , Interim Final - December 2013.

Bold text denotes detected concentrations. **Bold/blue** text denotes detected concentrations above ESLs.

Abbreviations:

feet bgs = feet below ground surface
µg/L = micrograms per liter
TPH-GRO = total petroleum hydrocarbons as gasoline range organics
TPH-DRO = total petroleum hydrocarbons as diesel range organics
MtBE = methyl *tertiary* -butyl ether
1,2-DCA = 1,2-dichloroethane
1,2-DBA = 1,2-dibromoethane
-- = not analyzed
ESL = Environmental Screening Level

Table 7
Soil Analytical Results
Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

Borehole/ Sample ID	Sample Depth (feet bgs)	Date Collected	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MtBE (mg/kg)	1,2-DCA (mg/kg)	1,2-DBA (mg/kg)	Total Lead (mg/kg)
VH-1	20.5	08/10/88	<0.5	--	**0.042**	<0.005	<0.005	<0.005	--	--	--	**6**
VH-1	25.5	08/10/88	<0.5	--	**0.036**	<0.005	<0.005	<0.005	--	--	--	**6**
MW-2	5	02/01/93	<1	--	<0.005	<0.005	<0.005	<0.005	--	--	--	--
MW-2	10	02/01/93	<1	--	<0.005	<0.005	<0.005	<0.005	--	--	--	--
MW-3	5	02/01/93	<1	--	<0.005	<0.005	<0.005	<0.005	--	--	--	--
MW-3	10	02/01/93	<1	--	<0.005	<0.005	<0.005	<0.005	--	--	--	--
MW-4	16.5	08/15/95	<1	--	<0.005	<0.005	<0.005	<0.005	--	--	--	--
MW-4	21.5	08/15/95	**2**	--	<0.005	**0.014**	**0.007**	**0.010**	--	--	--	--
SB-1	21.5	08/15/95	**16**	--	<0.005	**0.12**	**0.21**	**1.1**	--	--	--	--
GP-1	6	07/03/01	<1.0	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	--	--	--
GP-1	9	07/03/01	<1.0	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	--	--	--
GP-2	6	07/03/01	<1.0	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	--	--	--
GP-2	8.5	07/03/01	<1.0	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	--	--	--
GP-3	5.5	07/03/01	<1.0	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	--	--	--
GP-3	8.5	07/03/01	<1.0	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	--	--	--
HA-1	5	03/05/02	<1.0	--	<0.0050	**0.0098**	**0.016**	**0.089**	<0.050	--	--	--
HA-2	5	03/05/02	<1.0	--	<0.0050	<0.0050	<0.0050	<0.015	<0.050	--	--	--
HA-3	5	03/05/02	<1.0	--	<0.0050	<0.0050	<0.0050	<0.015	<0.050	--	--	--
VP-1	4	05/28/08	<1.0	<4.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	--
VP-2	4	05/28/08	<1.0	<4.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	--
VP-3	4	05/29/08	<1.0	<4.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	<0.0009	<0.0009	--
VP-3	8	05/29/08	<1.0	<4.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	--
VP-3	12	05/29/08	<1.0	<4.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	<0.0009	<0.0009	--
VP-4	4	05/29/08	<1.0	<4.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	<0.0009	<0.0009	--
VP-4	8	05/29/08	<1.0	<4.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	--
VP-4	11.5	05/29/08	<1.0	<4.0	<0.0005	<0.0009	<0.0009	<0.0009	**0.0005**	<0.0009	<0.0009	--
SB-2	4	05/28/08	<1.0	<4.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	<0.0009	<0.0009	--
SB-2	8	05/28/08	<1.0	<4.0	<0.0005	<0.0009	<0.0009	<0.0009	<0.0005	<0.0009	<0.0009	--
SB-2	12	05/28/08	<1.0	<4.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	--
SB-3	4	05/29/08	<1.0	<4.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	--
SB-3	8	05/29/08	<1.0	<4.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	--
SB-3	12	05/29/08	<1.0	<4.0	<0.0005	<0.001	<0.001	<0.001	**0.0007**	<0.001	<0.001	--
SB-4	4	05/29/08	<1.0	<4.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	--
SB-4	8	05/29/08	<1.0	<4.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	--
SB-4	12	05/29/08	<1.0	<4.0	<0.0005	<0.001	<0.001	<0.001	**0.001**	<0.001	<0.001	--
ESLs - Shallow Soil [(1),(2)]			**500**	**110**	**0.044**	**2.9**	**3.3**	**2.3**	**0.023**	**0.0045**	**0.00033**	**320**
ESLs - Deep Soil [(1),(2)]			**770**	**110**	**0.044**	**2.9**	**3.3**	**2.3**	**0.023**	**0.0045**	**0.00033**	**320**

Notes:

(1) California Regional Water Quality Control Board, San Francisco Bay Region, *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater*, Interim Final - December 2013

(2) Shallow soil refers to soil above 9.84 feet bgs and deep soil refers to soil below 9.84 feet bgs.

Bold text denotes detected concentrations. **Bold/blue** text denotes detected concentrations above ESLs for Commercial Land Use.

Abbreviations:

feet bgs = feet below ground surface
mg/kg = milligrams per kilogram
TPH-GRO = total petroleum hydrocarbons as gasoline range organics
TPH-DRO = total petroleum hydrocarbons as diesel range organics
MtBE = methyl *tertiary*-butyl ether
1,2-DCA = 1,2-dichloroethane
1,2-DBA = 1,2-dibromoethane
-- = not analyzed
ESL = Environmental Screening Level

Table 8
Soil Vapor Analytical Results - 1999 Soil Vapor Survey
Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

Borehole/ Sample ID	Date Collected	Benzene (µg/m^3)	Toluene (µg/m^3)	Total Xylenes (µg/m^3)	Ethanol (µg/m^3)	Acetone (µg/m^3)	2-Propanol (µg/m^3)	Chloromethane (µg/m^3)	Methylene Chloride (µg/m^3)	TCE (µg/m^3)	Styrene (µg/m^3)	1,2,4-TMB (µg/m^3)	Freon 12 (µg/m^3)
VB-1	02/16/99	**9**	**200**	**15**	**33**	**215**	**924**	<1	**2**	**4**	**5**	**4**	**22**
VB-2	02/16/99	**6**	**22**	**8**	**36**	**29**	**95**	**2**	<3	<4	<3	<4	**24**
ESLs (1)		**420**	**1,300,000**	**440,000**	**NE**	**140,000,000**	**NE**	**390,000**	**26,000**	**3,000**	**3,900,000**	**NE**	**NE**

Notes:
(1) California Regional Water Quality Control Board, San Francisco Bay Region, *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater,* Interim Final - December 2013.
Bold text denotes detected concentrations. **Bold/blue** text denotes detected concentrations above ESLs for commercial land use.
Only compounds that were detected in one or more soil vapor samples collected during the soil vapor survey in 1999 are included in this table.

Abbreviations:
µg/m^3 = micrograms per cubic meter
TCE = trichloroethene
1,2,4-TMB = 1,2,4-trimethylbenzene
ESL = Environmental Screening Level
NE = ESL not established

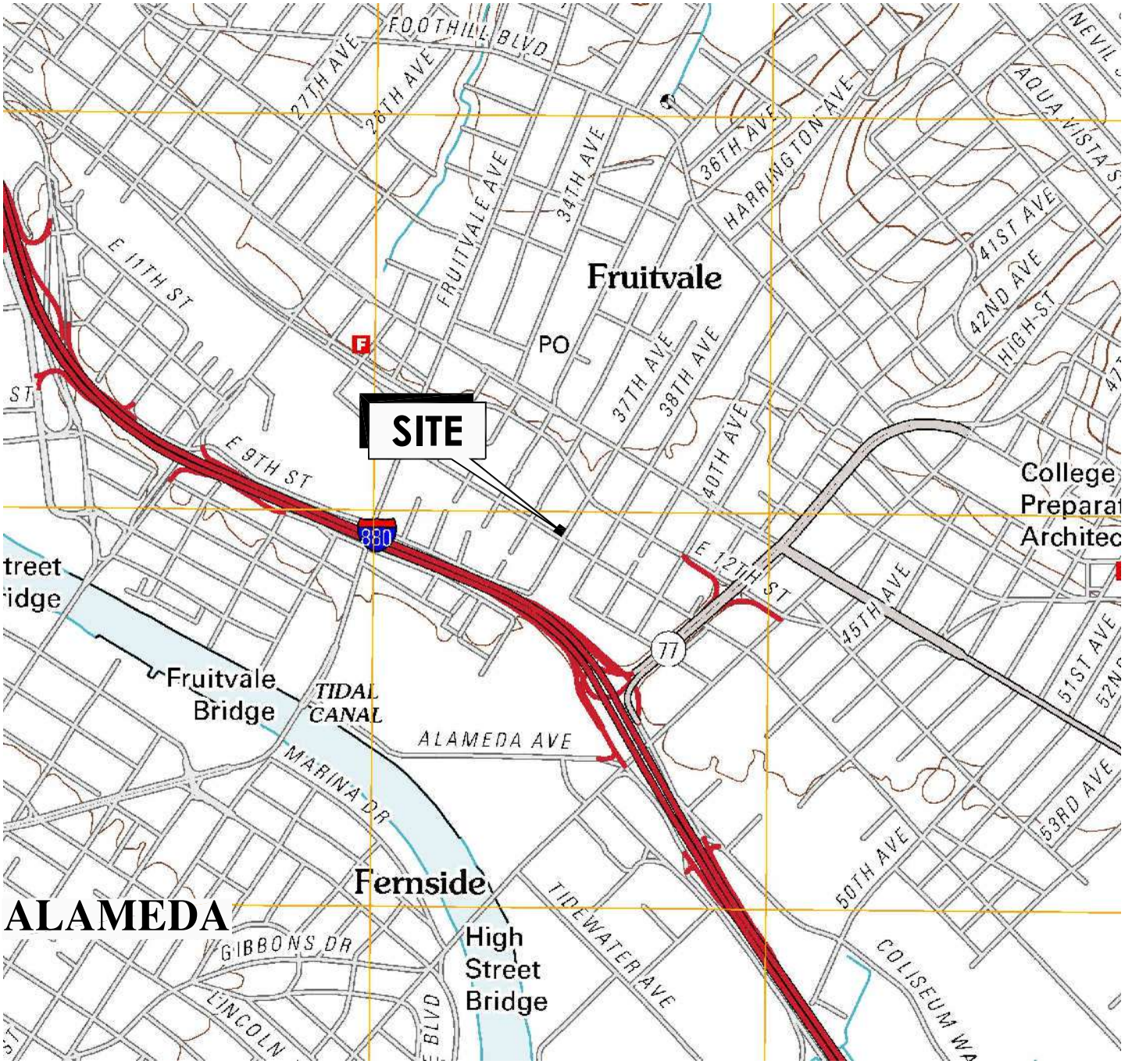
Table 9
Soil Vapor Analytical Results - 2008 Soil Vapor Investigation
Former Chevron-branded Service Station 94612
3616 San Leandro Street
Oakland, California

Borehole/ Sample ID	Date Collected	TPH-GRO (µg/m^3)	TPH-DRO (µg/m^3)	Benzene (µg/m^3)	Toluene (µg/m^3)	Ethylbenzene (µg/m^3)	Total Xylenes[1] (µg/m^3)	MtBE (µg/m^3)	1,2-DCA (µg/m^3)	1,2-DBA (µg/m^3)	Oxygen (%)	Carbon Dioxide (%)	Helium (%)
VP-1	06/18/08	**2.6**	**950**	**8.2**	**5.5**	<5.6	**20**	<4.6	<5.2	<9.9	**7.5**	**5.8**	<0.13
VP-2	06/18/08	**2.6**	**1,000**	<3.8	<4.5	<5.2	<5.2	<4.3	<4.8	<9.1	**2.5**	**6.1**	<0.012
VP-3	06/18/08	**2.2**	**1,100**	<3.8	<4.5	<5.2	**8.4**	<4.3	<4.8	<9.1	**9.4**	**7.5**	<0.12
VP-4	06/18/08	**4.5**	**1,200**	<3.7	<4.4	<5.0	<5.0	<4.2	<4.7	<9.0	**12**	**6.6**	<0.12
ESLs - Commercial Land Use[2]		**2,500,000**	**570,000**	**420**	**1,300,000**	**4,900**	**440,000**	**47,000**	**580**	**170**	**NE**	**NE**	**NE**
ESLs - Residential Land Use[2]		**300,000**	**68,000**	**42**	**160,000**	**490**	**52,000**	**4,700**	**58**	**17**	**NE**	**NE**	**NE**

Notes:
(1) Total xylenes is the sum of m,p-xylene and o-xylene. If either m,p-xylene and o-xylene was non-detect, the detected value was used. If both were non-detect, the highest detection limit was used.
(2) California Regional Water Quality Control Board, San Francisco Bay Region, *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final - December 2013.*
Bold text denotes detected concentrations. **Bold/blue** text denotes detected concentrations above ESLs.

Abbreviations:
µg/m^3 = micrograms per cubic meter
TPH-GRO = total petroleum hydrocarbons as gasoline range organics
TPH-DRO = total petroleum hydrocarbons as diesel range organics
MtBE = methyl *tertiary* -butyl ether
1,2-DCA = 1,2-dichloroethane
1,2-DBA = 1,2-dibromoethane
ESL = Environmental Screening Level
NE = ESL not established

FIGURES



REFERENCE: USGS 7.5 MINUTE QUADRANGLE; OAKLAND EAST, CALIFORNIA; 2012

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FOR:				FIGURE:
FORMER CHEVRON-BRANDED SERVICE STATION 94612 3616 SAN LEANDRO STREET OAKLAND, CALIFORNIA		SITE LOCATION MAP		1
JOB NUMBER: 211602402	DRAWN BY: JRO	CHECKED BY: KJF/MRK	APPROVED BY: TLF	DATE: 10/30/13

FILEPATH:P:\Chevron\N. CA Marketing Sites\Carryl MacLeod Portfolio\94612\SCM\Figures\CAD\94612_2Q13.dwg | jopalekopsahl | Oct 30, 2013 at 12:08 | Layout: Fig 1_SLM

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- UST — UNDERGROUND STORAGE TANK
- GROUNDWATER MONITORING WELL
- SOIL BORING (APPROXIMATE LOCATION)
- SOIL VAPOR SAMPLE (APPROXIMATE LOCATION)
- SOIL VAPOR PROBE (APPROXIMATE LOCATION)
- E — UNDERGROUND ELECTRICAL LINE
- F — UNDERGROUND SHELL FUEL PIPELINE
- G — UNDERGROUND NATURAL GAS LINE
- S — UNDERGROUND SANITARY SEWER LINE
- W — UNDERGROUND WATER LINE

B.A.R.T. PARKING

B.A.R.T. PARKING

B.A.R.T. RAILROAD

ASCEND ELEMENTARY SCHOOL PLAYGROUND

COMMERCIAL BUILDING

RESIDENTIAL

WAREHOUSE

B-1

VP-2

FORMER WASTE OIL UST

FORMER STATION BUILDING

FORMER HYDRAULIC HOISTS

FORMER USTs

SB-3

VP-3

GP-3

MW-3

B-2

VP-1

VB-2

VB-1

VH-1

SB-4

B-3

VP-4

FORMER DISPENSER ISLANDS

PARKING

HA-3

GP-1

GP-2

SB-1

SB-2

MW-2

SIDEWALK

37TH AVENUE

HA-2

HA-1

SAN LEANDRO STREET

MW-4

SIDEWALK

RESIDENTIAL

COMMERCIAL AREA

COMMERCIAL BUILDING

N

0 40 80

APPROXIMATE SCALE IN FEET

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FOR:
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3616 SAN LEANDRO STREET
OAKLAND, CALIFORNIA

