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August 16, 2013

Mr. Mark Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 95402

Dear Mr. Detterman:

Attached for your review is the *Site Conceptual Model and Data Gap Work Plan* for former Chevron-branded service station 92029, located at 890 West MacArthur Boulevard in Oakland, California (Case #: RO0002438). 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,

A handwritten signature in blue ink that reads "Carryl MacLeod".

Carryl MacLeod
Project Manager



Stantec

**Site Conceptual Model and Data
Gap Work Plan**

**Former Chevron-branded Service
Station 92029
890 West MacArthur Boulevard
Oakland, California
Case #: RO0002438**

Submitted to:

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

Prepared for:

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Company
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Submitted by:

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August 16, 2013

SITE CONCEPTUAL MODEL AND DATA GAP WORK PLAN

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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 92029, which was located at 890 West MacArthur Boulevard, Oakland, Alameda County, California (the Site - shown on **Figure 1**). This report was prepared at the request of Alameda County Environmental Health (ACEH) in a letter dated May 21, 2013. The ACEH correspondence is presented 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;
- Data gap work plan; and
- Path to closure schedule.

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2.0 Site Background

2.1 SITE DESCRIPTION AND LAND USE

The Site is a former Chevron-branded service station located on the northeast corner at the intersection of West MacArthur Boulevard and Market Street in Oakland, California. The Site is currently a fenced vacant lot. A former Chevron-branded service station operated at the Site from approximately 1956 to 2004. Prior to 1970, Site features consisted of two 5,000-gallon and one 3,000-gallon gasoline underground storage tanks (USTs) located in the eastern portion of the Site, three fuel dispensers (one located in the northwestern portion of the Site and two located in the central portion of the Site), associated product piping, a station building with two hydraulic hoists, and a waste oil UST (unknown size) located in the northern portion of the Site. The product piping was replaced in 1970, and the 3,000-gallon UST was replaced with a 10,000-gallon UST sometime before 1978. In 1982, the two 5,000-gallon and one 10,000-gallon USTs were replaced with three 10,000-gallon fiberglass USTs. In 1984, the service station building was demolished, the hydraulic hoists were removed, and a kiosk was installed near the center of the Site. In addition, the three fuel dispensers were removed from the Site and replaced with five fuel dispensers (two located in the north-central portion of the Site and three located in the south-central portion of the Site). The fuel dispensers were replaced and the USTs were upgraded in 1997. The waste oil UST was removed from the Site sometime between 1984 and 1997. In 2005, the service station was closed and all Site structures, including the three 10,000-gallon fiberglass USTs and fuel dispensers, were removed. Extensive over-excavation was performed at this time and approximately 5,135 tons of impacted soil and 25,500 gallons of groundwater were removed and disposed off Site (Conestoga-Rovers & Associates [CRA], 2011). 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 north by a residential area, on the west by Market Street followed by a small grocery store and associated parking, on the south by West MacArthur Boulevard followed by a tire sales and service shop, and to the east by a small hotel.

2.2 REGIONAL AND LOCAL GEOLOGY AND HYDROGEOLOGY

Based on previous Site assessment activities and available boring logs, the subsurface beneath the Site consists primarily of clay containing varying amounts of silt, sand, and gravel to approximately 21 to 22 feet below ground surface (bgs), underlain by well and poorly graded sands to the total depth explored of 25 feet bgs. Silt, clay, sand, and gravel mixtures were observed off Site to a total logged depth of 34 feet bgs. Soil boring and well construction logs are included in **Appendix B**.

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Well construction details are presented in **Table 1**. Current and historical groundwater elevation data are presented in **Table 2**. The historical range of depth-to-groundwater (DTW) measurements is approximately 3 to 13 feet below top of casing (TOC). During Second Quarter 2013, DTW measurements for the Site ranged from 7.21 to 12.03 feet below TOC. A groundwater elevation contour map (based on Second Quarter 2013 data) is shown on **Figure 3**. During Second Quarter 2013, the direction of groundwater flow at the time of sampling was generally towards the southwest at an approximate hydraulic gradient ranging from 0.025 to 0.030 feet per foot (ft/ft). This is generally consistent with the historical direction of groundwater flow, as shown by the Rose Diagram on **Figure 4**, illustrating the direction of groundwater flow from Second Quarter 2011 to Second Quarter 2013 (five events) (Stantec, 2013).

2.3 PREVIOUS INVESTIGATIONS AND REMEDIATION

Historical groundwater monitoring data and analytical results are summarized in **Table 2**, **Table 3**, and **Table 4**. Historical soil analytical results are summarized in **Table 5**. Locations of soil borings and monitoring wells are shown on **Figure 2**. Soil boring and well construction logs are included in **Appendix B**. Locations of historic soil samples collected during replacement of the fuel dispensers and gasoline UST upgrades in 1997 and removal of all remaining fueling features and associated over-excavation in 2005 are shown on historical Site Plans included in **Appendix C**.

In 1970, product piping was replaced, and a 3,000-gallon gasoline UST was replaced with a 10,000-gallon gasoline UST sometime before 1978 (CRA, 2011). 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.

In April 1981, Smith & Denison conducted tank integrity tests at the Site. Test results indicated the USTs were corroded; however, no holes were observed along the surface of the tanks. Two on-site soil borings were advanced to a total depth of 12 feet bgs. Two soil samples were collected from each boring and petroleum hydrocarbons were detected in three of the four soil samples collected. Groundwater was encountered in one boring at approximately 12 feet bgs (Cambria Environmental Technology, Inc. [Cambria], 2006a). Further documentation on this assessment could not be found and the names and locations of the borings are unknown and not shown on **Figure 2**. In addition, soil analytical data could not be found and is not included in **Table 5**.

In March and April 1982, product piping, two 5,000 gallon steel gasoline USTs, and one 10,000-gallon fiberglass UST were replaced with three 10,000-gallon fiberglass USTs. The new USTs were installed in the former UST pit, which was extended to the east to accommodate the larger tanks (Gettler-Ryan Inc. [G-R], 2000; CRA, 2011). 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.

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In 1984, two hydraulic hoists were removed from the Site and three fuel dispensers (one located in the northwestern portion of the Site and two located in the central portion of the Site) were removed and replaced with five fuel dispensers (two located in the north-central portion of the Site and three located in the south-central portion of the Site) (CRA, 2011). 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.

Between 1984 and 1997, the waste oil UST (unknown size) was removed from the Site (CRA, 2011). 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.

In March 1991, a strong petroleum hydrocarbon odor was observed in the service station building. Subsequently, Environmental Health Consultants conducted ambient air monitoring at the Site. Sampling results indicated that petroleum hydrocarbons were present in air and were entering the service station from the crawl space beneath the building. Photoionization detector (PID) readings averaged between 100 and 150 parts per million (ppm) and the maximum PID reading was reported at 505 ppm. Laboratory analytical results indicated the presence of total petroleum hydrocarbons as gasoline range organics (TPH-GRO) in air at approximately 100 ppm and benzene at less than 1 ppm (CRA, 2011).

In February 1997, G-R oversaw replacement of the fuel dispensers and gasoline UST upgrades. During replacement of the fuel dispensers, soil in the immediate vicinity of each dispenser was excavated. Each excavation was approximately 12 feet long, 10 feet wide, and 2.5 feet deep (approximately 11 cubic yards). Five soil samples (S1 through S5) were collected from the bottom of the dispenser excavations at approximately 3 feet bgs. In addition, one soil sample (S6) was collected from the northern sidewall of the gasoline UST pit at approximately 3 feet bgs. Maximum concentrations of TPH-GRO, benzene, and methyl *tertiary*-butyl ether (MtBE) in these samples (38 milligrams per kilogram [mg/kg], 0.63 mg/kg and 0.62 mg/kg, respectively) were detected in soil sample S5. Approximately 162 cubic yards of soil and 7,800 gallons of groundwater were removed during these activities and disposed off Site (G-R, 1997).

In October 2000, G-R oversaw advancement of 10 on-site soil borings (B-1 through B-10) to total depths ranging from 16.5 to 19 feet bgs. Petroleum hydrocarbons were not detected above laboratory reporting limits (LRLs) in any of the soil samples collected from borings B-4 through B-8. Maximum concentrations of TPH-GRO, benzene, and MtBE in soil collected from the remaining borings (930 mg/kg, 6.7 mg/kg, and 13 mg/kg, respectively) were detected in boring B-3 at 11 feet bgs. Maximum concentrations of TPH-GRO and benzene in grab groundwater (33,000 micrograms per liter [$\mu\text{g/L}$] and 1,200 $\mu\text{g/L}$, respectively) were detected in the sample collected from boring B-3 at 13.1 feet bgs, while the maximum concentration of MtBE (820 $\mu\text{g/L}$) was detected in boring B-1 at 13.1 feet bgs) (G-R, 2000).

In March 2002, G-R oversaw installation of four on-site groundwater monitoring wells (MW-1 through MW-4) to a total depth of 25 feet bgs. Petroleum hydrocarbons were not detected

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above LRLs in any of the soil samples collected from boreholes MW-1 and MW-2. Maximum concentrations of TPH-GRO and benzene in soil collected from the remaining boreholes (240 mg/kg and 0.22 mg/kg, respectively) were detected in borehole MW-3 at 4.5 and 14.5 feet bgs, respectively. MtBE was only detected in the sample collected from borehole MW-4 at 4 feet bgs, at a concentration of 0.23 mg/kg (G-R, 2002).

In April 2005, the service station was demolished and the gasoline USTs, fuel dispensers, and associated product piping were removed. During removal of the gasoline USTs, five soil samples (EX1 through EX5) were collected from the sidewalls of the gasoline UST excavation at approximately 10 feet bgs. Of these samples, petroleum hydrocarbons were only detected in soil sample EX2, where a TPH-GRO concentration of 1.8 mg/kg was observed. Benzene and MtBE were not detected above LRLs in soil sample EX2. During removal of the fuel dispensers and product piping, 17 soil samples (EX6 through EX22) were collected from the bottom of the dispenser and product piping excavations at approximately 3.5 feet bgs. The maximum concentration of TPH-GRO in these samples (370 mg/kg) was detected in soil sample EX17, while the maximum concentration of benzene (0.35 mg/kg) was detected in soil sample EX22. MtBE was only detected in soil sample EX21, at a concentration of 0.37 mg/kg (Cambria, 2005a).

In April and May 2005, the majority of the Site, including the area around the former USTs and fuel dispensers was over-excavated to a depth of 12 feet bgs. During excavation, 41 confirmation soil samples (EX23 through EX63) were collected from the bottom and sidewalls of the excavation. As shown on the Site Plans in **Appendix C**, soil samples EX23, EX36, EX37, EX39, EX47, EX50, EX51, EX55, EX56, EX59, EX60, EX62, and EX63 were sidewall samples, while the remainder of soil samples were bottom samples. The soil represented by samples collected from the bottom of the excavation at depths shallower than 12 feet bgs was removed during excavation. This includes soil represented by samples EX24 through EX31, EX42 through EX44, EX49, EX52, and EX54. In addition, the soil represented by previously collected samples S1 through S6, EX2 through EX4, and EX6 through EX22 and borings B-1 through B-3, B-9, and B-10 was removed. The maximum concentration of TPH-GRO in soil that wasn't removed (450 mg/kg) was detected in soil sample EX36 at a depth of 9 feet bgs, while maximum concentrations of benzene and MtBE (0.66 mg/kg and 0.21 mg/kg, respectively) were detected in soil sample EX38 at 12 feet bgs. Approximately 5,134 tons of soil and 25,486 gallons of groundwater were removed during excavation activities and disposed off Site (Cambria, 2005b).

In March 2006, Cambria advanced seven off-site soil borings (SB-1 through SB-7) and two on-site soil borings (SB-8 and SB-9) to total depths ranging from 16 to 44 feet bgs. Soil samples were not collected for laboratory analysis during this investigation. Maximum concentrations of TPH-GRO and benzene in grab groundwater (2,700 µg/L and 34 µg/L, respectively) were detected in boring SB-2 at a depth of 20 feet bgs, while the maximum concentration of MtBE (210 µg/L) was detected in boring SB-9 at 23 feet bgs (Cambria, 2006a).

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The boring logs for SB-8 and SB-9 were not included in the report documenting this investigation and are therefore not included in **Appendix B**.

In September 2006, Cambria oversaw the destruction of wells MW-1 through MW-4 to facilitate previously planned Site redevelopment (Cambria, 2006b).

In July 2008, CRA oversaw installation of four off-site monitoring wells (MW-5 through MW-8) to a total depth of 25 feet bgs. Petroleum hydrocarbons were not detected above LRLs in any of the soil samples collected from borehole MW-8. The maximum concentration of TPH-GRO in soil in the remaining boreholes (260 mg/kg) was detected in borehole MW-5 at 5 feet bgs, the maximum concentration of benzene (0.21 mg/kg) was detected in borehole MW-7 at 10 feet bgs, and the maximum concentration of MtBE (0.07 mg/kg) was detected in borehole MW-6 at 10 feet bgs (CRA, 2008).

In January 2011, CRA advanced one off-site soil boring (SB-10) to a total depth of 20 feet bgs. TPH-GRO and MtBE were not detected above LRLs in any of the soil samples collected during this investigation. Benzene was only detected in the soil sample collected from 19.5 feet bgs, at a concentration of 0.0006 mg/kg. TPH-GRO and benzene were not detected above LRLs in the groundwater sample collected from the boring (collected by installing a temporary well casing in the boring and using low-flow sampling procedures), while MtBE was detected at a concentration of 4 µg/L (CRA, 2011).

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3.0 Extent of Petroleum Hydrocarbons

3.1 VERTICAL EXTENT OF PETROLEUM HYDROCARBONS

3.1.1 Vertical Extent of Petroleum Hydrocarbons in Soil

The majority of petroleum hydrocarbon-impacted soil across the Site appears to have been from approximately 3 to 9 feet bgs, with detections between 10 and 15 feet bgs in isolated areas. Soil removed during the 2005 excavation activities extended to approximately 12 feet bgs and likely removed the majority of shallow soil contamination, except for areas near the property boundaries due to concerns of excavation sidewall stability. Historical soil sample analytical results are presented in **Table 5**. Soil analytical results are compared to California Regional Water Quality Control Board – San Francisco Bay Region (RWQCB) Environmental Screening Levels (ESLs) for residential land use (RWQCB, 2013).

The vertical extent of petroleum hydrocarbons in soil appears to be defined. The deepest soil samples were collected on Site at 24.5 feet bgs from boreholes MW-1 through MW-4. All constituents of concern (COCs) analyzed in these samples were below LRLs.

3.1.2 Vertical Extent of Petroleum Hydrocarbons in Groundwater

Soil impacts extend vertically to groundwater. DTW at the Site has historically ranged from approximately 3 to 13 feet below TOC.

3.2 LATERAL EXTENT OF PETROLEUM HYDROCARBONS

3.2.1 Lateral Extent of Petroleum Hydrocarbons in Soil

The lateral extent of petroleum hydrocarbons in soil is defined by petroleum hydrocarbon concentrations below LRLs or ESLs in soil that was not removed. The lateral extent appears defined to the north and east by boreholes MW-1 and MW-2, borings B-4 through B-8, and soil samples S6, EX1, and EX5, and to the southwest by borehole MW-8 and boring SB-10.

The lateral extent of petroleum hydrocarbons in soil does not appear defined to the southeast of boreholes MW-3, MW-6, and MW-7 and to the west of boreholes MW-4 and MW-5 due to historical detections of petroleum hydrocarbons above ESLs.

3.2.2 Lateral Extent of Petroleum Hydrocarbons in Groundwater

Current and historical groundwater analytical results are included in **Table 2**, **Table 3**, and **Table 4**. A figure showing the Second Quarter 2013 groundwater analytical data plotted on a Site map is included as **Figure 5**. During Second Quarter 2013, concentrations of TPH-GRO,

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benzene, and MtBE exceeded ESLs for groundwater that is a potential source of drinking water as follows:

- TPH-GRO concentrations exceeded the ESL of 100 µg/L in wells MW-5, MW-6, and MW-7;
- Benzene concentrations exceeded the ESL of 1 µg/L in wells MW-5, MW-6, and MW-7; and
- MtBE concentrations were equal to or exceeded the ESL of 5 µg/L in wells MW-6 and MW-7.

Maximum concentrations of petroleum hydrocarbons are generally observed in well MW-6, located down-gradient of former service station features (fuel dispensers and gasoline USTs) situated in the southern and eastern portions of the Site, and well MW-7, which is located approximately 95 feet down-gradient of well MW-6. TPH-GRO and benzene are also detected above ESLs in well MW-5, located down-gradient of former service station features (fuel dispensers, hydraulic hoists, and waste oil UST) situated in the northern portion of the Site.

A TPH-GRO isoconcentration map is shown on **Figure 6**. A benzene isoconcentration map is shown on **Figure 7**. A MtBE isoconcentration map is shown on **Figure 8**. These maps show the estimated lateral extent of the plume as defined by the current monitoring well network only; however, the plume is also defined by former wells and historical soil borings.

The dissolved-phase TPH-GRO and benzene plumes appear to be defined by concentrations below LRLs or ESLs in well MW-8, former wells MW-1 and MW-2, and borings B-2, B-4 through B-6, B-8, SB-1, SB-3, SB-5, SB-6, and SB-8 through SB-10. The MtBE plume appears to be defined by concentrations below LRLs or ESLs in wells MW-5 and MW-8, former wells MW-1 and MW-2, and borings SB-1, SB-3, SB-5, SB-6, and SB-10. Overall, the plume does not appear to be defined west of well MW-5, east of well MW-6, or south and southeast of well MW-7.

Although the dissolved-phase petroleum hydrocarbon plume appears defined in the down-gradient direction, in ACEH correspondence dated May 21, 2013 (**Appendix A**), the ACEH expressed concern that the plume is not delineated southeast of well MW-7 due to a potential preferential migration along utility trenches located within Market Street and West MacArthur Boulevard, which may skew data and resultant conclusions regarding plume delineation.

3.2.3 Plume Stability

Current and historical groundwater quality data indicate that the dissolved-phase petroleum hydrocarbon plume associated with the Site is generally stable or decreasing in size and concentration. During Second Quarter 2013, all concentrations were within historical limits at all wells sampled (Stantec, 2013). Hydrographs based on current and historical groundwater

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elevations and analytical results are included in ***Attachment D***. Concentrations of TPH-GRO, benzene, and MtBE appear to have an inverse relationship with changes in groundwater elevation; however, overall stable or decreasing concentration trends are still observed.

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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

The Site is a former Chevron-branded service station located on the northeast corner at the intersection of West MacArthur Boulevard and Market Street in Oakland, California. The Site is currently a fenced vacant lot; however, the property owner has confirmed that a residential development has been proposed. The zoning for the Site and all adjacent and nearby down-gradient properties is residential, although many of the properties appear to be used for commercial purposes.

4.2 WATER SURVEY

4.2.1 Groundwater Wells

Information provided by Environmental Data Resources Inc. (EDR) indicates one water supply well is located within a 0.5-mile radius of the Site. This well is located between 0.25 and 0.5 miles of the Site (EDR, 2013). Based upon information provided by the SWRCB GeoTracker™ GAMA Database, there are no wells listed that differ from those identified in the EDR report (SWRCB, 2013). Specific well data are summarized in the following table:

Property Name and Address / Well ID	EDR Site ID	Database and Reason for Listing	Location Relative to Site	Distance and Direction from Property
Active/Inactive Water Supply Wells				
CADW40000038538	3	Well/Groundwater Status: Unknown	Cross-gradient	0.25-0.5 miles North-northwest

Based on the predominant direction of groundwater flow at the Site (west-southwest), the distance to the water supply well, and the location of the water supply well cross-gradient of the

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Site, the water supply well is not likely to be impacted by the dissolved-phase petroleum hydrocarbon plume associated with the Site.

4.2.2 Surface Water Bodies

The United States Geological Survey (USGS) 7.5-minute topographic map for the Oakland West Quadrangle 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 Glen Echo Creek, which is located approximately 1 mile southeast (cross-gradient) of the Site and drains into Lake Merritt. Based on the distance to Glen Echo Creek and its location cross-gradient of the Site, it is unlikely that Glen Echo Creek will be impacted by the dissolved-phase petroleum hydrocarbon plume associated with the Site.

4.3 CONDUIT SURVEY

In 2005, Cambria performed an underground conduit study to determine if there are any preferential migration pathways for groundwater. During this study, several underground utilities were identified in the vicinity of the Site (shown on **Figure 2**) (Cambria, 2005c). Based on the data collected, the depth to flow line in the storm drain and sewer lines ranges from approximately 7 to 15 feet bgs, which means the base of the trench backfill material for these lines is approximately 8 to 16 feet bgs. The historical range of DTW measurements associated with the Site is approximately 3 to 13 feet below TOC; therefore, the storm drain and sewer line trenches are at similar elevations to the groundwater table.

4.4 POTENTIALLY EXPOSED POPULATIONS

4.4.1 On-site Potential Populations

The Site is currently a fenced vacant lot. Based on the proposed future use of the Site as residential, future potentially exposed populations on Site include construction workers and residents.

4.4.2 Off-site Current or Potential Populations

Based on the current and likely future use of the Site and nearby down-gradient properties as commercial or residential, the current or future potentially exposed populations off Site include commercial workers, customers, construction workers, and residents.

4.4.3 Potential Sensitive Populations

Stantec conducted a survey to determine if any sensitive populations were located in the vicinity of the Site. 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-

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compromised people, and the elderly. 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
Oakland Military Institute	3877 Lusk St.	0.05	NE
Saint Martin de Porres Catholic School	675 41 st St.	0.24	NE
Avalon Senior Housing	3850 San Pablo Ave.	0.29	W-NW
Henderson Residential Care	4201 West St.	0.30	NE
Hoover Elementary and Junior High School	890 Brokhurst St.	0.31	S
North Oakland Community Charter School	1000 42 nd St.	0.33	N-NW
Sylvester Rutledge Manor	3255 San Pablo Ave.	0.35	S-SW
Anna Yates Elementary School	1040 41 st St.	0.36	NW
St. Mary's Center Preschool	3208 San Pablo Ave.	0.39	S-SW
Love Always Child Care Center	3261 Martin Luther King Jr. Way	0.43	S-SE
Emeryville Senior Center	4321 Salem St.	0.48	NW

Based on the predominant groundwater flow direction associated with the Site (west-southwest), two of the identified sensitive populations within a 0.5-mile radius of the Site (Sylvester Rutledge Manor and St. Mary's Center Preschool) are potentially located down-gradient of the Site. Based on their distance from the Site (ranging from 0.35 to 0.39 miles), these sensitive receptors are not likely to be at risk from exposure to Site-related petroleum hydrocarbons.

4.5 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. A graphical representation of the exposure pathway analysis for the Site is shown on **Figure 9**.

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Potentially complete pathways are summarized as follows:

- The ingestion of groundwater and dermal contact with groundwater exposure pathways are considered potentially complete for off-site construction workers, as storm and sewer lines located adjacent to the Site are buried at approximately 7 to 15 feet bgs and current DTW is approximately 7 to 12 feet bgs. Excavation work to access these lines will likely encounter groundwater. These pathways are also considered potentially complete for on-site construction workers, as future excavation work at or below the groundwater table is likely. These exposure pathways are considered incomplete for all other on-site and off-site human receptors as there are no on-site or nearby down-gradient water supply wells.
- The ingestion and dermal contact surface soil exposure pathways are considered potentially complete for on-site construction workers only, as shallow soil impacts were historically observed at the Site and because the Site is not paved.
- The ingestion, dermal contact, and inhalation of outdoor particulates from excavated soil exposure pathways are considered potentially complete for on-site construction workers, due to historical shallow (less than 10 feet bgs) soil detections of petroleum hydrocarbons above ESLs and because future excavation work at the Site is likely. In addition, these pathways are potentially complete for off-site construction workers as they may need to access the utility lines adjacent to the Site which are buried at approximately 7 to 15 feet bgs.
- The soil gas and 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 soil and groundwater to volatilize and be inhaled in the indoor or outdoor air.

4.6 RISK EVALUATION

The ingestion of groundwater and dermal contact with groundwater exposure pathways are considered potentially complete for on-site and off-site construction workers. During planned construction or excavation, care should be taken to safely manage exposed groundwater.

The ingestion, dermal contact, and inhalation pathways for shallow and excavated soil are considered potentially complete for construction workers; however, concentrations in all soil samples where ESLs were exceeded are below the direct contact and outdoor air exposure criteria for residential land use defined by the State Water Resources Control Board's (SWRCB's) LTCP, effective August 17, 2012, under Resolution No. 2012-0016 (SWRCB, 2012a). This indicates the concentrations of petroleum hydrocarbons in the samples pose no significant risk of adversely affecting human health through direct contact or outdoor air exposure.

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The soil gas and groundwater emission pathways (inhalation of indoor and outdoor air) are considered potentially complete for on-site and off-site receptors. However, the plans for the proposed on-site building include a ventilation system on the ground floor that is believed to be sufficient to control exposure to potential petroleum hydrocarbon vapors migrating from soil and groundwater such that they will have no significant risk of adversely affecting human health. Additional information is needed to complete an evaluation of vapor intrusion risk to potential off-site receptors.

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5.0 Low-Threat UST Case Closure Policy Evaluation

This section presents the low-risk general and media-specific criteria defined by the 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 COCs at the Site are petroleum hydrocarbons associated with gasoline, 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. In 1970, product piping was replaced, and a 3,000-gallon gasoline UST was replaced with a 10,000-gallon gasoline UST sometime before 1978 (CRA, 2011).

In March and April 1982, product piping, two 5,000 gallon steel gasoline USTs, and one 10,000-gallon fiberglass UST were replaced with three 10,000-gallon fiberglass USTs (G-R, 2000; CRA, 2011).

In 1984, two hydraulic hoists were removed from the Site and three fuel dispensers (one located in the northwestern portion of the Site and two located in the central portion of the Site) were removed and replaced with five fuel dispensers (two located in the north-central portion of the Site and three located in the south-central portion of the Site) (CRA, 2011).

Between 1984 and 1997, the waste oil UST (unknown size) was removed from the Site (CRA, 2011).

In February 1997, G-R oversaw replacement of the fuel dispensers and gasoline UST upgrades. During replacement of the fuel dispensers, soil in the immediate vicinity of each dispenser was excavated. Each excavation was approximately 12 feet long, 10 feet wide, and 2.5 feet deep (approximately 11 cubic yards). Approximately

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162 cubic yards of soil and 7,800 gallons of groundwater were removed during these activities and disposed off Site (G-R, 1997).

In April and May 2005, the service station was demolished and all remaining fueling features were removed. In addition, the majority of the Site, including the area around the former USTs and fuel dispensers was over-excavated to a depth of 12 feet bgs. Approximately 5,134 tons of soil and 25,486 gallons of groundwater were removed during excavation activities and disposed off Site (Cambria, 2005a; 2005b).