SITE PLAN

FIGURE: 2

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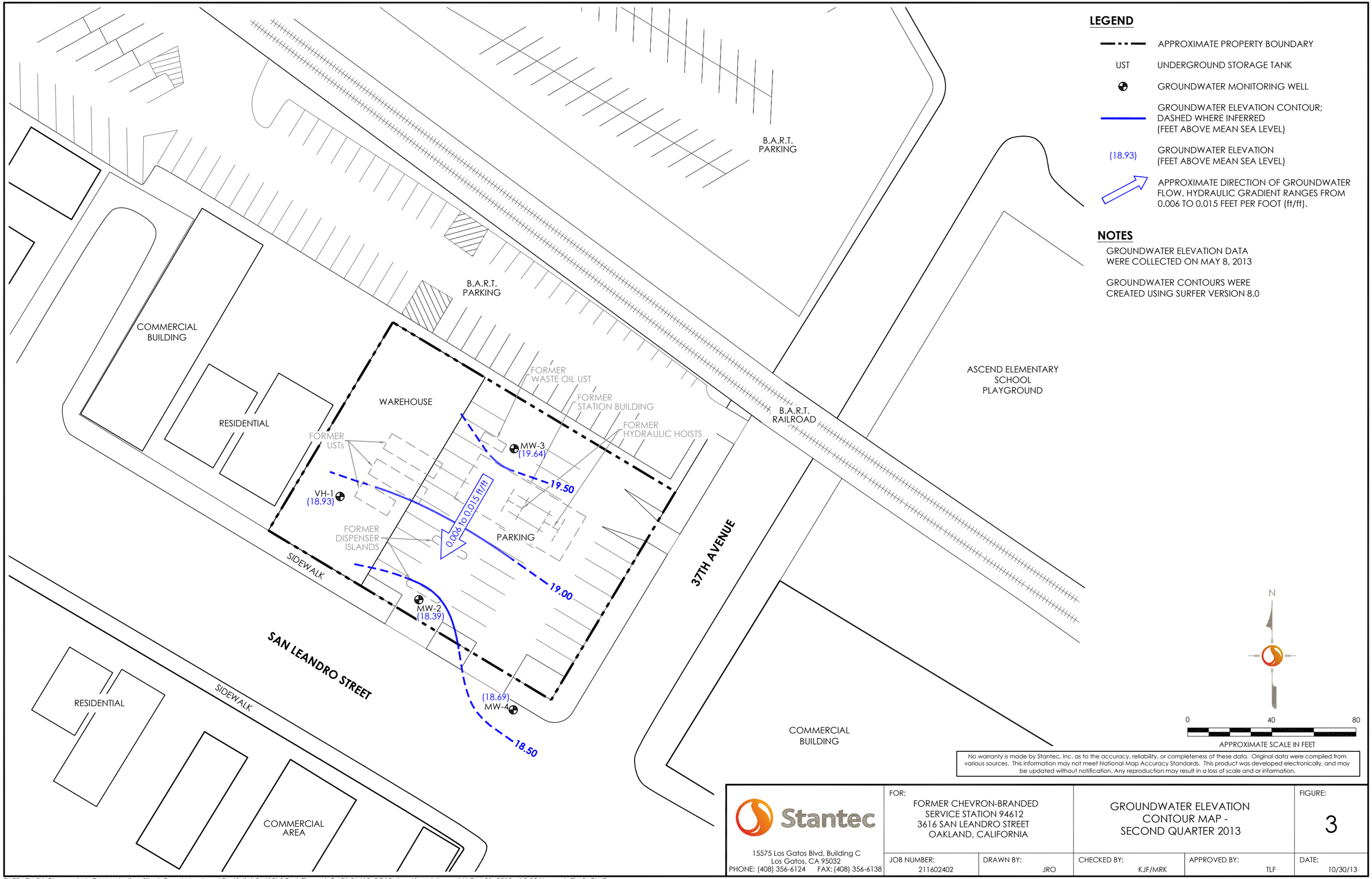

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- UST — UNDERGROUND STORAGE TANK
- GROUNDWATER MONITORING WELL
- GROUNDWATER ELEVATION CONTOUR; DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL)
- (18.93) — GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW. HYDRAULIC GRADIENT RANGES FROM 0.006 TO 0.015 FEET PER FOOT (ft/ft).

NOTES

GROUNDWATER ELEVATION DATA WERE COLLECTED ON MAY 8, 2013

GROUNDWATER CONTOURS WERE CREATED USING SURFER VERSION 8.0

N

0 40 80

APPROXIMATE SCALE IN FEET

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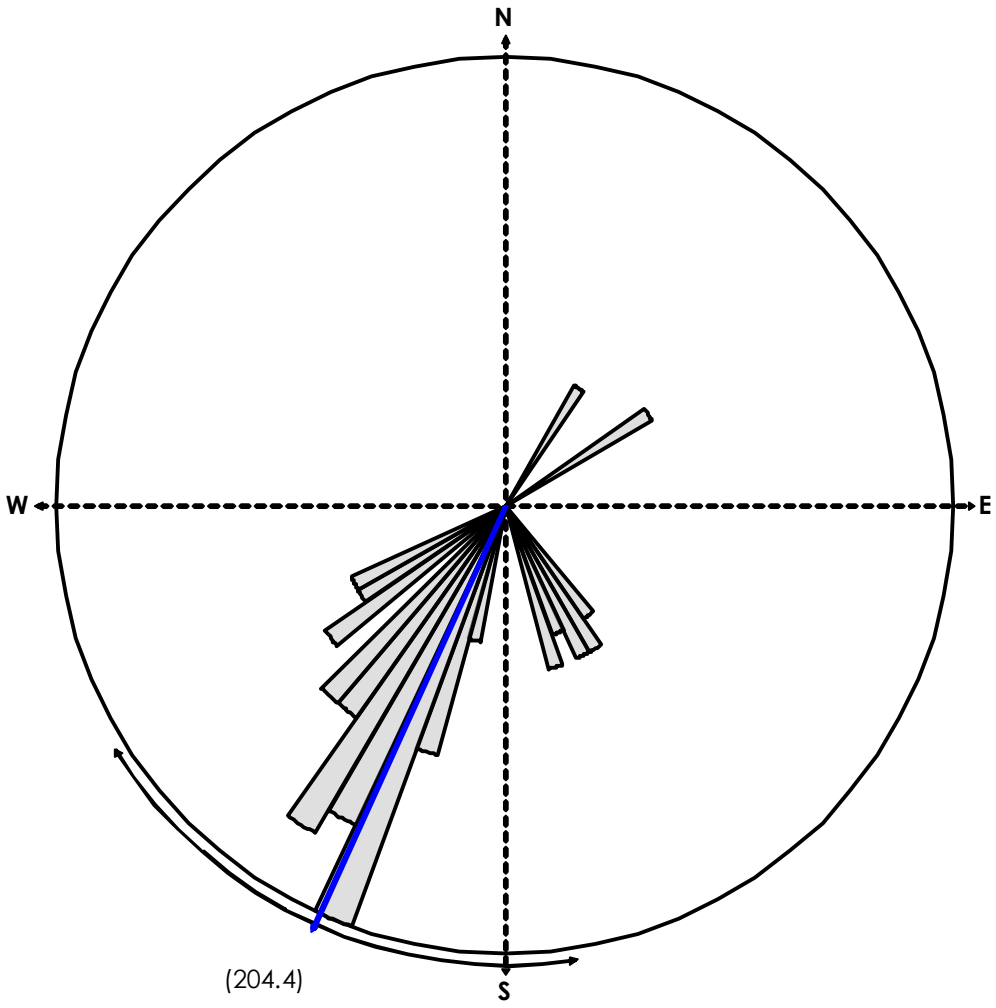
FOR:			
FORMER CHEVRON-BRANDED SERVICE STATION 94612 3616 SAN LEANDRO STREET OAKLAND, CALIFORNIA		GROUNDWATER ELEVATION CONTOUR MAP - SECOND QUARTER 2013	FIGURE: 3
JOB NUMBER: 211602402	DRAWN BY: JRO	CHECKED BY: KJF/MRK	APPROVED BY: TLF	DATE: 10/30/13

FILEPATH:P:\Chevron\N. CA Marketing Sites\Carryl MacLeod Portfolio\94612\SCM\Figures\CAD\94612_2Q13.dwg | jopalekopsahl | Oct 31, 2013 at 9:08 | Layout: Fig 3_GWE



EQUAL AREA PLOT

Number of Points	61
Class Size	5
Vector Mean	204.43
Vector Magnitude	50.66
Consistency Ratio	0.83

NOTE: ROSE DIAGRAM IS BASED ON THE DIRECTION OF GROUNDWATER FLOW BEGINNING FIRST QUARTER 1993.

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FOR:		FIGURE:
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JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
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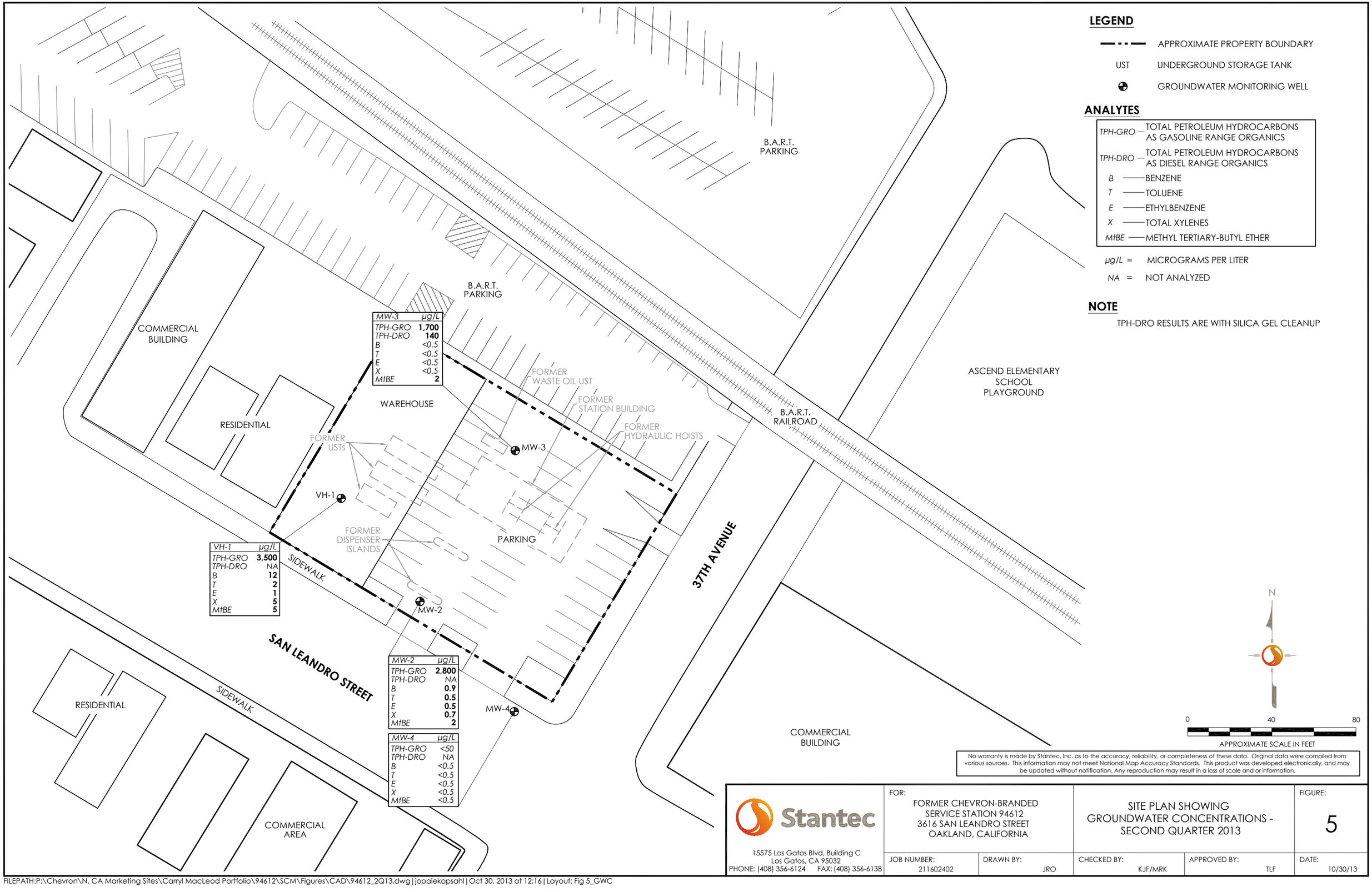

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- UST — UNDERGROUND STORAGE TANK
- GROUNDWATER MONITORING WELL

ANALYTES

- *TPH-GRO* — TOTAL PETROLEUM HYDROCARBONS AS GASOLINE RANGE ORGANICS
- *TPH-DRO* — TOTAL PETROLEUM HYDROCARBONS AS DIESEL RANGE ORGANICS
- *B* — BENZENE
- *T* — TOLUENE
- *E* — ETHYLBENZENE
- *X* — TOTAL XYLENES
- *MtBE* — METHYL TERTIARY-BUTYL ETHER

µg/L = MICROGRAMS PER LITER

NA = NOT ANALYZED

NOTE

TPH-DRO RESULTS ARE WITH SILICA GEL CLEANUP

N

0 40 80

APPROXIMATE SCALE IN FEET

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FOR:
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3616 SAN LEANDRO STREET
OAKLAND, CALIFORNIA

SITE PLAN SHOWING GROUNDWATER CONCENTRATIONS - SECOND QUARTER 2013

FIGURE: 5

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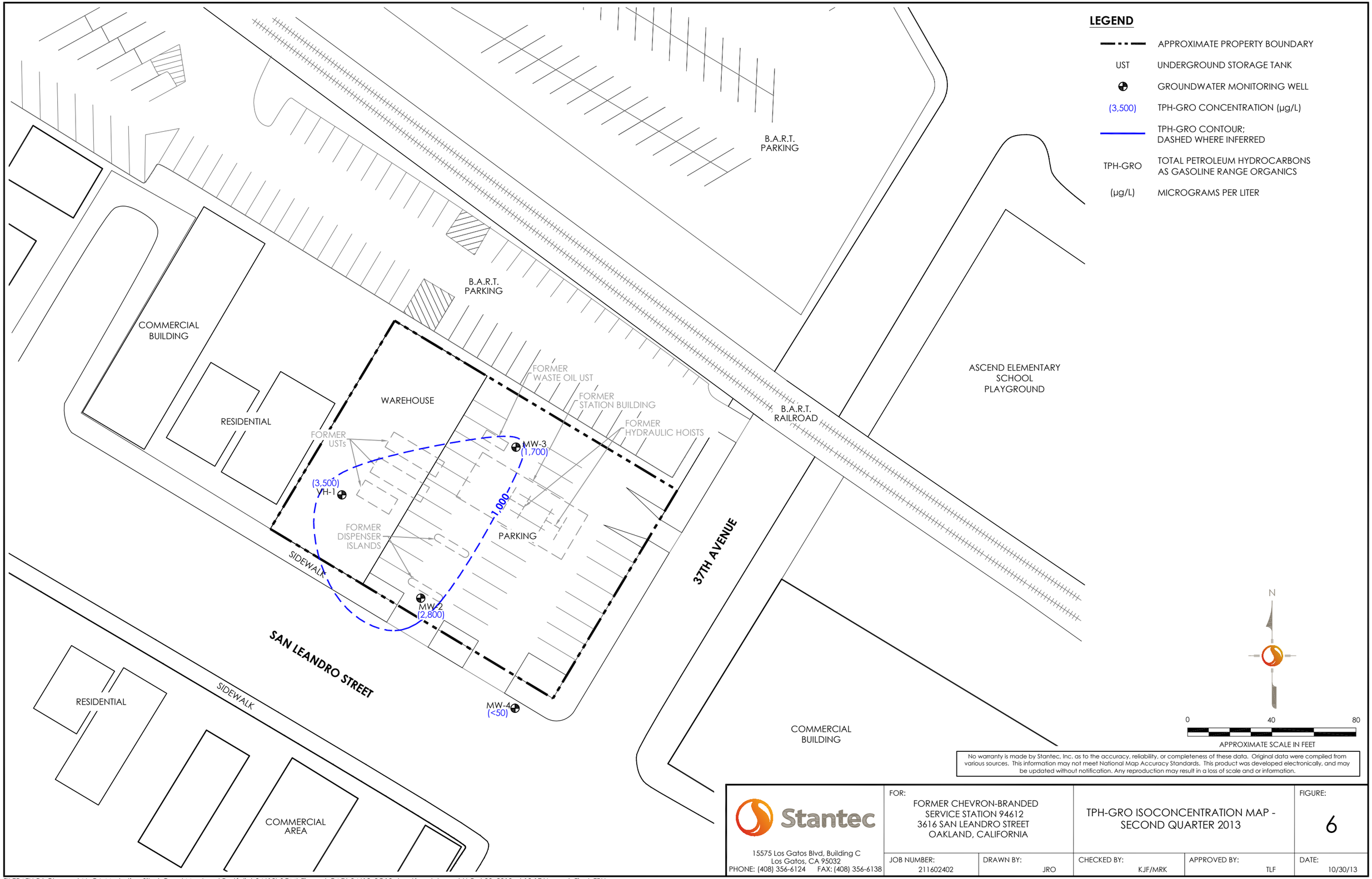
FILEPATH:P:\Chevron\N. CA Marketing Sites\Carryl MacLeod Portfolio\94612\SCM\Figures\CAD\94612_2Q13.dwg | jopalekopsahl | Oct 30, 2013 at 12:16 | Layout: Fig 5_GWC



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OAKLAND, CALIFORNIA

TPH-GRO ISOCONCENTRATION MAP - SECOND QUARTER 2013

FIGURE: 6

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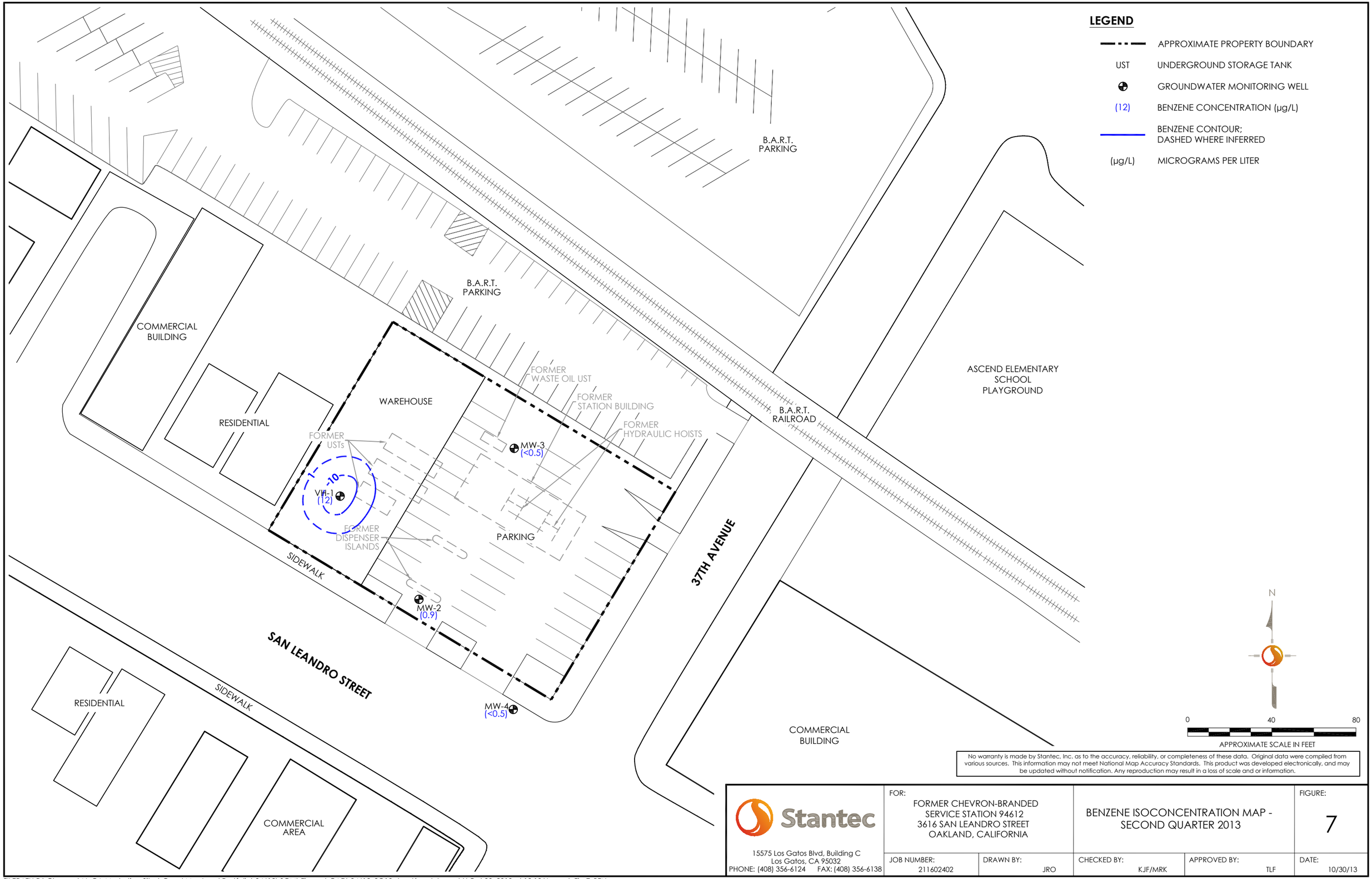

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FOR:		FIGURE:
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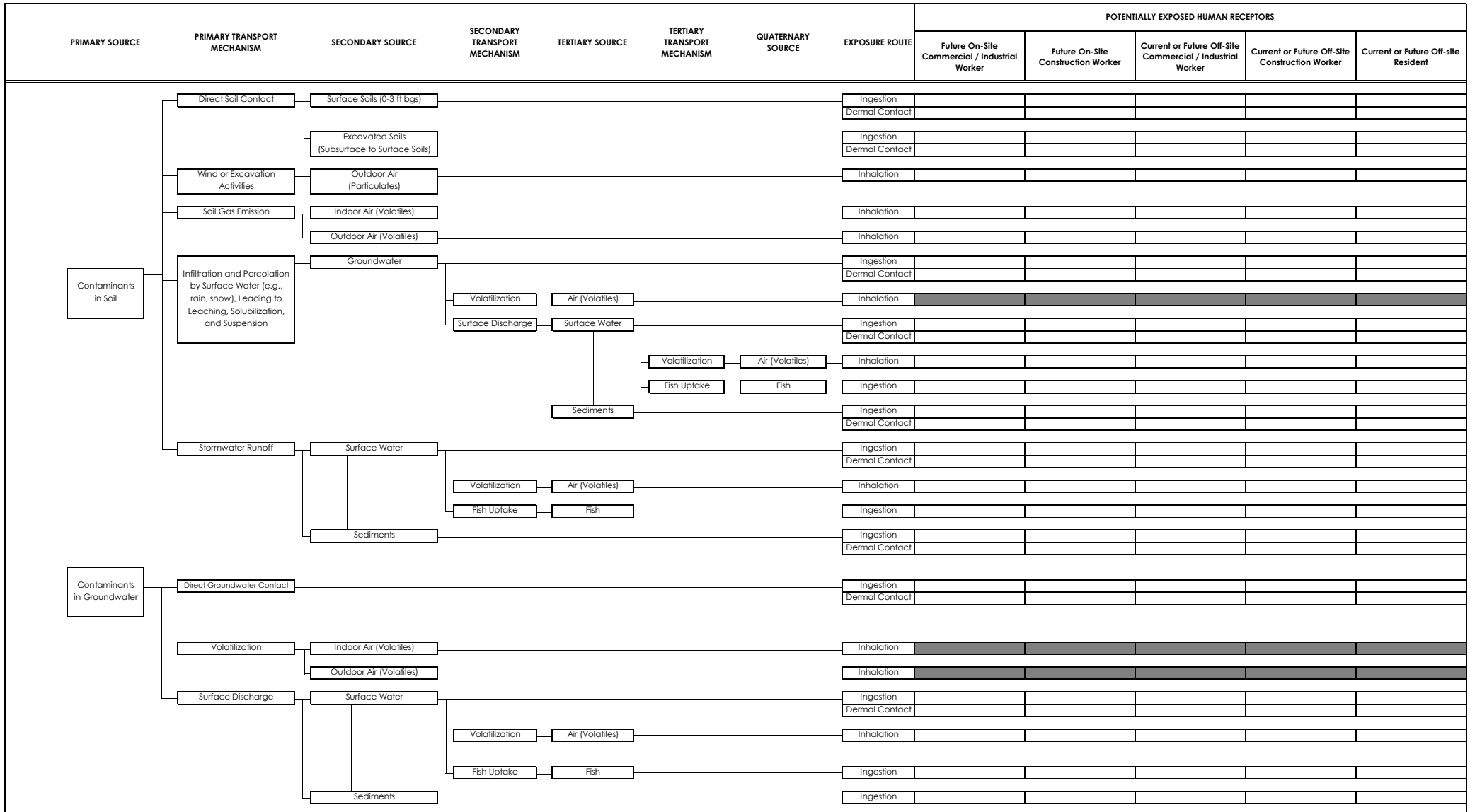
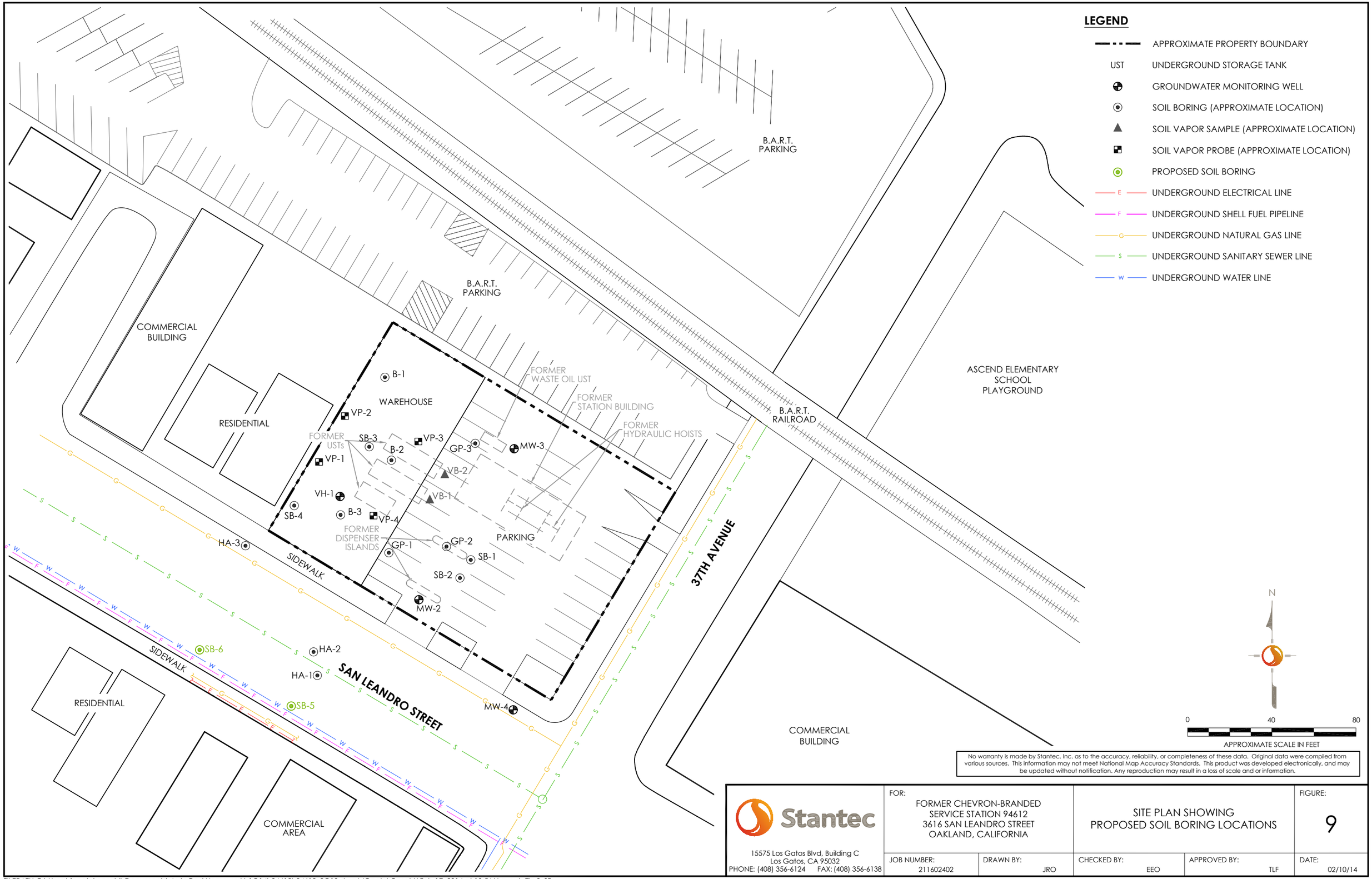
JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
211602402	JRO	KJF/MRK	TLF	10/30/13

FILEPATH:P:\Chevron\N. CA Marketing Sites\Carryl MacLeod Portfolio\94612\SCM\Figures\CAD\94612_2Q13.dwg | jopalekopsahl | Oct 30, 2013 at 12:18 | Layout: Fig 7_BZN


PRIMARY SOURCE
PRIMARY TRANSPORT MECHANISM
SECONDARY SOURCE
SECONDARY TRANSPORT MECHANISM
TERTIARY SOURCE
TERTIARY TRANSPORT MECHANISM
QUATERNARY SOURCE
EXPOSURE ROUTE
POTENTIALLY EXPOSED HUMAN RECEPTORS
Future On-Site Commercial / Industrial Worker
Future On-Site Construction Worker
Current or Future Off-Site Commercial / Industrial Worker
Current or Future Off-Site Construction Worker
Current or Future Off-site Resident
Contaminants in Soil
Direct Soil Contact
Surface Soils (0-3 ft bgs)
Ingestion
Dermal Contact
Excavated Soils (Subsurface to Surface Soils)
Wind or Excavation Activities
Outdoor Air (Particulates)
Inhalation
Soil Gas Emission
Indoor Air (Volatiles)
Outdoor Air (Volatiles)
Infiltration and Percolation by Surface Water (e.g., rain, snow), Leading to Leaching, Solubilization, and Suspension
Groundwater
Volatilization
Air (Volatiles)
Surface Discharge
Surface Water
Fish Uptake
Fish
Sediments
Stormwater Runoff
Contaminants in Groundwater
Direct Groundwater Contact
Volatilization
Indoor Air (Volatiles)
Outdoor Air (Volatiles)
Surface Discharge
Surface Water
Volatilization
Air (Volatiles)
Fish Uptake
Fish
Sediments
LEGEND
Exposure pathway is complete or potentially complete.
Exposure pathway is incomplete.
DATE: 08/01/13
DRAWN BY: EEO
APPROVED BY: TLF
Former Chevron-Branded Service Station 94612
3616 San Leandro Street
Oakland, California
FIGURE 8
EXPOSURE PATHWAY FLOW CHART



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- UST — UNDERGROUND STORAGE TANK
- GROUNDWATER MONITORING WELL
- SOIL BORING (APPROXIMATE LOCATION)
- SOIL VAPOR SAMPLE (APPROXIMATE LOCATION)
- SOIL VAPOR PROBE (APPROXIMATE LOCATION)
- PROPOSED SOIL BORING
- E — UNDERGROUND ELECTRICAL LINE
- F — UNDERGROUND SHELL FUEL PIPELINE
- G — UNDERGROUND NATURAL GAS LINE
- S — UNDERGROUND SANITARY SEWER LINE
- W — UNDERGROUND WATER LINE

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FOR:
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3616 SAN LEANDRO STREET
OAKLAND, CALIFORNIA

SITE PLAN SHOWING PROPOSED SOIL BORING LOCATIONS

FIGURE: 9

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
211602402	JRO	EEO	TLF	02/10/14

FILEPATH:C:\Users\jopalekopsahl\Documents\AutoCad Homework\1Q14\94612\94612_2Q13.dwg | JOpalekOpsahl | Feb 17, 2014 at 10:56 | Layout: Fig 9_SP

APPENDIX A
Alameda County Environmental Health Correspondence, January 24, 2014

Stantec

Detterman, Mark, Env. Health

From: Detterman, Mark, Env. Health
Sent: Friday, January 24, 2014 10:43 AM
To: MacLeod, Carryl G; 'Flora, Travis'; Fischer, Alexis N
Cc: Roe, Dilan, Env. Health
Subject: Meeting Followup: RO233 / Chevron 94612; 3616 San Leandro Street, Oakland, CA
Attachments: Attachment_1_and_ftpUploadInstructions_2013_09-17.pdf; Attachment A Preferential Pathway and Sensitive Recptor Survey.pdf; Attachment B Site Conceptual Model.pdf

Carryl and Travis,

This email is in followup to our meeting of January 21, 2014, to discuss the subject site and the strategy for addressing data gaps under the Low-Threat Closure Policy. A summary of the main points of our discussion is provided below for incorporation into the focused Site Conceptual Model (SCM) and Data Gap Work Plan that was discussed at the meeting, and is requested below. Items discussed include, but were not limited to the following.

TECHNICAL COMMENTS

1. **Groundwater Plume Delineation -** The following data gaps were included in the discussion. Additional data gaps may be noted in your case review.
   - **a.** Downgradient well VH-1 is consistently submerged and does not define the downgradient extent of the groundwater plume at this location.
   - **b.** Geotechnical soil bores B-1 to B-3 each contain notes of a strong gasoline odor at total depth, (approximately 20 feet below grade surface [bgs]), and not in overlaying soils and thus appear to indicate a potential residual source at depth and that the vertical of soil and groundwater contamination extent has not been defined.
   - **c.** Downgradient soil bores HA-1 to HA-3, installed to a depth of 9 feet bgs, do not appear to define the downgradient vertical extent of the soil and groundwater plumes.
   - **d.** Analytical analysis for EDB and EDC do not appear to have been collected at the site in soil or groundwater. The age of the release suggests these contaminants should be evaluated.
   - **e.** The potential for preference pathways (utilities, flow line vs. trench total depth determinations) and vicinity water supply wells (using both DWR and ACPWA data sources) to affect the dissolved phase groundwater plume has not been sufficiently evaluated. Please see Attachment A (Preferential Pathway and Sensitive Receptor Survey) for the requisite detail for these items.
   - **f.** The potential for other sensitive receptors (basements, crawl spaces, dewatering sump pumps, etc.) to be present in the downgradient direction has not been evaluated.
   - **g.** Existing rose diagrams do not capture the full range of hydrologic flow directions and should be updated to allow an understanding of plume dimensions and delineation.

2. **Data Gap Investigation Work Plan and Focused Site Conceptual Model –** As discussed in the meeting, please prepare Data Gap Investigation Work Plan to address the discussion points of our recent meeting as listed above, and any other data gaps that you have noted in your reviews. Please support the scope of work in the Data Gap Investigation Work Plan with a focused SCM and Data Quality Objectives (DQOs) that relate the data collection to each LTCP criteria. For example please clarify which scenario within each Media-Specific Criteria a sampling strategy is intended to apply to.

   In order to expedite review, ACEH requests the focused SCM be presented in a tabular format that highlights the major SCM elements and associated data gaps, which need to be addressed to progress the site to case closure under the LTCP. Please see Attachment B "Site Conceptual Model Requisite Elements". Please sequence activities in the proposed revised data gap investigation scope of work to enable efficient data collection in the fewest mobilizations possible.