Dissolved-phase petroleum hydrocarbon concentrations associated with the Site are decreasing or stable, indicating that there is no longer a continuous petroleum hydrocarbon source at the Site (Section 3.2.3).

- **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 in any Site wells to-date; therefore, no free product removal activities have been conducted at any Site wells.

- **Has a conceptual Site model that assesses the nature, extent, and mobility of the release been developed?**

Yes. This document serves as the conceptual Site model 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:

- Over-excavation and disposal of approximately 162 cubic yards of soil and 7,800 gallons of groundwater in February 1997; and
- Over-excavation and disposal of approximately 5,134 tons of soil and 25,486 gallons of groundwater in April and May 2005.

Additional active remediation at the Site is not warranted.

- **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 all soil samples collected in association with the Site. In addition, MtBE was routinely analyzed in groundwater during monitoring and sampling events. Results have been reported to the 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**

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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” 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

The LTCP also contains media-specific criteria for evaluating sites for case closure. Groundwater-specific criteria, petroleum vapor intrusion to indoor air scenarios, and criteria for direct contact and outdoor air exposure are described in the LTCP.

5.2.1 Groundwater-Specific Criteria

Current and historical groundwater quality data indicate that the dissolved-phase petroleum hydrocarbon plume at the Site is generally stable or decreasing in size and concentration. However, the dissolved-phase petroleum hydrocarbon plume remains undefined off Site, and therefore Site conditions do not satisfy any of the groundwater-specific criteria scenarios.

5.2.2 Petroleum Vapor Intrusion to Indoor Air

Current on-site conditions as a vacant lot appear to satisfy vapor intrusion criteria a, scenario 3, as the dissolved-phase benzene concentrations are less than 100 µg/L and there is a minimum 5-foot bioattenuation zone of soil with TPH concentrations less than 100 mg/kg. Although the currently vacant lot may meet this criteria, the proposed development plans for the Site include a residential building with its foundation constructed to depths ranging from approximately 4 to 10 feet bgs. This would place the building foundation within 5 feet of the groundwater table or within the groundwater table (current DTW measurements in wells MW-5 and MW-6 adjacent to the Site are approximately 7.21 to 8.41 feet bgs). Without a minimum 5-foot bioattenuation zone and no direct soil gas measurements, the Site will not satisfy petroleum vapor intrusion to indoor air criteria a or b.

Although Site conditions do not satisfy petroleum vapor intrusion to indoor air criteria a or b, criteria c may be met by controlling exposure through the use of mitigation measures or engineering controls. As requested by the ACEH, the property owner provided Stantec with design plans for the proposed residential development. Details within the design plans call for a vapor barrier in the typical slab-on-grade detail and a waterproofing membrane in the foundation details, which would assist with the mitigation of potential vapor intrusion to indoor air. In addition, the design plans include a ventilation system for the ground floor parking garage,

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which would also assist with the mitigation of potential vapor intrusion to indoor air. However, Stantec notes that the minimum air flow for the parking garage ventilation system appears to be based on a calculation using 33 cars without factoring in the car stacker. Factoring in the car stacker, it appears that a maximum of 39 cars may occupy the parking garage. Furthermore, no provision is made for ventilating the pit areas (elevator and car stacker) located below the parking garage floor level. Stantec recommends that the design plans be reevaluated by the owner to include minimum air flow calculations based on a total of 39 cars and that the two pit areas be ventilated with air flow calculated as the larger of 1 cubic foot per minute (cfm) of air per square foot of area, or 4 to 6 air changes per hour (one every 10 to 15 minutes) based on pit volume. With these considerations incorporated into the parking garage ventilation system, this engineering control should sufficiently mitigate exposure to potential petroleum hydrocarbon vapors migrating from soil and groundwater such that they will have no significant risk of adversely affecting human health.

Additional information is needed to complete an evaluation of vapor intrusion risk to off-site receptors as delineation of impacts to soil and groundwater is not complete off-site.

5.2.3 Direct Contact and Outdoor Air Exposure

Current conditions satisfy LTCP direct contact and outdoor air exposure criteria for residential land use. The majority of the Site was excavated to depths of 10 to 12 feet bgs and replaced with clean fill. The detections of benzene and ethylbenzene in the top 10 feet of soil that was not excavated are less than the residential limits for direct contact and outdoor air exposure specified in Table 1 of the LTCP.

During historical Site assessment activities, it does not appear that many soil samples were analyzed for naphthalene in soils from 0 to 10 feet bgs; however, the naphthalene concentration that would potentially be present can be back-calculated by using the maximum historical TPH-GRO concentration in soil and the Leaking Underground Fuel Tank (LUFT) Guidance Manual average naphthalene percentage in gasoline of 0.25% (SWRCB, 2012b). In order for naphthalene to exceed the 9.7 mg/kg direct contact and outdoor air exposure criteria for residential land use, there would need to be a TPH-GRO concentration of 3,880 mg/kg or greater $[(0.0025) \times (\text{TPH-GRO Concentration}) = 9.7 \text{ mg/kg}]$. The highest reported TPH-GRO concentration from 0 to 10 feet bgs in soil that was not removed was 450 mg/kg (soil sample EX35 on May 2, 2005; **Table 5**); therefore, naphthalene, if present, would have no significant risk of adversely affecting human health.

Volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs), including polyaromatic hydrocarbons (PAHs), were analyzed in the samples collected from boring B-4, located directly adjacent to the former waste oil UST. All concentrations of VOCs and SVOCs in these samples were below LRLs, thereby satisfying the PAH limits for direct contact and outdoor air exposure specified in Table 1 of the LTCP.

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6.0 Data Gap Analysis

Based on a review of Site data, the following data gaps have been identified:

- Lateral delineation of petroleum hydrocarbons in soil and groundwater. Shallow soil analytical data collected from boreholes MW-5, MW-6, and MW-7 show concentrations exceeding ESLs for TPH-GRO (borehole MW-5), benzene (boreholes MW-6 and MW-7), and MtBE (borehole MW-6), which suggests there may be shallow soil source extending off Site to the west into Market Street and to the south into West MacArthur Boulevard. These concentrations do not exceed LTCP direct contact and outdoor air exposure limits for residential land use; however, the ACEH may not consider lateral definition in soil complete.

The dissolved-phase petroleum hydrocarbon plume does not appear to be delineated west of well MW-5, east of well MW-6, or south and southeast of well MW-7. Additional groundwater data are needed off Site to evaluate the lateral extent of the dissolved-phase plume and verify the Site meets the LTCP groundwater-specific criteria.

- Vapor intrusion evaluation off Site. The soil gas and groundwater emission pathways (inhalation of indoor and outdoor air) are considered potentially complete for on-site and off-site receptors, but have not been adequately assessed off Site. Additional assessment is needed off Site to evaluate the extent of petroleum hydrocarbons in soil and groundwater and verify that conditions meet the LTCP petroleum vapor intrusion to indoor air criteria off Site.

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7.0 Data Gap Work Plan

Stantec is proposing the advancement of three off-site soil borings (SB-11 through SB-13) to evaluate the lateral extent of petroleum hydrocarbons in soil and groundwater and determine if the Site meets the groundwater-specific and vapor intrusion to indoor air criteria set forth in the LTCP. The locations of the proposed soil borings are shown on *Figure 10*.

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 some of 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. Access agreements will also have to be established with the affected property owners prior to commencing proposed activities. These permitting and access requirements can take several weeks to several months to complete.

A schedule of field activities will be communicated to the respective property owners and tenants a minimum of two weeks prior to field activities in order to minimize potential disruptions to normal activities.

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 Plan

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, sample collection, 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.

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

7.2 FIELD ACTIVITIES

7.2.1 Soil Boring Advancement

Stantec will contract a California-licensed (C-57) driller to advance each of the proposed soil borings (SB-11 through SB-13; shown on **Figure 10**) to a depth of approximately 10 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, the entire length of each boring will be advanced using a hand auger due to the shallow sample depths required for this assessment. The proposed locations may change slightly due to the presence of 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 cores will be collected using a slide hammer with a brass or stainless steel sleeve insert. 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, first-encountered groundwater, 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 VOCs that may collect in the headspace of the bag.

Each soil boring will be logged, and soil samples will be collected from borings SB-11 through SB-13 at approximately 2.5, 5, 7.5, and 10 feet bgs (total depth) and submitted for laboratory analysis. Each soil sample collected for holding will be sealed with Teflon[®] sheets, capped with plastic end caps, labeled with identifying information, and stored in an ice-filled cooler for preservation.

7.2.3 Groundwater Sampling

Following advancement of each soil boring to total depth (approximately 2 to 3 feet into groundwater), a temporary pre-packed groundwater monitoring well casing will be installed, and groundwater samples will be collected. During groundwater sampling, a DTW measurement will be collected and used to calculate the three casing volumes that will be removed from the casing prior to collecting the groundwater sample. During this process, groundwater quality parameters, including temperature, pH, conductivity, dissolved oxygen (DO), and oxidation-

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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.

7.3 LABORATORY ANALYSIS

Soil and 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 by United States Environmental Protection Agency (US EPA) Method 8015B; and
- BTEX compounds, MtBE, di-isopropyl ether (DIPE), ethyl *tertiary*-butyl ether (EtBE), *tertiary*-amyl methyl ether (TAME), *tertiary*-butyl alcohol (TBA), ethanol, and naphthalene by US EPA Method 8260B (SW-846).

7.4 BORING COMPLETION ACTIVITIES

After each soil boring has been advanced to the proposed depth and representative soil 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.

7.5 WASTE MANAGEMENT

Investigation-derived waste (e.g., soil cuttings, decontamination water, etc.) generated during the proposed field activities will be placed in Department of Transportation-approved 55-gallon drums. A composite soil 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.

7.6 REPORT PREPARATION

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

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Results from the additional investigation will be used to address identified data gaps and to evaluate whether the case complies with the groundwater-specific and petroleum vapor intrusion to indoor air criteria of the LTCP. If all data gaps have been sufficiently addressed and no further assessment is necessary, the report will also include relevant sections of the Site conceptual model updated based on new data. If the case is determined to comply with LTCP criteria, the report will also include a low-threat closure request.

7.7 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 access agreement 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. 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.

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8.0 Path to Closure Schedule

Stantec estimates the following path to closure schedule:

- August 2013 – ACEH review of this *Site Conceptual Model and Data Gap Work Plan*.
- September 2013 through December 2014 – Completion of activities proposed in the data gap work plan.
- January 31, 2014 – Submittal of an additional investigation report (assuming no excessive delays acquiring the necessary access agreements or permits).
 - If additional data gaps are identified following the additional investigation, the additional investigation report will include recommendations for further assessment.
 - If the case is determined to comply with LTCP criteria, the report will include a low-threat closure request.
- February 2014 – ACEH review of the additional investigation report.
 - If additional data gaps are identified and additional assessment is necessary:
 - March to April 2014 – Preparation and submittal of an additional work plan to ACEH.
 - Additional estimated timeline unknown along this potential path.
 - If a low-threat closure request is submitted to ACEH and the ACEH does not concur:
 - March to April 2014 – Preparation and submittal of an additional work plan to ACEH.
 - Additional estimated timeline unknown along this potential path.
 - If a low-threat closure request is submitted to ACEH and the ACEH concurs:
 - March to April 2014 – Preparation and submittal of the record fee title owner notification, a draft fact sheet, and an interested parties list to the ACEH; and
 - May to June 2014 – 60-day public comment period.

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- If the 60-day public comment period does not preclude Site closure:
 - July 2014 – ACEH case closure summary preparation;
 - August 2014 – Submittal of a well destruction work plan to ACEH and ACEH review of the well destruction work plan;
 - September 2014 to November 2014 – Completion of activities proposed in the well destruction work plan and submittal of a well destruction report to ACEH;
 - December 2014 – ACEH well destruction report review and final case closure.

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9.0 References

- Cambria, 2005a, *Underground Storage Tank/Product Piping Removal and Compliance Sampling Report*, June 17.
- Cambria, 2005b, *Remedial Excavation Report*, July 6.
- Cambria, 2005c, *Conduit Study*, November 28.
- Cambria, 2006a, *Subsurface Investigation Report*, May 25.
- Cambria, 2006b, *Well Destruction Report*, October 13.
- CRA, 2008, *Well Installation Report*, November 18.
- CRA, 2011, *Additional Investigation Report*, March 31.
- EDR, 2013, *Inquiry Number: 3525317*, February 21.
- G-R, 1997, *Soil Sampling During Product Dispenser Replacement at Chevron Service Station #9-2029, 890 West MacArthur Boulevard, Oakland, California*, April 10.
- G-R, 2000, *Environmental Investigation Report*, October 31.
- G-R, 2002, *Monitoring Well Installation Report*, April 30.
- RWQCB, 2013, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final – November 2007*, revised May 2013.
- Stantec, 2013, *Second Quarter 2013 Semi-Annual Groundwater Monitoring Report*, July 5.
- SWRCB, 2012a, *Low Threat Underground Storage Tank Case Closure Policy*, Effective August 17.
- SWRCB, 2012b, *Leaking Underground Fuel Tank Guidance Manual*, September.
- SWRCB, 2013, GeoTracker™ GAMA website, <http://geotracker.waterboards.ca.gov/gama/>.

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10.0 Limitations and Certification

This report was prepared in accordance with the scope of work outlined in Stantec's contract and with generally accepted professional engineering and environmental consulting practices existing at the time this report was prepared and applicable to the location of the site. It was prepared for the exclusive use of Chevron for the express purpose stated above. Any re-use of this report for a different purpose or by others not identified above shall be at the user's sole risk without liability to Stantec. To the extent that this report is based on information provided to Stantec by third parties, Stantec may have made efforts to verify this third party information, but Stantec cannot guarantee the completeness or accuracy of this information. The opinions expressed and data collected are based on the conditions of the site existing at the time of the field investigation. No other warranties, expressed or implied are made by Stantec.

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Project Engineer

Travis L. Flora

Travis L. Flora
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All information, conclusions, and recommendations provided by Stantec in this document regarding the Subject Property have been prepared under the supervision of and reviewed by the Licensed Professional whose signature appears below:

Licensed Approver:

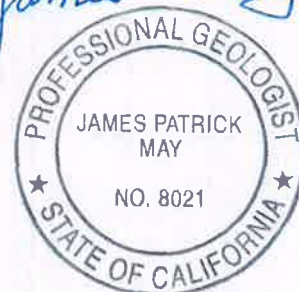
Name: James P. May, P.G.

Date: 16 AUGUST 2013

Signature:

James P. May

Stamp:



cc: Ms. Carryl MacLeod, Chevron Environmental Management Company, 6101 Bollinger Canyon Road, San Ramon, CA 94583 – Electronic Copy

Mr. Buyandalai Itgel, 787 Marlesta Road, Pinole, CA 94564 – Electronic Copy

Tables

Table 1
Well Details / Screen Interval Assessment
Second Quarter 2013
Former Chevron-Branded Service Station 92029
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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
MW-5	7/24/2008	Monitoring	2	49.39	25.00	25.01	8.41	5-25	Depth-to-groundwater within screen interval.
MW-6	7/24/2008	Monitoring	2	49.07	25.00	24.96	7.21	5-25	Depth-to-groundwater within screen interval.
MW-7	7/24/2008	Monitoring	2	48.74	25.00	24.90	9.54	5-25	Depth-to-groundwater within screen interval.
MW-8	7/24/2008	Monitoring	2	47.61	25.00	24.99	12.03	5-25	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
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WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MtBE (µg/L)
MW-5									
08/22/08 ¹	49.39	9.97	39.42	--	--	--	--	--	--
08/27/08 ³	49.39	10.03	39.36	54	0.5	0.8	<0.5	0.7	10
11/21/08 ³	49.39	8.42	40.97	6,000	93	6	37	6	8
02/13/09 ³	49.39	7.11	42.28	5,100	31	5	20	3	6
05/08/09 ³	49.39	7.21	42.18	3,600	18	4	14	2	2
08/07/09 ³	49.39	9.60	39.79	520	0.7	<0.5	<0.5	<0.5	2
11/05/09 ³	49.39	7.08	42.31	7,400	16	5	18	4	0.9
05/06/10 ³	49.39	6.08	43.31	3,500	4	2	3	0.9	0.9
11/03/10 ⁵	49.39	9.05	40.34	5,000	13	4	8	3	0.9
05/10/11 ⁵	49.39	7.26	42.13	3,200	6	4	7	0.9	<0.5
11/10/11 ⁵	49.39	7.60	41.79	2,600	6	3	10	2	<0.5
05/11/12 ⁵	49.39	6.48	42.91	3,300	<3	<3	<3	<3	<3
11/14/12 ³	49.39	8.89	40.50	2,100	3	2	3	0.6	<0.5
05/08/13³	49.39	8.41	40.98	2,100	2	0.9	2	<0.5	<0.5
MW-6									
08/22/08 ¹	49.07	8.98	40.09	--	--	--	--	--	--
08/27/08 ³	49.07	8.98	40.09	6,000	990	4	350	530	440
11/21/08 ³	49.07	8.12	40.95	14,000	1,000	15	1,300	550	300
02/13/09 ³	49.07	5.84	43.23	9,700	630	4	510	36	180
05/08/09 ³	49.07	5.77	43.30	7,600	240	4	470	67	38
08/07/09 ³	49.07	8.49	40.58	14,000	1,500	12	1,400	180	330
11/05/09 ³	49.07	6.72	42.35	22,000	870	8	1,300	130	160
05/06/10 ³	49.07	4.89	44.18	5,200	110	2	160	23	9
11/03/10 ⁵	49.07	8.05	41.02	13,000	1,100	8	670	58	160
05/10/11 ^{4,5}	49.07	8.56	40.51	<50	0.6	<0.5	<0.5	<0.5	<0.5
11/10/11 ⁵	49.07	7.59	41.48	5,700	260	7	180	13	37
05/11/12 ⁵	49.07	5.68	43.39	1,200	36	0.6	0.8	<0.5	1
11/14/12 ³	49.07	9.83	39.24	6,400	290	9	180	6	36
05/08/13³	49.07	7.21	41.86	2,000	77	1	9	<0.5	6
MW-7									
08/22/08 ¹	48.74	10.20	38.54	--	--	--	--	--	--
08/27/08 ³	48.74	10.19	38.55	<50	<0.5	0.6	<0.5	0.7	6
11/21/08 ³	48.74	9.51	39.23	1,100	80	<0.5	65	0.7	6

Table 2
Groundwater Monitoring Data and Analytical Results
Former Chevron-Branded Service Station 92029
890 West MacArthur Boulevard,
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WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MtBE (µg/L)
MW-7 (cont)									
02/13/09 ³	48.74	7.95	40.79	630	30	<0.5	38	0.9	7
05/08/09 ³	48.74	8.04	40.70	1,200	83	<0.5	190	2	8
08/07/09 ³	48.74	9.88	38.86	8,900	240	0.7	770	5	5
11/05/09 ³	48.74	9.03	39.71	12,000	630	<1	1,300	420	5
05/06/10 ³	48.74	7.88	40.86	4,000	190	<0.5	270	7	6
11/03/10 ⁵	48.74	9.48	39.26	5,700	150	0.7	45	2	4
05/10/11 ⁵	48.74	8.82	39.92	3,500	180	<0.5	150	2	5
11/10/11 ⁵	48.74	9.68	39.06	1,500	2	<0.5	2	<0.5	5
05/11/12 ⁵	48.74	8.37	40.37	9,200	440	<5	1,000	33	<5
11/14/12 ³	48.74	9.79	38.95	5,000	<3	<3	6	<3	4
05/08/13³	48.74	9.54	39.20	2,200	10	<0.5	2	<0.5	5
MW-8									
08/22/08 ¹	47.61	12.41	35.20	--	--	--	--	--	--
08/27/08 ³	47.61	12.42	35.19	<50	<0.5	0.7	<0.5	0.6	<0.5
11/21/08 ³	47.61	11.42	36.19	<50	<0.5	<0.5	<0.5	<0.5	<0.5
02/13/09 ³	47.61	8.87	38.74	<50	<0.5	<0.5	<0.5	<0.5	<0.5
05/08/09 ³	47.61	10.79	36.82	<50	<0.5	<0.5	<0.5	<0.5	<0.5
08/07/09 ³	47.61	12.33	35.28	<50	<0.5	<0.5	<0.5	<0.5	<0.5
11/05/09 ³	47.61	11.23	36.38	<50	<0.5	<0.5	<0.5	<0.5	<0.5
05/06/10 ³	47.61	10.28	37.33	<50	<0.5	<0.5	<0.5	<0.5	<0.5
11/03/10 ⁵	47.61	11.37	36.24	<50	<0.5	<0.5	<0.5	<0.5	<0.5
05/10/11 ⁵	47.61	11.55	36.06	<50	<0.5	<0.5	<0.5	<0.5	<0.5
11/10/11 ⁵	47.61	11.49	36.12	<50	<0.5	<0.5	<0.5	<0.5	<0.5
05/11/12 ⁵	47.61	10.89	36.72	<50	<0.5	<0.5	<0.5	<0.5	<0.5
11/14/12 ³	47.61	11.73	35.88	<50	<0.5	<0.5	<0.5	<0.5	<0.5
05/08/13³	47.61	12.03	35.58	<50	<0.5	<0.5	<0.5	<0.5	<0.5
MW-1									
03/12/02 ¹	50.71	6.50	44.21	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<2 ²
06/07/02	50.71	8.69	42.02	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<2 ²
09/13/02	50.71	9.28	41.43	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<2 ²
12/13/02	50.71	8.48	42.23	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<2 ²
03/01/03	50.71	7.34	43.37	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<0.5 ²
06/27/03 ³	50.71	9.29	41.42	<50	<0.5	0.6	<0.5	<0.5	<0.5
09/30/03 ³	50.71	10.17	40.54	<50	<0.5	0.6	<0.5	<0.5	<0.5
12/03/03 ³	50.71	7.82	42.89	<50	<0.5	<0.5	<0.5	<0.5	<0.5

Table 2
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890 West MacArthur Boulevard,
Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MtBE (µg/L)
MW-1 (cont)									
03/10/04 ³	50.71	6.57	44.14	<50	<0.5	<0.5	<0.5	<0.5	<0.5
06/30/04 ³	50.71	9.78	40.93	<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/30/04 ³	50.71	9.91	40.80	<50	<0.5	<0.5	<0.5	<0.5	<0.5
12/29/04 ³	50.71	2.90	47.81	<50	<0.5	<0.5	<0.5	<0.5	<0.5
03/23/05 ³	50.71	2.90	47.81	<50	<0.5	<0.5	<0.5	<0.5	<0.5
06/22/05 ³	50.71	8.59	42.12	<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/02/05 ³	50.71	9.38	41.33	<50	<0.5	<0.5	<0.5	<0.5	<0.5
12/02/05	50.71	8.44	42.27	--	--	--	--	--	--
03/20/06	50.71	3.05	47.66	--	--	--	--	--	--
06/01/06	50.71	6.77	43.94	--	--	--	--	--	--
09/11/06	50.71	9.18	41.53	--	--	--	--	--	--
DESTROYED									
MW-2									
03/12/02 ¹	52.57	6.09	46.48	<50	<0.50	<0.50	<0.50	<1.5	<2.5/3 ²
06/07/02	52.57	8.65	43.92	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<2 ²
09/13/02	52.57	9.58	42.99	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<2 ²
12/13/02	52.57	8.50	44.07	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<2 ²
03/01/03	52.57	7.00	45.57	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<0.5 ²
06/27/03 ³	52.57	9.59	42.98	<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/30/03 ³	52.57	10.64	41.93	<50	<0.5	<0.5	<0.5	<0.5	0.7
12/03/03 ³	52.57	7.54	45.03	<50	<0.5	<0.5	<0.5	<0.5	<0.5
03/10/04 ³	52.57	6.05	46.52	<50	<0.5	<0.5	<0.5	<0.5	<0.5
06/30/04 ³	52.57	10.15	42.42	<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/30/04 ³	52.57	10.14	42.43	<50	<0.5	<0.5	<0.5	<0.5	<0.5
12/29/04 ³	52.57	2.29	50.28	<50	<0.5	<0.5	<0.5	<0.5	<0.5
03/23/05 ³	52.57	2.44	50.13	<50	<0.5	<0.5	<0.5	<0.5	<0.5
06/22/05 ³	52.57	8.99	43.58	<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/02/05 ³	52.57	10.17	42.40	<50	<0.5	<0.5	<0.5	<0.5	<0.5
12/02/05	52.57	8.99	43.58	--	--	--	--	--	--
03/20/06	52.57	2.70	49.87	--	--	--	--	--	--
06/01/06	51.57	6.51	45.06	--	--	--	--	--	--
09/11/06	51.57	10.06	41.51	--	--	--	--	--	--
DESTROYED									

Table 2
Groundwater Monitoring Data and Analytical Results
Former Chevron-Branded Service Station 92029
890 West MacArthur Boulevard,
Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MtBE (µg/L)
MW-3									
03/12/02 ¹	50.31	6.50	43.81	12,000	600	8.5	1,100	370	700/650 ²
06/07/02	50.31	7.74	42.57	14,000	630	8.8	1,200	160	520/490 ²
09/13/02	50.31	9.73	40.58	3,000	270	3.2	200	11	600/640 ²
12/13/02	50.31	8.60	41.71	24,000	1,100	14	2,400	220	650/540 ²
03/01/03	50.31	6.75	43.56	16,000	500	9.0	1,200	130	460/330 ²
06/27/03 ³	50.31	9.25	41.06	9,500	390	6	450	30	470
09/30/03 ³	50.31	10.31	40.00	2,000	110	1	100	3	710
12/03/03 ³	50.31	8.18	42.13	19,000	970	8	2,100	85	420
03/10/04 ³	50.31	6.10	44.21	15,000	550	6	960	95	220
06/30/04 ³	50.31	9.80	40.51	3,200	150	1	100	3	660
09/30/04 ³	50.31	10.18	40.13	1,900	66	0.8	84	4	690
12/29/04 ³	50.31	4.58	45.73	16,000	470	7	820	47	170
03/23/05 ³	50.31	5.07	45.24	18,000	380	6	960	58	140
06/22/05 ³	50.31	8.12	42.19	16,000	700	6	950	62	300
09/02/05 ³	50.31	9.41	40.90	8,400	380	4	510	41	440
12/02/05 ³	50.31	7.97	42.34	16,000	490	6	1,200	32	170
03/20/06 ³	50.31	5.32	44.99	4,200	79	0.8	2	10	34
06/01/06 ³	50.31	7.07	43.24	5,400	67	1	26	3	28
09/11/06 ³	50.31	9.07	41.24	14,000	270	5	240	38	97
DESTROYED									
MW-4									
03/12/02 ¹	49.93	5.34	44.59	9,700	360	5.3	1,100	150	170/170 ²
06/07/02	49.93	8.52	41.41	7,300	170	2.7	280	21	200/120 ²
09/13/02	49.93	9.86	40.07	5,800	92	4.5	80	14	190/160 ²
12/13/02	49.93	9.42	40.51	10,000	250	2.2	330	19	170/200 ²
03/01/03	49.93	7.33	42.60	12,000	300	4.6	900	110	160/100 ²
06/27/03 ³	49.93	9.62	40.31	7,500	110	2	200	58	130
09/30/03 ³	49.93	11.13	38.80	3,600	18	<1	16	7	520
12/03/03 ³	49.93	7.80	42.13	16,000	1,000	6	720	52	73
03/10/04 ³	49.93	6.69	43.24	2,200	230	3	610	71	55
06/30/04 ³	49.93	10.33	39.60	7,700	59	<1	78	17	110
09/30/04 ³	49.93	10.75	39.18	4,800	100	1	33	10	400
12/29/04 ³	49.93	3.34	46.59	13,000	250	3	480	27	42
03/23/05 ³	49.93	4.24	45.69	12,000	130	2	280	16	24
06/22/05 ³	49.93	7.95	41.98	6,400	290	2	11	11	18
09/02/05 ³	49.93	9.46	40.47	3,700	180	1	13	7	18
12/02/05 ³	49.93	7.60	42.33	11,000	840	5	480	24	34

Table 2
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Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	GWE (msl)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MtBE (µg/L)
MW-4 (cont)									
03/20/06 ³	49.93	4.50	45.43	790	14	<0.5	1	0.6	2
06/01/06 ³	49.93	7.30	42.63	5,100	48	0.8	42	4	2
09/11/06 ³	49.93	9.38	40.55	6,700	64	3	44	3	4
DESTROYED									
TRIP BLANK									
QA									
03/12/02	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
06/07/02	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
09/13/02	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
12/13/02	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
03/01/03	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5
06/27/03 ³	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/30/03 ³	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
12/03/03 ³	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
03/10/04 ³	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
06/30/04 ³	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/30/04 ³	--	--	--	<50	<0.5	<0.7	<0.8	<0.8	<0.5
12/29/04 ³	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
03/23/05 ³	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
06/22/05 ³	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/02/05 ³	--	--	--	<50	<0.5	1 ⁴	<0.5	1 ⁴	<0.5
12/02/05 ³	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
03/20/06 ³	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
06/01/06 ³	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/11/06 ³	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
08/27/08 ³	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
11/21/08 ⁵	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--
02/13/09 ⁵	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--
05/08/09 ⁵	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--
08/07/09 ⁵	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--
11/14/12 ³	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
05/08/13³	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5

Table 2
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890 West MacArthur Boulevard,
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EXPLANATIONS:

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

DTW = Depth to Water

GWE = Groundwater Elevation

(msl) = Mean sea level

(µg/L) = Micrograms per liter

TPH-GRO = Total Petroleum Hydrocarbons as Gasoline Range Organics

B = Benzene

T = Toluene

E = Ethylbenzene

X = Xylenes

MtBE = Methyl tertiary-butyl ether

-- = Not Measured/Not Analyzed

QA = Quality Assurance/Trip Blank

EPA = Environmental Protection Agency

* Current TOC elevations were surveyed on October 1, 2008, by CRA. The benchmark for this survey was a USGS bronze disk located near the north end of the curb return at the Northwest corner of 38th Street and Broadway, (Benchmark Elevation = 85.41 feet, NGVD29).

¹ Well development performed.

² MtBE by EPA Method 8260.

³ BTEX and MtBE by EPA Method 8260.

⁴ Laboratory confirmed analytical result.

⁵ BTEX by EPA Method 8260.

Table 3
Groundwater Analytical Results - Oxgenate Compounds
Former Chevron-Branded Service Station 92029
890 West MacArthur Boulevard,
Oakland, California

WELL ID/ DATE	ETHANOL (µg/L)	TBA (µg/L)	MtBE (µg/L)	DIPE (µg/L)	EtBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	1,2-DBA (µg/L)
MW-5								
08/27/08	--	2	10	<0.5	<0.5	<0.5	--	--
11/21/08	--	4	8	<0.5	<0.5	<0.5	--	--
02/13/09	--	3	6	<0.5	<0.5	<0.5	--	--
05/08/09	--	7	2	<0.5	<0.5	<0.5	--	--
08/07/09	--	<2	2	<0.5	<0.5	<0.5	--	--
11/05/09	--	2	0.9	<0.5	<0.5	<0.5	--	--
05/06/10	--	<2	0.9	<0.5	<0.5	<0.5	--	--
11/03/10	--	<2	0.9	<0.5	<0.5	<0.5	--	--
05/10/11	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
11/10/11	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
05/11/12	--	<10	<3	<3	<3	<3	--	--
11/14/12	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
05/08/13	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
MW-6								
08/27/08	--	390	440	<0.5	<0.5	6	--	--
11/21/08	--	320	300	<13	<13	<13	--	--
02/13/09	--	100	180	<1	<1	4	--	--
05/08/09	--	16	38	<0.5	<0.5	0.9	--	--
08/07/09	--	190	330	<3	<3	5	--	--
11/05/09	--	86	160	<1	<1	4	--	--
05/06/10	--	2	9	<0.5	<0.5	<0.5	--	--
11/03/10	--	98	160	<3	<3	3	--	--
05/10/11 ¹	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
11/10/11	--	19	37	<1	<1	<1	--	--
05/11/12	--	<2	1	<0.5	<0.5	<0.5	--	--
11/14/12	--	16	36	<0.5	<0.5	0.7	--	--
05/08/13	--	5	6	<0.5	<0.5	<0.5	--	--
MW-7								
08/27/08	--	<2	6	<0.5	<0.5	<0.5	--	--
11/21/08	--	5	6	<0.5	<0.5	<0.5	--	--
02/13/09	--	<2	7	<0.5	<0.5	<0.5	--	--
05/08/09	--	<2	8	<0.5	<0.5	<0.5	--	--
08/07/09	--	4	5	<0.5	<0.5	<0.5	--	--

Table 3
Groundwater Analytical Results - Oxgenate Compounds
Former Chevron-Branded Service Station 92029
890 West MacArthur Boulevard,
Oakland, California

WELL ID/ DATE	ETHANOL (µg/L)	TBA (µg/L)	MtBE (µg/L)	DIPE (µg/L)	EtBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	1,2-DBA (µg/L)
MW-7 (cont)								
11/05/09	--	9	5	<1	<1	<1	--	--
05/06/10	--	3	6	<0.5	<0.5	<0.5	--	--
11/03/10	--	6	4	<0.5	<0.5	<0.5	--	--
05/10/11	--	3	5	<0.5	<0.5	<0.5	--	--
11/10/11	--	4	5	<0.5	<0.5	<0.5	--	--
05/11/12	--	<20	<5	<5	<5	<5	--	--
11/14/12	--	<10	4	<3	<3	<3	--	--
05/08/13	--	<2	5	<0.5	<0.5	<0.5	--	--
MW-8								
08/27/08	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
11/21/08	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
02/13/09	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
05/08/09	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
08/07/09	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
11/05/09	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
05/06/10	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
11/03/10	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
05/10/11	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
11/10/11	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
05/11/12	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
11/14/12	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
05/08/13	--	<2	<0.5	<0.5	<0.5	<0.5	--	--
MW-1								
03/12/02	--	<100	<2	<2	<2	<2	<2	<2
06/07/02	--	<100	<2	<2	<2	<2	<2	<2
09/13/02	--	<100	<2	<2	<2	<2	<2	<2
12/13/02	--	<100	<2	<2	<2	<2	<2	<2
03/01/03	--	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
06/27/03	--	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
09/30/03	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12/03/03	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
03/10/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
06/30/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
09/30/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12/31/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 3
Groundwater Analytical Results - Oxgenate Compounds
Former Chevron-Branded Service Station 92029
890 West MacArthur Boulevard,
Oakland, California

WELL ID/ DATE	ETHANOL (µg/L)	TBA (µg/L)	MtBE (µg/L)	DIPE (µg/L)	EtBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	1,2-DBA (µg/L)
MW-1 (cont)								
03/23/05	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
06/22/05	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
09/02/05	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
DESTROYED								
MW-2								
03/12/02	--	<100	3	<2	<2	<2	<2	<2
06/07/02	--	<100	<2	<2	<2	<2	<2	<2
09/13/02	--	<100	<2	<2	<2	<2	<2	<2
12/13/02	--	<100	<2	<2	<2	<2	<2	<2
03/01/03	--	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
06/27/03	--	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
09/30/03	<50	<5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5
12/03/03	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
03/10/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
06/30/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
09/30/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12/31/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
03/23/05	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
06/22/05	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
09/02/05	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
DESTROYED								
MW-3								
03/12/02	--	<100	650	<2	<2	18	<2	<2
06/07/02	--	230	490	<5.0	<5.0	11	<5.0	<5.0
09/13/02	--	170	640	<2	<2	8	<2	<2
12/13/02	--	240	540	<2	<2	29	31	<2
03/01/03	--	160	330	<0.5	<0.5	10	<0.5	<0.5
06/27/03	--	200	470	<0.5	<0.5	11	<0.5	<0.5
09/30/03	<50	120	710	<0.5	<0.5	6	0.7	<0.5
12/03/03	<250	200	420	<3	<3	14	<3	<3
03/10/04	<50	140	220	<0.5	<0.5	5	<0.5	<0.5
06/30/04	<50	100	660	<0.5	<0.5	5	<0.5	<0.5
09/30/04	<50	72	690	<0.5	<0.5	4	0.5	<0.5
12/31/04	<50	77	170	<0.5	<0.5	5	<0.5	<0.5
03/23/05	<50	<5	140	<0.5	<0.5	4	<0.5	3

Table 3
Groundwater Analytical Results - Oxgenate Compounds
Former Chevron-Branded Service Station 92029
890 West MacArthur Boulevard,
Oakland, California

WELL ID/ DATE	ETHANOL (µg/L)	TBA (µg/L)	MtBE (µg/L)	DIPE (µg/L)	EtBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	1,2-DBA (µg/L)
MW-3 (cont)								
06/22/05	<250	150	300	<3	<3	6	<3	<3
09/02/05	<100	99	440	<1	<1	<1	<1	<1
12/02/05	<100	66	170	<1	<1	5	<1	<1
03/20/06	<50	14	34	<0.5	<0.5	<0.5	<0.5	<0.5
06/01/06	<50	12	28	<0.5	<0.5	0.8	<0.5	<0.5
09/11/06	<50	47	97	<0.5	<0.5	2	<0.5	<0.5
DESTROYED								
MW-4								
03/12/02	--	<100	170	<2	<2	13	<2	<2
06/07/02	--	<100	120	<2	<2	14	<2	<2
09/13/02	--	<100	160	<2	<2	14	<2	<2
12/13/02	--	<100	200	<2	<2	17	<2	<2
03/01/03	--	19	100	<0.5	<0.5	8	<0.5	<0.5
06/27/03	--	22	130	<0.5	<0.5	11	<0.5	<0.5
09/30/03	<100	<10	520	<1	<1	9	<1	<1
12/03/03	<50	18	73	<0.5	<0.5	5	<0.5	<0.5
03/10/04	<50	11	55	<0.5	<0.5	4	<0.5	<0.5
06/30/04	<100	<10	110	<1	<1	6	<1	<1
09/30/04	<50	17	400	<0.5	<0.5	7	<0.5	<0.5
12/31/04	<50	11	42	<0.5	<0.5	2	<0.5	<0.5
03/23/05	<50	<5	24	<0.5	<0.5	1	<0.5	0.9
06/22/05	<50	15	18	<0.5	<0.5	1	<0.5	<0.5
09/02/05	<50	6	18	<0.5	<0.5	<0.5	<0.5	<0.5
12/02/05	<50	11	34	<0.5	<0.5	1	<0.5	<0.5
03/20/06	<50	<5	2	<0.5	<0.5	<0.5	<0.5	<0.5
06/01/06	<50	<5	2	<0.5	<0.5	<0.5	<0.5	<0.5
09/11/06	<50	<5	4	<0.5	<0.5	<0.5	<0.5	<0.5
DESTROYED								

Table 3
Groundwater Analytical Results - Oxygenate Compounds
Former Chevron-Branded Service Station 92029
890 West MacArthur Boulevard,
Oakland, California

EXPLANATIONS:

Current groundwater monitoring data was provided by Gettler-Ryan Inc. Current laboratory analytical results were provided by Eurofins Lancaster Laboratories.

TBA = Tertiary-Butyl Alcohol

MtBE = Methyl tertiary-butyl ether

DIPE = Di-Isopropyl Ether

EtBE = Ethyl Tertiary-Butyl Ether

TAME = Tertiary-Amyl Methyl Ether

1,2-DCA = 1,2-Dichloroethane

1,2-DBA = 1,2-Dibromoethane

(µg/L) = Micrograms per liter

-- = Not Analyzed

EPA = Environmental Protection Agency

ANALYTICAL METHOD:

EPA Method 8260 for Oxygenate Compounds

¹ Laboratory confirmed analytical result.

Table 4
Grab Groundwater Analytical Results
Former Chevron-Branded Service Station 92029
890 West MacArthur Boulevard
Oakland, California

Borehole/ Sample ID	Sample Depth (feet bgs)	Sample Date	TPH-GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MtBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	1,2-DCA (µg/L)	1,2-DBA (µg/L)
B-1	13.1	10/6/2000	3,600 ¹	110	3.5	770	150	820	--	--	--	--	--	--
B-2	13	10/6/2000	<50 ²	<0.50	<0.50	<0.50	<0.50	460	--	--	--	--	--	--
B-3	13.1	10/9/2000	33,000 ¹	1,200	580	2,000	7,500	670	--	--	--	--	--	--
B-4	13.5	10/9/2000	<50 ³	<0.50	<0.50	<0.50	<0.50	71 ^{4,5}	--	--	--	--	--	--
B-5	12.3	10/6/2000	<50	<0.50	<0.50	<0.50	<0.50	590	--	--	--	--	--	--
B-6	11.8	10/6/2000	<50	<0.50	<0.50	<0.50	<0.50	34	--	--	--	--	--	--
B-7	13.7	10/9/2000	500 ¹	<0.50	<0.50	16	63	360	--	--	--	--	--	--
B-8	12.8	10/6/2000	<50	<0.50	<0.50	<0.50	<0.50	650	--	--	--	--	--	--
B-10	13.8	10/9/2000	3,700 ¹	8.3	4.2	180	1.7	47	--	--	--	--	--	--
SB-1	20	3/28/2006	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
	30	3/28/2006	<50	<0.5	1	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
SB-2	20	3/28/2006	2,700	34	1	83	170	38	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
	31	3/28/2006	970	11	1	24	50	13	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
SB-3	16	3/30/2006	<50	<0.5	1	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
	34	3/30/2006	<50	0.6	2	<0.5	1	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
SB-5	28	3/29/2006	<50	1	1	1	3	5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
	44	3/29/2006	51	0.8	2	0.9	3	0.8	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
SB-6	16	3/30/2006	<50	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
	30	3/30/2006	<50	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
SB-8	23	3/29/2006	66	<0.5	1	<0.5	1	7	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
	33	3/29/2006	63	<0.5	0.7	<0.5	0.6	2	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
SB-9	23	3/30/2006	<50	<0.5	0.6	<0.5	<0.5	210	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
	33	3/30/2006	<50	0.6	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
SB-10 ⁶	--	1/4/2011	<50	<0.5	<0.5	<0.5	<0.5	4	--	--	--	--	--	--
ESLs⁷			100	1	40	30	20	5	NE	NE	NE	12	0.05	0.5

Notes:

¹ = Gasoline C6-C12.

² = Sample also analyzed for total petroleum hydrocarbons as hydraulic oil (TPHho; <250 µg/L).

³ = Sample also analyzed for total oil and grease (TOG; <5,000 µg/L) and total petroleum hydrocarbons as diesel range organics (TPH-DRO; 170 µg/L).

⁴ = Sample also analyzed for volatile organic compounds (VOCs; non-detect except for tetrachloroethene [PCE] at 4.3 µg/L) and semi-volatile organic compounds (SVOCs; non-detect).

⁵ = Sample also analyzed for cadmium (non-detect), chromium (110 µg/L), lead (27 µg/L), nickel (140 µg/L), and zinc (250 µg/L).

⁶ = Not a grab groundwater sample. Sample was collected from a temporary well installed within the boring using low-flow sampling techniques.

⁷ = California Regional Water Quality Control Board, San Francisco Bay Region, *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final - May 2013*.

Bold text denotes detected concentrations. **Bold/blue** text denotes detected concentrations above ESLs for groundwater that is a current or potential source of drinking water.

Abbreviations:

bgs = below ground surface

µg/L = micrograms per liter

TPH-GRO = total petroleum hydrocarbons as gasoline range organics

MtBE = methyl *tertiary*-butyl ether

DIPE = di-isopropyl ether

EtBE = ethyl *tertiary*-butyl ether

TAME = *tertiary*-amyl methyl ether

TBA = *tertiary*-butyl alcohol

1,2-DCA = 1,2-dichloroethane

1,2-DBA = 1,2-dibromoethane

-- = not measured/not analyzed

ESL = Environmental Screening Level

NE = ESL not established for compound

Table 5
Soil Analytical Results
Former Chevron-Branded Service Station 92029
890 West MacArthur Boulevard
Oakland, California

Borehole/ Sample ID	Sample Depth (feet bgs)	Sample Date	TPH-GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MtBE (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TBA (mg/kg)	1,2-DCA (mg/kg)	Lead (mg/kg)
S1 (soil removed)	3	2/26/1997	<1.0	<0.0050	<0.0050	<0.0050	0.011	0.087	--	--	--	--	--	--
S2 (soil removed)	3	2/26/1997	6.0 ¹	<0.0050	<0.0050	<0.0050	0.0079	0.38	--	--	--	--	--	--
S3 (soil removed)	3	2/26/1997	4.1 ²	0.0098	0.0087	0.027	0.026	0.44	--	--	--	--	--	--
S4 (soil removed)	3	2/26/1997	2.0 ²	0.016	0.0088	<0.0050	0.015	0.42	--	--	--	--	--	--
S5 (soil removed)	3	2/26/1997	38	0.63	0.14	0.90	0.37	0.62	--	--	--	--	--	--
S6	3	2/26/1997	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	--	--	--	--	--	--
B-1 (soil removed)	6	10/6/2000	68 ³	0.25	0.30	1.2	0.64	0.33	--	--	--	--	--	4.5
	11	10/6/2000	<1.0	<0.0050	0.0073	<0.0050	0.0089	<0.050	--	--	--	--	--	4.5
B-2 (soil removed)	6	10/6/2000	<1.0 ⁴	<0.0050	<0.0050	<0.0050	0.012	<0.050	--	--	--	--	--	6.9
	11	10/6/2000	<1.0 ⁴	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	--	--	--	--	--	3.9
B-3 (soil removed)	6	10/9/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	--	--	--	--	--	4.4
	11	10/9/2000	930 ³	6.7	1.2	22	100	13	--	--	--	--	--	4.7
B-4	6	10/9/2000	<1.0 ⁵	<0.0050	<0.0050	<0.0050	<0.0050	<0.050 ⁶	--	--	--	--	--	10 ⁷
	11	10/9/2000	<1.0 ⁵	<0.0050	<0.0050	<0.0050	<0.0050	<0.050 ⁶	--	--	--	--	--	3.5 ⁸
B-5	6	10/5/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	--	--	--	--	--	6.1
	11	10/5/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	--	--	--	--	--	3.7
B-6	6	10/5/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	--	--	--	--	--	6.5
	11	10/5/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	--	--	--	--	--	5.1
B-7	6	10/9/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	--	--	--	--	--	9.2
	11	10/9/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	--	--	--	--	--	5.4
B-8	6	10/6/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	--	--	--	--	--	6.8
	11	10/6/2000	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	--	--	--	--	--	5.1
B-9 (soil removed)	6	10/9/2000	95 ³	0.15	0.2	1.9	2.2	<0.5	--	--	--	--	--	5.0
	11	10/9/2000	200 ³	1.3	0.59	6.1	9.7	3.4	--	--	--	--	--	6.9
B-10 (soil removed)	6	10/6/2000	<1.0	<0.0050	0.0058	0.0052	0.016	<0.050	--	--	--	--	--	7.7
	11	10/6/2000	<1.0	<0.0050	<0.0050	0.0051	0.015	<0.050	--	--	--	--	--	4.6
MW-1	6	3/1/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.015	<0.050	--	--	--	--	--	--
	24.5	3/1/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.015	<0.050	--	--	--	--	--	--
MW-2	4.5	3/1/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.015	<0.050	--	--	--	--	--	--
	14.5	3/1/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.015	<0.050	--	--	--	--	--	--
	24.5	3/1/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.015	<0.050	--	--	--	--	--	--
MW-3	4.5	3/1/2002	240	<0.050	<0.050	3.7	<0.300	<0.20	--	--	--	--	--	--
	14.5	3/1/2002	2.1	0.22	<0.0050	0.11	<0.015	<0.21	--	--	--	--	--	--
	24.5	3/1/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.015	<0.050	--	--	--	--	--	--
MW-4	4	3/1/2002	150	0.18	<0.020	2.1	1.9	0.23	--	--	--	--	--	--
	14.5	3/1/2002	3.1	<0.0050	<0.0050	0.019	<0.015	<0.050	--	--	--	--	--	--
	24.5	3/1/2002	<1.0	<0.0050	<0.0050	<0.0050	<0.015	<0.050	--	--	--	--	--	--
EX1	10	4/25/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	11
EX2 (soil removed)	10	4/25/2005	1.8	<0.005	0.0095	<0.005	<0.005	<0.005	--	--	--	--	--	12

Table 5
Soil Analytical Results
Former Chevron-Branded Service Station 92029
890 West MacArthur Boulevard
Oakland, California

Borehole/ Sample ID	Sample Depth (feet bgs)	Sample Date	TPH-GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MtBE (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TBA (mg/kg)	1,2-DCA (mg/kg)	Lead (mg/kg)
EX3 (soil removed)	10	4/25/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	8.7
EX4 (soil removed)	10	4/25/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	11
EX5	10	4/25/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	9.8
EX6 (soil removed)	3.5	4/25/2005	3.5	<0.005	0.020	<0.005	<0.005	<0.005	--	--	--	--	--	8.9
EX7 (soil removed)	3.5	4/25/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	12
EX8 (soil removed)	3.5	4/25/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	9.7
EX9 (soil removed)	3.5	4/25/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	8.9
EX10 (soil removed)	3.5	4/25/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	5.5
EX11 (soil removed)	3.5	4/25/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	12
EX12 (soil removed)	3.5	4/25/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	9.3
EX13 (soil removed)	3.5	4/25/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	7.2
EX14 (soil removed)	3.5	4/25/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	6.6
EX15 (soil removed)	3.5	4/25/2005	65	<0.005	0.087	0.53	0.069	<0.005	--	--	--	--	--	11
EX16 (soil removed)	3.5	4/25/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	7.9
EX17 (soil removed)	3.5	4/25/2005	370	<0.050	0.20	<0.050	0.61	<0.50	--	--	--	--	--	14
EX18 (soil removed)	3.5	4/25/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	7.8
EX19 (soil removed)	3.5	4/25/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	7.1
EX20 (soil removed)	3.5	4/25/2005	3.4	<0.005	0.021	<0.005	0.0075	<0.005	--	--	--	--	--	8.4
EX21 (soil removed)	3.5	4/25/2005	190	0.20	0.14	0.17	0.27	0.37	--	--	--	--	--	22
EX22 (soil removed)	3.5	4/25/2005	76	0.35	0.058	0.78	0.20	<0.25	--	--	--	--	--	13
EX23	7	4/27/2005	2.5	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--
EX24 (soil removed)	10	4/27/2005	120	2.2	0.23	2.9	6.6	0.12	--	--	--	--	--	--
EX25 (soil removed)	10	4/27/2005	19	1.3	<0.10	0.63	0.18	0.26	--	--	--	--	--	--
EX26 (soil removed)	10	4/27/2005	<1.0	<0.005	<0.005	<0.005	<0.005	0.23	--	--	--	--	--	--
EX27 (soil removed)	7	4/27/2005	480	<0.050	<0.050	<0.050	<0.050	<0.050	--	--	--	--	--	--
EX28 (soil removed)	8	4/27/2005	2,800	3.0	<2.0	58	120	<2.0	--	--	--	--	--	--
EX29 (soil removed)	8	4/27/2005	250	<0.033	<0.033	<0.033	<0.033	<0.033	--	--	--	--	--	--
EX30 (soil removed)	8	4/27/2005	81	0.021	<0.020	0.034	<0.020	<0.020	--	--	--	--	--	--
EX31 (soil removed)	8	4/27/2005	600	<0.10	<0.10	0.30	<0.10	<0.10	--	--	--	--	--	--
EX32	12	5/2/2005	<1.0	<0.005	<0.005	<0.005	<0.005	0.0065	--	--	--	--	--	--
EX33	12	5/2/2005	<1.0	<0.005	<0.005	<0.005	<0.005	0.12	--	--	--	--	--	--
EX34	12	5/2/2005	<1.0	<0.005	<0.005	<0.005	<0.005	0.03	--	--	--	--	--	--
EX35	12	5/2/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--
EX36	9	5/2/2005	450	<0.33	<0.33	10	7.30	<0.33	--	--	--	--	--	--
EX37	9	5/2/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--
EX38	12	5/3/2005	34	0.66	<0.10	0.66	0.31	0.21	--	--	--	--	--	--
EX39	9	5/3/2005	64	0.022	<0.005	0.11	0.014	<0.005	--	--	--	--	--	--
EX40	12	5/3/2005	<1.0	<0.005	<0.005	<0.005	<0.005	0.12	--	--	--	--	--	--
EX41	12	5/3/2005	<1.0	<0.005	<0.005	<0.005	<0.005	0.16	--	--	--	--	--	--
EX42 (soil removed)	9	5/3/2005	450	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--

Table 5
Soil Analytical Results
Former Chevron-Branded Service Station 92029
890 West MacArthur Boulevard
Oakland, California