TECHNICAL REPORT REQUEST

Please upload technical reports to the ACEH ftp site (Attention: Mark Detterman), and to the State Water Resources Control Board's Geotracker website, in accordance with the specified file naming convention below, according to the following schedule:

- **February 28, 2014** – Site Conceptual Model and Data Gap Work Plan
  File to be named RO233_SCM_WP_R_yyyy-mm-dd

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

Online case files are available for review at the following website: http://www.acgov.org/aceh/index.htm.

I believe this captures the principal points of our discussions, if not all. If you believe I have left something off, please let me know.

Otherwise, should you have questions, please let me know.

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PDF copies of case files can be downloaded at:

http://www.acgov.org/aceh/lop/ust.htm

APPENDIX B
Focused Site Conceptual Model

Stantec

TABLE 1
Focused Site Conceptual Model
Former Chevron-branded Service Station 94612
3616 San Leandro Street, Oakland, California

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
Geology and Hydrogeology	Regional	3616 San Leandro Street, Oakland, Alameda County, California (the Site) lies conformably above Holocene-age, medium-grained alluvium consisting of unconsolidated, moderately to poorly sorted, fine-grained sand, silt, and clayey silt, with a few thin beds of coarse sand. These materials are underlain by late Pleistocene-age alluvium consisting of weakly consolidated, slightly weathered, poorly sorted clay, silt, sand, and gravel (Conestoga-Rovers & Associates [CRA], 2009).	None	NA
Geology and Hydrogeology	Site	Soil boring and well construction logs are included in the *Site Conceptual Model and Data Gap Work Plan*, dated February 28, 2014 (Stantec Consulting Services Inc. [Stantec], 2014). Geologic cross-sections A-A' and B-B' prepared by CRA are included in the *Case Closure Request*, dated February 2, 2009 (CRA, 2009). These cross-sections show Site stratigraphy; historical low and high depth-to-groundwater (DTW) measurements; the DTW measurement collected on November 13, 2008; soil and groundwater sample depths; and total petroleum hydrocarbons as gasoline range organics (TPH-GRO), total petroleum hydrocarbons as diesel range organics (TPH-DRO), benzene, and methyl *tertiary*-butyl ether (MtBE) analytical results for select soil and groundwater samples collected during historical assessments. As shown in the soil boring logs and illustrated on the cross-sections, soils beneath the Site generally consist of silt and clay interbedded with silty to clayey sand and gravel strata to the greatest depth explored (approximately 31 feet below ground surface [bgs]). Well construction details, an assessment of whether Second Quarter 2013 groundwater samples were collected when	None	NA

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Focused Site Conceptual Model
Former Chevron-branded Service Station 94612
3616 San Leandro Street, Oakland, California

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
		groundwater elevations were measured across the well screen intervals, and historical groundwater elevation data are presented in the *Second Quarter 2013 Annual Groundwater Monitoring Report*, dated June 26, 2013. During Second Quarter 2013, wells MW-2 through MW-4 were screened across the prevailing groundwater table, while the groundwater elevation in well VH-1 was measured above the upper screen interval, and the entire screen interval was submerged. Further evaluation of well VH-1, regarding its submerged screen interval is provided below. The historical range of DTW measurements for the Site is approximately 5 to 16 feet below top of casing (TOC). During Second Quarter 2013, DTW measurements for the Site ranged from 8.58 to 9.66 feet below TOC. The direction of groundwater flow at the Site is towards the south-southwest (Stantec, 2013; Stantec, 2014).		
Surface Water Bodies		The United States Geological Survey (USGS) 7.5-minute Oakland East Quadrangle topographic map and aerial photos from Google Earth® were reviewed to identify any surface water within a 0.5-mile radius of the Site. The nearest surface water body is the Inner Oakland harbor of the Oakland-Alameda Estuary, located approximately 2,350 feet southwest (down-gradient) of the Site. Based on the distance to this surface water body, it is unlikely that it will be impacted by the dissolved-phase petroleum hydrocarbon plume associated with the Site.	None	NA
Nearby Wells		A well survey was conducted in 1993 (using information provided by the California Department of Water Resources [DWR]) to identify water supply wells within a 0.5-mile radius of the Site (Groundwater Technology, Inc. [GTI], 1993). Out of the 36 active	None	NA

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Focused Site Conceptual Model
Former Chevron-branded Service Station 94612
3616 San Leandro Street, Oakland, California

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
		wells identified, the records indicated three water supply wells within the 0.5-mile radius, which includes one irrigation well and two wells with unknown uses. The irrigation well is located approximately 0.29 miles northeast (up-gradient) of the Site. One of the wells with an unknown use is located approximately 0.26 miles west (cross-gradient) of the Site, and the other is located approximately 0.46 miles west-southwest (cross- to down-gradient) of the Site. Total depth information was not available for these wells. Based on the predominant direction of groundwater flow at the Site (south-southwest), the distance to the water supply wells, the limited extent of the plume, and the location of the water supply wells up-gradient or cross-gradient of the Site, the water supply wells are not likely to be impacted by the dissolved-phase petroleum hydrocarbon plume. A recent review of the State Water Resources Control Board (SWRCB) GeoTracker™ GAMA Database did not identify any additional water supply wells within a 0.5-mile radius of the Site (SWRCB, 2013a). Given the limited extent of the dissolved-phase petroleum hydrocarbon plume, it does not appear that additional research on water supply wells in the area is necessary; however, Alameda County Environmental Health (ACEH) may still require an updated well search using records from both the DWR and Alameda County Public Works (ACPW). The potential need for an updated well survey is not considered a data gap at this time. **Conduit Survey** Underground utilities that have been identified down-gradient of the Site beneath San Leandro Street include sanitary sewer, natural gas, and water lines. In addition, a Shell fuel pipeline has been reported trending along the south side of San Leandro Street. The depth and flow directions of these utilities are unknown. In		

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Focused Site Conceptual Model
Former Chevron-branded Service Station 94612
3616 San Leandro Street, Oakland, California

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
		March 2002, three down-gradient hand-augered soil borings (HA-1 through HA-3) were advanced to depths of 9.5 feet bgs (boring HA-2) and 10 feet bgs (borings HA-1 and HA-3) to evaluate if the utilities were acting as preferential pathways. Borings HA-1 and HA-2 were located on either side of the sanitary sewer line in San Leandro Street and boring HA-3 was located on the up-gradient side of the natural gas line. Concentrations of petroleum hydrocarbons in grab groundwater samples collected from the borings were below laboratory reporting limits (LRLs) and it was concluded that the sanitary sewer and natural gas lines did not appear to be acting as preferential pathways (Gettler-Ryan Inc. [G-R], 2002a). Borings HA-3 and well MW-4 are in locations where they could intersect any groundwater leaving the Site before reaching the trench for the natural gas line, and groundwater concentrations in those locations are below LRLs. In addition, based on concentrations below LRLs in boring HA-2, the plume does not appear to extend to the sanitary sewer line, the water line, or the fuel line at the estimated depth of these utilities. Based on these data, there is no evidence to suggest utility trenches are acting as preferential pathways for the dissolved-phase plume associated with the Site, and the dissolved-phase plume is defined by these samples. Therefore, additional assessment of utilities and other sensitive receptors (basements, crawl spaces, dewatering sump pumps, etc.) is not warranted and the Site appears to satisfy the groundwater-specific criteria of the Low-Threat Underground Storage Tank (UST) Case Closure Policy (LTCP) regarding plume definition.		

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Focused Site Conceptual Model
Former Chevron-branded Service Station 94612
3616 San Leandro Street, Oakland, California

Release Source and Volume		In 1976, all Site features associated with the former service station were removed. Although no release was documented, any releases are believed to have occurred prior to the removal of Site features in 1976. A hazardous materials release and notification report, dated February 22, 1988, is on file with ACEH. The report states that an unknown amount of gasoline was released to the subsurface at the Site, which was discovered during assessment activities on February 19, 1988 (ACEH, 1988). In a letter dated September 13, 1994, a GTI representative stated that there was a hole in the property fence just southeast of the warehouse building along San Leandro Street. Just inside the fence, used motor oil stains were observed on the ground (unpaved lot). In addition, a broken car battery was found on the ground (GTI, 1994). In February 1997, the property owner indicated a kerosene spill of unknown volume had occurred within the warehouse building on Site and that the spill had spread into the rest room where well VH-1 is located. During routine groundwater monitoring, it was noted that the spill was cleaned up adequately and there were no signs of liquid product, but the rest room exhibited a strong kerosene odor (Chevron Products Company [Chevron], 1997). **Off-Site Sources** In the cover letter that accompanied the Second Quarter 1998 groundwater monitoring report, dated June 30, 1998, Chevron stated there was no explanation for the presence of MtBE at the Site as Chevron did not use this oxygenate in gasoline until 1991 (Chevron, 1998), and the gasoline USTs were removed in 1976.	None	NA

		Therefore, the MtBE concentrations detected in groundwater may be due to an additional off-site source. The TPH-DRO concentrations consistently detected in groundwater in well MW-3 may also be due to an off-site source as it does not appear that diesel was ever dispensed at the Site. However, in approximately half of the groundwater samples in which TPH-DRO was detected, the laboratory noted unidentified hydrocarbons were observed during analysis, which could indicate hydrocarbons heavier than diesel. Hydrocarbons heavier than diesel would most likely be expected in the area of well MW-3 as it is adjacent to the former waste oil UST. On June 4, 2002, G-R conducted a Site vicinity survey to identify potential off-site sources. Two operating service stations were identified during the survey; Tony's Express Auto Services is located at 3609 International Boulevard, approximately 620 feet north-northeast (up-gradient) of the Site and Guy's Service Station is located at 3820 San Leandro Street, approximately 500 feet southeast (cross-gradient) of the Site (G-R, 2002b). Guy's Service Station has an open case with the ACEH (Case No. RO0000089), but given that it is located cross-gradient of the Site, it is unlikely to be contributing to petroleum hydrocarbon concentrations at the Site. Although the ACEH case for Tony's Express Auto Services (Case No. RO0000265) was closed on January 18, 2011, when the furthest down-gradient well associated with that site (well MW-12, located approximately 345 feet up-gradient of the Site) was last sampled in August 2008, the MtBE concentration was 13 micrograms per liter (µg/L), which is consistent with MtBE concentrations detected at the Site (ranging from 2 to 5 µg/L during Second Quarter 2013) (SWRCB, 2013b).		

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Focused Site Conceptual Model
Former Chevron-branded Service Station 94612
3616 San Leandro Street, Oakland, California

LNAPL		Light non-aqueous phase liquid (LNAPL) has not been observed or documented at the Site to-date.	None	NA
Source Removal Activities		All Site features associated with the former service station were removed in 1976. This includes three gasoline USTs (two 10,000-gallon and one 5,000-gallon) located in the northwestern portion of the Site, a 1,000-gallon waste oil UST located in the northern portion of the Site, two fuel dispenser islands located in the southern portion of the Site, associated product piping, and a station building with two hydraulic hoists located in the center of the Site (CRA, 2009). Further documentation on these activities could not be found, and it is unknown if soil sampling or excavation of impacted soil, if present, was conducted. Dissolved-phase petroleum hydrocarbon concentrations associated with the Site are decreasing, indicating that there is no longer a petroleum hydrocarbon source propagating on Site that would warrant further remediation.	None	NA
Contaminants of Concern		Constituents of concern (COCs) at the Site include petroleum hydrocarbons associated with former service station and include TPH-GRO, TPH-DRO, benzene, toluene, ethylbenzene, and total xylenes (BTEX Compounds), and MtBE. In correspondence dated January 24, 2014, ACEH stated that analysis for 1,2-dibromoethane (1,2-DBA) and 1,2-dichloroethane (1,2-DCA) do not appear to have been conducted at the Site in soil or groundwater. 1,2-DBA and 1,2-DCA analytical results for groundwater, soil, and soil vapor are included in the *Site Conceptual Model and Data Gap Work Plan*, dated February 28, 2014 (Stantec, 2014). As all analytical results for these samples were below LRLs, further analysis is not warranted.	None	NA

TABLE 1
Focused Site Conceptual Model
Former Chevron-branded Service Station 94612
3616 San Leandro Street, Oakland, California

Petroleum Hydrocarbons in Soil		Soil analytical results are compared to California Regional Water Quality Control Board – San Francisco Bay Region (RWQCB) Environmental Screening Levels (ESLs) for commercial land use (RWQCB, 2013). There are reports of strong gasoline odor in borings B-1 through B-3 at 20 feet bgs and elevated photoionization detector (PID) readings in borehole MW-2 at 15 and 19 feet bgs, borehole MW-3 at 15 feet bgs, boring GP-1 at 15.5 feet bgs, and boring SB-1 at 21.5 feet bgs. Although strong gasoline odor was reported in borings B-1 through B-3 at 20 feet bgs, odor is subjective, especially within the saturated zone. Historical soil samples were collected from borehole VH-1 at 20.5 and 25.5 feet bgs, which is in the vicinity of borings B-1 through B-3, and the reported concentrations were below ESLs. Soil data from VH-1 defines the vertical extent of petroleum hydrocarbons in soil in the area of borings B-1 through B-3. Of the borings with elevated PID readings, only the soil sample collected from boring SB-1 at 21.5 feet bgs was submitted for laboratory analysis, and the reported concentrations were below ESLs by up to one order of magnitude. Based on soil analytical results collected from 1988 to 2008, there have been slight detections of TPH-GRO, BTEX Compounds, and total lead in shallow soil; however, no soil samples collected in association with the Site exhibited concentrations of petroleum hydrocarbons above soil ESLs and historical assessment activities have provided adequate lateral and vertical coverage of former fueling features in vadose zone soil. Therefore, the lateral and vertical extents of petroleum hydrocarbons in soil are considered defined, and this is not considered a data gap.	None.	NA

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Focused Site Conceptual Model
Former Chevron-branded Service Station 94612
3616 San Leandro Street, Oakland, California

Petroleum Hydrocarbons in Groundwater		Observed DTW in groundwater monitoring wells has historically ranged from approximately 5 to 16 feet below TOC. Groundwater samples are currently collected at the Site on an annual basis during Second Quarter. During Second Quarter 2013, maximum concentrations of TPH-GRO, BTEX Compounds, and MtBE were observed in well VH-1, which is located approximately 6 feet down-gradient of the former gasoline USTs. TPH-DRO (with silica gel cleanup) was detected above the ESL in the one well in which it is analyzed, well MW-3, located approximately 4 feet from the former waste oil UST (Stantec, 2013). Current and historical groundwater quality data indicate that the dissolved-phase petroleum hydrocarbon plume associated with the Site is generally stable or decreasing in overall size and concentration. During Second Quarter 2013, concentrations of toluene, total xylenes, and MtBE in well MW-2 were equal to the lowest detected concentrations for the well. In addition, the MtBE concentration in well VH-1 was a historical low. All other concentrations of TPH-GRO, TPH-DRO, BTEX Compounds, and MtBE were within historical limits at all wells sampled. Concentrations appear to have an inverse relationship with changes in groundwater elevation; however, overall stable or decreasing concentration trends are still observed (Stantec, 2013). At the depth of the current groundwater table, the TPH-GRO plume is defined to the southeast by concentrations below LRLs in well MW-4, and the benzene plume is defined to the east and south by concentrations below LRLs or ESLs in wells MW-2, MW-3, and MW-4. At the depth of the current groundwater table, both plumes can also be delineated to the southwest and west using historical grab groundwater samples collected from borings HA-1,	1. Groundwater down-gradient of the Site will be evaluated at a depth interval that corresponds to the coarse-grained unit reported from approximately 16 to 20 feet bgs.	Two soil borings will be advanced down-gradient of the Site to approximately 20 feet bgs. Temporary well casings will be installed, and groundwater samples will be collected for laboratory analysis. This is described further in the data gaps table.