Borehole/ Sample ID	Sample Depth (feet bgs)	Sample Date	TPH-GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MtBE (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TBA (mg/kg)	1,2-DCA (mg/kg)	Lead (mg/kg)
EX43 (soil removed)	9	5/3/2005	120	<0.010	<0.010	0.070	<0.010	<0.010	--	--	--	--	--	--
EX44 (soil removed)	9	5/3/2005	230	<0.010	<0.010	0.110	<0.010	<0.010	--	--	--	--	--	--
EX45	12	5/10/2005	<1.0	<0.005	<0.005	<0.005	<0.005	0.11	--	--	--	--	--	--
EX46	12	5/10/2005	<1.0	<0.005	<0.005	<0.005	<0.005	0.025	--	--	--	--	--	--
EX47	8	5/10/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	<0.005
EX48	12	5/10/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	<0.005
EX49 (soil removed)	9	5/10/2005	1.1	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	<0.005
EX50	9	5/10/2005	1.3	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	<0.005
EX51	9	5/10/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	<0.005
EX52 (soil removed)	9	5/11/2005	610	<0.50	<0.50	18	<0.50	<0.50	--	--	--	--	--	<0.50
EX53	12	5/11/2005	<1.0	<0.005	0.0055	<0.005	<0.005	0.16	--	--	--	--	--	0.16
EX54 (soil removed)	9	5/11/2005	2.7	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	<0.005
EX55	9	5/19/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	<0.005
EX56	9	5/19/2005	8.5	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	<0.005
EX57	12	5/19/2005	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	<0.005
EX58	12	5/19/2005	<1.0	<0.005	<0.005	<0.005	<0.005	0.0070	--	--	--	--	--	0.0070
EX59	9	5/19/2005	240	<0.025	<0.025	0.40	<0.025	<0.025	--	--	--	--	--	<0.025
EX60	9	5/20/2005	250	<0.20	<0.20	6.1	<0.20	<0.20	--	--	--	--	--	<0.20
EX61	12	5/20/2005	16	0.10	<0.010	0.19	0.012	0.079	--	--	--	--	--	0.079
EX62	9	5/20/2005	78	<0.005	<0.005	0.095	<0.005	<0.005	--	--	--	--	--	<0.005
EX63	9	5/20/2005	22	0.25	<0.033	0.90	0.035	<0.033	--	--	--	--	--	<0.033
MW-5	5	7/22/2008	260	<0.025	<0.049	<0.049	<0.049	<0.025	<0.049	<0.049	<0.049	<0.98	<0.049	--
	10	7/23/2008	<1.0	<0.005	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.019	<0.001	--
	15	7/23/2008	<1.0	<0.0005	<0.001	<0.001	<0.001	0.021	<0.001	<0.001	<0.001	<0.020	<0.001	--
	20	7/23/2008	<1.0	<0.0005	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.020	<0.001	--
MW-6	25	7/23/2008	1.8	<0.0005	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.019	<0.001	--
	5	7/22/2008	2.7	<0.0005	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.020	<0.001	--
	10	7/23/2008	16	0.19	<0.001	0.13	0.006	0.07	<0.001	<0.001	0.001	0.042	<0.001	--
	15	7/23/2008	1.9	<0.0005	<0.001	<0.001	<0.001	0.007	<0.001	<0.001	<0.001	0.026	<0.001	--
MW-7	20	7/23/2008	<1.0	<0.0005	<0.001	0.001	<0.001	0.006	<0.001	<0.001	<0.001	<0.020	<0.001	--
	25	7/23/2008	<1.0	0.001	<0.001	0.012	<0.001	0.0009	<0.001	<0.001	<0.001	<0.022	<0.001	--
	5	7/22/2008	<1.0	<0.0005	<0.001	0.014	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.020	<0.001	--
	10	7/23/2008	75	0.21	<0.046	1.9	<0.046	<0.023	<0.046	<0.046	<0.046	<0.92	<0.046	--
MW-8	15	7/23/2008	31	0.062	<0.001	0.19	0.004	<0.0005	<0.001	<0.001	<0.001	<0.019	<0.001	--
	20	7/23/2008	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.021	<0.001	--
	25	7/23/2008	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.020	<0.001	--
	5	7/22/2008	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.019	<0.001	--
MW-8	10	7/24/2008	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.020	<0.001	--
	15	7/24/2008	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.021	<0.001	--
	20	7/24/2008	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.020	<0.001	--
	25	7/24/2008	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.020	<0.001	--

Table 5
Soil Analytical Results
Former Chevron-Branded Service Station 92029
890 West MacArthur Boulevard
Oakland, California

Borehole/ Sample ID	Sample Depth (feet bgs)	Sample Date	TPH-GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MtBE (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TBA (mg/kg)	1,2-DCA (mg/kg)	Lead (mg/kg)
SB-10	5	1/4/2011	<1	<0.0005	<0.001	<0.001	<0.001	<0.0005	--	--	--	--	--	--
	9.5	1/4/2011	<1	<0.0005	<0.001	<0.001	<0.001	<0.0005	--	--	--	--	--	--
	14.5	1/4/2011	<1	<0.0005	<0.001	<0.001	<0.001	<0.0005	--	--	--	--	--	--
	19.5	1/4/2011	<1	0.0006	0.002	<0.001	<0.001	<0.0005	--	--	--	--	--	--
ESLs - Shallow Soil^{9,10}			100	0.044	2.9	3.3	2.3	0.023	NE	NE	NE	0.075	0.0045	80
ESLs - Deep Soil^{9,10}			490	0.044	2.9	3.3	2.3	0.023	NE	NE	NE	0.075	0.0045	80

Notes:

¹ = Unidentified hydrocarbons > C8.

² = Gasoline and discrete peaks.

³ = Gasoline C6-C12.

⁴ = Sample also analyzed for total petroleum hydrocarbons as hydraulic oil (TPH_{ho}; <10 mg/kg).

⁵ = Sample also analyzed for total oil and grease (TOG; <50 mg/kg) and total petroleum hydrocarbons as diesel range organics (TPH-DRO; <1.0 mg/kg).

⁶ = Sample also analyzed for volatile organic compounds (VOCs; non-detect) and semi-volatile organic compounds (SVOCs; non-detect).

⁷ = Sample also analyzed for cadmium (0.69 mg/kg), chromium (42 mg/kg), nickel (100 mg/kg), and zinc (63 mg/kg).

⁸ = Sample also analyzed for cadmium (0.57 mg/kg), chromium (24 mg/kg), nickel (29 mg/kg), and zinc (50 mg/kg).

⁹ = California Regional Water Quality Control Board, San Francisco Bay Region, *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater*, Interim Final - May 2013.

¹⁰ = 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 Residential Land Use.

Abbreviations:

bgs = below ground surface

mg/kg = milligrams per kilogram

TPH-GRO = total petroleum hydrocarbons as gasoline range organics

MtBE = methyl *tertiary*-butyl ether

DIPE = di-isopropyl ether

EtBE = ethyl *tertiary*-butyl ether

TAME = *tertiary*-amyl methyl ether

TBA = *tertiary*-butyl alcohol

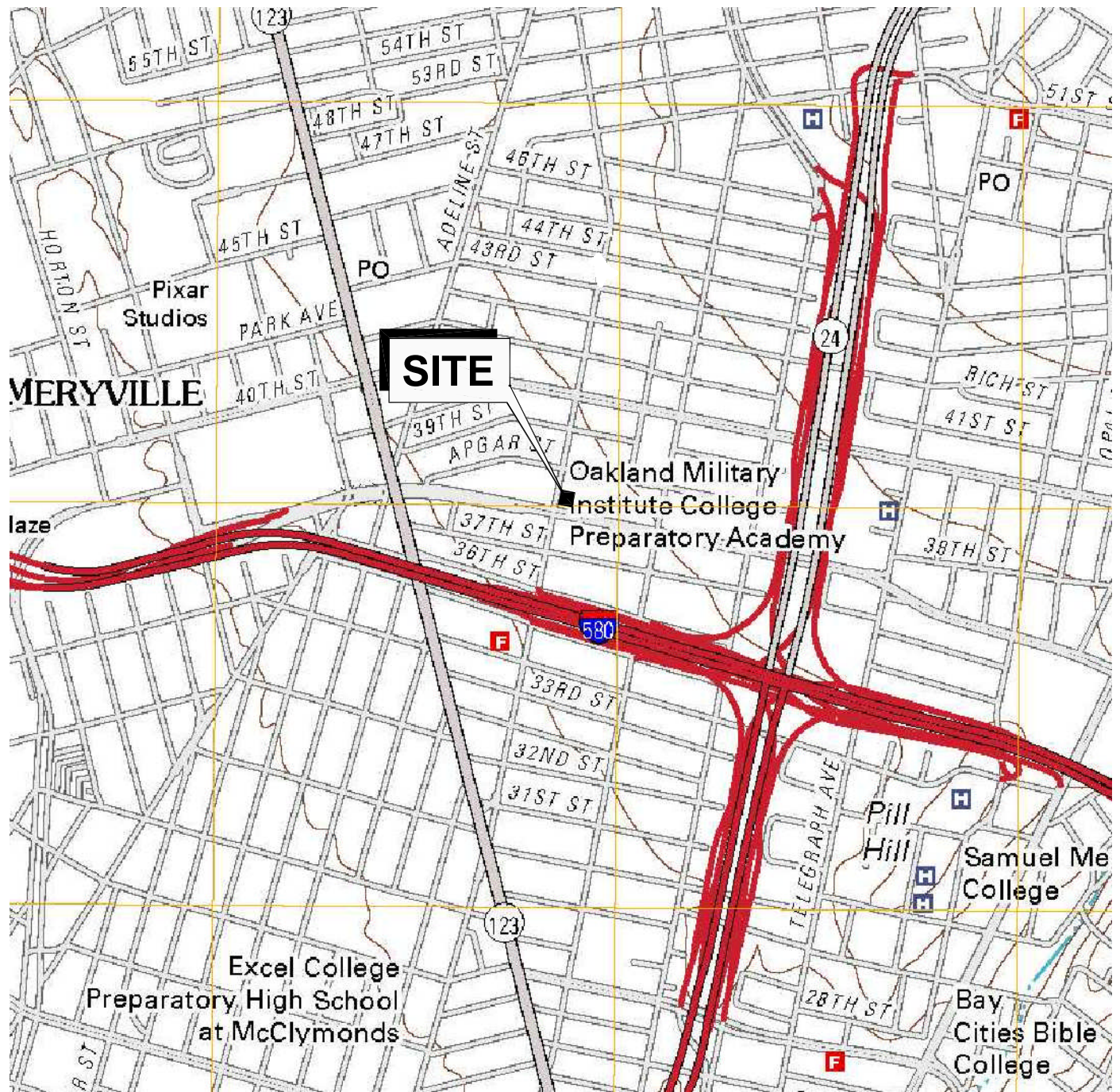
1,2-DCA = 1,2-dichloroethane

-- = not analyzed

ESL = Environmental Screening Level

NE = ESL not established for compound

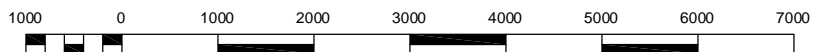
Figures



CALIFORNIA



SCALE IN MILES



SCALE IN FEET

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



Stantec

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FOR:
FORMER CHEVRON-BRANDED
SERVICE STATION 92029
890 WEST MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

SITE LOCATION MAP

FIGURE:

1

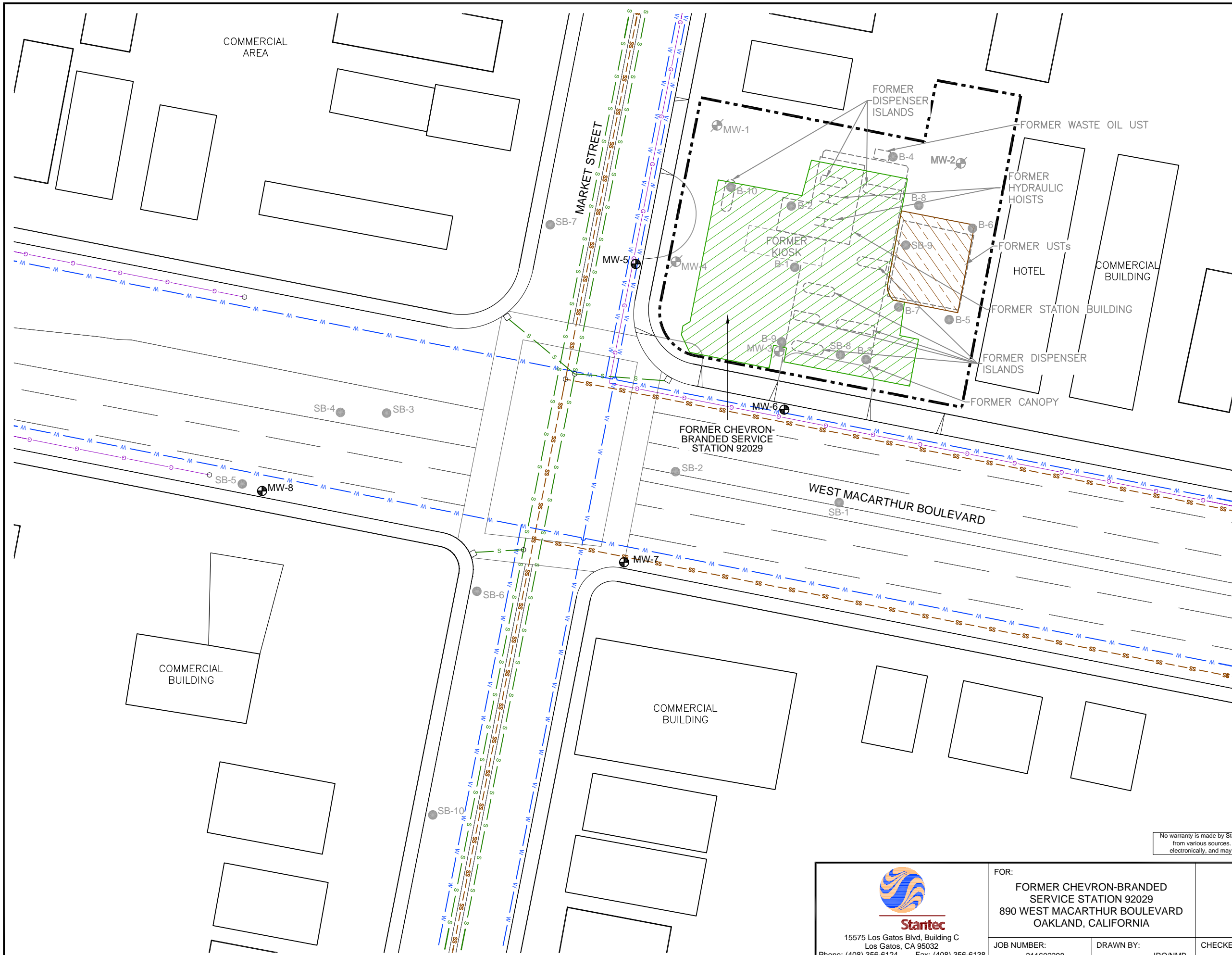
JOB NUMBER:
211602398

DRAWN BY:
JRO

CHECKED BY:
EEO/MRK

APPROVED BY:
TLF

DATE:
07/12/13

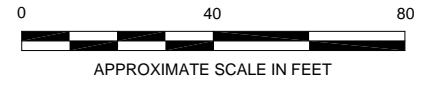
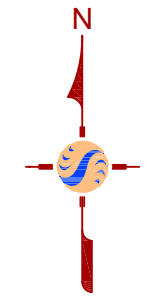


LEGEND


- APPROXIMATE SITE BOUNDARY
- UST UNDERGROUND STORAGE TANK
- ⊕ GROUNDWATER MONITORING WELL
- ⊖ ABANDONED/ DESTROYED GROUNDWATER MONITORING WELL
- SOIL BORING
- G GAS LINE
- SS SANITARY SEWER LINE
- W WATER LINE
- S STORM DRAIN LINE
- ▨ AREA EXCAVATED TO AT LEAST 10 FT BELOW GROUND SURFACE (ftBGS)
- ▧ AREA EXCAVATED TO 12 ftBGS

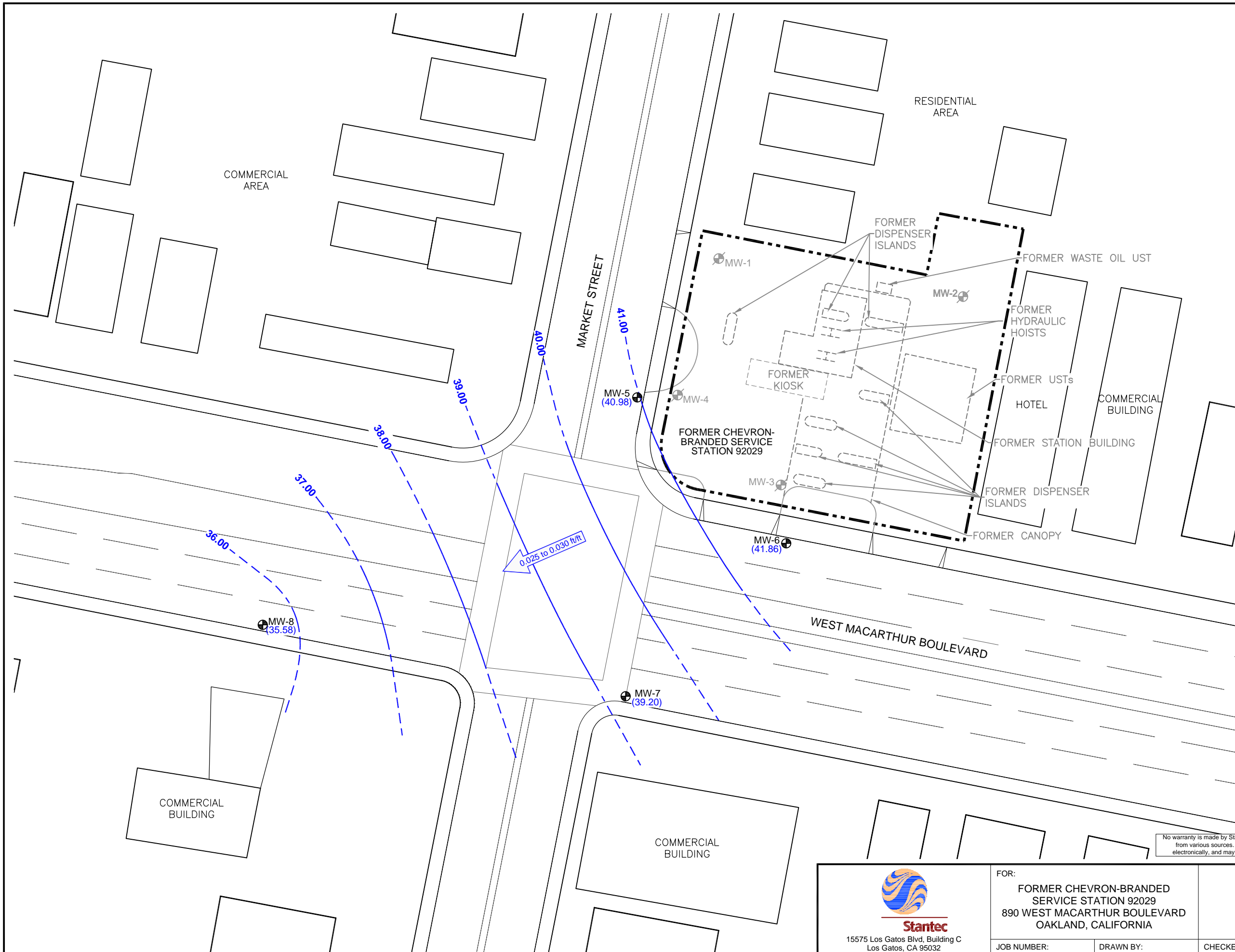
NOTE

FORMER SITE FEATURES ARE IN APPROXIMATE LOCATIONS



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 Stantec 15575 Los Gatos Blvd, Building C Los Gatos, CA 95032 Phone: (408) 356-6124 Fax: (408) 356-6138	FOR: FORMER CHEVRON-BRANDED SERVICE STATION 92029 890 WEST MACARTHUR BOULEVARD OAKLAND, CALIFORNIA		SITE PLAN		FIGURE: 2
	JOB NUMBER: 211602398	DRAWN BY: JRO/NMB	CHECKED BY: CJM	APPROVED BY: TLF	DATE: 08/09/13

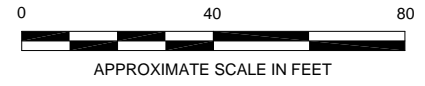
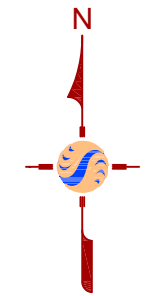


LEGEND


- APPROXIMATE SITE BOUNDARY
- UNDERGROUND STORAGE TANK
- GROUNDWATER MONITORING WELL
- ABANDONED/ DESTROYED GROUNDWATER MONITORING WELL
- GROUNDWATER ELEVATION CONTOUR; DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL)
- (40.98) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW. HYDRAULIC GRADIENT RANGES FROM 0.025 TO 0.030 FEET PER FOOT (ft/ft).

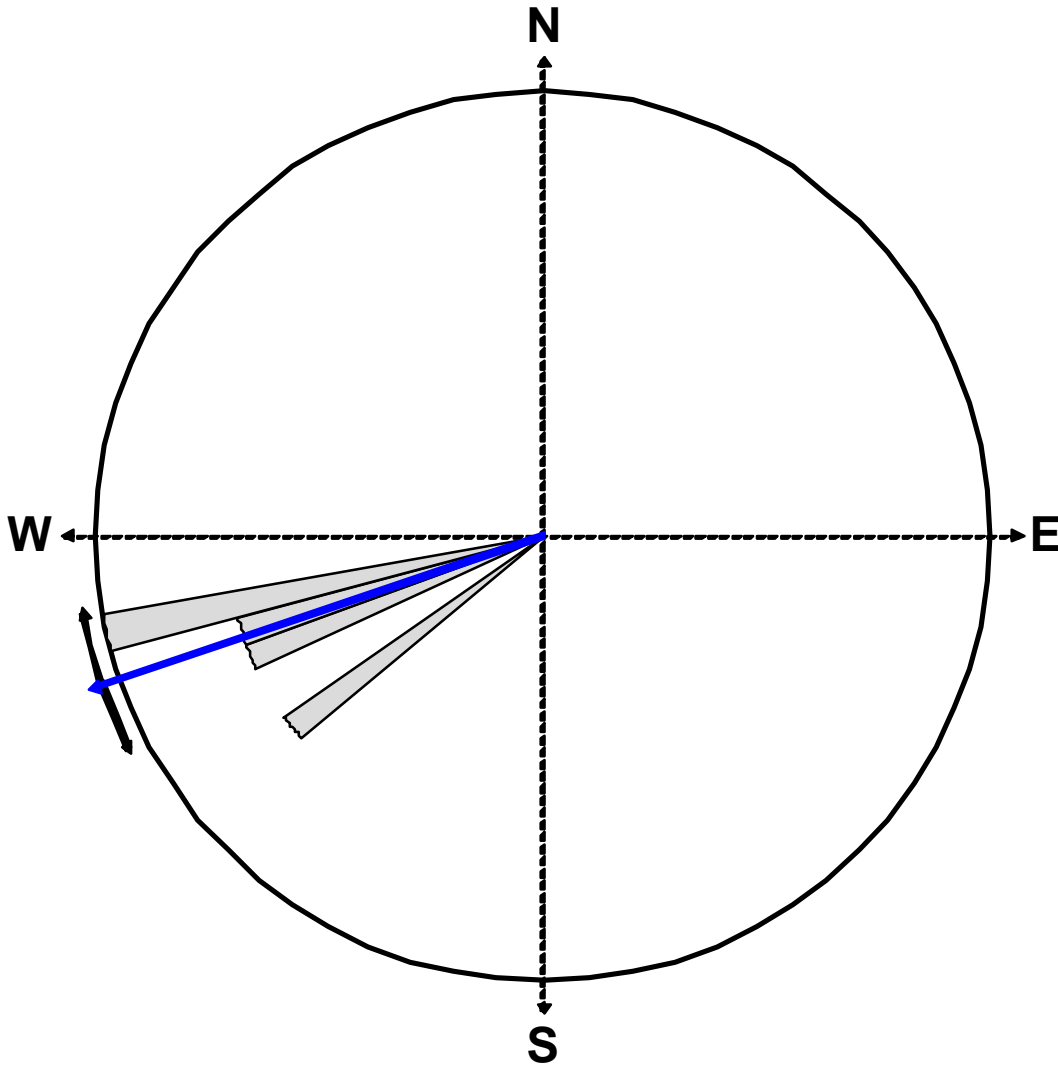
NOTES

- FORMER SITE FEATURES ARE IN APPROXIMATE LOCATIONS
- GROUNDWATER ELEVATION DATA WERE COLLECTED ON MAY 8, 2013
- GROUNDWATER CONTOURS WERE CREATED USING SURFER VERSION 8.0



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 Stantec 15575 Los Gatos Blvd, Building C Los Gatos, CA 95032 Phone: (408) 356-6124 Fax: (408) 356-6138	FOR: FORMER CHEVRON-BRANDED SERVICE STATION 92029 890 WEST MACARTHUR BOULEVARD OAKLAND, CALIFORNIA		GROUNDWATER ELEVATION CONTOUR MAP - SECOND QUARTER 2013		FIGURE: <div style="font-size: 2em; font-weight: bold;">3</div>
	JOB NUMBER: 211602398	DRAWN BY: JRO/NMB	CHECKED BY: EEO/MRK	APPROVED BY: TLF	DATE: 08/09/13

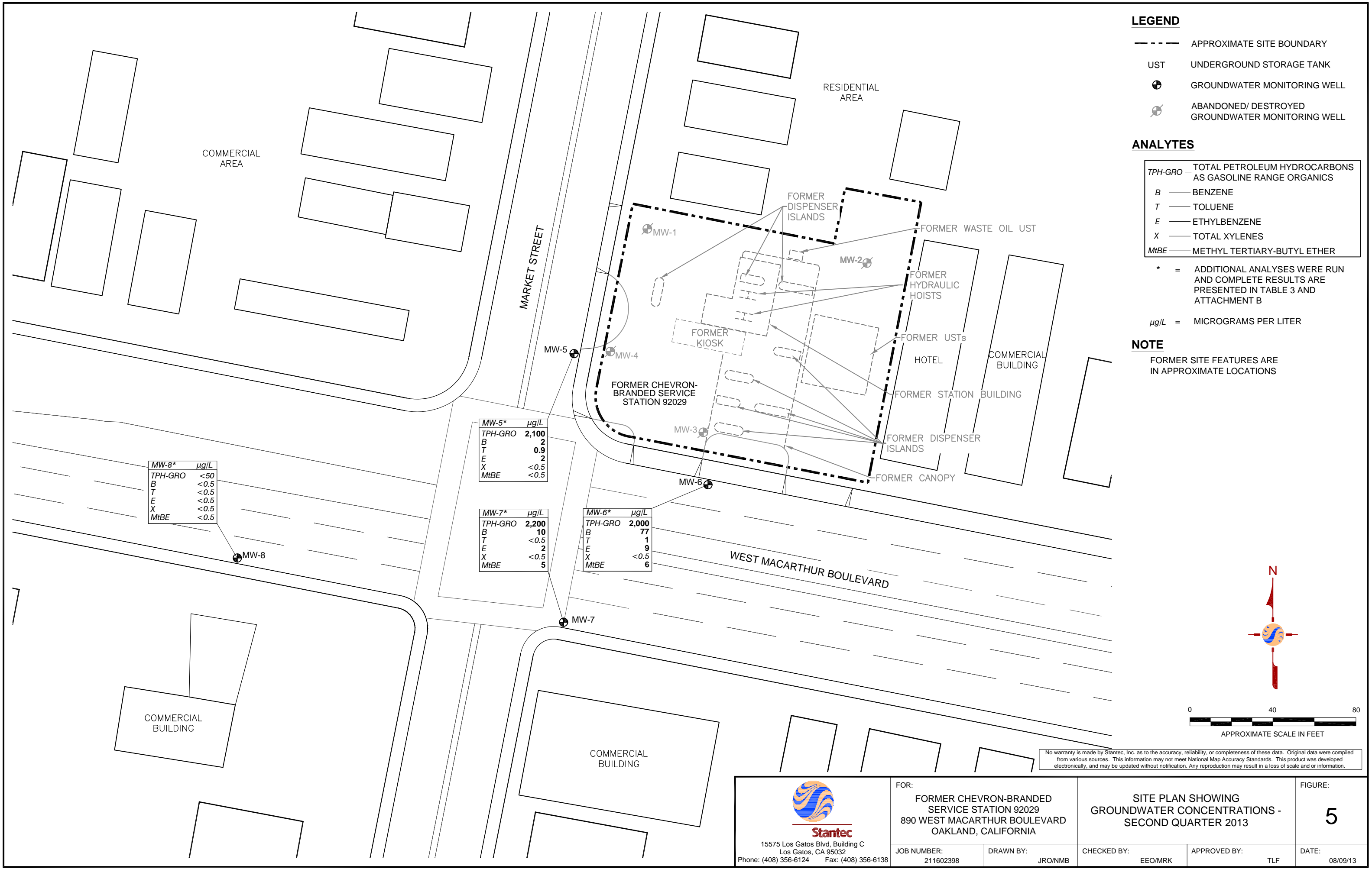


Equal Area Plot

Number of Points 5
 Class Size 5
 Vector Mean 251.03
 Vector Magnitude 4.93
 Consistency Ratio 0.99

NOTE: ROSE DIAGRAM IS BASED ON THE DIRECTION OF GROUNDWATER FLOW BEGINNING SECOND QUARTER 2011.