		HA-2, HA-3, SB-3, and SB-4. The TPH-GRO and benzene plumes are adequately defined at the depth of the current groundwater table. In email correspondence dated January 24, 2014, ACEH expressed concern that well VH-1 was not providing representative groundwater data. Although the screen interval in well VH-1 is often submerged, there is no evidence to suggest groundwater concentrations in well VH-1 are not representative of actual shallow groundwater concentrations. Groundwater elevations in well VH-1 are similar to other Site wells. During Second Quarter 2013, the groundwater elevations in all Site wells differed by a maximum of 1.25 feet. In addition, during quarters when the screen interval of VH-1 was not submerged, petroleum hydrocarbon concentrations were similar to, if not less than, concentrations observed in the same year when the well was submerged. For instance, during Fourth Quarter 2008, the screen interval in well VH-1 was not submerged and the concentration of TPH-GRO was observed to be 2,500 µg/L, while during Third Quarter 2008 and First Quarter 2009, the screen interval was submerged, and concentrations were observed to be 2,700 µg/L and 4,000 µg/L, respectively. Concentrations within well VH-1 appear to be conservative in quarters when the screen is submerged. Furthermore, the sand filter pack for well VH-1 begins at approximately 8 feet bgs and allows the groundwater to infiltrate the well at this depth. Although well VH-1 is not regularly purged prior to sampling due to its location inside a building, which limits equipment access, concentrations when it is purged prior to sampling are similar to concentrations when it is not. For instance, during Third Quarter 2008, well VH-1 was purged prior to sampling and the concentration of TPH-GRO was observed to be 3,400 µg/L. During Third Quarter 2010 and Second Quarter 2012, when purging was not conducted prior to sampling, TPH-GRO		

		concentrations were observed to be 3,600 µg/L and 3,100 µg/L, respectively. The evidence presented suggests that groundwater concentrations in well VH-1 are representative of actual groundwater conditions at the Site. Based on a review of historical boring and well logs and hydrologic data, there is no evidence of multiple shallow aquifers (groundwater-bearing zones) at the Site, and previously collected groundwater samples appear representative of Site groundwater, including the current delineation of the dissolved-phase plume. However, there is a coarse-grained unit reported in some historical boring and well logs from approximately 16 to 20 feet bgs, and ACEH has requested further down-gradient assessment to evaluate potential stratification of the dissolved-phase plume within this coarse-grained unit. Therefore, groundwater down-gradient of the Site will be evaluated at a depth interval that corresponds to a coarse-grained unit from approximately 16 to 20 feet bgs.		
Risk Evaluation		**Current and Future Land Uses** Land use near the Site consists of a mixture of commercial and residential properties. The Site is bounded to the northwest by a residence, to the northeast by a Bay Area Rapid Transit (BART) parking lot and elevated rail tracks, on the southeast by 37th Avenue followed by a commercial building, and on the southwest by San Leandro Street followed by a mixed commercial and residential area. The Site and properties to the northwest, southwest, and southeast of the Site are zoned as commercial (mixed housing and business), while the properties to the northeast of the Site are zoned for transit oriented purposes.	None	NA

		Based on the land use of the Site and its location at a major intersection, the Site will likely continue to be used for commercial purposes in the future. **On-Site Current or Potential Populations** Based on the current and likely future use of the Site as commercial, the current or future potentially exposed populations on Site include commercial workers, customers, and construction workers. **Off-Site Current or Potential Populations** Based on the current and likely future use of adjacent and down-gradient properties as commercial or residential, the current or future potentially exposed populations off Site include commercial workers, customers, construction workers, and residents. **Potential Sensitive Population Survey** Stantec conducted a survey to determine if any potential sensitive populations were located in the vicinity of the Site. Potential sensitive populations are people who would potentially be more susceptible to risks resulting from exposure to Site-related hydrocarbons such as school-age children, medically-compromised people, and the elderly. Based on the predominant direction of groundwater flow associated with the Site (south-southwest), only one of identified potential sensitive populations is within 0.5-mile radius of the Site. Twenty-Four Hour Oakland PTC is located down-gradient of the Site; however, based on its distance from the Site (approximately 0.13 miles [686 feet]) and the limited extent of the current dissolved-phase plume (less than 250 feet), Twenty-Four Hour Oakland PTC is unlikely to be at risk from exposure to Site-related petroleum hydrocarbons.		

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Focused Site Conceptual Model
Former Chevron-branded Service Station 94612
3616 San Leandro Street, Oakland, California

		Exposure Pathway Analysis An exposure pathway is considered complete or potentially complete if it meets four basic requirements: 1) presence of chemical sources; 2) release and transport within an environmental medium; 3) an exposure route; and 4) a receptor. Incomplete pathways are justified as follows: • The ingestion of groundwater and dermal contact with groundwater exposure pathways are considered incomplete for all human receptors as there is no mechanism for deliberate consumption of the groundwater (no Site or nearby down-gradient water supply wells), and because excavation at or below the groundwater table is unlikely. Although excavation work to access the utilities within San Leandro Street would likely encounter groundwater, the identified utilities do not appear to be acting as preferential pathways. • The ingestion and dermal contact surface soil exposure pathways are considered incomplete for all human receptors as no shallow (less than 10 feet bgs) soil impacts were observed in association with the Site. • The ingestion, dermal contact, and inhalation of outdoor particulates from excavated soil exposure pathways are considered incomplete for all human receptors as excavation to potentially impacted depths is unlikely as detections were only observed below the groundwater table. • The soil gas emission pathways (inhalation of indoor and outdoor air) are considered incomplete for all human receptors as no shallow (less than 10 feet bgs) soil impacts were observed in association with the Site.		

TABLE 1
Focused Site Conceptual Model
Former Chevron-branded Service Station 94612
3616 San Leandro Street, Oakland, California

		Potentially complete pathways are summarized as follows: • The groundwater emission pathways (inhalation of indoor and outdoor air) are considered potentially complete for on-site and off-site receptors due to the potential for petroleum hydrocarbons in shallow groundwater to volatilize and be inhaled in the indoor or outdoor air. **Risk Evaluation** The groundwater emission pathways (inhalation of indoor and outdoor air) are considered potentially complete for on-site and off-site receptors; however, soil vapor sampling was conducted beneath the current on-site building in June 2008 and all results were below ESLs for residential and commercial land use; therefore, there is no indication of a vapor intrusion risk for on-site or off-site human receptors associated with this pathway. Furthermore, Site conditions appear to meet the petroleum vapor intrusion to indoor air and direct contact and outdoor air exposure criteria set forth in the LTCP.		

TABLE 2
Focused Site Conceptual Model
Former Chevron-branded Service Station 94612
3616 San Leandro Street, Oakland, California

Data Gaps Summary and Proposed Investigation

Item	Data Gap Item #	Proposed Investigation	Rationale	Analyses
1	Potential stratification of the dissolved-phase plume within the coarse-grained unit reported from approximately 16 to 20 feet bgs.	Advance two soil borings down-gradient of the Site to 20 feet bgs. Install temporary well casings screened from approximately 15 to 20 feet bgs, and collect a groundwater sample from each boring for laboratory analysis. Soil samples will not be collected for laboratory analysis.	The two soil borings will be located down-gradient of boring SB-1 and well VH-1, both of which ACEH has specifically expressed concern regarding potential stratification of the dissolved-phase plume. Temporary well screens will be set at the approximate depth of the coarse-grained unit reported from approximately 16 to 20 feet bgs. A pre-packed screen will be used to help achieve a representative groundwater sample. The temporary casing will be purged at least one casing volume prior to sampling; however, as work is proposed in the street, time constraints may limit purge volumes. The proposed locations and depths may be adjusted in the field based on field conditions (i.e., utility lines, soil lithology, etc.).	TPH-GRO, BTEX Compounds, and MtBE in groundwater.

Focused Site Conceptual Model
Former Chevron-branded Service Station 94612
3616 San Leandro Street, Oakland, California

References

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Chevron, 1997. Letter to Mr. Barney Chan, Alameda County Health Care Services Department of Environmental Health re: Former Chevron Service Station #9-4612, 3616 San Leandro Street, Oakland, California. March 14.

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GTI, 1993. *Additional Environmental Assessment Report*. April 12.

GTI, 1994. Letter to Mr. Mike Chamberline, Groundwater Technology, Inc. re: Up-gradient Well Location, 3616 San Leandro Boulevard, Oakland, California. September 13.

RWQCB, 2013. *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final*. November 2007, revised December 2013.

Stantec, 2013. *Second Quarter 2013 Annual Groundwater Monitoring Report.* June 26.

Stantec, 2014. *Site Conceptual Model and Data Gap Work Plan*. February 28

SWRCB, 2013a. GeoTracker™ GAMA, website download from http://geotracker.waterboards.ca.gov/gama/.

SWRCB, 2013b. GeoTracker™, website download from http://geotracker.swrcb.ca.gov/.

APPENDIX C
Soil Boring and Well Construction Logs

DRILL RIG Continuous Flight Auger	SURFACE ELEVATION 30 feet	LOGGED BY KS
DEPTH TO GROUNDWATER 14 feet ATOD	BORING DIAMETER 6 inches	DATE DRILLED 2/10/88

DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE	DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT %	DRY DENSITY PCF	% COMPACTION
CLAY, homogeneous, less than 2% of sample is comprised of charred fragments	Dusky yellowish brown			1 2 3 4					
CLAY, silty, charred fragments common Plasticity Data: depth 5'-6" L.L.= 55 P.I.= 37	Light olive gray	STIFF	CH	5 6 7 8 9	X	15*	15 15	111 108	
CLAY, sandy, mottled, increasing number of clasts with depth, transition zone	Dark yellowish brown			10					
CONGLOMERATE, 20-30% of matrix is very coarse grain, subangular to rounded fragments of quartzite, chert and greenstone. < 5% of sample is comprised of ½-1½" dia. angular quartzite.		VERY STIFF		11 12 13 14 15	X	19*	12 ATOD	108	
CLAY, silty, fine sand with occasional clast, homogeneous.	Moderate yellowish brown	FIRM		16 17 18 19	X	5*	27	104	
strong gasoline odor		STIFF		20	X	8*	23	100	

ROGERS/PACIFIC

EXPLORATORY BORING LOG

Lot 18 & 19 San Leandro Street
Oakland, Calif.

PROJECT NO	DATE	BORING

DRILL RIG Continuous Flight Auger	SURFACE ELEVATION	LOGGED BY KS
DEPTH TO GROUNDWATER 14 feet ATOD	BORING DIAMETER 6 inches	DATE DRILLED 2/10/88

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY PCF	% COMPACTION
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
CLAY, sandy, silty, occasionally	Moderate yellowish brown			21	X	8*	23	100	
Bottom of borring 21.5 feet				22					
				23					
				24					
				25					
				26					
				27					
				28					
				29					
				30					
				31					
				32					
				33					
				34					
				35					
				36					
				37					
				38					
				39					
				40					

ROGERS/PACIFIC
PROFESSIONAL ENGINEERING CONSULTANTS

EXPLORATORY BORING LOG

Lots 18 & 19 San Leandro Street
Oakland, Calif.

PROJECT NO	DATE	BORING B-1 (cont

DRILL RIG Continuous flight Auger	SURFACE ELEVATION 30 feet	LOGGED BY KS
DEPTH TO GROUNDWATER 14 feet ATOD	BORING DIAMETER 6 inches	DATE DRILLED 2/10/88

DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE	DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY PCF	% COMPACTION
SAND, angular gravels, increases clay content with depth, fill material sieve data: % passing #200: 21%	Dark yellowish brown		SC	1–10			9		
CLAY, silty, occasional angular clasts, 20-30% of sample is comprised of subangular to rounded pebble size clasts composed of quartzite sandstone and weathered feldspars	Dark yellowish brown	STIFF		11	⊠	10*	11	109	
				12–13			21		
				14				▽	
transition into conglomerate population of clasts, clast size, consistency, and roundness increases with depth		VERY STIFF		15					
				16	⊠	20*	15	110	
				17–18					
				19			31		
very strong gasoline odor				20					

ROGERS/PACIFIC

EXPLORATORY BORING LOG

Lot 18 & 19 San Leandro Street
Oakland, Calif.

PROJECT NO	DATE	BORING

DRILL RIG Continuous Flight Auger	SURFACE ELEVATION	LOGGED BY KS
DEPTH TO GROUNDWATER 14 feet ATOD	BORING DIAMETER 6 inches	DATE DRILLED 2/10/88

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT %	DRY DENSITY PCF	% COM-
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
CONGLOMERATE, approximately 85% of sample is comprised of greater than 1/8" rounded clasts, composed of chert, quartzite, and greenstone	Moderate yellowish brown	VERY STIFF		26	☒	20*	13	114	
Bottom of borring 26.5 feet									

ROGERS/PACIFIC

EXPLORATORY BORING LOG

Lots 18 & 19 San Leandro Street
Oakland, Calif.

PROJECT NO	DATE	BORING

DRILL RIG Continuous Flight Auger	SURFACE ELEVATION 30 Feet	LOGGED BY KS
DEPTH TO GROUNDWATER 9 feet	BORING DIAMETER 6 inches	DATE DRILLED 2/10/88

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT %	DRY DENSITY PCF	% COMPACTION
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
CLAY, very plastic, minor abundance of roots	Brownish black	STIFF	CH	1					
				2					
		STIFF	CH	3	X	12*	23	101	84
				4					
		VERY STIFF		5	X	18*	12	109	
CLAY, silty, sandy	Moderate yellowish brown			6					
				7					
				8					
				9			▽		
				10					
CLAY, sandy, abundant course grain size, rounded clasts of quartzite and greenstone. ½-2" dia. clasts of angular greenstone, comprise 20% of a given sample	Moderate yellowish brown	STIFF		11	X	12*	17	113	
				12					
				13					
				14					
CLAY, silty, slightly mottled, occasional charred fragments, homogeneous	Moderate yellowish brown	STIFF		15					
				16	X	10*	22	104	
				17					
				18					
				19			31		
				20					

ROGERS/PACIFIC

EXPLORATORY BORING LOG

Lot 18 & 19 San Leandro Street
Oakland, Calif.

PROJECT NO	DATE	BORING B-2

DRILL RIG Continuous Flight Auger	SURFACE ELEVATION 30 feet	LOGGED BY KS
DEPTH TO GROUNDWATER 9 feet ATOD	BORING DIAMETER 6 inches	DATE DRILLED 2/10/88

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY PCF	% COM-
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
CLAY, silty, sandy, subangular gravels, strong gasoline odor	Moderate yellowish brown	VERY STIFF		21	☒	24*	17	112	
BOTTOM OF BORRING 21.5 FEET				22					
				23					
				24					
				25					
				26					
				27					
				28					
				29					
				30					
				31					
				32					
				33					
				34					
				35					
				36					
				37					
				38					
				39					
				40					

ROGERS/PACIFIC
PROFESSIONAL ENGINEERING CONSULTANTS

EXPLORATORY BORING LOG

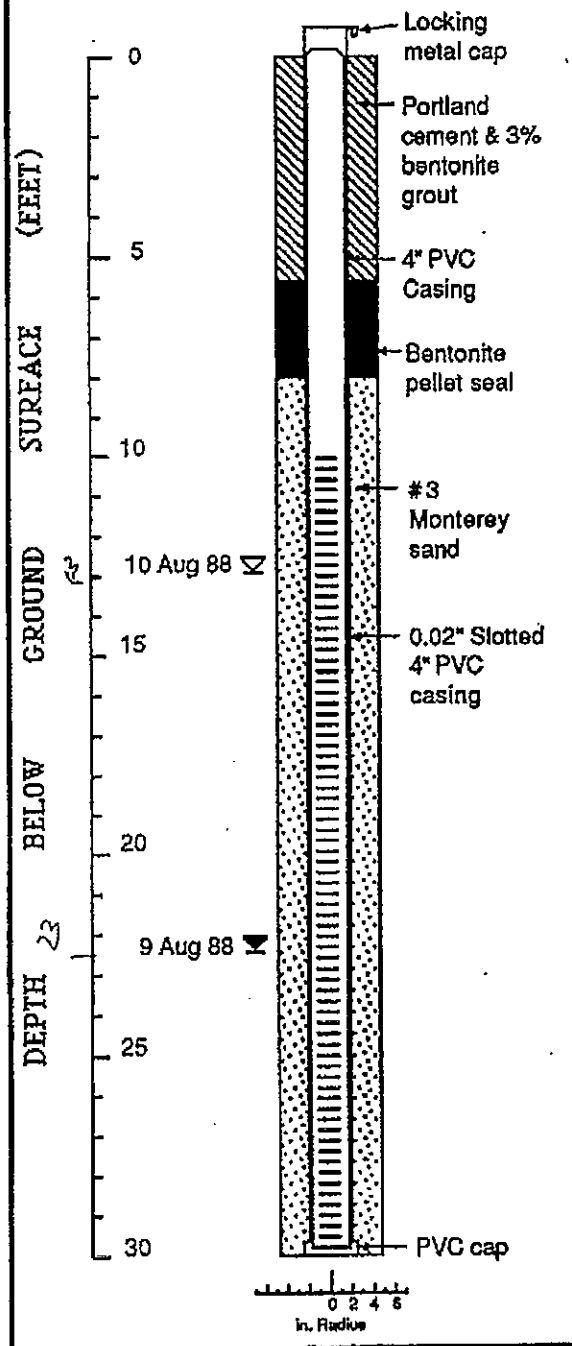
Lots 18 & 19 San Leandro Street
Oakland, Calif.

PROJECT NO	DATE	BORING

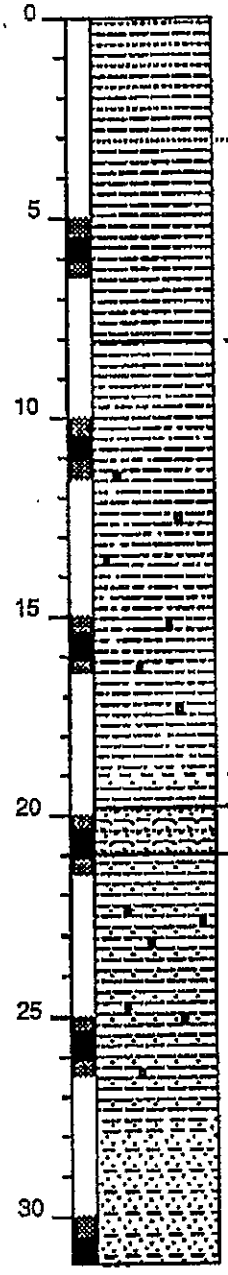
Confined aquifer

Vonder Haar Hydrogeology

WELL VH-1



GRAPHIC LOG



DESCRIPTION

Silty CLAY (CL); dark brown; stiff; dry to moist; no odor; 20-30% silt; 5-10% fine sand

CLAY (CL); to silty clay; light brown to yellow brown; no odor

TR rounded pebbles; TR sand; no odor

CLAY (CL); to silty clay; medium to dark brown; occasional rounded pebbles

Moist to very moist CLAY (CL); no odor

Very plastic clay; some gravel

Sandy CLAY (CL); moist

Clayey silty SAND (SM)

Gravelly sandy CLAY (CL)

No odor

Sandy CLAY (CL); to clayey SAND (SM); with occasional rounded pebbles; no odor

Increase sand content to 30 ft

Clayey SAND (SM); no odor

EXPLANATION

- Water level during drilling (date)
- Water Level (date)
- Contact (dashed where approx.)
- Gradational Contact
- Location of recovered drive sample
- Location of drive sample collected for chemical analysis

Logged by: Stephen Vonder Haar
Drilling Company: Datum Drilling, Long Beach, CA
Driller: Anthony Randy
Drilling Method: Hollow stem auger
Dates Drilled: 8-9-88
Type of sampler: Split Barrel (2.0" ID)

Boring Log and Well Construction Details - Well VH-1

Chevron Facility #4612
3614 San Leandro St. Oakland, CA

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well MW-2

Project Chev/3816 San Leandro Street Owner Chevron U.S.A. Products Co.
Location Oakland, California Project No. 02020 2892 Date drilled 02/01/93
Surface Elev. 28.80 ft. Total Hole Depth 20.5 ft. Diameter 8.5 in.
Top of Casing 28.5 ft. Water Level Initial 8.5 ft. Static 03/26/93 7.62 ft.
Screen: Dia 2 in. Length 15 ft. Type/Size 0.020 in.
Casing: Dia 2 in. Length 5 ft. Type SCH 40 PVC
Filter Pack Material #3 sand Rig/Core Type Mobile B-53/Split Spoon
Drilling Company Kvilhaug Well Drilling Method Hollow Stem Auger Permit # 92366
Driller Rod Furlow Log By S.C. Hurley
Checked By David Kleesattel License No. RG# 5136

See Site Map For Boring Location

COMMENTS:

The well was set at approximately 20.5 feet below grade. the soil cuttings were placed on plastic and was left on site until it could be analyzed and disposed of properly.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0					CL	Surface material-grass and soil Brown silty CLAY
2						
4		146	16 35 50		ML	Light brown clayey SILT (10% silt, slightly moist)
6						
8						Static water level - 3/26/93 *Encountered groundwater at 12:30PM 02/01/93*
10		9.1	16 20 23		CL	
12						
14		2800	22 28 45			Greenish silty SAND (about 50% sand, about 35% silt, about 15% clay (saturated, strong hydrocarbon odor)
16					SM	
18						
20		1050	13 25 48		ML	Light brown sandy SILT (10% clay, saturated, slight petroleum hydrocarbon odor)
22						End of boring at 20.5 feet. Installed groundwater monitoring well.
24						

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well MW-3

Project Chev/3616 San Leandro St. Owner Chevron U.S.A. Products Co.
Location Oakland, California Project No. 02020 2892 Date drilled 02/01/93
Surface Elev. 28.30 ft. Total Hole Depth 20.5 ft. Diameter 8.5 in.
Top of Casing 27.51 ft. Water Level Initial 8.5 ft. Static 03/26/93 7.18 ft.
Screen: Dia 2 in. Length 15 ft. Type/Size 0.020 in.
Casing: Dia 2 in. Length 5 ft. Type SCH 40 PVC
Filter Pack Material #3 sand Rig/Core Type Mobile B-53/Split Spoon
Drilling Company Kvilhaug Well Drilling Method Hollow Stem Auger Permit # 92383
Driller Rod Furlow Log By S.C. Hurley
Checked By David Kleesattel License No. RG# 5136

See Site Map For Boring Location

COMMENTS:

The well wa set at approximately 20.5 feet below grade. The soil cuttingswere placed on plastic and was left on site until it could be analyzed and disposed of properly.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						Surface material- grass and soil
2					CL	Brown silty CLAY (moist)
4						
6		12.3	35 50		ML	Brown clayey SILT (10% fine sand, slightly moist)
8						Static level - 3/26/93
						Encountered groundwater at 9:30AM 02/01/93
10		8.6	38 50		GP	Brown sandy GRAVEL (about 75% gravel, about 20% course sand, about 5% silt, water saturated, no hydrocarbon odor).
12						
14						
16		186	25 38 45		SW	Brown silty SAND (50% coarse sand, 30% fine sand, 20% silt, saturated)
18						
20			22 25 45			No recovery
						End of boring at 20.5 feet. Installed groundwater monitoring well.
22						
24						

Drilling Log

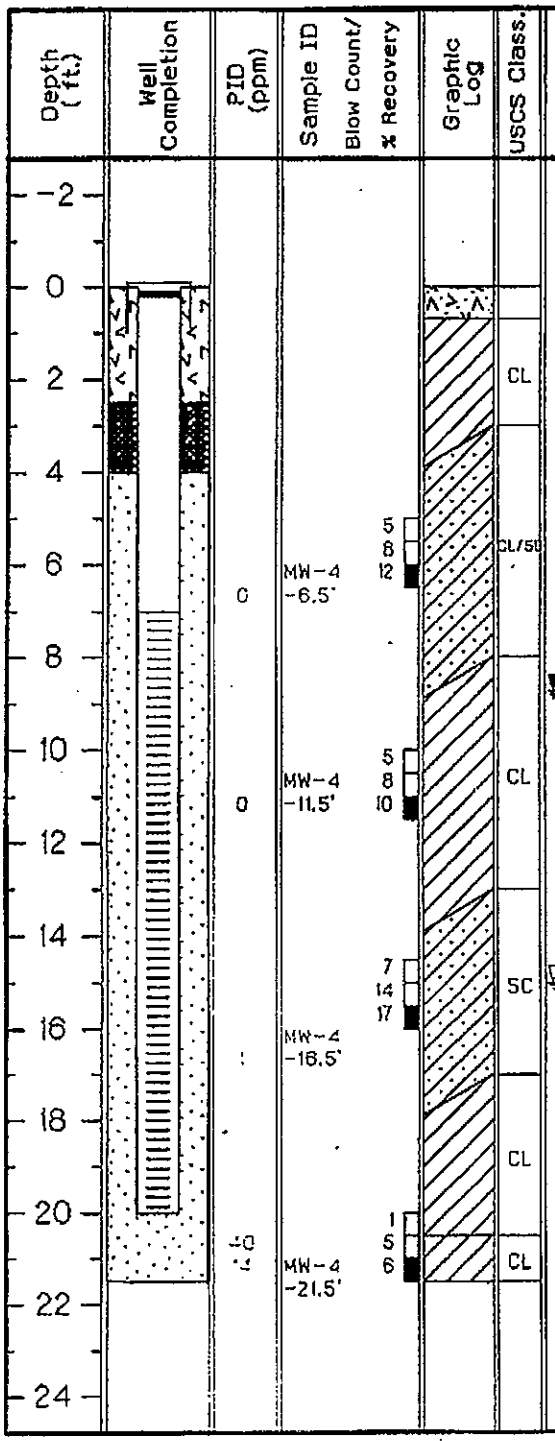
GROUNDWATER TECHNOLOGY

Monitoring Well **MW-4**

Project *Chevron - Oakland* Owner *Chevron USA Products Company*
Location *3616 San Leandro Street, Oakland, CA* Proj. No. *02020 4530*
Surface Elev. *27.68 ft.* Total Hole Depth *21.5 ft.* Diameter *8 in.*
Top of Casing *27.27 ft.* Water Level Initial *15 ft.* Static *8.76 ft.*
Screen: Dia *2 in.* Length *13 ft.* Type/Size *Sch 40 PVC/0.020 in.*
Casing: Dia *2 in.* Length *7 ft.* Type *Sch 40 PVC*
Fill Material *Neat Cement* Rig/Core *CME-55/Modified Split-Spoon*
Drill Co. *SES, Inc.* Method *Hollow Stem Auger/PID*
Driller *Morris Peterson* Log By *Brian McAloon* Date *08/15/95* Permit # *95503*
Checked By *Ed Simonis* License No. *RG#4422* Ed

See Site Map For Boring Location

COMMENTS:



Description

(Color, Texture, Structure)
Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%

8" concrete.

Silty CLAY (15,85): brown, dry.

Pebbly sandy CLAY (20,30,50): brown, dry, no hydrocarbon odor.

Static water, 08/15/95, 1400 hrs.

Pebbly sandy CLAY (10,40,50): brown, dry, no hydrocarbon odor.

Pebbly silty clayey SAND (15,25,30,30): brown, moist, no hydrocarbon odor.

Encountered water (driller's call), 08/15/95, 1255 hrs.

Silty CLAY (40,60): brown, moist, slight hydrocarbon odor.

Pebbly sandy silty CLAY (10,20,20,50): brown with orange and gray mottling, moist, hydrocarbon odor.

End of boring. Installed groundwater monitoring well.

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring SB-1

Project Chevron - Oakland — Owner Chevron USA Products Company
Location 3616 San Leandro Street, Oakland, CA — Proj. No. 02020 4530
Surface Elev. ____ Total Hole Depth 21.5 ft. Diameter 8 in.
Top of Casing ____ Water Level Initial 15 ft. Static 18.35 ft.
Screen: Dia ____ Length ____ Type/Size ____
Casing: Dia ____ Length ____ Type ____
Fill Material Neat Cement — Rig/Core CME-55/Modified Split-Spoon
Drill Co. SES, Inc. — Method Hollow Stem Auger/PID
Driller Morris Peterson — Log By Brian McAloon — Date 08/15/95 — Permit # 95503
Checked By Ed Simonis — License No. RG#4422 EK

See Site Map For Boring Location

COMMENTS:

"GRAB" groundwater samples collected.

Depth (ft.)	PID (ppm)	Sample ID	Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
0					CL	Top soil and weeds. Sandy CLAY (20,80): brown.
2						
4					CL	Pebbly sandy CLAY (5,20,75): brown, dry, no hydrocarbon odor.
6	0	SB-1 -6.5'	8 8 12			
8					SM	Clayey silty pebbly SAND (10,10,20,60): brown, damp, no hydrocarbon odor, grading to clayey sandy pebbly (up to 30mm) SILT (10,10,30,50): brown, dry to damp, no hydrocarbon odor.
10	0	SB-1 -11.5'	8 11 14			
12					ML	
14						
16	9	SB-1 -16.5'	3 4 9		SC	*Encountered water (driller's call), 08/15/95* Pebbly clayey SAND (10,30,60): brown with 5% gray staining along rootlet casts, damp to moist, no hydrocarbon odor.
18						*Static water, 08/15/95, 0953 hrs.*
20					CL	Sandy silty CLAY (10,30,60): light brown with 5% light gray mottling, moist to wet, slight hydrocarbon odor.
22	3.75 170	SB-1 -21.5'	2 4 5			End of boring. Backfilled with grout 08/15/95.
24						

Gettler-Ryan, Inc.

Log of Boring GP-1

PROJECT: *Former Chevron Service Station No. 9-4612*	LOCATION: *3616 San Leandro Street, Oakland, California*
GR PROJECT NO.: *DG94612C.4C02*	SURFACE ELEVATION:
DATE STARTED: *07/03/01*	WL (ft. bgs): DATE: TIME:
DATE FINISHED: *07/03/01*	WL (ft. bgs): DATE: TIME:
DRILLING METHOD: *2 in. Geoprobe (direct push)*	TOTAL DEPTH: *16 feet*
DRILLING COMPANY: *Gregg Drilling*	GEOLOGIST: *Geoff Risse*

DEPTH (feet)	PID (ppm)	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
						Topsoil and coarse gravel – 6 inches thick.	Hand augered to 5 feet.
					CL	CLAY (CL) – dark brown (7.5YR 3/3), moist; 90% clay, 5% sand, 5% gravel.	
3							Boring backfilled with neat cement from the bottom to the ground surface.
6	30	GP1-6 GP1-6G					
						Becomes 95% clay, 5% gravel.	
9	0	GP1-9			SP	POORLY GRADED SAND (SP) – dark brown (7.5YR 3/3), moist; 95% fine to medium sand, 5% silt.	
	0	GP1-11					
12							
15	1413	GP1-15.5 GP1-15.5G				Refusal at 16 feet.	
						Bottom of boring at 16 feet bgs.	
18							
21							

JOB NUMBER: *DG94612C.4C02*

Gettler-Ryan, Inc.

Log of Boring GP-2

PROJECT: *Former Chevron Service Station No. 9-4612*	LOCATION: *3616 San Leandro Street, Oakland, California*
GR PROJECT NO.: *DG94612C.4C02*	SURFACE ELEVATION:
DATE STARTED: *07/03/01*	WL (ft. bgs): DATE: TIME:
DATE FINISHED: *07/03/01*	WL (ft. bgs): DATE: TIME:
DRILLING METHOD: *2 in. Geoprobe (direct push)*	TOTAL DEPTH: *15 feet*
DRILLING COMPANY: *Gregg Drilling*	GEOLOGIST: *Geoff Risse*

DEPTH (feet)	PID (ppm)	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
						Topsoil and coarse gravel – 6 inches thick.	Hand augered to 5 feet.
					CL	CLAY (CL) – dark brown (7.5YR 3/3), moist; 100% clay.	
3					SP	POORLY GRADED SAND (SP) – dark brown (7.5YR 3/3), moist; 90% fine to medium sand, 5% clay, 5% gravel.	Boring backfilled with neat cement from the bottom to the ground surface.
6	0	GP2-6					
					CL	CLAY (CL) – dark brown (7.5YR 3/3), moist; 95% clay, 5% sand.	
9	0	GP2-8.5 GP2-8.5G					
12	20	GP2-12.5 GP2-12.5G				Becomes saturated; 90% clay, 5% sand, 5% gravel.	
15	0	GP2-14.5				Refusal at 15 feet. Bottom of boring at 15 feet bgs.	
18							
21							

JOB NUMBER: *DG94612C.4C02*

Gettler-Ryan, Inc.

Log of Boring GP-3

PROJECT: *Former Chevron Service Station No. 9-4612*	LOCATION: *3616 San Leandro Street, Oakland, California*
GR PROJECT NO.: *DG94612C.4C02*	SURFACE ELEVATION:
DATE STARTED: *07/03/01*	WL (ft. bgs): DATE: TIME:
DATE FINISHED: *07/03/01*	WL (ft. bgs): DATE: TIME:
DRILLING METHOD: *2 in. Geoprobe (direct push)*	TOTAL DEPTH: *15 feet*
DRILLING COMPANY: *Gregg Drilling*	GEOLOGIST: *Geoff Risse*

DEPTH (feet)	PID (ppm)	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
						Topsoil and coarse gravel – 8 inches thick.	Hand augered to 5 feet.
					SP	POORLY GRADED SAND (SP) – dark brown (7.5YR 3/3), moist; 95% fine to medium sand, 5% silt.	Boring backfilled with neat cement from the bottom to the ground surface.
3							
6	11	GP3-5.5					
9	0	GP3-8.5 GP3-8.5G					
12	0	GP3-12.5					
					CL	CLAY (CL) – dark reddish brown (2.5YR 3/4), saturated; 95% clay, 5% sand.	
15	0	GP3-14.5				Refusal at 15 feet. Bottom of boring at 15 feet bgs.	
18							
21							

JOB NUMBER: *DG94612C.4C02*

Gettler-Ryan, Inc.

Log of Boring HA-1

PROJECT: *Former Chevron Service Station No. 9-4612*	LOCATION: *3616 San Leandro Street, Oakland, California*
GR PROJECT NO.: *DG946126.4C01*	SURFACE ELEVATION:
DATE STARTED: *03/05/02*	WL (ft. bgs): DATE: TIME:
DATE FINISHED: *03/05/02*	WL (ft. bgs): DATE: TIME:
DRILLING METHOD: *3 in. Hand Auger*	TOTAL DEPTH: *10 feet*
DRILLING COMPANY: *Gettler-Ryan*	GEOLOGIST: *Geoff Risse*

DEPTH (feet)	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
					Concrete over baserock – 11 inches thick.	
2				CL	CLAY (CL) – dark brown (7.5YR 3/2), moist; 90% clay, 10% fine to medium sand.	Boring backfilled with neat cement from the bottom to ground surface.
4						
6	HA1-5					
8					CLAY WITH SAND (CL) – dark brown (7.5YR 3/2), saturated; 85% clay, 15% sand.	
10	HA1				Bottom of boring at 10 feet bgs.	Grab groundwater sample HA1.
12						
14						

JOB NUMBER: *DG946126.4C01*

Gettler-Ryan, Inc.

Log of Boring HA-2

PROJECT: *Former Chevron Service Station No. 9-4612*	LOCATION: *3616 San Leandro Street, Oakland, California*
GR PROJECT NO.: *DG94612G.4C01*	SURFACE ELEVATION:
DATE STARTED: *03/05/02*	WL (ft. bgs): DATE: TIME:
DATE FINISHED: *03/05/02*	WL (ft. bgs): DATE: TIME:
DRILLING METHOD: *3 in. Hand Auger*	TOTAL DEPTH: *9.5 feet*
DRILLING COMPANY: *Gettler-Ryan*	GEOLOGIST: *Geoff Risse*

DEPTH (feet)	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
					Concrete over baserock – 11 inches thick.	
2				CL	CLAY (CL) – dark brown (7.5YR 3/2), saturated, low plasticity; 90% clay, 10% fine sand.	Boring backfilled with neat cement from the bottom to ground surface.
4						
	HA2-5					
6						
				SC	CLAYEY SAND (SC) – dark brown (7.5YR 3/2), saturated; 85% fine to medium sand, 15% clay.	
8						
	HA2					Grab groundwater sample HA2.
					Bottom of boring at 9.5 feet bgs.	
10						
12						
14						

JOB NUMBER: *DG94612G.4C01*

Gettler-Ryan, Inc.