 15575 Los Gatos Blvd, Building C Los Gatos, CA 95032 Phone: (408) 356-6124 Fax: (408) 356-6138	FOR: FORMER CHEVRON-BRANDED SERVICE STATION 92029 890 WEST MACARTHUR BOULEVARD OAKLAND, CALIFORNIA		ROSE DIAGRAM - SECOND QUARTER 2013		FIGURE: 4
	JOB NUMBER: 211602398	DRAWN BY: JRO	CHECKED BY: EEO/MRK	APPROVED BY: TLF	DATE: 07/12/13



LEGEND

- APPROXIMATE SITE BOUNDARY
- UST UNDERGROUND STORAGE TANK
- ⊕ GROUNDWATER MONITORING WELL
- ⊖ ABANDONED/ DESTROYED GROUNDWATER MONITORING WELL

ANALYTES

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

* = ADDITIONAL ANALYSES WERE RUN AND COMPLETE RESULTS ARE PRESENTED IN TABLE 3 AND ATTACHMENT B

µg/L = MICROGRAMS PER LITER

NOTE

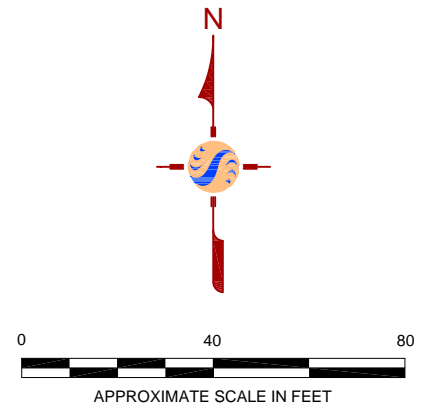
FORMER SITE FEATURES ARE IN APPROXIMATE LOCATIONS

MW-8*	µg/L
TPH-GRO	<50
B	<0.5
T	<0.5
E	<0.5
X	<0.5
MtBE	<0.5


MW-5*	µg/L
TPH-GRO	2,100
B	2
T	0.9
E	2
X	<0.5
MtBE	<0.5

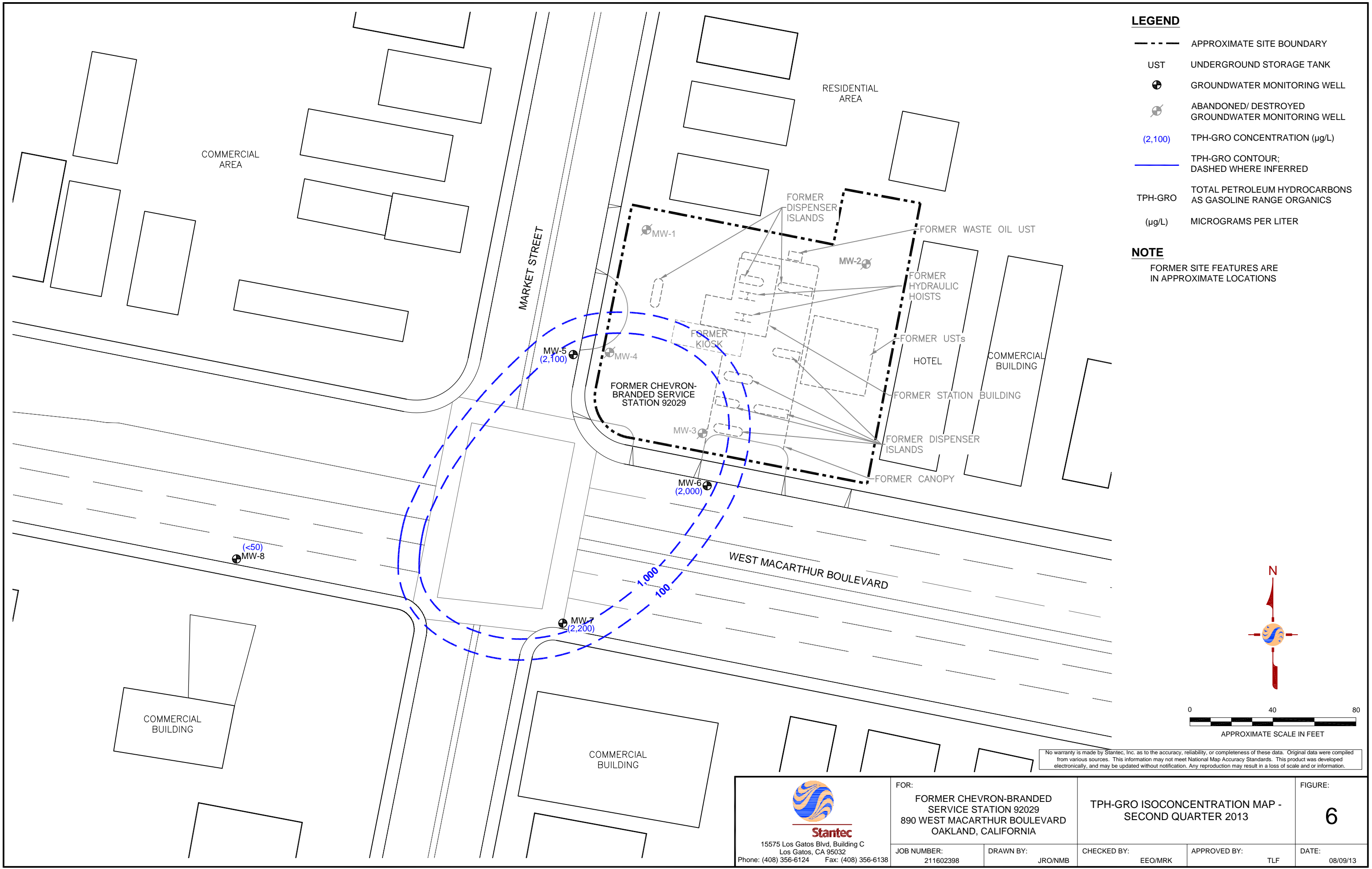
MW-7*	µg/L
TPH-GRO	2,200
B	10
T	<0.5
E	2
X	<0.5
MtBE	5

MW-6*	µg/L
TPH-GRO	2,000
B	77
T	1
E	9
X	<0.5
MtBE	6



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 15575 Los Gatos Blvd, Building C Los Gatos, CA 95032 Phone: (408) 356-6124 Fax: (408) 356-6138	FOR: FORMER CHEVRON-BRANDED SERVICE STATION 92029 890 WEST MACARTHUR BOULEVARD OAKLAND, CALIFORNIA	SITE PLAN SHOWING GROUNDWATER CONCENTRATIONS - SECOND QUARTER 2013		FIGURE: 5
	JOB NUMBER: 211602398	DRAWN BY: JRO/NMB	CHECKED BY: EEO/MRK	APPROVED BY: TLF

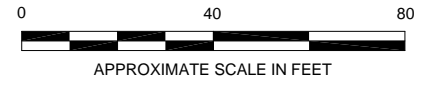


LEGEND


- APPROXIMATE SITE BOUNDARY
- UST UNDERGROUND STORAGE TANK
- ⊕ GROUNDWATER MONITORING WELL
- ⊕ ABANDONED/ DESTROYED GROUNDWATER MONITORING WELL
- (2,100) TPH-GRO CONCENTRATION (µg/L)
- TPH-GRO CONTOUR; DASHED WHERE INFERRED
- TPH-GRO TOTAL PETROLEUM HYDROCARBONS AS GASOLINE RANGE ORGANICS (µg/L)
- MICROGRAMS PER LITER

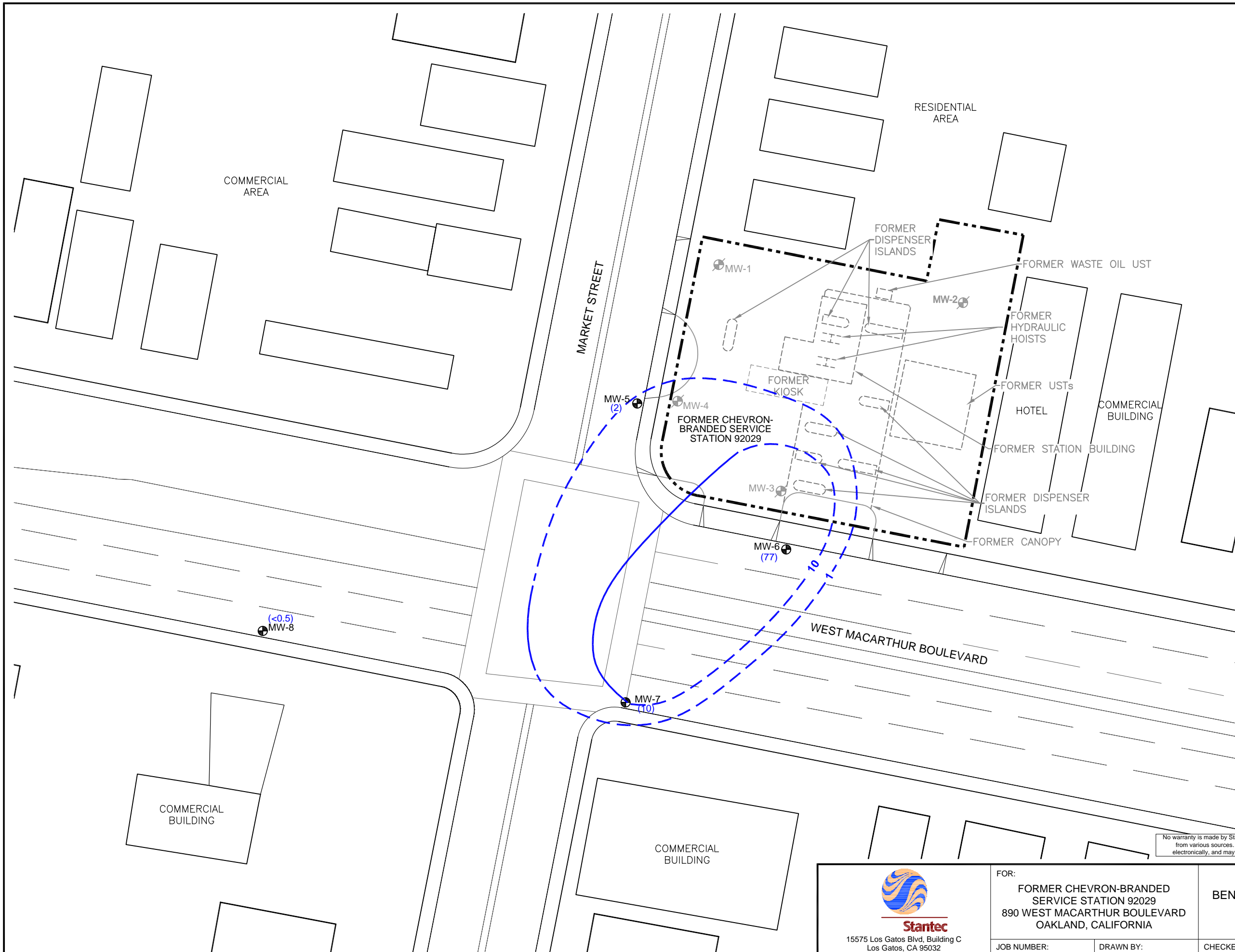
NOTE

FORMER SITE FEATURES ARE IN APPROXIMATE LOCATIONS



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 Stantec 15575 Los Gatos Blvd, Building C Los Gatos, CA 95032 Phone: (408) 356-6124 Fax: (408) 356-6138	FOR: FORMER CHEVRON-BRANDED SERVICE STATION 92029 890 WEST MACARTHUR BOULEVARD OAKLAND, CALIFORNIA		TPH-GRO ISOCONCENTRATION MAP - SECOND QUARTER 2013		FIGURE: 6
	JOB NUMBER: 211602398	DRAWN BY: JRO/NMB	CHECKED BY: EEO/MRK	APPROVED BY: TLF	DATE: 08/09/13

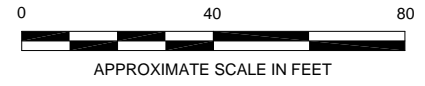
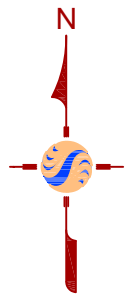


LEGEND


- APPROXIMATE SITE BOUNDARY
- UST UNDERGROUND STORAGE TANK
- ⊕ GROUNDWATER MONITORING WELL
- ⊕ ABANDONED/ DESTROYED GROUNDWATER MONITORING WELL
- (2) BENZENE CONCENTRATION (µg/L)
- BENZENE CONTOUR; DASHED WHERE INFERRED
- (µg/L) MICROGRAMS PER LITER

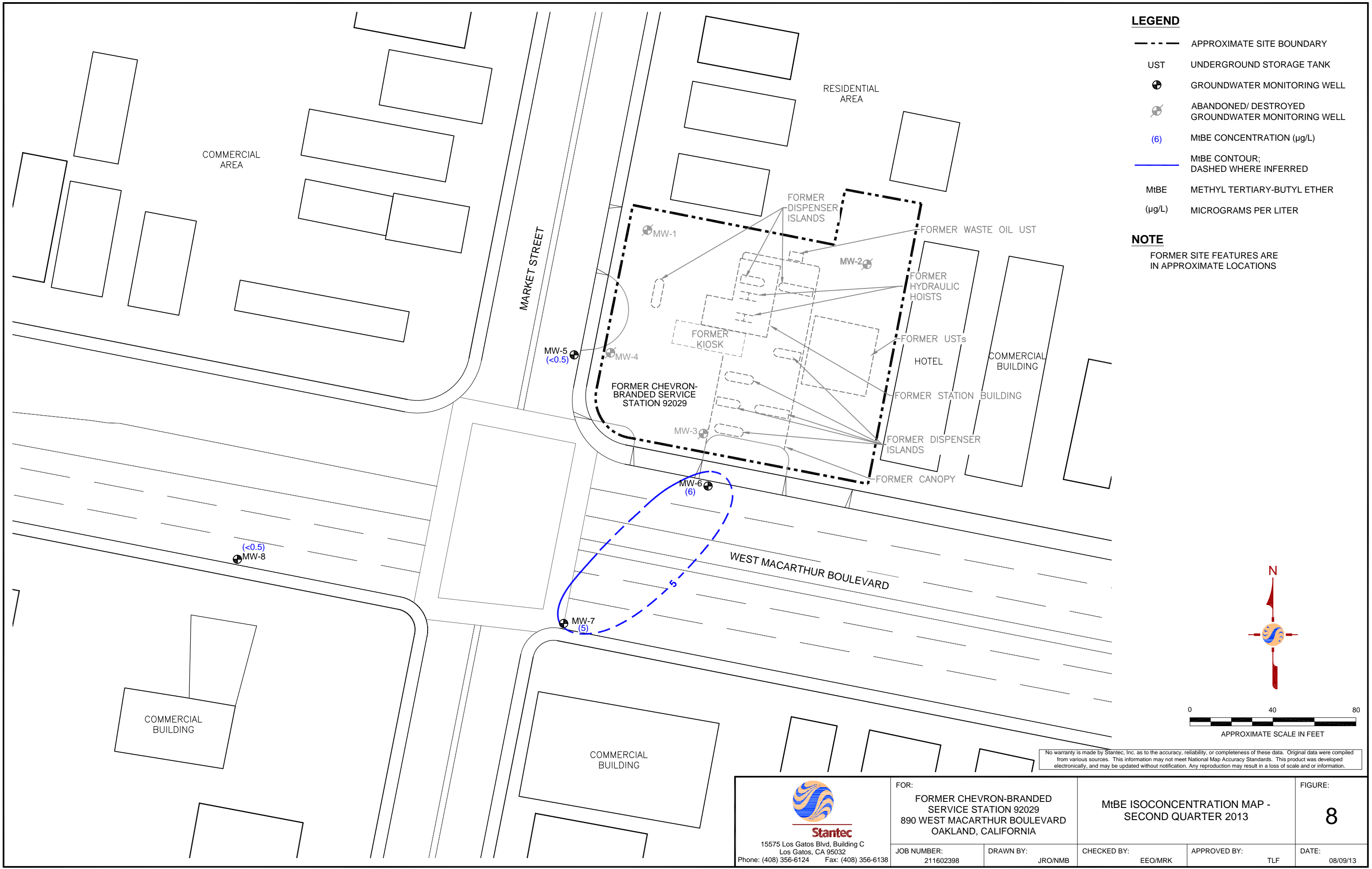
NOTE

FORMER SITE FEATURES ARE IN APPROXIMATE LOCATIONS



No warranty is made by Stantec, Inc. as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed electronically, and may be updated without notification. Any reproduction may result in a loss of scale and or information.

 Stantec 15575 Los Gatos Blvd, Building C Los Gatos, CA 95032 Phone: (408) 356-6124 Fax: (408) 356-6138	FOR: FORMER CHEVRON-BRANDED SERVICE STATION 92029 890 WEST MACARTHUR BOULEVARD OAKLAND, CALIFORNIA		BENZENE ISOCONCENTRATION MAP - SECOND QUARTER 2013		FIGURE: 7
	JOB NUMBER: 211602398	DRAWN BY: JRO/NMB	CHECKED BY: EEO/MRK	APPROVED BY: TLF	DATE: 08/09/13




LEGEND

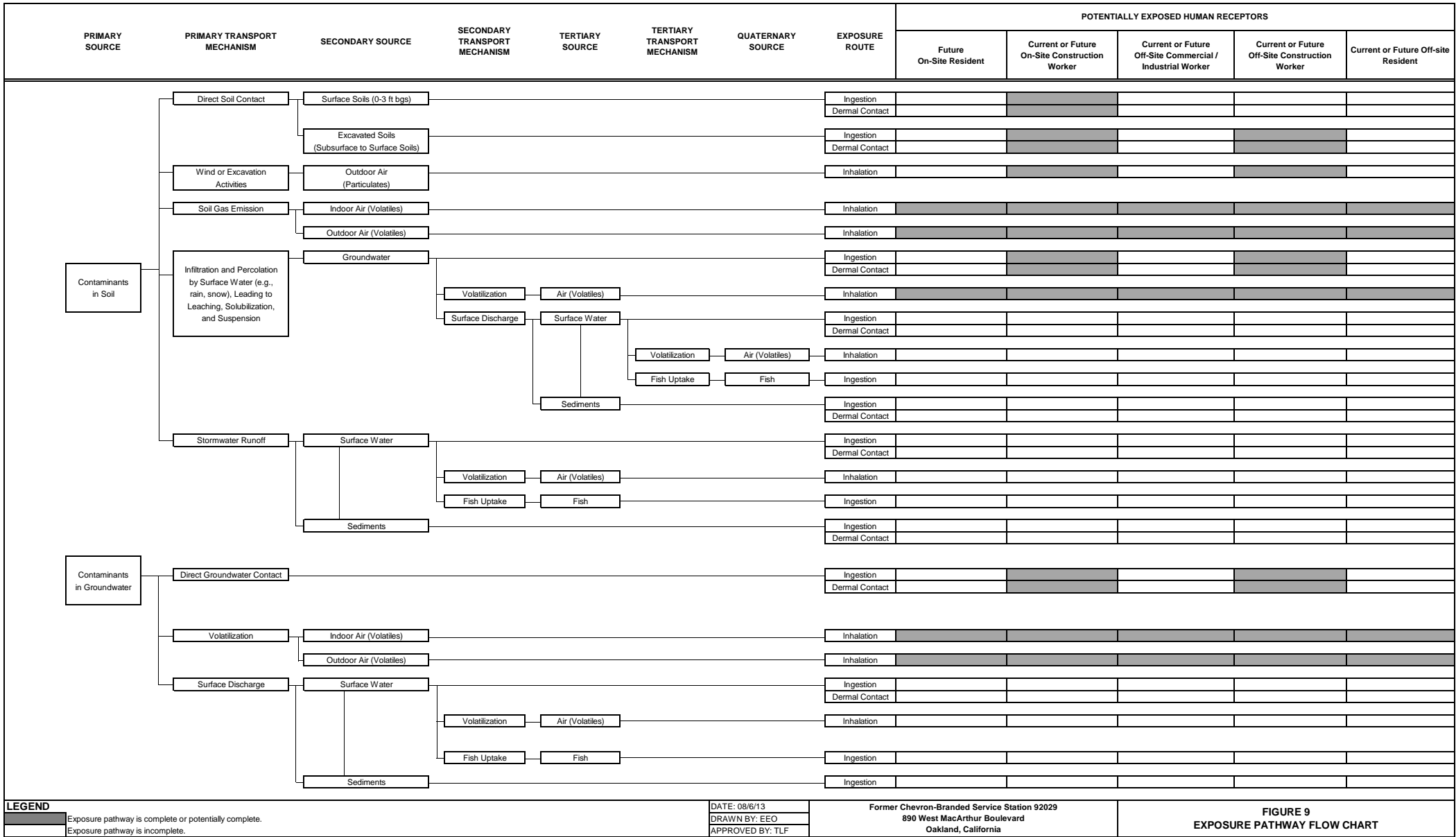
- APPROXIMATE SITE BOUNDARY
- UST UNDERGROUND STORAGE TANK
- ⊕ GROUNDWATER MONITORING WELL
- ⊕ ABANDONED/ DESTROYED GROUNDWATER MONITORING WELL
- (6) MtBE CONCENTRATION (µg/L)
- MtBE CONTOUR; DASHED WHERE INFERRED
- MtBE METHYL TERTIARY-BUTYL ETHER (µg/L)
- MtBE MICROGRAMS PER LITER



NOTE

FORMER SITE FEATURES ARE IN APPROXIMATE LOCATIONS

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 Stantec 15575 Los Gatos Blvd, Building C Los Gatos, CA 95032 Phone: (408) 356-6124 Fax: (408) 356-6138	FOR: FORMER CHEVRON-BRANDED SERVICE STATION 92029 890 WEST MACARTHUR BOULEVARD OAKLAND, CALIFORNIA		MtBE ISOCONCENTRATION MAP - SECOND QUARTER 2013		FIGURE: 8
	JOB NUMBER: 211602398	DRAWN BY: JRO/NMB	CHECKED BY: EEO/MRK	APPROVED BY: TLF	DATE: 08/09/13

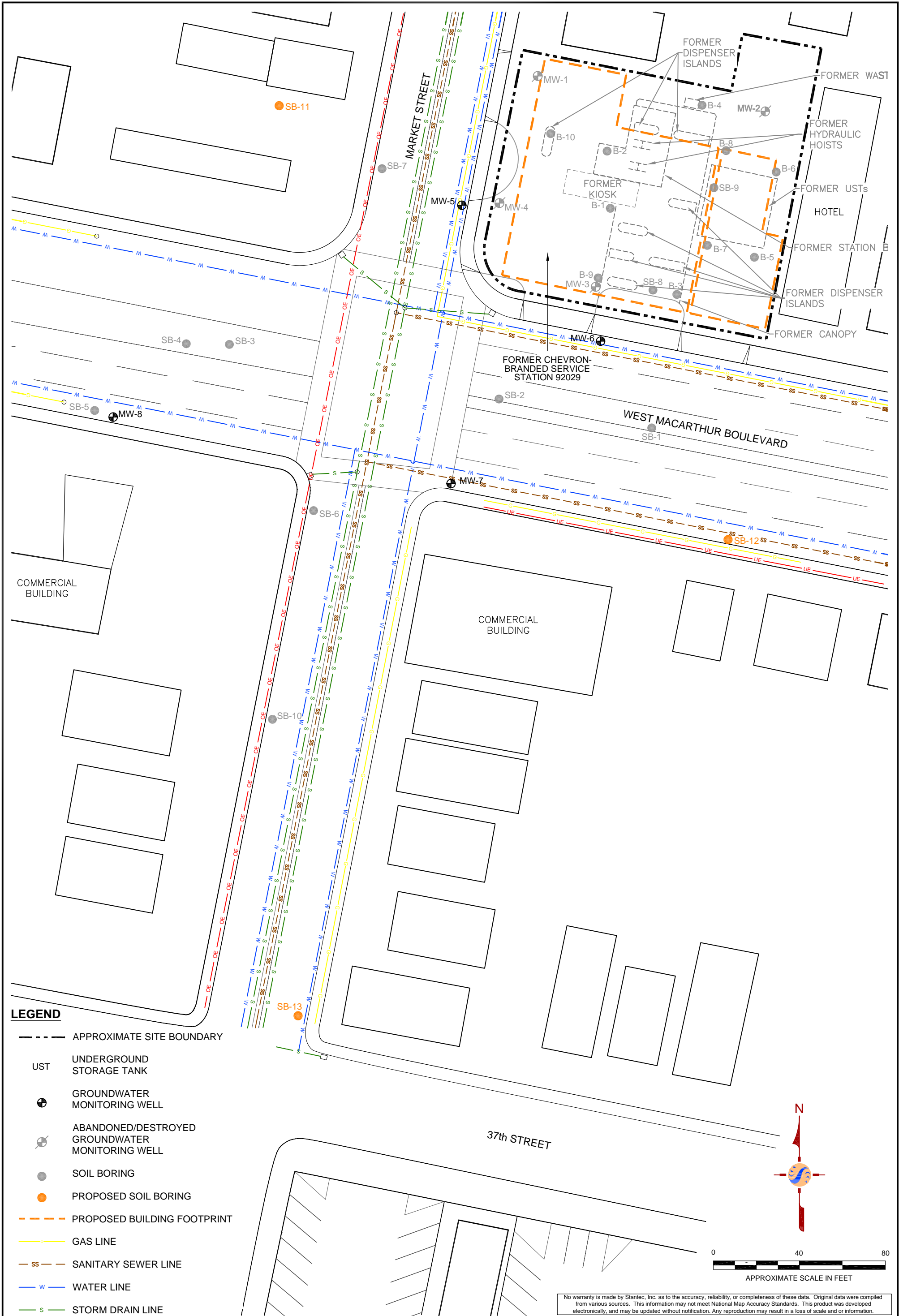


LEGEND
 Exposure pathway is complete or potentially complete.
 Exposure pathway is incomplete.

DATE: 08/6/13
 DRAWN BY: EEO
 APPROVED BY: TLF

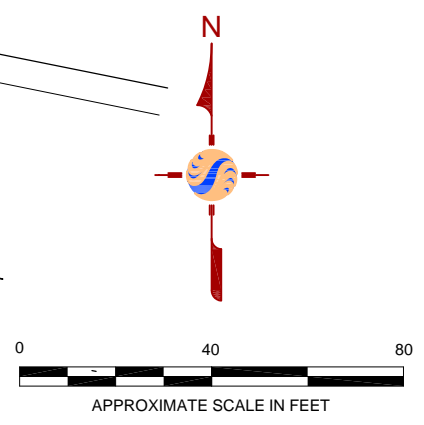
Former Chevron-Branded Service Station 92029
 890 West MacArthur Boulevard
 Oakland, California

FIGURE 9
EXPOSURE PATHWAY FLOW CHART




- LEGEND**
- APPROXIMATE SITE BOUNDARY
 - UST UNDERGROUND STORAGE TANK
 - ⊕ GROUNDWATER MONITORING WELL
 - ⊕ ABANDONED/DESTROYED GROUNDWATER MONITORING WELL
 - SOIL BORING
 - PROPOSED SOIL BORING
 - - - PROPOSED BUILDING FOOTPRINT
 - GAS LINE
 - SS — SANITARY SEWER LINE
 - W — WATER LINE
 - S — STORM DRAIN LINE
 - OE — OVERHEAD ELECTRICAL
 - UE — UNDERGROUND ELECTRICAL LINE

NOTE
FORMER SITE FEATURES ARE IN APPROXIMATE LOCATIONS



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 15575 Los Gatos Blvd, Building C Los Gatos, CA 95032 Phone: (408) 356-6124 Fax: (408) 356-6138	FOR: FORMER CHEVRON-BRANDED SERVICE STATION 92029 890 WEST MACARTHUR BOULEVARD OAKLAND, CALIFORNIA		SITE PLAN SHOWING PROPOSED SOIL BORING LOCATIONS		FIGURE: <h1 style="margin: 0;">10</h1>
	JOB NUMBER: 211602398	DRAWN BY: JRO/NMB	CHECKED BY: CJM	APPROVED BY: TLF	DATE: 08/12/13

Appendix A

Alameda County Environmental Health
Correspondence – May 21, 2013



ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

May 21, 2013

Mr. Carryl MacLeod
Chevron Environmental Management Co.
6101 Bollinger Canyon Road
San Ramon, CA 94583
(sent via electronic mail to:
CMacleod@chevron.com)

WestMac LLC
1842 21st Avenue
San Francisco, CA 94122
(sent via electronic mail to:
gathconstruc@aol.com
and sokaneconst@hotmail.com)

Mr. Buyandalai Itgel
787 Marlesta Road
Pinole, CA 94564
(sent via electronic mail to:
teamspirit74@yahoo.com)

Subject: Fuel Leak Case No. RO00002438; Chevron #9-2029 (Global ID #T0600173887), 890 MacArthur Blvd, Oakland, CA 94608

Dear Ms. MacLeod, WestMac LLC, and Mr. Itgel:

Alameda County Environmental Health (ACEH) staff has reviewed the case file including the *Additional Investigation Report*, generated by Conestoga-Rovers & Associates (CRA), and dated March 31, 2011, and the *Fourth Quarter 2012 Semi-Annual Groundwater Monitoring Report*, generated by Stantec Consulting Services, Inc (Stantec), and dated January 14, 2013. In these reports, your consultants conclude that no further investigation is warranted at the site, and recommend continued groundwater monitoring to evaluate possible declining trends and the potential for low-risk case closure.

ACEH has evaluated the data and recommendations presented in the above-mentioned reports, in conjunction with the case files, and the State Water Resources Control Board's (SWRCBs) Low Threat Underground Storage Tank Case Closure Policy (LTCP). Based on ACEH staff review, we have determined that the site fails to meet the LTCP General Criteria e (Site Conceptual Model), and the Media-Specific Criteria for Groundwater, and the Media-Specific Criteria for Vapor Intrusion to Indoor Air (see Attachment A for a copy of the LTCP checklist). ACEH's determination is based on insufficient data and analysis to support groundwater plume stability and delineation, and protection of human occupants of future site buildings from vapor intrusion.

Therefore, at this juncture ACEH requests that you prepare a Data Investigation Work Plan that is supported by a focused Site Conceptual Model (SCM) to address the Technical Comments provided below.

TECHNICAL COMMENTS

- 1. Site Redevelopment** - The site is a former Chevron-branded service station, and is currently a fenced vacant lot. However, ACEH understands that a residential redevelopment of the subject site is planned. The site appears to have been a petroleum service station since at least 1946. Chevron occupied the site between approximately 1956 and 2004 during which time there have been multiple generations of underground storage tanks (USTs) and station building reconfigurations. The majority of the site appears to have been remediated by excavation in 2005. However, although concentrations of chemicals of concern in groundwater have declined in paired wells (MW-4 and MW-5 and MW-3 and MW-6) since that time; they have done so neither quickly nor substantially. Consequently, there appears to be sufficient residual sources beneath the site to be of potential concern to a residential redevelopment. The type of future construction, including use areas, subgrade structures, foundation type, and/or other potential exposure points are of importance with respect to managing residual contamination at the site. Therefore, ACEH requests the proposed site redevelopment plans be disclosed and the potential for vapor intrusion to indoor air be addressed as discussed in Item 2 below.
- 2. LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air** – The LTCP describes conditions, including bioattenuation zones, which if met will assure that exposure to petroleum vapors in indoor air

will not pose unacceptable health risks to human occupants of existing or future site buildings, and adjacent parcels. Appendices 1 through 4 of the LTCP criteria illustrate four potential exposure scenarios and describe characteristics and criteria associated with each scenario.

Our review of the case files indicates that the site data and analysis fail to support the requisite characteristics of one of the four scenarios. Specifically, it appears that petroleum contamination migrated through a granular zone in very shallow soil beneath the site, as evidenced by residual soil concentrations of total petroleum hydrocarbon (TPH) over 100 milligrams per kilograms (mg/kg) in the 0 to 5 foot and the 5 to 10 foot intervals. Therefore, please present a strategy in the Data Gap Investigation Work Plan described in Item 4 below to collect additional data to satisfy the bioattenuation zone characteristics of Scenarios 1, 2 or 3, or to collect gas data to satisfy Scenario 4.

Alternatively, please provide justification of why the site satisfies the Media-Specific Criteria for Vapor Intrusion to Indoor Air in a SCM that assures that exposure to petroleum vapors in indoor air will not pose unacceptable health risks to occupants of future buildings.

Please note, that if direct measurement of soil gas is proposed, ensure that your strategy is consistent with the field sampling protocols described in the Department of Toxic Substances Control's Final Vapor Intrusion Guidance (October 2011). Consistent with the guidance, ACEH requires installation of permanent vapor wells to assess temporal and seasonal variations in soil gas concentrations.

- 3. LTCP Media Specific Criteria for 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 listed in the policy.

Our review of the case files indicates that insufficient data and analysis has been presented to support the requisite characteristics of plume stability or plume length classification. Specifically, it appears that more elevated hydrocarbon concentrations appear in well MW-6 in November of the most recent groundwater sampling years, and in the following May, in well MW-7. Based on non-detectable concentrations in all soil bores west of Market Street, including soil bore SB-3 to SB-6, and SB-10, CRA concludes that the plume has been delineated in the downgradient direction. However, our review indicates these soil bores are located downgradient of a storm drain line with a flow elevation of 32.7 feet while groundwater in upgradient wells MW-7 and MW-8 have been two to eight feet higher since at least August 2008. Therefore, ACEH is concerned that the plume is not delineated southeast of MW-7 due the potential preferential migration along the utility trenches which may skew the soil bore data and resultant conclusions regarding plume delineation.

Therefore, please continue to monitor groundwater at the site in accordance with the schedule below to collect sufficient data to demonstrate plume stability. Additionally, please present a strategy in the Data Gap Investigation Work Plan described in Item 4 below to collect sufficient data to delineate the distance from the release where attenuation exceeds migration and the distal end of the plume.

Alternatively, please provide justification of why the site satisfies the media-specific criteria for groundwater in the SCM (described in Technical Comment 4) that assures that threats to existing and anticipated beneficial uses of groundwater have been mitigated or are de minimis.

- 4. Data Gap Investigation Work Plan and Site Conceptual Model** – Please prepare Data Gap Investigation Work Plan to address the technical comments listed above. 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. If the sampling strategy includes data collection to support the proposed site redevelopment, a description of that redevelopment should be included in the Data Gap Investigation Work Plan to support your sampling strategy so that ACEH can verify the appropriateness of the proposed sample locations.

In order to expedite review, ACEH requests the 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 Data Gap Investigation scope of work to enable efficient data collection in the fewest mobilizations possible.

- 5. Path to Closure Project Schedule** - The State Water Resources Control Board passed Resolution No. 2012-0062 on November 6, 2012 which requires development of a "Path to Closure Plan" by December 31, 2013 that addresses the impediments to closure for the site. The Path to Closure must have milestone dates tied to calendar quarters which will achieve site cleanup and case closure in a timely and efficient manner and minimizes the cost of corrective action. Therefore, by the date listed below please prepare a Path to Closure Schedule for your site that incorporates the items identified by ACEH in the Technical Comments above as impediments to closure (further detailed in Attachment C). Additionally, please evaluate the site against the LTCP criteria and incorporate additional data collection activities in the Path to Closure Schedule and Data Gap Investigation Work Plan to address other impediments to closure under the policy not identified by ACEH. ACEH staff utilizes a Data Gap Identification Tool (DGIT) while reviewing cases for compliance with the LTCP criteria and identification of impediments to closure. We encourage you to also utilize the DGIT to (1) evaluate your site and develop an efficient path to site closure by focusing data collection efforts, if necessary, on the LTCP criteria, and (2) assist and expedite ACEH staff review of work plans and request for closures. ACEH will provide the DGIT as a PDF form via e-mail upon request. ACEH will review the schedule to ensure that all key elements are included.

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 Attachment 1 and the following specified file naming convention and schedule:

- **July 12, 2013** – Semi-Annual Groundwater Monitoring Report
File to be named: RO2438_WP_R_yyyy-mm-dd
- **July 26, 2013** – Site Redevelopment Plans
File to be named: RO2438_WP_R_yyyy-mm-dd
- **July 26, 2013** – Data Gap Investigation Plan and Site Conceptual Model
File to be named: RO2438_WP_R_yyyy-mm-dd
- **August 9, 2013** – Path to Closure Schedule
File to be named: RO2438_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>. If your email address does not appear on the cover page of this notification, ACEH is requesting you provide your email address so that we can correspond with you quickly and efficiently regarding your case.

If you have any questions, please call me at (510) 567-6876 or send me an electronic mail message at mark.detterman@acgov.org.

Sincerely,



Digitally signed by Mark Detterman
DN: cn=Mark Detterman, o, ou,
email=mark.detterman@acgov.org, c=US
Date: 2013.05.21 14:47:11 -07'00'

Mark E. Detterman, PG, CEG
Senior Hazardous Materials Specialist

Ms. MacLeod, WestMac LLC, and Mr. Itgel
RO0002438
May 21, 2013, Page 4

Enclosures: Attachment 1 – Responsible Party (ies) Legal Requirements / Obligations and Electronic Report Upload (ftp) Instructions

Attachment A – Geotracker LTCP Checklist

Attachment B – Site Conceptual Model Requisite Elements

Attachment C – Path to Closure Project Schedule Requisite Elements

cc: Travis Flora, Stantec Consulting Services, Inc, 15575 Los Gatos Blvd, Bldg C, Los Gatos, CA 95032
(sent via electronic mail to: Travis.Flora@Stantec.com)

Dan McGue, Paragon Real Estate Group, 1400 Van Ness Avenue, San Francisco, CA 94109
(sent via electronic mail to: DanMcGue@paragon.re.com)

Donna Drogos (sent via electronic mail to donna.drogos@acgov.org)

Dilan Roe (sent via electronic mail to dilan.roe@acgov.org)

Mark Detterman (sent via electronic mail to mark.detterman@acgov.org)

Electronic File, GeoTracker

Appendix B

Soil Boring and Well Construction Logs

Gettler-Ryan, Inc.

Log of Boring B-1

PROJECT: *Chevron Service Station #9-2029*

LOCATION: *880 West MacArthur Boulevard, Oakland, CA*

GR PROJECT NO.: *348503.01*

SURFACE ELEVATION: *--MSL*

DATE STARTED: *10/06/00*

WL (ft. bgs): *13.1* DATE: *10/08/00* TIME: *16:50*

DATE FINISHED: *10/08/00*

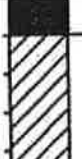
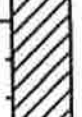


WL (ft. bgs): DATE: TIME:

DRILLING METHOD: *6 in. Hollow Stem Auger*

TOTAL DEPTH: *16.5 feet*

DRILLING COMPANY: *Bay Area Exploration*





GEOLOGIST: *Barbara Sieminski*

DEPTH (feet)	PID (ppm)	BLOWS/FT. #	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
0							PAVEMENT: Concrete over gravel.	Upon collection of grab groundwater sample, boring was backfilled with neat cement from total depth to ground surface.
5	75	N/A	B1-4			CL	CLAY (CL) - very dark grayish brown (10YR 3/2), moist, medium plasticity; 95% clay, 5% fine sand. Color changes to greenish gray (5GY 5/1) at 4 feet.	
8	82	18	B1-6					
10	240	14	B1-11			GC	CLAYEY GRAVEL (GC) - greenish gray (5GY 5/1), moist to saturated, medium dense; 70% subrounded to well rounded fine to coarse gravel, 20% clay, 10% fine to coarse sand.	
15	2	27	B1-16			CL	CLAY (CL) - yellowish brown (10YR 5/8), moist to damp, medium plasticity, hard; 90% clay, 10% fine sand.	
16.5							Bottom of boring at 16.5 feet bgs. (* = Converted to equivalent standard penetration blows/foot N/A = Not applicable)	
20								
25								
30								
35								

Gettler-Ryan, Inc.

Log of Boring B-2

PROJECT: <i>Chevron Service Station #9-2029</i>	LOCATION: <i>890 West MacArthur Boulevard, Oakland, CA</i>
GR PROJECT NO. : <i>346503.01</i>	SURFACE ELEVATION: <i>--MSL</i>
DATE STARTED: <i>10/06/00</i>	WL (ft. bgs): <i>13.0</i> DATE: <i>10/06/00</i> TIME: <i>16:10</i>
DATE FINISHED: <i>10/06/00</i>	WL (ft. bgs): DATE: TIME:
DRILLING METHOD: <i>6 in. Hollow Stem Auger</i>	TOTAL DEPTH: <i>18.5 feet</i>
DRILLING COMPANY: <i>Bay Area Exploration</i>	GEOLOGIST: <i>Barbara Sieminski</i>

DEPTH (feet)	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
0							PAVEMENT: Concrete over gravel.	Upon collection of grab groundwater sample, boring was backfilled with neat cement from total depth to ground surface.
3	10	N/A	B2-4			CL	CLAY (CL) - very dark grayish brown (10YR 3/2), moist, medium plasticity; 95% clay, 5% fine sand. Color changes to greenish gray (5GY 5/1) at 3 feet.	
5	17	15	B2-6			GC	CLAYEY GRAVEL (GC) - greenish gray (5GY 5/1), damp, medium dense; 60% subrounded to well rounded fine to coarse gravel, 30% clay, 10% fine to coarse sand.	
10	8	12	B2-11			CL	Color changes to yellowish brown (10YR 5/4) at 10 feet. Becomes moist to saturated at 11 feet.	
15	0	30	B2-16			CL	CLAY (CL) - yellowish brown (10YR 5/8), damp, medium plasticity, hard; 90% clay, 10% fine sand.	
18.5							Bottom of boring at 18.5 feet bgs. (* = Converted to equivalent standard penetration blows/foot N/A = Not applicable)	

Gettler-Ryan, Inc.

Log of Boring B-3

PROJECT: *Chevron Service Station #9-2029*

LOCATION: *890 West MacArthur Boulevard, Oakland, CA*

GR PROJECT NO. : *346503.01*

SURFACE ELEVATION: *--MSL*

DATE STARTED: *10/09/00*

WL (ft. bgs): *14.0* DATE: *10/09/00* TIME: *14:40*

DATE FINISHED: *10/09/00*





WL (ft. bgs): DATE: TIME:

DRILLING METHOD: *8 in. Hollow Stem Auger*

TOTAL DEPTH: *16.5 feet*

DRILLING COMPANY: *Woodward Drilling*



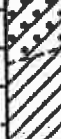
GEOLOGIST: *Barbara Sieminski*

DEPTH (feet)	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
0							PAVEMENT: Concrete over gravel.	Upon collection of grab groundwater sample boring was backfilled with neat cement from total depth to ground surface.
5	14	>100	B3-8			CL CLAY (CL) - very dark grayish brown (10YR 3/2), moist, medium plasticity; 95% clay, 5% fine sand. Color changes to greenish gray (5GY 5/1) at 4 feet.		
7						GC CLAYEY GRAVEL (GC) - greenish gray (5GY 5/1), damp, very dense; 50% subrounded fine to coarse gravel, 40% clay, 10% fine to coarse sand.		
10	400	8	B3-11			CL CLAY WITH SAND (CL) - yellowish brown (10YR 5/6), moist, medium stiff, low plasticity; 80% clay, 20% fine to coarse sand.		
14	0	>100	B3-16			GC CLAYEY GRAVEL (GC) - yellowish brown (10YR 5/6), saturated, very dense; 80% subrounded to well rounded fine to coarse gravel, 20% fine to coarse sand, 20% clay.		
16.5							Bottom of boring at 16.5 feet bgs. (* = Converted to equivalent standard penetration blows/foot.)	

Gettler-Ryan, Inc.

Log of Boring B-4

PROJECT: <i>Chevron Service Station #9-2029</i>	LOCATION: <i>890 West MacArthur Boulevard, Oakland, CA</i>
GR PROJECT NO.: <i>346503.01</i>	SURFACE ELEVATION: <i>--MSL</i>
DATE STARTED: <i>10/09/00</i>	WL (ft. bgs): <i>13.5</i> DATE: <i>10/09/00</i> TIME: <i>12:20</i>
DATE FINISHED: <i>10/09/00</i>	WL (ft. bgs): DATE: TIME:
DRILLING METHOD: <i>8 in. Hollow Stem Auger</i>	TOTAL DEPTH: <i>16.5 feet</i>
DRILLING COMPANY: <i>Woodward Drilling</i>	GEOLOGIST: <i>Barbara Sieminski</i>

DEPTH (feet)	PTD (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
0							PAVEMENT: Concrete over gravel.	Upon collection of grab groundwater sample, boring was backfilled with neat cement from total depth to ground surface.
5	0	>100	B4-6			CL	CLAY (CL) - very dark grayish brown (10YR 3/2), moist, medium plasticity; 95% clay, 5% fine sand.	
10	0	41	B4-11			GC	CLAYEY GRAVEL (GC) - greenish gray (5GY 5/1), damp, very dense; 50% subrounded fine gravel, 40% clay, 10% fine to coarse sand. Color changes to yellowish brown (10YR 5/6); becomes moist to saturated; gravel increases to 60%, fine to coarse sand increases to 20%, clay decreases to 20%.	
15	0	>100	B4-16			CL	CLAY (CL) - yellowish brown (10YR 5/8), moist, medium plasticity, hard; 90% clay, 10% fine to medium sand.	
16.5							Bottom of boring at 16.5 feet bgs. (* = Converted to equivalent standard penetration blows/foot.)	

Gettler-Ryan, Inc.

Log of Boring B-5

PROJECT: *Chevron Service Station #9-2029*

LOCATION: *890 West MacArthur Boulevard, Oakland, CA*

GR PROJECT NO.: *346503.01*

SURFACE ELEVATION: *--MSL*

DATE STARTED: *10/05/00*

NL (ft. bgs): *12.3* DATE: *10/08/00* TIME: *7:30*

DATE FINISHED: *10/08/00*





NL (ft. bgs): DATE: TIME:

DRILLING METHOD: *2 in. GeoProbe*

TOTAL DEPTH: *17.0 feet*

DRILLING COMPANY: *Bay Area Exploration*

GEOLOGIST: *Barbara Sieminski*

DEPTH (feet)	PTD (ppm)	BLOWS/FT. #	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
							PAVEMENT: Concrete over gravel.	
5	0	N/A	B5-8			CL	CLAY (CL) - very dark grayish brown (10YR 3/2), damp, medium plasticity; 90% clay, 10% fine to coarse sand. Color changes to olive (5Y 5/3) at 4 feet.	Upon collection of grab groundwater sample, boring was backfilled with neat cement from total depth to ground surface.
10	0	N/A	B5-11			GC	CLAYEY GRAVEL (GC) - brown (10YR 5/3), damp; 70% subrounded to well rounded fine to coarse gravel, 20% clay, 10% fine to coarse sand. Becomes moist at 8.5 feet.	
15	0	N/A	B5-16			CL	CLAY (CL) - yellowish brown (10YR 5/4), moist, medium plasticity; 70% clay, 30% silt. Becomes saturated at 12.3 feet.	
20	0	N/A	B5-16			CL	SANDY CLAY WITH GRAVEL (CL) - yellowish brown (10YR 5/6), moist, low plasticity; 60% clay, 30% fine to coarse sand, 10% subrounded fine gravel. Becomes damp at 16 feet. Bottom of boring at 17.0 feet bgs. (N/A = Not applicable)	

Gettler-Ryan, Inc.

Log of Boring B-6

PROJECT: <i>Chevron Service Station #0-2029</i>	LOCATION: <i>890 West MacArthur Boulevard, Oakland, CA</i>
GR PROJECT NO. : <i>346503.01</i>	SURFACE ELEVATION: <i>--MSL</i>
DATE STARTED: <i>10/05/00</i>	WL (ft. bgs): <i>11.8</i> DATE: <i>10/06/00</i> TIME: <i>16:35</i>
DATE FINISHED: <i>10/06/00</i>	WL (ft. bgs): DATE: TIME:
DRILLING METHOD: <i>2 in. GeoProbe/6 in. Hollow Stem Auger</i>	TOTAL DEPTH: <i>19.0 feet</i>
DRILLING COMPANY: <i>Bay Area Exploration</i>	GEOLOGIST: <i>Barbara Sieminski</i>

DEPTH (feet)	PID (ppm)	BLOMS/FT. #	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
							PAVEMENT: Concrete over gravel.	
						CL	CLAY (CL) - very dark grayish brown (10YR 3/2), damp, medium plasticity; 90% clay, 10% fine to coarse sand. Color changes to olive (5Y 5/3) at 4 feet.	Geoprobe boring collapsed before grab groundwater sample was collected, therefore, was redrilled with 6 in. hollow stem augers to facilitate grab groundwater sample collection. Upon collection of grab groundwater sample, boring was backfilled with neat cement from total depth to ground surface.
5	0	N/A	B6-8			GC	CLAYEY GRAVEL (GC) - olive (5Y 5/3) mottled light olive brown (2.5Y 5/6), damp; 60% subrounded fine to coarse gravel, 20% clay, 20% fine to coarse sand.	
10	0	N/A	B6-11			CL	SANDY CLAY (CL) - yellowish brown (10YR 5/4), moist, medium plasticity; 70% clay, 30% fine to coarse sand. ↓ Becomes saturated at 11.8 feet.	
15	0	N/A	B6-16			CL	CLAY (CL) - yellowish brown (10YR 5/6), moist, medium plasticity; 90% clay, 10% silt.	
	0	N/A	B6-18.5					
20							Bottom of boring at 19.0 feet bgs. (N/A = Not applicable)	
25								
30								
35								

Gettler-Ryan, Inc.

Log of Boring B-7

PROJECT: *Chevron Service Station #9-2029*

LOCATION: *890 West MacArthur Boulevard, Oakland, CA*

GR PROJECT NO.: *346503.01*

SURFACE ELEVATION: *--MSL*

DATE STARTED: *10/09/00*

WL (ft. bgs): *13.0* DATE: *10/09/00* TIME: *12:00*

DATE FINISHED: *10/09/00*

WL (ft. bgs): DATE: TIME:

DRILLING METHOD: *8 in. Hollow Stem Auger*

TOTAL DEPTH: *18.5 feet*

DRILLING COMPANY: *Woodward Drilling*

GEOLOGIST: *Barbara Sieminski*

DEPTH (feet)	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
0		N/A	B7-4			CL	PAVEMENT: Concrete over gravel. CLAY (CL) - very dark grayish brown (10YR 3/2), moist, medium plasticity; 95% clay, 5% fine sand. Color changes to greenish gray (5GY 5/1) at 4 feet.	Upon collection of grab groundwater sample boring was backfilled with neat cement from total depth to ground surface.
5	10	30	B7-6			GC	CLAYEY GRAVEL (GC) - greenish gray (5GY 5/1), damp, dense; 50% subrounded fine to coarse gravel, 40% clay, 10% fine to coarse sand.	
10	0	9	B7-11			CL	CLAY WITH SAND (CL) - yellowish brown (10YR 5/6), moist to saturated, medium stiff, low plasticity; 80% clay, 20% fine to coarse sand, trace fine gravel.	
15	0	29	B7-18			CL	CLAY (CL) - yellowish brown (10YR 5/6), moist to damp, hard; 90% clay, 10% fine to medium sand.	
20							Bottom of boring at 18.5 feet bgs. (* = Converted to equivalent standard penetration blows/foot N/A = Not applicable)	
25								
30								
35								

Gettler-Ryan, Inc.