Log of Boring HA-3

PROJECT: *Former Chevron Service Station No. 9-4612*	LOCATION: *3816 San Leandro Street, Oakland, California*
GR PROJECT NO.: *DG94612G.4C01*	SURFACE ELEVATION:
DATE STARTED: *03/05/02*	WL (ft. bgs): DATE: TIME:
DATE FINISHED: *03/05/02*	WL (ft. bgs): DATE: TIME:
DRILLING METHOD: *3 in. Hand Auger*	TOTAL DEPTH: *10 feet*
DRILLING COMPANY: *Gettler-Ryan*	GEOLOGIST: *Geoff Risse*

DEPTH (feet)	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
					Concrete over base rock – 11 inches thick.	
				CL	CLAY (CL) – light brown (7.5YR 6/3), saturated, low plasticity; 90% clay, 10% fine to medium sand.	
2						Boring backfilled with neat cement from the bottom to ground surface.
4						
	HA3-5					
6						
				SP-SC	SAND WITH CLAY (SP-SC) – light brown (7.5YR 6/3), saturated; 90% fine to medium sand, 10% clay.	
8						
	HA3					Grab groundwater sample HA3
10					Bottom of boring at 10 feet bgs.	
12						
14						

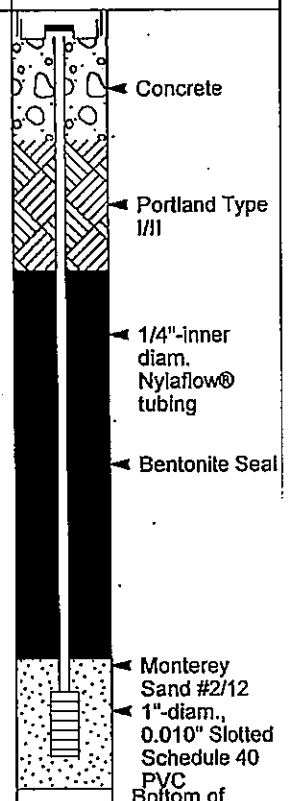
JOB NUMBER: *DG94612G.4C01*

Conestoga-Rovers & Associates
2000 Opportunity Drive, Suite 110
Roseville, CA 95678
Telephone: (916) 677-3407
Fax: (916) 677-3687

BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	BORING/WELL NAME	VP-1
JOB/SITE NAME	9-4612	DRILLING STARTED	28-May-08
LOCATION	3616 San Leandro Street	DRILLING COMPLETED	28-May-08
PROJECT NUMBER	611996	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling & Testing, Inc.	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hand-auger	TOP OF CASING ELEVATION	Not Surveyed
BORING DIAMETER	3-inch	SCREENED INTERVAL	5.25 to 5.75 fbg
LOGGED BY	C. Benedict	DEPTH TO WATER (First Encountered)	NA
REVIEWED BY	B. Carey, PG# 7820	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)
							Concrete	1.0
					GC		Clayey GRAVEL with sand: Brown; moist; 45% gravel, 30% sand, 15% clay, 10% silt; low plasticity; high estimated permeability; 3/4 inch diameter angular gravel.	1.5
					CL		CLAY with sand: Dark grey; moist; 60% clay, 20% sand, 20% silt; medium plasticity; moderate esimated permeability.	
								3.0
0		VP-1-4			CL		Sandy CLAY: Brown; moist; 40% sand, 30% clay, 30% silt; medium plasticity; moderate estimated permeability.	
				5				6.0



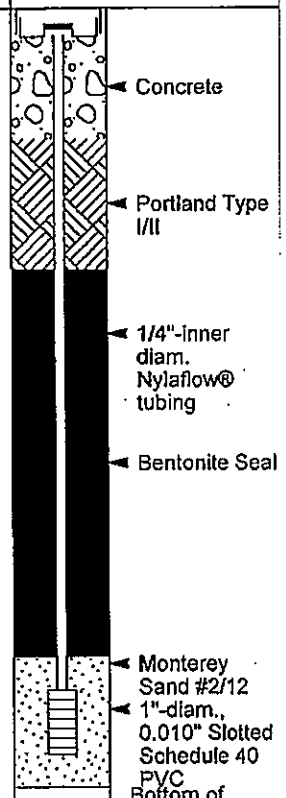
WELL LOG (PID) \\SAC-S11\SHARED\ROCKL~1.CHE\9-4612~1\GINTBO~1\9-4612.GPJ DEFAULT.GDT 8/11/08

Conestoga-Rovers & Associates
2000 Opportunity Drive, Suite 110
Roseville, CA 95678
Telephone: (916) 677-3407
Fax: (916) 677-3687

BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	BORING/WELL NAME	VP-2
JOB/SITE NAME	9-4612	DRILLING STARTED	28-May-08
LOCATION	3616 San Leandro Street	DRILLING COMPLETED	28-May-08
PROJECT NUMBER	611996	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling & Testing, Inc.	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hand-auger	TOP OF CASING ELEVATION	Not Surveyed
BORING DIAMETER	3-inch	SCREENED INTERVAL	5.25 to 5.75 fbg
LOGGED BY	C. Benedict	DEPTH TO WATER (First Encountered)	NA
REVIEWED BY	B. Carey, PG# 7820	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)
							Concrete	1.0
					GC		Clayey GRAVEL with sand: Brown; moist; 40% gravel, 30% sand, 15% clay, 15% silt; low plasticity; high estimated permeability; 3/4 inch diameter angular gravel.	1.5
					CL		CLAY : Dark grey; moist; 60% clay, 25% silt, 15% sand; medium plasticity; moderate estimated permeability.	
							Sandy CLAY: Brown; moist; 45% clay, 30% sand, 25% silt; medium plasticity; moderate estimated permeability.	3.0
0		VP-2-4						
				5				6.0



WELL LOG (PID) \\SAC-S1\SHARED\ROCKLI~1.CHE\9-4612~1\GINTBO~1\9-4612.GPJ DEFAULT.GDT 8/11/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	BORING/WELL NAME	VP-3
JOB/SITE NAME	9-4612	DRILLING STARTED	29-May-08
LOCATION	3616 San Leandro Street	DRILLING COMPLETED	29-May-08
PROJECT NUMBER	611996	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling & Testing, Inc.	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hand-auger	TOP OF CASING ELEVATION	Not Surveyed
BORING DIAMETER	3-inch	SCREENED INTERVAL	5.25 to 5.75 fbg
LOGGED BY	C. Benedict	DEPTH TO WATER (First Encountered)	10.5 fbg (29-May-08)
REVIEWED BY	B. Carey, PG# 7820	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)
							Concrete	1.0
					GC		Clayey GRAVEL with sand: Brown; moist; 40% gravel, 30% sand, 15% clay, 15% silt; low plasticity; high estimated permeability; 3/4 inch diameter angular gravel.	1.5
					CL		CLAY with sand: Dark grey; moist; 70% clay, 20% sand, 10% silt; medium plasticity; moderate estimated permeability.	
0		VP-3-4						
								4.0
							CLAY with sand: Brown; moist; 60% clay, 25% sand, 15% silt; medium plasticity; moderate estimated permeability.	
				5				
					CL			
0		VP-3-8						
				10				
								▽ 10.5
					GC		Clayey GRAVEL with sand: Brown; wet; 40% gravel, 20% sand, 25% clay, 15% silt; low plasticity; high estimated permeability; 1/4 inch diameter angular gravel.	
0		VP-3-12						12.0

WELL DIAGRAM

- Concrete
- Portland Type I/II
- 1/4"-inner diam. Nylaflow® tubing
- Bentonite Seal
- Monterey Sand #2/12
- 1"-diam., 0.010" Slotted Schedule 40 PVC
- Bentonite Seal
- Bottom of Boring @ 12 fbg

WELL LOG (PID) \\SAC-S1\SHARED\ROCKLI~1.CHE\9-4612~1\GINTBO~1\9-4612.GPJ DEFAULT.GDT 8/11/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	BORING/WELL NAME	VP-4
JOB/SITE NAME	9-4612	DRILLING STARTED	29-May-08
LOCATION	3616 San Leandro Street	DRILLING COMPLETED	29-May-08
PROJECT NUMBER	611996	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling & Testing, Inc.	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hand-auger	TOP OF CASING ELEVATION	Not Surveyed
BORING DIAMETER	3-inch	SCREENED INTERVAL	5.25 to 5.75 fbg
LOGGED BY	C. Benedict	DEPTH TO WATER (First Encountered)	10.5 fbg (29-May-08)
REVIEWED BY	B. Carey, PG# 7820	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)
							Concrete	1.0
					GC		Clayey GRAVEL with sand: Brown; moist; 40% gravel, 30% sand, 15% clay, 15% silt; low plasticity; high estimated permeability; 3/4 inch diameter angular gravel.	1.5
							CLAY: Brown; moist; 70% clay, 20% silt, 10% sand; high plasticity; low estimated permeability.	
0		VP-4-4			CL			
				5				
							Sandy CLAY: Brown; moist; 45% clay, 30% sand, 25% silt; medium plasticity; moderate estimated permeability.	7.0
0		VP-4-8			CL			
							Rocks encountered- difficult hand-augering.	
				10			▽	10.5
					GC		Clayey GRAVEL with sand: Brown; wet; 40% gravel, 20% sand, 25% clay, 15% silt; low plasticity; high estimated permeability; 1/4 inch diameter angular gravel.	
0		VP-4-11.5						11.5

WELL DIAGRAM

- Concrete
- Portland Type I/II
- 1/4"-inner diam. Nylaflow® tubing
- Bentonite Seal
- Monterey Sand #2/12
- 1"-diam., 0.010" Slotted Schedule 40 PVC
- Bentonite Seal
- Bottom of Boring @ 11.5 fbg

WELL LOG (PID) \\SAC-S1\SHARED\ROCKLI~1.CHE\9-4612~1\GINTBO~1\9-4612.GPJ DEFAULT.GDT 8/11/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	BORING/WELL NAME	SB-2
JOB/SITE NAME	9-4612	DRILLING STARTED	28-May-08
LOCATION	3616 San Leandro Street	DRILLING COMPLETED	28-May-08
PROJECT NUMBER	611996	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling & Testing, Inc.	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hand-auger	TOP OF CASING ELEVATION	Not Surveyed
BORING DIAMETER	3-inch	SCREENED INTERVAL	NA
LOGGED BY	C. Benedict	DEPTH TO WATER (First Encountered)	10.5 fbg (28-May-08) ▽
REVIEWED BY	B. Carey, PG# 7820	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
					GC		Clayey GRAVEL with sand: Brown; moist; 45% gravel, 30% sand, 15% clay, 10% silt; low plasticity; high estimated permeability; 3/4 inch diameter angular gravel.	1.5	
							CLAY with sand: Dark grey; moist; 70% clay, 20% sand, 10% silt; high plasticity; low estimated permeabilty; fine-medium grained sand.		
0		SB-2-4			CL				
				5					
								6.0	Portland Type I/II
							Sandy CLAY: Brown; moist; 50% clay, 40% sand, 10% silt; medium plasticity; moderate estimated permeability; firm; coarse grained sand.		
0		SB-2-8			CL				
				10				10.0	
					SC		Sandy CLAY: Light brown; moist; 60% clay, 35% sand, 5% gravel; medium plasticity; moderate estimated permeability; fine grained sand; 1/2-1 inch diameter gravel. ▽	11.0	
0		SB-2-12			GC		Clayey GRAVEL with sand: Brown; wet; 40% gravel, 20% sand, 20% clay, 20% silt; low plasticity; high estimated permeability; 1/4 inch diameter angular gravel.	12.0	Bottom of Boring @ 12 fbg

WELL LOG (PID) 1:\SAC-S1\SHARED\ROCKLI~1.CHE\9-4612~1\GINTBO~1\9-4612.GPJ DEFAULT.GDT 8/11/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	BORING/WELL NAME	SB-3
JOB/SITE NAME	9-4612	DRILLING STARTED	29-May-08
LOCATION	3616 San Leandro Street	DRILLING COMPLETED	29-May-08
PROJECT NUMBER	611996	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling & Testing, Inc.	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hand-auger	TOP OF CASING ELEVATION	Not Surveyed
BORING DIAMETER	3-inch	SCREENED INTERVAL	NA
LOGGED BY	C. Benedict	DEPTH TO WATER (First Encountered)	10.5 fbg (29-May-08) ▽
REVIEWED BY	B. Carey, PG# 7820	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
							Concrete	1.0	Concrete
					GC		Clayey GRAVEL with sand: Dark grey; moist; 45% gravel, 30% sand, 15% clay, 10% silt; low plasticitiy; high estimated permeability; 3/4 inch diameter angular gravel.	1.5	
							CLAY with sand: Dark grey; moist; 70% clay, 20% sand, 10% silt; medium plasticity; low estimated permeability..		
0		SB-3-4			CL				
				5			Sandy CLAY: Brown; moist; 50% clay, 40% sand, 10% silt; medium plasticity; moderate estimated permeability.	5.0	
0		SB-3-8			CL				Portland Type I/II
								9.5	
				10	SC		Clayey SAND: Brown; moist; 45% sand, 30% clay, 15% silt, 10% gravel; low plasticity; high estimated permeability.		
							▽	10.5	
					GC		Clayey GRAVEL with sand: Light brown; wet; 40% gravel, 20% sand, 20% clay, 20% silt; low plasticity; high estimated permeability; 1/4 inch diameter angular gravel.		
0		SB-3-12						12.0	Bottom of Boring @ 12 fbg

WELL LOG (PID) \\SAC-S1\SHAREDROCKLI~1.CHE\9-4612~1\GINTBO~1\9-4612.GPJ DEFAULT.GDT 8/11/08

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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	BORING/WELL NAME	SB-4
JOB/SITE NAME	9-4612	DRILLING STARTED	29-May-08
LOCATION	3616 San Leandro Street	DRILLING COMPLETED	29-May-08
PROJECT NUMBER	611996	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling & Testing, Inc.	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hand-auger	TOP OF CASING ELEVATION	Not Surveyed
BORING DIAMETER	3-inch	SCREENED INTERVAL	NA
LOGGED BY	C. Benedict	DEPTH TO WATER (First Encountered)	10.5 fbg (29-May-08) ▽
REVIEWED BY	B. Carey, PG# 7820	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)
							Concrete	1.0
					GC		Clayey GRAVEL with sand: Brown; moist; 40% gravel, 30% sand, 15% clay, 15% silt; low plasticity; high estimated permeability; 3/4 inch diameter angular gravel.	1.5
					CL		CLAY with sand: Dark grey; moist; 70% clay, 20% sand, 10% silt; medium plasticity; moderate estimated permeability.	
0		SB-4-4						4.0
							Sandy CLAY: Brown; moist; 45% clay, 30% sand, 25% silt; medium plasticity; moderate estimated permeability.	
				5				
					CL			
0		SB-4-8						
				10				▽ 10.5
					GC		Clayey GRAVEL with sand: Brown; wet; 40% gravel, 20% sand, 20% clay, 20% silt; low plasticity; high estimated permeability; 1/4 inch diameter angular gravel.	
0		SB-4-11.5						12.0