Log of Boring B-8

PROJECT: *Chevron Service Station #9-2029*

LOCATION: *890 West MacArthur Boulevard, Oakland, CA*

GR PROJECT NO.: *346503.01*

SURFACE ELEVATION: *--MSL*

DATE STARTED: *10/06/00*

WL (ft. bgs): *12.8* DATE: *10/06/00* TIME: *16:30*

DATE FINISHED: *10/06/00*




WL (ft. bgs): DATE: TIME:

DRILLING METHOD: *6 in. Hollow Stem Auger*

TOTAL DEPTH: *16.5 feet*

DRILLING COMPANY: *Bay Area Exploration*

GEOLOGIST: *Barbara Sieminski*

DEPTH (feet)	PTD (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
0							PAVEMENT: Concrete over gravel.	Upon collection of grab groundwater sample, boring was backfilled with neat cement from total depth to ground surface.
5	6	16	88-8			CL CLAY (CL) - dark gray (10YR 4/1), moist, medium plasticity; 95% clay, 5% fine sand. Color changes to greenish gray (5GY 5/1) at 5 feet.		
10	0	13	88-11			GC CLAYEY GRAVEL (GC) - light olive brown (2.5Y 5/0), moist to saturated, medium dense; 70% subrounded fine to coarse gravel, 20% clay, 10% fine to coarse sand.		
15	0	24	88-16			CL CLAY WITH SAND (CL) - yellowish brown (10YR 5/8), moist, low plasticity, stiff; 80% clay, 20% fine to coarse sand, trace fine gravel.		
16.5							Bottom of boring at 16.5 feet bgs. (* = Converted to equivalent standard penetration blows/foot.)	
20								
25								
30								
35								

Gettler-Ryan, Inc.

Log of Boring B-9

PROJECT: *Chevron Service Station #9-2029*

LOCATION: *890 West MacArthur Boulevard, Oakland, CA*

GR PROJECT NO.: *348503.01*

SURFACE ELEVATION: *--MSL*

DATE STARTED: *10/09/00*

WL (ft. bgs): DATE: TIME:

DATE FINISHED: *10/09/00*





WL (ft. bgs): DATE: TIME:

DRILLING METHOD: *8 in. Hollow Stem Auger*

TOTAL DEPTH: *17.0 feet*

DRILLING COMPANY: *Woodward Drilling*

GEOLOGIST: *Barbara Sieminski*

DEPTH (feet)	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
							PAVEMENT: Concrete over gravel.	Boring was backfilled with neat cement from total depth to ground surface.
5	180	27	B9-6			CL	CLAY (CL) - very dark grayish brown (10YR 3/2), moist, medium plasticity; 95% clay, 5% fine sand. Color changes to greenish gray (5GY 5/1) at 4 feet.	
						GC	CLAYEY GRAVEL (GC) - greenish gray (5GY 5/1), damp, dense; 50% subrounded fine to coarse gravel, 40% clay, 10% fine to coarse sand.	
10	280	10	B9-11			CL	CLAY WITH SAND (CL) - yellowish brown (10YR 5/8), moist to saturated, medium stiff, low plasticity; 80% clay, 20% fine to coarse sand.	
15	0	>100	B9-16			CL	CLAY WITH SAND AND GRAVEL (CL) - yellowish brown (10YR 5/8), moist to damp, hard; 75% clay, 20% fine to coarse sand, 5% subrounded fine gravel. No sufficient water for sample collection after waiting 2 hours. Bottom of boring at 17.0 feet bgs. (* = Converted to equivalent standard penetration blows/foot)	
20								
25								
30								
35								

Gettler-Ryan, Inc.

Log of Boring B-10

PROJECT: *Chevron Service Station #9-2029*

LOCATION: *890 West MacArthur Boulevard, Oakland, CA*

GR PROJECT NO.: *346503.01*

SURFACE ELEVATION: *--MSL*

DATE STARTED: *10/06/00*

WL (ft. bgs): *13.8* DATE: *10/09/00* TIME: *7:30*

DATE FINISHED: *10/09/00*

WL (ft. bgs): DATE: TIME:

DRILLING METHOD: *6 in. Hollow Stem Auger*

TOTAL DEPTH: *16.5 feet*

DRILLING COMPANY: *Bay Area Exploration*

GEOLOGIST: *Barbara Sieminski*

DEPTH (feet)	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
0							PAVEMENT: Concrete over gravel.	
0		N/A	B10-4			CL	CLAY (CL) - very dark grayish brown (10YR 3/2), moist, medium plasticity; 95% clay, 5% fine sand. Color changes to greenish gray (5GY 5/1) at 3.5 feet. With yellowish brown mottling (10YR 5/8) at 6 feet.	Upon collection of grab groundwater sample, boring was backfilled with neat cement from total depth to ground surface.
5		10	B10-6					
10		18	B10-10			GC	CLAYEY GRAVEL (GC) - light olive brown (2.5GY 5/6) mottled gray (2.5Y 5/0), moist to saturated, medium dense; 70% subrounded fine to coarse gravel, 20% clay, 10% fine to coarse sand.	
10	27	18	B10-11					
15		24	B10-16			CL	CLAY (CL) - yellowish brown (10YR 5/8), moist to damp, medium plasticity, very stiff; 90% clay, 10% fine sand.	
16.5							Bottom of boring at 16.5 feet bgs. (* = Converted to equivalent standard penetration blows/foot N/A = Not applicable)	

Gettler-Ryan, Inc.

Log of Boring MW-1

PROJECT: *Chevron Service Station No. 9-2029*

LOCATION: *890 West MacArthur Blvd., Oakland, CA*

GR PROJECT NO.: *DG92029G.4C01*

CASING ELEVATION: *50.71 ft. (MSL)*

DATE STARTED: *03/01/02*

WL (ft. bgs): *10.0* DATE: *03/01/02* TIME: *08:46*

DATE FINISHED: *03/01/02*

WL (ft. bgs): DATE: TIME:

DRILLING METHOD: *8 in. Hollow Stem Auger*

TOTAL DEPTH: *25 feet*

DRILLING COMPANY: *Gregg Drilling*

GEOLOGIST: *Geoff Risse*

DEPTH (feet)	PTD (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
0							Concrete over base rock - 8 inches thick.	
4	180	23	MWI-8			CL	CLAY (CL) - yellowish brown (10YR 5/8) mottled with rust, moist, very stiff, low plasticity; 95% clay, 5% fine sand.	
8							Becomes saturated.	
12	860	26	MWI-11				Becomes hard.	
16		40						
20	175	30	MWI-21				Color changes to brown (7.5YR 5/4), becomes very stiff; 90% clay, 5% fine sand, 5% fine gravel.	
24	1000	40	MWI-24.5			SP	POORLY GRADED SAND (SP) - brown (7.5YR 5/4), saturated, dense; 90% coarse sand, 10% fine gravel.	
28							Bottom of boring at 25 feet bgs. (* = Converted to equivalent standard penetration blows/foot.)	

Gettler-Ryan, Inc.

Log of Boring MW-2

PROJECT: <i>Chevron Service Station No. 9-2029</i>	LOCATION: <i>890 West MacArthur Blvd., Oakland, CA</i>
GR PROJECT NO.: <i>DG920296.4C01</i>	CASING ELEVATION: <i>52.57 ft. (MSL)</i>
DATE STARTED: <i>03/01/02</i>	WL (ft. bgs): <i>10.0</i> DATE: <i>03/01/02</i> TIME: <i>11:06</i>
DATE FINISHED: <i>03/01/02</i>	WL (ft. bgs): DATE: TIME:
DRILLING METHOD: <i>8 in. Hollow Stem Auger</i>	TOTAL DEPTH: <i>25 feet</i>
DRILLING COMPANY: <i>Gregg Drilling</i>	GEOLOGIST: <i>Geoff Risse</i>

DEPTH (feet)	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
0 - 6						CL	Concrete over base rock - 6 inches thick. CLAY (CL) - grayish brown (10YR 5/2) mottled with rust, moist, very stiff, low plasticity; 90% clay, 10% fine gravel.	
6 - 8						CLAY WITH GRAVEL (CL) - brown (7.5YR 4/4), saturated, hard, low plasticity; 85% clay, 15% medium gravel.		
8 - 12						CLAY (CL) - brown (7.5YR 4/4), saturated, very stiff, low plasticity; 95% clay, 5% fine sand.		
12 - 20						Color changes to black (7.5YR 2.5/1), becomes stiff; 95% clay, 5% fine sand.		
20 - 24						POORLY GRADED SAND (SP) - black (7.5YR 2.5/1), saturated, dense; 95% coarse sand, 5% clay.		
24 - 25							Bottom of boring at 25 feet bgs. (* = Converted to equivalent standard penetration blows/foot.)	

Gettler-Ryan, Inc.

Log of Boring MW-3

PROJECT: *Chevron Service Station No. 9-2029*

LOCATION: *890 West MacArthur Blvd., Oakland, CA*

GR PROJECT NO.: *DG920296.4C01*

CASING ELEVATION: *50.31 ft. (MSL)*

DATE STARTED: *03/01/02*

WL (ft. bgs): *10.0* DATE: *03/01/02* TIME: *13:02*

DATE FINISHED: *03/01/02*

WL (ft. bgs): DATE: TIME:

DRILLING METHOD: *8 in. Hollow Stem Auger*

TOTAL DEPTH: *25 feet*

DRILLING COMPANY: *Gregg Drilling*

GEOLOGIST: *Geoff Risse*

DEPTH (feet)	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
0							Concrete over base rock - 6 inches thick.	
4	7	28	MW3-4.5		[Hatched pattern]	CL	CLAY (CL) - greenish gray (5G 5/1), moist, very stiff; 90% clay, 10% gravel, coarse sand lenses, hydrocarbon odor.	
8	1000	29	MW3-9.5		[Vertical lines pattern]	ML	SILT (ML) - gray (N6), saturated, very stiff; 90% silt, 10% fine to medium sand, faint hydrocarbon odor.	
12	1000	53	MW3-14.5		[Hatched pattern]	CL	CLAY (CL) - dark gray (N4), saturated, hard, low plasticity; 95% clay, 5% fine sand.	
20	280	48	MW3-19.5		[Hatched pattern]		Color changes to dark brown (7.5YR 3/2); becomes 90% clay, 5% fine sand, 5% fine gravel.	
24	4500	49	MW3-24.5		[Dotted pattern]	SP	POORLY GRADED SAND (SP) - brown (7.5YR 4/3), saturated, dense; 90% coarse sand, 5% coarse gravel, 5% clay.	
25							Bottom of boring at 25 feet bgs. (* = Converted to equivalent standard penetration blows/foot.)	

Gettler-Ryan, Inc.

Log of Boring MW-4

PROJECT: *Chevron Service Station No. 9-2029*

LOCATION: *890 West MacArthur Blvd., Oakland, CA*

GR PROJECT NO.: *DG92029G.4C01*

CASING ELEVATION: *49.93 ft. (MSL)*

DATE STARTED: *03/01/02*

WL (ft. bgs): *10.0* DATE: *03/01/02* TIME: *15:23*

DATE FINISHED: *03/01/02*

WL (ft. bgs): DATE: TIME:

DRILLING METHOD: *8 in. Hollow Stem Auger*

TOTAL DEPTH: *25 feet*

DRILLING COMPANY: *Gregg Drilling*

GEOLOGIST: *Geoff Risse*

DEPTH (feet)	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
0							Concrete over base rock - 6 inches thick.	
4	7	28	MW4-4		[Hatched pattern]	CL	CLAY (CL) - light gray (7.5YR 7/1), moist, very stiff, non-plastic; 95% clay, 5% fine sand, faint hydrocarbon odor.	
8		22	MW4-9.5		[Dotted pattern]	SP	POORLY GRADED SAND (SP) - gray (7.5YR 6/1), saturated, dense; 90% coarse to medium sand, 10% fine to coarse gravel, faint hydrocarbon odor.	
12		0	MW4-14.5		[Hatched pattern]	CL	CLAY (CL) - brown (7.5YR 4/3), saturated, hard, low-plasticity; 95% clay, 5% fine sand.	
16							becomes very stiff.	
20	4	31	MW4-19.5		[Dotted pattern]	SW	WELL-GRADED SAND (SW) - gray (7.5YR 6/1), saturated, dense; 90% fine to coarse sand, 10% fine to coarse gravel.	
24	1	48	MW4-24.5		[Dotted pattern]		Bottom of boring at 25 feet bgs. (* = Converted to equivalent standard penetration blows/foot.)	



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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management	BORING/WELL NAME	SB-1
JOB/SITE NAME	9-2029	DRILLING STARTED	28-Mar-06
LOCATION	890 West MacArthur Boulevard, Oakland, CA	DRILLING COMPLETED	28-Mar-06
PROJECT NUMBER	61H-1974	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Fisch Environmental Construction Services	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Geoprobe Direct Push	TOP OF CASING ELEVATION	Not Surveyed
BORING DIAMETER	3"	SCREENED INTERVAL	NA
LOGGED BY	B. DeBoer	DEPTH TO WATER (First Encountered)	20.0 ft (28-Mar-06)
REVIEWED BY	D. Herzog, PG# 7211	DEPTH TO WATER (Static)	NA
REMARKS	Hand auger clearing to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
				0.3			ASPHALT	0.3	
				1.0			CONCRETE	1.0	
				4.5			SILT ; Dry; light brown; 60% silt, 40% clay; high plasticity; low estimated permeability.	4.5	
0				5			SILT with sand ; Dry; light brown; 45% silt, 40% clay, 15% fine sand; medium plasticity; low estimated permeability.	6.0	
				6.0			Sandy SILT ; Dry; light brown; 50% silt, 30% medium sand, 10% clay, 10% fine gravel; medium plasticity; moderate estimated permeability.	9.0	
				9.0	ML			9.0	
0				10			SILT with sand ; Dry; brown; 50% silt, 25% very fine sand, 25% clay; high plasticity; low estimated permeability.	11.0	
				11.0			SILT with gravel ; Light greenish gray; dry; 50% silt, 35% fine gravel, 15% medium sand; medium plasticity; medium estimated permeability.	12.0	
				12.0			SILT ; Brown; moist; 85% silt, 15% clay; high plasticity; low estimated permeability.	13.0	
				13.0			SILT with gravel ; dry; brown; 30% clay, 50% silt, 20% fine gravel; medium plasticity; low estimated permeability.	16.0	
21				15				16.0	
				16.0	GW		Well-graded GRAVEL with sand ; Brown; moist; 65% fine gravel, 15% silt, 20% medium sand; high estimated permeability.	17.0	
				17.0	ML		SILT with gravel ; Brown; moist; 50% silt, 30% clay, 20% fine gravel; medium plasticity; low estimated permeability.	20.0	
0				20			SAND with silt and gravel ; Brown; wet; 70% fine and medium sand, 15% silt, 15% fine gravel; high estimated permeability.	20.5	
				20.5	SW			20.5	
				25			No Recovery due to large volume of water in boring.	27.0	
0				27				27.0	
				27.0			SAND with gravel ; Brown; wet; 85% medium sand, 15% fine gravel; high estimated permeability.	31.0	
0				30				31.0	
				30	SP			31.0	

WELL LOG (PID) R:19-2029-1INVEST-1GINTMARCH 2006.GPJ DEFAULT.GDT 5/22/06



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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management	BORING/WELL NAME	SB-2
JOB/SITE NAME	9-2029	DRILLING STARTED	28-Mar-06
LOCATION	890 West MacArthur Boulevard, Oakland, CA	DRILLING COMPLETED	28-Mar-06
PROJECT NUMBER	61H-1974	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Fisch Environmental Construction Services	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Geoprobe Direct Push	TOP OF CASING ELEVATION	Not Surveyed
BORING DIAMETER	3"	SCREENED INTERVAL	NA
LOGGED BY	B. DeBoer	DEPTH TO WATER (First Encountered)	18.0 ft (28-Mar-06)
REVIEWED BY	D. Herzog, PG# 7211	DEPTH TO WATER (Static)	NA
REMARKS	Hand auger clearing to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
				0.3			ASPHALT	0.3	
				1.0			CONCRETE	1.0	
				4.5	ML		SILT ; Black; dry; 60% silt, 40% clay; high plasticity; low estimated permeability. Green mottling present	4.5	
0				5	ML		Silt with SAND ; Light brown with green; 40% clay, 35% silt, 15% fine sand, 10% fine gravel; moderate plasticity; low estimated permeability.	8.0	
				8.0	SM		Sand with SILT ; Brown with green; dry; 60% medium sand, 30% silt, 10% fine gravel; low plasticity; moderate estimated permeability.	9.0	
0				10	ML		SILT ; Light green; moist; 85% silt, 15% clay; moderate plasticity; medium estimated permeability.	12.0	
				12.0	ML		SILT with gravel ; Green; moist; 70% silt, 20% fine gravel, 10% clay.; moderate plasticity; medium estimated permeability.	12.5	
				12.5	ML		SILT ; Light green; moist; 80% silt, 10% clay, 10% fine gravel; moderate plasticity; medium estimated permeability.	15.5	
0				15	GW		GRAVEL with silt and sand ; Light brown; dry; 60% fine gravel, 25% fine sand, 15% silt ; high estimated permeability.	17.0	
				17.0	ML		SILT ; Light brown; moist; 90% silt, 10% clay; high plasticity; low estimated permeability.	18.5	
				18.5	GW		GRAVEL with silt and sand ; Light brown; moist; 65% fine gravel, 15% silt, 20% fine sand; high estimated permeability.	20.0	
0				20	SW		SAND with silt and gravel ; Brown; wet; 70% fine and medium sand, 15% silt, 15% fine gravel; high estimated permeability.	20.5	
				20.5			No Recovery due to large volume of water in boring.	27.0	
0				25				27.0	
				27.0	SP		SAND with gravel ; Brown; wet; 85% medium sand, 15% fine gravel; high estimated permeability.	31.0	
0				30				31.0	

WELL LOG (PID) R:\9-2029-1\INVEST-1\GINT\MARCH 2006.GPJ_DEFAULT.T.GDT 5/22/06



CLIENT NAME	<u>Chevron Environmental Management</u>	BORING/WELL NAME	<u>SB-3</u>
JOB/SITE NAME	<u>9-2029</u>	DRILLING STARTED	<u>30-Mar-06</u>
LOCATION	<u>890 West MacArthur Boulevard, Oakland, CA</u>	DRILLING COMPLETED	<u>30-Mar-06</u>
PROJECT NUMBER	<u>61H-1974</u>	WELL DEVELOPMENT DATE (YIELD)	<u>NA</u>
DRILLER	<u>Fisch Environmental Construction Services</u>	GROUND SURFACE ELEVATION	<u>Not Surveyed</u>
DRILLING METHOD	<u>Geoprobe Direct Push</u>	TOP OF CASING ELEVATION	<u>Not Surveyed</u>
BORING DIAMETER	<u>3"</u>	SCREENED INTERVAL	<u>NA</u>
LOGGED BY	<u>B. DeBoer</u>	DEPTH TO WATER (First Encountered)	<u>14.0 ft (30-Mar-06)</u>
REVIEWED BY	<u>D. Herzog, PG# 7211</u>	DEPTH TO WATER (Static)	<u>NA</u>
REMARKS	<u>Hand auger clearing to 8 fbg.</u>		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
				0.3			ASPHALT	0.3	
				1.0			CONCRETE	1.0	
0				5			SAND with silt and gravel ; Light brown; dry; 45% fine and medium sand, 30% silt, 25% fine gravel; low plasticity; high estimated permeability.		
				7.0	SM			7.0	
0				10	SM		SAND with silt and gravel ; Light brown; dry; 50% fine and medium sand, 30% fine gravel, 20% silt; low plasticity; high estimated permeability.		
				12.0				12.0	
				13.0	SM		SAND with silt and gravel ; Light brown; moist; 45% fine and medium sand, 30% silt, 25% fine gravel; low plasticity; high estimated permeability.	13.0	
0				15	ML		SILT with sand ; Brown; wet; 60% silt, 15% clay, 15% fine sand, 10% fine gravel; medium plasticity; low estimated permeability.	15.0	
				17.0				17.0	
				20.0	ML		SILT ; Light brown; dry; 60% silt, 40% clay; high plasticity; low estimated permeability.	20.0	
0				20			Hydropunch interval-Not logged		
				25					
				30					
				34.0				34.0	
									Bottom of

WELL LOG (PID) R:19-2029-1INVEST-1GINTMARCH 2006.GPJ DEFAULT.GDT 5/22/06



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BORING/WELL LOG

CLIENT NAME	<u>Chevron Environmental Management</u>	BORING/WELL NAME	<u>SB-3</u>
JOB/SITE NAME	<u>9-2029</u>	DRILLING STARTED	<u>30-Mar-06</u>
LOCATION	<u>890 West MacArthur Boulevard, Oakland, CA</u>	DRILLING COMPLETED	<u>30-Mar-06</u>

Continued from Previous Page

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
									Boring @ 34 ft

WELL LOG (PID) R:\9-2029-1\INVEST-1\GINT\MARCH 2006.GPJ_DEFAULT.GDT 5/22/05



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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management	BORING/WELL NAME	SB-4
JOB/SITE NAME	9-2029	DRILLING STARTED	29-Mar-06
LOCATION	890 West MacArthur Boulevard, Oakland, CA	DRILLING COMPLETED	29-Mar-06
PROJECT NUMBER	61H-1974	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Fisch Environmental Construction Services	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Geoprobe Direct Push	TOP OF CASING ELEVATION	Not Surveyed
BORING DIAMETER	3"	SCREENED INTERVAL	NA
LOGGED BY	B. DeBoer	DEPTH TO WATER (First Encountered)	NA
REVIEWED BY	D. Herzog, PG# 7211	DEPTH TO WATER (Static)	NA
REMARKS	Hand auger clearing to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
				0.3			ASPHALT	0.3	
				1.0			CONCRETE	1.0	
				3.0	ML		SILT with sand ; Light brown; dry; 75% silt, 25% medium sand; moderate plasticity; low estimated permeability.	3.0	
				5.0	SP SM		SAND with silt ; Light brown; dry; 60% fine sand, 35% silt, 5% fine gravel; low plasticity, high estimated permeability.	5.0	
0				7.0			SILT ; Light brown; dry; 70% silt, 20% clay, 5% fine sand, 5% fine gravel; low plasticity; low estimated permeability.	7.0	
				9.0			SILT with sand and gravel ; Light brown; dry; 60% silt, 20% fine gravel, 15% fine sand, 5% clay, ; moderate plasticity; medium estimated permeability.	9.0	
0				10.0			SILT with sand ; Light brown; 75% silt, 15% fine sand, 10% clay; high plasticity; low estimated permeability.	10.0	
				14.0			Sandy SILT with gravel ; Light brown; moist; 50% silt, 25% very fine sand, 20% fine gravel 5% clay, ; moderate plasticity; moderate estimated permeability.	14.0	
0				16.0			SILT ; Light brown; dry; 60% silt, 40% clay; high plasticity; low estimated permeability	16.0	
				20.0	ML		SILT ; Light brown; dry; 65% silt, 25% clay, 10% very fine sand; high plasticity; low estimated permeability.	20.0	
0				25.0				25.0	
0				30.0				30.0	
0				30.0				30.0	Bottom of Boring @ 30 ft

WELL LOG (PID) R:19-2029-1INVEST-1GINTMARCH 2006.GPJ DEFAULT.GDT 5/22/05



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BORING/WELL LOG

CLIENT NAME	<u>Chevron Environmental Management</u>	BORING/WELL NAME	<u>SB-5</u>
JOB/SITE NAME	<u>9-2029</u>	DRILLING STARTED	<u>29-Mar-06</u>
LOCATION	<u>890 West MacArthur Boulevard, Oakland, CA</u>	DRILLING COMPLETED	<u>29-Mar-06</u>
PROJECT NUMBER	<u>61H-1974</u>	WELL DEVELOPMENT DATE (YIELD)	<u>NA</u>
DRILLER	<u>Fisch Environmental Construction Services</u>	GROUND SURFACE ELEVATION	<u>Not Surveyed</u>
DRILLING METHOD	<u>Geoprobe Direct Push</u>	TOP OF CASING ELEVATION	<u>Not Surveyed</u>
BORING DIAMETER	<u>3"</u>	SCREENED INTERVAL	<u>NA</u>
LOGGED BY	<u>B. DeBoer</u>	DEPTH TO WATER (First Encountered)	<u>30.0 ft (29-Mar-06)</u>
REVIEWED BY	<u>D. Herzog, PG# 7211</u>	DEPTH TO WATER (Static)	<u>NA</u>
REMARKS	<u>Hand auger clearing to 8 fbg.</u>		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
				0.5			CONCRETE	0.5	
				3.0	ML		Sandy SILT ; Golden brown; dry; 60% silt, 30% fine sand, 10% clay; moderate plasticity; low estimated permeability.	3.0	
0				5	GW GM		GRAVEL with silt and sand ; Brown; 40% silt, 40% coarse gravel, 20% fine sand; low plasticity; moderate estimated permeability.	8.0	
0				10			SILT with sand ; Brown; moist; 50% silt, 25% fine sand, 15% clay, 10% fine gravel; low plasticity; low estimated permeability.	13.0	
0				15			SILT with gravel ; Brown; moist; 65% silt, 15% clay, 10% fine sand, 10% fine gravel; low plasticity; low estimated permeability.	17.0	
0				20	ML		SILT with gravel ; Brown; moist; 75% silt, 15% fine sand, 10% fine gravel; low plasticity; low estimated permeability.	20.0	
0				25					
0				30			Saturated		
0				32.0					
0				34.0	SW SM		SAND with silt and gravel ; Brownish black; moist; 40% coarse sand, 30% silt, 30% fine gravel; low plasticity, high estimated permeability.	34.0	
0				35			Hydropunch Interval-Not Logged		

← Portland Type III

WELL LOG (PID) R:19-2029-1INVEST-1GINTMARCH-1GINTMARCH 2006.GPJ DEFAULT.GDT 5/22/06




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BORING/WELL LOG

CLIENT NAME Chevron Environmental Management BORING/WELL NAME SB-5
 JOB/SITE NAME 9-2029 DRILLING STARTED 29-Mar-06
 LOCATION 890 West MacArthur Boulevard, Oakland, CA DRILLING COMPLETED 29-Mar-06

Continued from Previous Page

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
				40				44.0	 Bottom of Boring @ 44 ft