WELL DIAGRAM: Bottom of Boring @ 12 fbg

WELL LOG (PID) \\SAC-S1\SHAREDROCKL\-1.CHE\9-4612~1\GINTBO~1\9-4612.GPJ DEFAULT.GDT 8/11/08

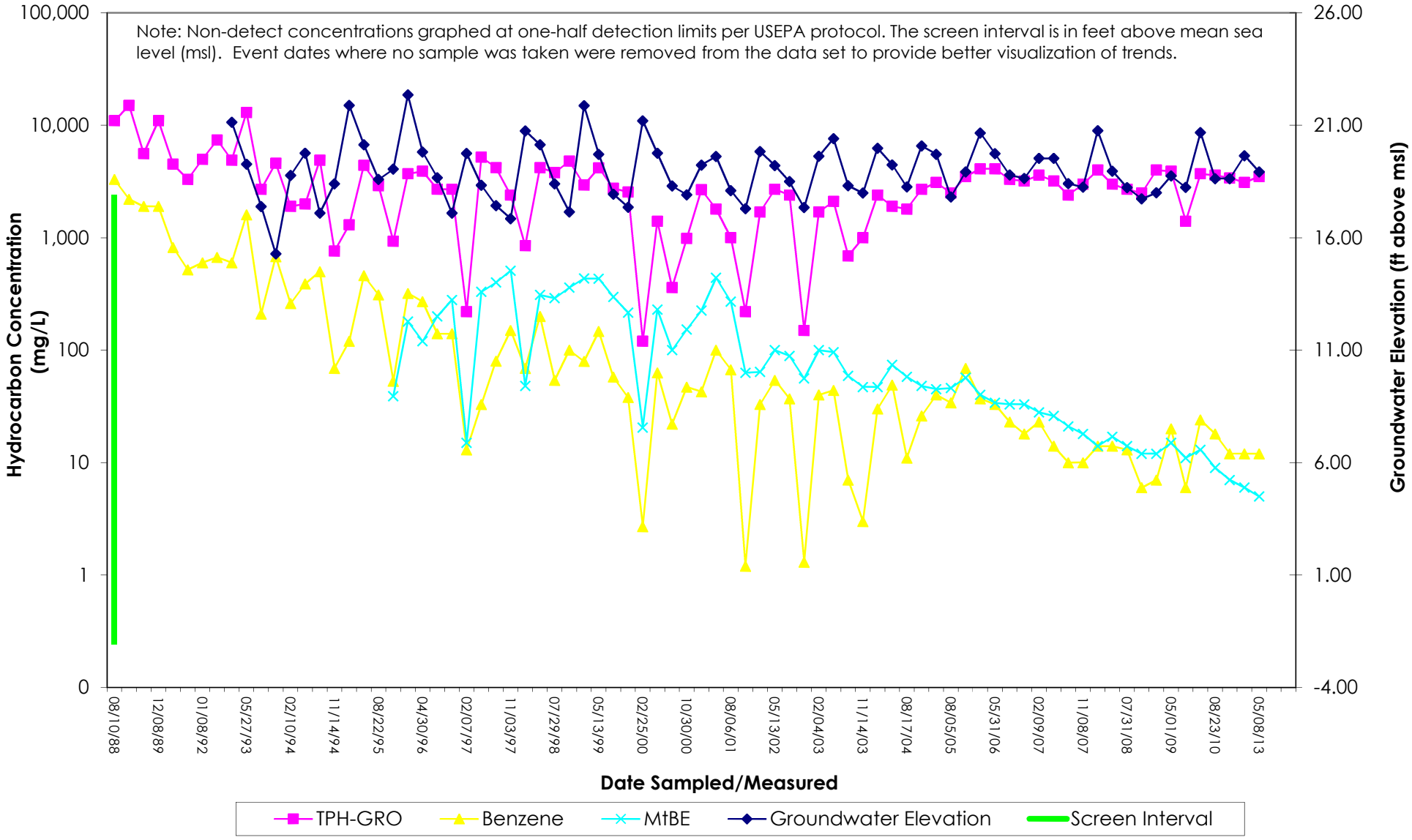
APPENDIX D
Hydrographs

VH-1 TPH-GRO, Benzene, & MtBE Concentrations and Groundwater Elevations vs. Time

Former Chevron-branded Service Station 94612

3616 San Leandro Street

Oakland, California

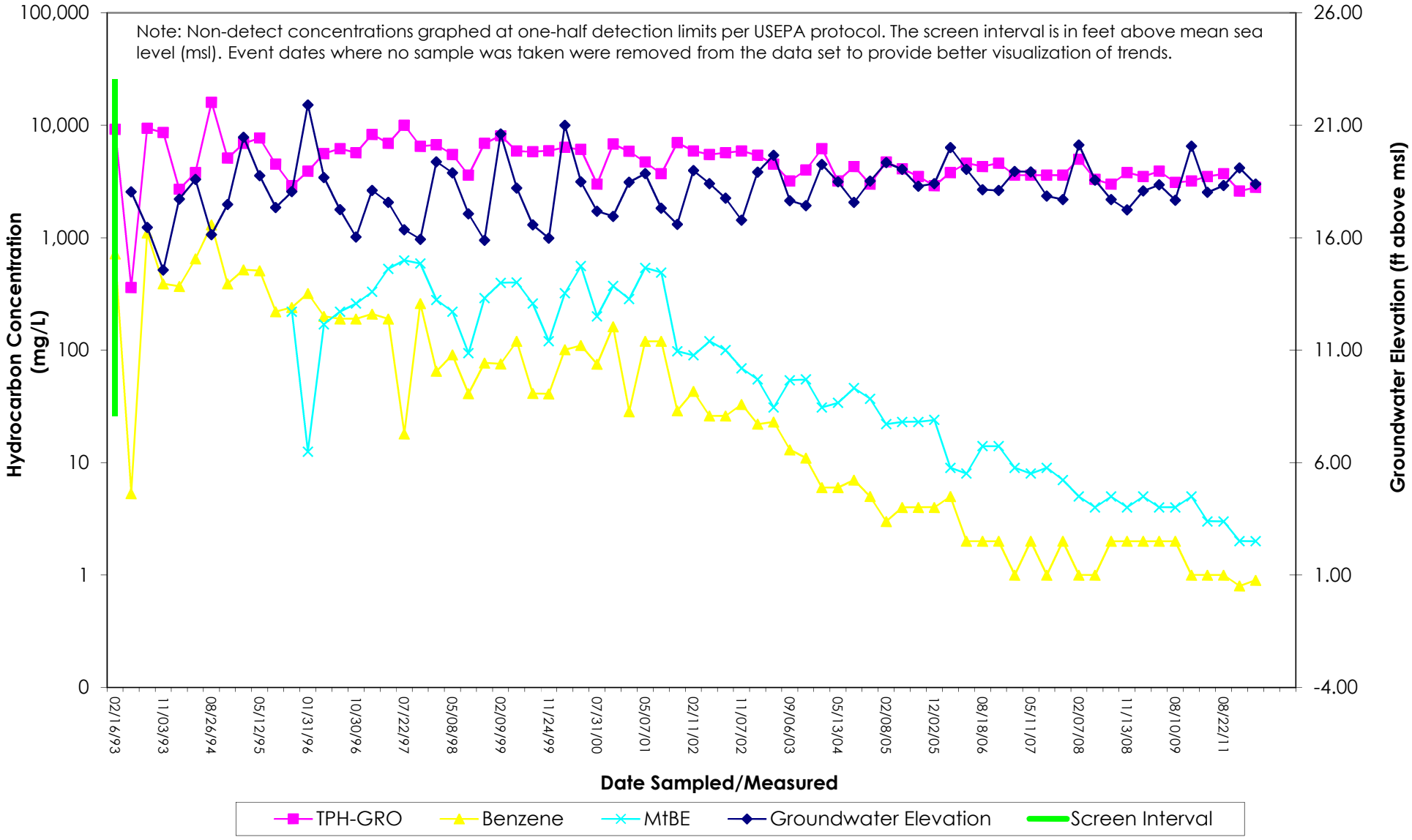


MW-2 TPH-GRO, Benzene, & MtBE Concentrations and Groundwater Elevations vs. Time

Former Chevron-branded Service Station 94612

3616 San Leandro Street

Oakland, California

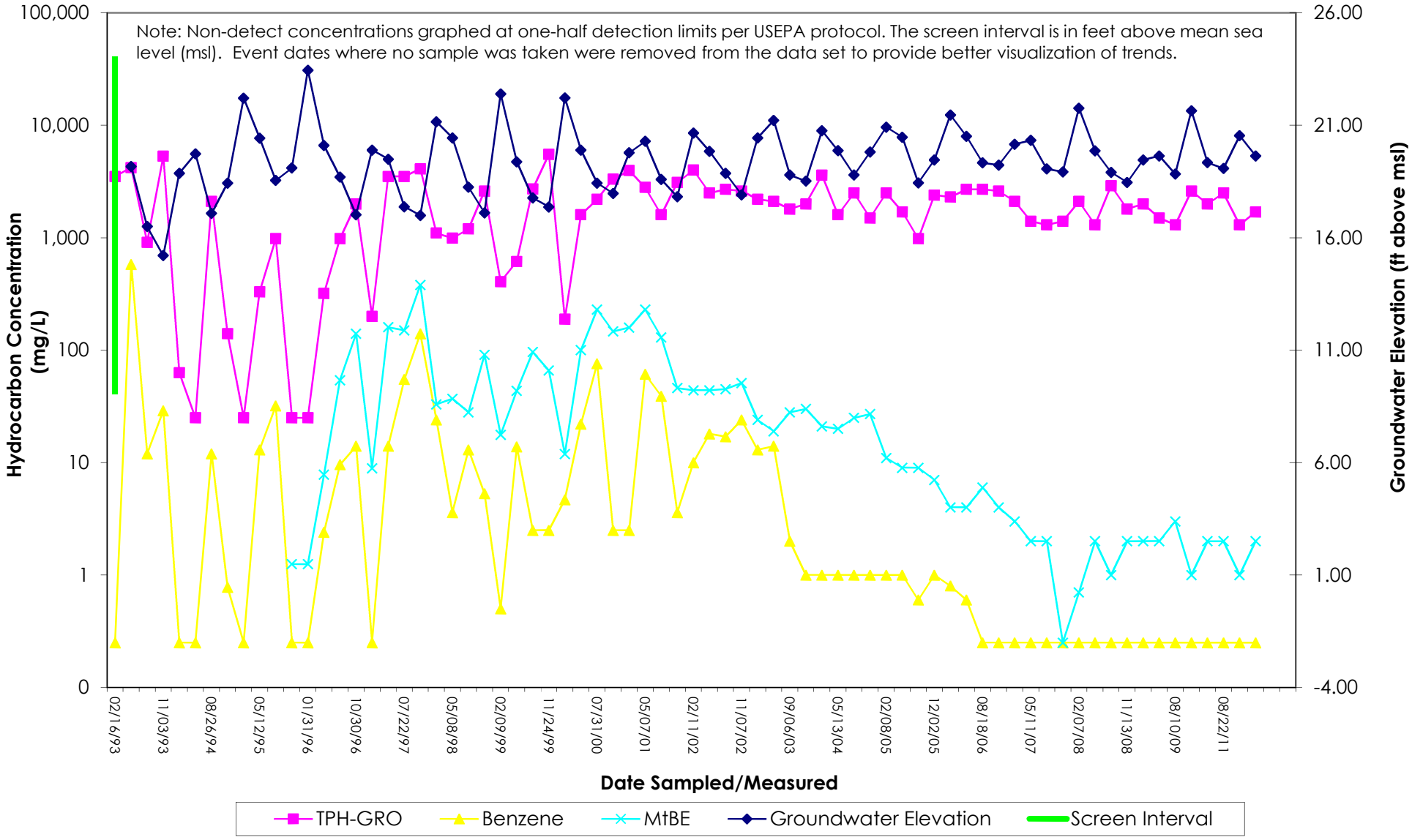


MW-3 TPH-GRO, Benzene, & MtBE Concentrations and Groundwater Elevations vs. Time

Former Chevron-branded Service Station 94612

3616 San Leandro Street

Oakland, California

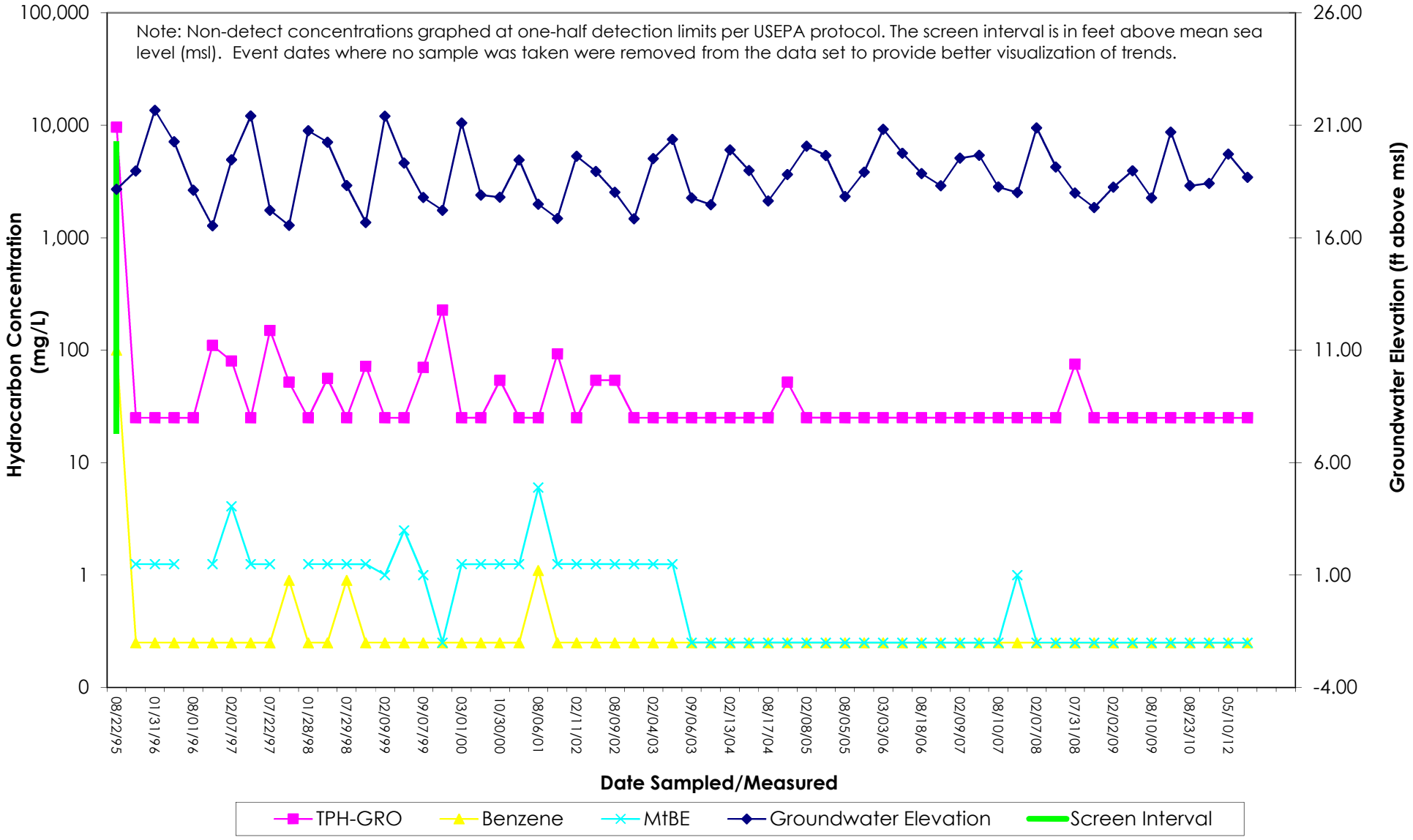


MW-4 TPH-GRO, Benzene, & MtBE Concentrations and Groundwater Elevations vs. Time

Former Chevron-branded Service Station 94612

3616 San Leandro Street

Oakland, California



APPENDIX E
SWRCB LTCP Checklist

Site Name: Former Chevron-branded Service Station 94612
Site Address: 3616 San Leandro Street, Oakland, California

Site meets the criteria of the Low-Threat Underground Storage Tank (UST) Case Closure Policy as described below.[1]

General Criteria General criteria that must be satisfied by all candidate sites:	
Is the unauthorized release located within the service area of a public water system?	☒ Yes ☐ No
Does the unauthorized release consist only of petroleum?	☒ Yes ☐ No
Has the unauthorized ("primary") release from the UST system been stopped?	☒ Yes ☐ No
Has free product been removed to the maximum extent practicable?	☐ Yes ☐ No ☒ NA
Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?	☒ Yes ☐ No
Has secondary source been removed to the extent practicable?	☒ Yes ☐ No
Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?	☒ Yes ☐ No
Does nuisance as defined by Water Code section 13050 exist at the site?	☐ Yes ☒ No
Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?	☐ Yes ☒ No
Media-Specific Criteria Candidate sites must satisfy all three of these media-specific criteria: **1. Groundwater:** To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites:	
Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?	☒ Yes ☐ No ☐ NA
Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites? If YES, check applicable class: ☐ **1** ☐ **2** ☐ **3** ☐ **4** ☐ **5**	☐ Yes ☒ No ☐ NA

[1] Refer to the Low-Threat Underground Storage Tank Case Closure Policy for closure criteria for low-threat petroleum UST sites.

For sites with releases that have not affected groundwater, do mobile constituents (leachate, vapors, or light non-aqueous phase liquids) contain sufficient mobile constituents to cause groundwater to exceed the groundwater criteria?	☐ Yes ☐ No ☒ NA
2. Petroleum Vapor Intrusion to Indoor Air: The site is considered low-threat for vapor intrusion to indoor air if site-specific conditions satisfy all of the characteristics of one of the three classes of sites (a through c) or if the exception for active commercial fueling facilities applies. **Is the site an active commercial petroleum fueling facility?** Exception: Satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk. **a. Do site-specific conditions at the release site satisfy all of the applicable characteristics and criteria of scenarios 1 through 3 or all of the applicable characteristics and criteria of scenario 4?** If YES, check applicable scenarios: ☐ **1** ☐ **2** ☐ **3** ☒ **4** **b. Has a site-specific risk assessment for the vapor intrusion pathway been conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency?** **c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health?**	☐ Yes ☒ No ☒Yes ☐ No ☐ NA ☐ Yes ☐ No ☒ NA ☐ Yes ☐ No ☒ NA
3. Direct Contact and Outdoor Air Exposure: The site is considered low-threat for direct contact and outdoor air exposure if site-specific conditions satisfy one of the three classes of sites (a through c). **a. Are maximum concentrations of petroleum constituents in soil less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs)?** **b. Are maximum concentrations of petroleum constituents in soil 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, has the regulatory agency determined that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health?**	☒ Yes ☐ No ☐ NA ☐ Yes ☐ No ☒ NA ☐ Yes ☐ No ☒ NA