WELL LOG (PID) R:19-2029-1INVEST-1GINTMARCH 2006.GPJ DEFAULT.GDT 5/22/06



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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management	BORING/WELL NAME	SB-6
JOB/SITE NAME	9-2029	DRILLING STARTED	30-Mar-06
LOCATION	890 West MacArthur Boulevard, Oakland, CA	DRILLING COMPLETED	30-Mar-06
PROJECT NUMBER	61H-1974	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Fisch Environmental Construction Services	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Geoprobe Direct Push	TOP OF CASING ELEVATION	Not Surveyed
BORING DIAMETER	3"	SCREENED INTERVAL	NA
LOGGED BY	B. DeBoer	DEPTH TO WATER (First Encountered)	13.0 ft (30-Mar-06) ▽
REVIEWED BY	D. Herzog, PG# 7211	DEPTH TO WATER (Static)	NA ▽
REMARKS	Hand auger clearing to 8 fbg.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							CONCRETE	0.5	
					SM		Silty SAND with gravel ; Dark brown; dry; 60% fine and medium sand, 25% silt, 15% gravel; low plasticity; high estimated permeability.	2.0	
					ML		SILT with sand ; Black; dry; 60% silt, 20% clay, 20% fine sand; moderate plasticity; low estimated permeability.	3.0	
					GM		GRAVEL with silt and sand ; Brown; dry; 40% gravel, 35% fine sand, 25% silt; low plasticity, high estimated permeability.	5.0	
0				5			SILT ; Gray brown; dry; 65% silt, 30% clay, 5% fine gravel; low plasticity; low estimated permeability.	8.0	
					ML		SILT ; Gray brown; dry; 60% silt, 40% clay; high plasticity; low estimated permeability.	10.0	
0				10				11.0	
					GM		Silty GRAVEL with sand ; dry; 45% fine gravel, 30% silt, 15% fine sand, 10% clay; low plasticity, high estimated permeability.	12.0	
							SILT ; Light brown; moist; 70% silt, 20% clay, 10% fine gravel; low plasticity; low estimated permeability.	13.0	
					ML		Sandy SILT ; Light brown; wet; 50% silt, 40% fine sand, 10% clay; low plasticity; high estimated permeability.	15.0	
0				15			SILT ; Light brown; dry; 70% silt, 20% clay, 10% fine sand; moderate plasticity; low estimated permeability.	16.0	
							Hydropunch Interval-Not Logged		
				20					
				25					
				30				30.0	
									Bottom of Boring @ 30 ft

WELL LOG (PID) R:19-2029-1INVEST-1GINT\MARCH 2006.GPJ DEFAULT.GDT 5/22/06



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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management	BORING/WELL NAME	SB-7
JOB/SITE NAME	9-2029	DRILLING STARTED	28-Mar-06
LOCATION	890 West MacArthur Boulevard, Oakland, CA	DRILLING COMPLETED	28-Mar-06
PROJECT NUMBER	61H-1974	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Fisch Environmental Construction Services	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Geoprobe Direct Push	TOP OF CASING ELEVATION	Not Surveyed
BORING DIAMETER	3"	SCREENED INTERVAL	NA
LOGGED BY	B. DeBoer	DEPTH TO WATER (First Encountered)	NA
REVIEWED BY	D. Herzog, PG# 7211	DEPTH TO WATER (Static)	NA

REMARKS

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
				0.5			CONCRETE	0.5	<p>Portland Type I/II</p>
				3.0	SM		Silty SAND with gravel ; Dark brown; dry; 60% fine and medium sand, 25% silt 15% fine gravel; low plasticity; high estimated permeability.	3.0	
0				5			SILT with sand ; Gray green; dry; 60% silt, 20% clay, 20% fine sand; high plasticity; low estimated permeability.	6.0	
				6.0	ML		SILT ; Gray green; moist; 50% silt, 40% clay, 10% fine gravel; moderate plasticity; moderate estimated permeability.	6.0	
0				10			GRAVEL with silt ; Gray green; moist; 70% fine gravel, 20% silt, 10% fine sand; low plasticity, high estimated permeability.	11.0	
				11.0	GW		GRAVEL with silt ; Gray green; moist; 70% fine gravel, 20% silt, 10% fine sand; low plasticity, high estimated permeability.	13.5	
				15			SILT ; Light brown; dry; 65% silt, 25% fine sand, 10% clay; moderate plasticity; low estimated permeability.	15.0	
0				15	ML		SILT ; Light brown; dry; 60% silt, 40% clay; high plasticity; low estimated permeability.	16.0	
				16.0			SILT ; Light brown; dry; 60% silt, 40% clay; high plasticity; low estimated permeability.	16.0	Bottom of Boring @ 16 ft

WELL LOG (PID) R:19-2029-1INVEST-1GINTMARCH 2006.GPJ DEFAULT.GDT 5/22/06



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BORING/WELL LOG

CLIENT NAME	<u>Chevron Environmental Management Co.</u>	BORING/WELL NAME	<u>MW-5</u>
JOB/SITE NAME	<u>Former Chevron 9-2029</u>	DRILLING STARTED	<u>22-Jul-08</u>
LOCATION	<u>890 West MacArthur Boulevard, Oakland, CA</u>	DRILLING COMPLETED	<u>24-Jul-08</u>
PROJECT NUMBER	<u>611974</u>	WELL DEVELOPMENT DATE (YIELD)	<u>NA</u>
DRILLER	<u>Gregg Drilling & Testing, Inc.</u>	GROUND SURFACE ELEVATION	<u>49.70 ft above msl</u>
DRILLING METHOD	<u>Hollow-stem auger</u>	TOP OF CASING ELEVATION	<u>49.39 ft above msl</u>
BORING DIAMETER	<u>8 inches</u>	SCREENED INTERVAL	<u>5 to 25 fbg</u>
LOGGED BY	<u>C. Benedict</u>	DEPTH TO WATER (First Encountered)	<u>20.0 fbg (23-Jul-08)</u> ▽
REVIEWED BY	<u>J. Kiernan, PE# C68498</u>	DEPTH TO WATER (Static)	<u>NA</u> ▽
REMARKS	<u>First eight feet cleared by airknife</u>		

WELL LOG (PID) \\SAC-S1\SHARED\ROCKL-1\CHE\611974-3\611974-3\611974-1\BORINGLOGS.GPJ_DEFAULT.GDT 11/6/08

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Concrete	0.8	
					SM		Silty SAND: Brown; damp; 60% sand, 20% silt, 10% gravel, 10% clay; low plasticity.	2.0	
					SC		Clayey SAND: Grey; damp; 40% sand, 35% clay, 20% silt, 5% gravel; low plasticity.		Portland Type I/II
432		MW-5-5		5					Bentonite Seal
					CL		CLAY with sand: Grey; damp; 50% clay, 30% silt, 20% sand; medium plasticity.	6.0	Monterey Sand #2/16
					SM		Silty SAND: Grey; damp; 45% sand, 30% silt, 25% clay, 5% gravel; medium plasticity.	8.0	
0		MW-5-10		10			Sandy SILT: Grey; moist; 65% silt, 30% sand, 5% clay; low plasticity.	9.0	
					ML				
2		MW-5-15		15					
					ML		Sandy SILT: Grey; moist; 60% silt, 30% sand, 10% clay; medium plasticity.	16.0	2"-diam., 0.010" Slotted Schedule 40 PVC
4		MW-5-20		20				20.0	
					SW		SAND with gravel: Grey; wet; 60% well graded sand, 30% gravel, 10% silt; low plasticity.		
		MW-5-25		25				25.0	Bottom of Boring @ 25 fbg



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BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	BORING/WELL NAME	MW-6
JOB/SITE NAME	Former Chevron 9-2029	DRILLING STARTED	22-Jul-08
LOCATION	890 West MacArthur Boulevard, Oakland, CA	DRILLING COMPLETED	24-Jul-08
PROJECT NUMBER	611974	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling & Testing, Inc.	GROUND SURFACE ELEVATION	49.53 ft above msl
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	49.07 ft above msl
BORING DIAMETER	8 inches	SCREENED INTERVAL	5 to 25 fbg
LOGGED BY	C. Benedict	DEPTH TO WATER (First Encountered)	20.0 fbg (23-Jul-08)
REVIEWED BY	J. Kiernan, PE# C68498	DEPTH TO WATER (Static)	NA
REMARKS	First eight feet cleared by airknife		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
						Concrete	0.8	<p>Portland Type I/II</p> <p>Bentonite Seal</p> <p>Monterey Sand #2/16</p> <p>2"-diam., 0.010" Slotted Schedule 40 PVC</p> <p>Bottom of Boring @ 25 fbg</p>
				CL		CLAY with sand: Dark grey; damp; 50% clay, 30% silt, 20% sand; medium plasticity.	4.0	
5.0		MW-6-5	5	ML		SILT with sand: Greenish grey; damp; 40% silt, 35% clay, 25% sand; medium plasticity.	8.5	
540		MW-6-10	10	ML		SILT with sand: Brown with grey mottling; damp; 45% silt, 40% sand, 15% clay; low plasticity.	14.0	
18.7		MW-6-15	15	GM		Silty GRAVEL with sand: Dark grey; moist; 55% gravel, 30% sand, 15% silt; low plasticity.	19.0	
8.0		MW-6-20	20	SM		Silty SAND: Brown; wet; 70% well graded sand, 30% silt; low plasticity.	25.0	
11.8		MW-6-25	25					

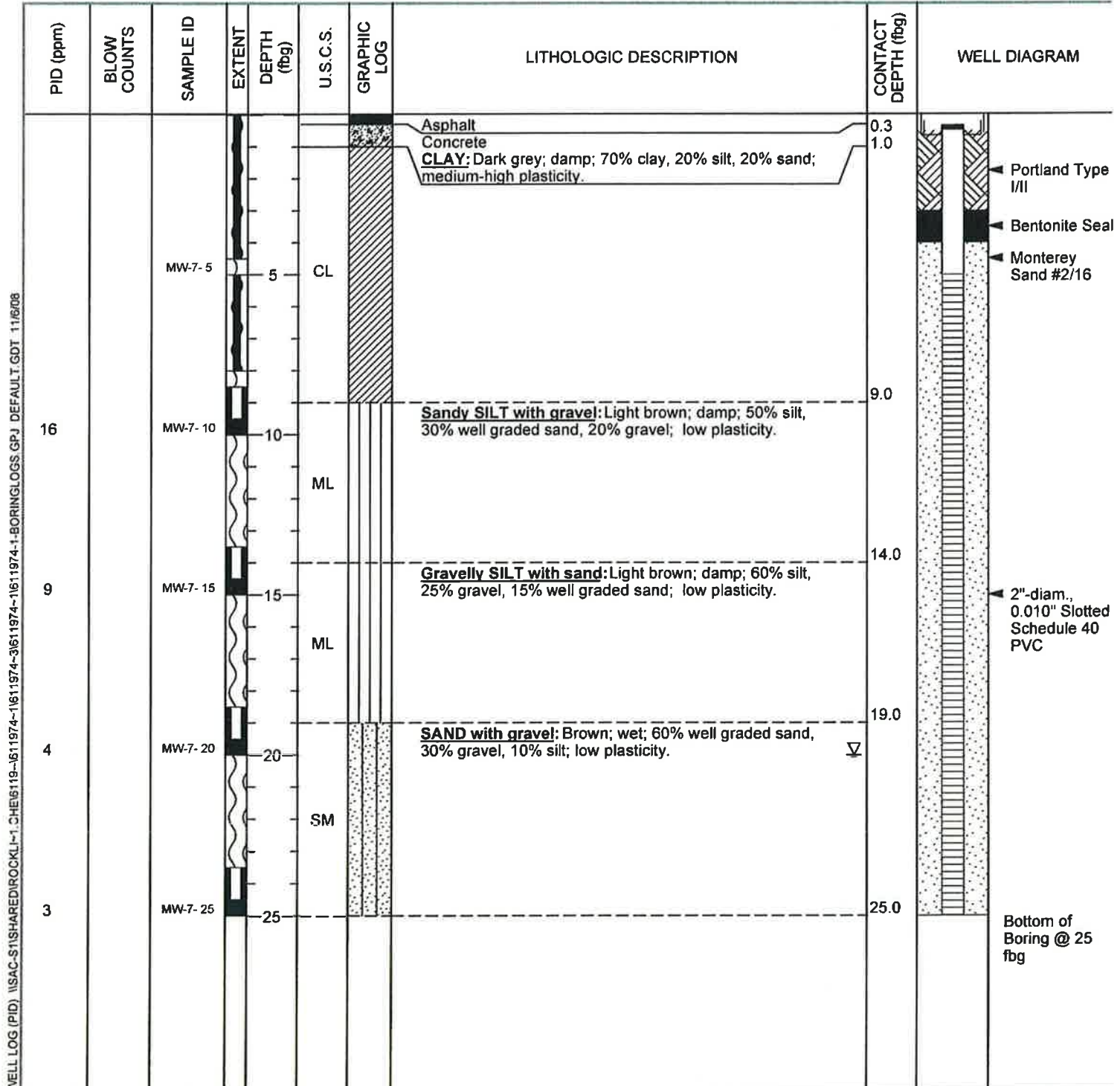
WELL LOG (PID) \\SAC-S1\SHARE\IROCKLI-1\CHEV\119-1611974-1\BORINGLOGS.GPJ_DEFAULT.GDT 11/6/08



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BORING/WELL LOG

CLIENT NAME	<u>Chevron Environmental Management Co.</u>	BORING/WELL NAME	<u>MW-7</u>
JOB/SITE NAME	<u>Former Chevron 9-2029</u>	DRILLING STARTED	<u>22-Jul-08</u>
LOCATION	<u>890 West MacArthur Boulevard, Oakland, CA</u>	DRILLING COMPLETED	<u>24-Jul-08</u>
PROJECT NUMBER	<u>611974</u>	WELL DEVELOPMENT DATE (YIELD)	<u>NA</u>
DRILLER	<u>Gregg Drilling & Testing, Inc.</u>	GROUND SURFACE ELEVATION	<u>49.26 ft above msl</u>
DRILLING METHOD	<u>Hollow-stem auger</u>	TOP OF CASING ELEVATION	<u>48.74 ft above msl</u>
BORING DIAMETER	<u>8 inches</u>	SCREENED INTERVAL	<u>5 to 25 fbg</u>
LOGGED BY	<u>C. Benedict</u>	DEPTH TO WATER (First Encountered)	<u>20.0 fbg (23-Jul-08)</u> ▽
REVIEWED BY	<u>J. Kiernan, PE# C68498</u>	DEPTH TO WATER (Static)	<u>NA</u> ▽
REMARKS	<u>First eight feet cleared by airknife</u>		



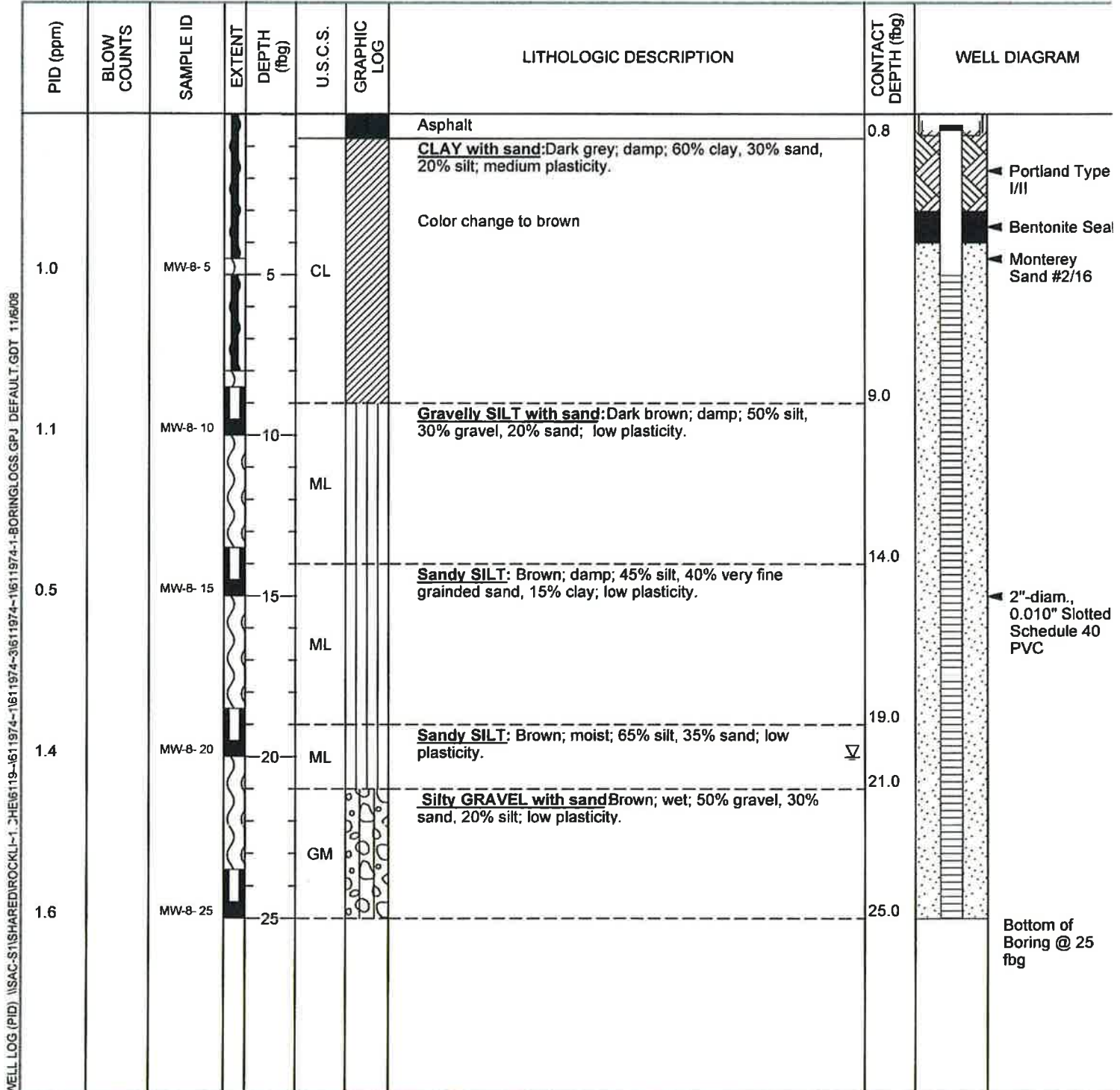
WELL LOG (PID) \SAC-S115HAREDROCKLI-1.CHEI6119--611974-1611974-31611974-1611974-1611974-1-BORINGLOGS.GPJ DEFAULT.GDT 11/6/08



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

BORING/WELL LOG

CLIENT NAME	<u>Chevron Environmental Management Co.</u>	BORING/WELL NAME	<u>MW-8</u>
JOB/SITE NAME	<u>Former Chevron 9-2029</u>	DRILLING STARTED	<u>22-Jul-08</u>
LOCATION	<u>890 West MacArthur Boulevard, Oakland, CA</u>	DRILLING COMPLETED	<u>24-Jul-08</u>
PROJECT NUMBER	<u>611974</u>	WELL DEVELOPMENT DATE (YIELD)	<u>NA</u>
DRILLER	<u>Gregg Drilling & Testing, Inc.</u>	GROUND SURFACE ELEVATION	<u>48.00 ft above msl</u>
DRILLING METHOD	<u>Hollow-stem auger</u>	TOP OF CASING ELEVATION	<u>47.61 ft above msl</u>
BORING DIAMETER	<u>8 inches</u>	SCREENED INTERVAL	<u>5 to 25 fbg</u>
LOGGED BY	<u>C. Benedict</u>	DEPTH TO WATER (First Encountered)	<u>20.0 fbg (23-Jul-08)</u> ▼
REVIEWED BY	<u>J. Kiernan, PE# C68498</u>	DEPTH TO WATER (Static)	<u>NA</u> ▼
REMARKS	<u>First eight feet cleared by airknife</u>		



WELL LOG (PID) \\SAC-S\1\SHARED\ROCK\1-3\HE\6119-1611974-1\611974-1-BORING\LOGS.GPJ DEFAULT.GDT 11/6/08



Conestoga-Rovers & Associates
 10969 Trade Center Drive, Suite 107
 Rancho Cordova, CA 95670
 Telephone: (916) 889-8900
 Fax: (916) 889-8999

BORING/WELL LOG

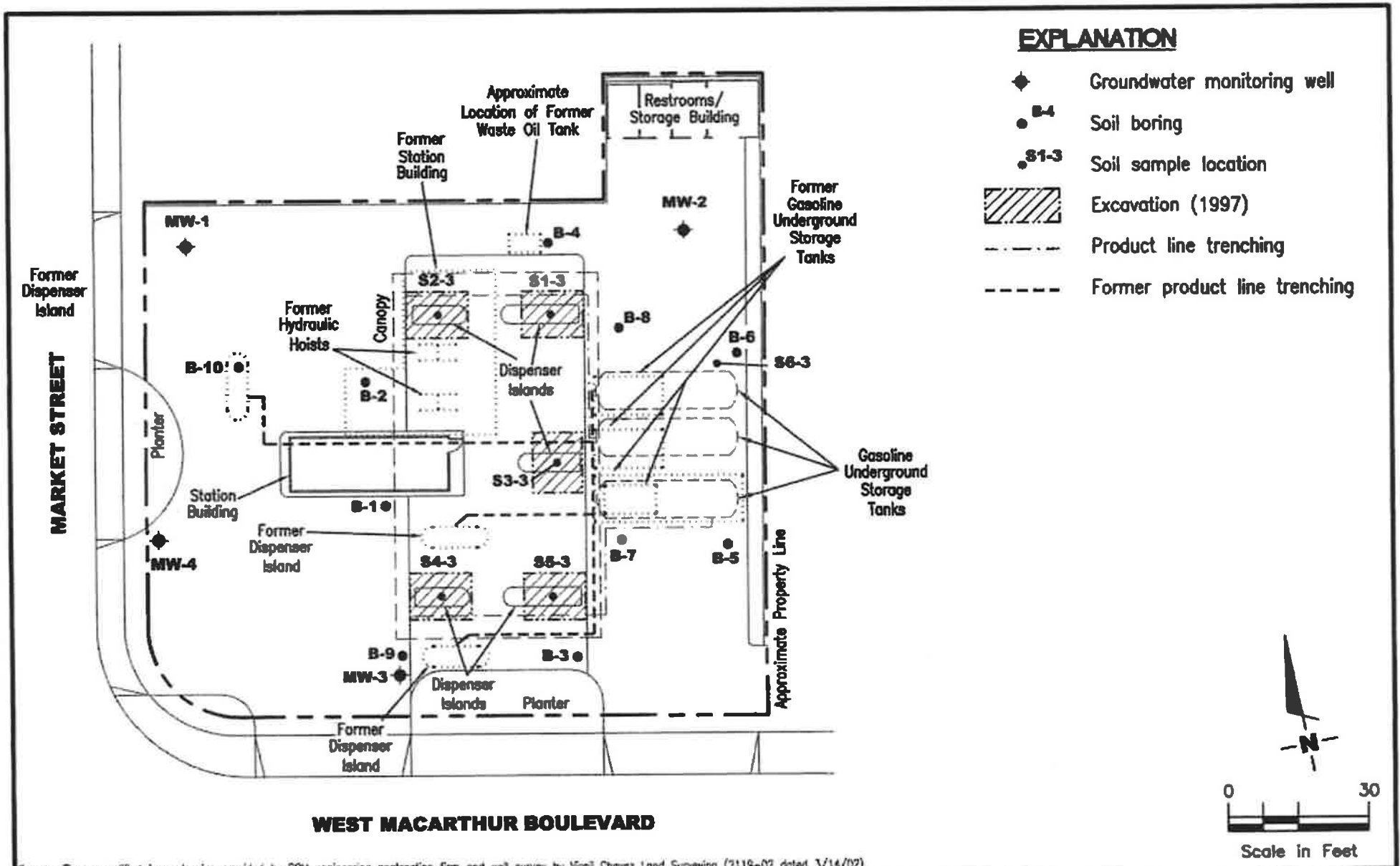
CLIENT NAME	<u>Chevron Environmental Management Co.</u>	BORING/WELL NAME	<u>SB-10</u>
JOB/SITE NAME	<u>Former Chevron 9-2029</u>	DRILLING STARTED	<u>04-Jan-11</u>
LOCATION	<u>890 West MacArthur Boulevard, Oakland, CA</u>	DRILLING COMPLETED	<u>04-Jan-11</u>
PROJECT NUMBER	<u>611974</u>	WELL DEVELOPMENT DATE (YIELD)	<u>NA</u>
DRILLER	<u>PeneCore Drilling</u>	GROUND SURFACE ELEVATION	<u>Not Surveyed</u>
DRILLING METHOD	<u>Direct push - continuous core - Hand Auger to 5'</u>	TOP OF CASING ELEVATION	<u>Not Surveyed</u>
BORING DIAMETER	<u>2 inches</u>	SCREENED INTERVAL	<u>NA</u>
LOGGED BY	<u>N. Allen</u>	DEPTH TO WATER (First Encountered)	<u>15.0 fbg (04-Jan-11)</u> ▽
REVIEWED BY	<u>J. Kiernan, PE# C68498</u>	DEPTH TO WATER (Static)	<u>NA</u> ▽
REMARKS	<u>Boring located southwest of site, 10' south of commercial property boundary.</u>		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							CONCRETE	0.7	Concrete
0.0					CL		CLAY Grayish olive; moist; high plasticity.		
0.0		SB-10 -5		5	CL		CLAY Pale yellowish brown; moist; high plasticity.	4.0	
					GM		Silty GRAVEL with sand Moderate yellowish brown; moist; low plasticity.	6.5	
					SM		Silty SAND with gravel Moderate yellowish brown; moist; moderate plasticity; fine sand.	7.5	
0.0		SB-10 -9.5		10	SM				Portland I/II
					ML		SILT Light brown; moist; low plasticity.	11.0	
0.0		SB-10 -14.5		15	GM		Silty GRAVEL with sand Pale yellowish brown; wet; well graded angular gravels.	15.0	
0.0		SB-10 -19.5		20	GM			20.0	Bottom of Boring @ 20 fbg

WELL LOG (PID) I:\PROJECT FILES\6-CHAR\61-16119-16119749-2029 BORING LOGS.GPJ DEFAULT.GDT 2/9/11

Appendix C

Historical Site Plans



Source: Figure modified from drawing provided by RRM engineering contracting firm and well survey by Virgil Chavez Land Surveying (2119-02 dated 3/14/02)

GETTLER - RYAN INC.
 6747 Sierra Ct., Suite J
 Dublin, CA 94568 (925) 551-7555




SITE PLAN
 Chevron Service Station No. 9-2029
 890 West MacArthur Boulevard
 Oakland, California

FIGURE

1

PROJECT NUMBER DG92029G.4C01	REVIEWED BY	DATE 4/02	REVISED DATE
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EXPLANATION

- MW-1  Monitoring well location
- SB-1  Soil boring location
- EX@3.5'  Soil sample location
- - - Limits of excavation

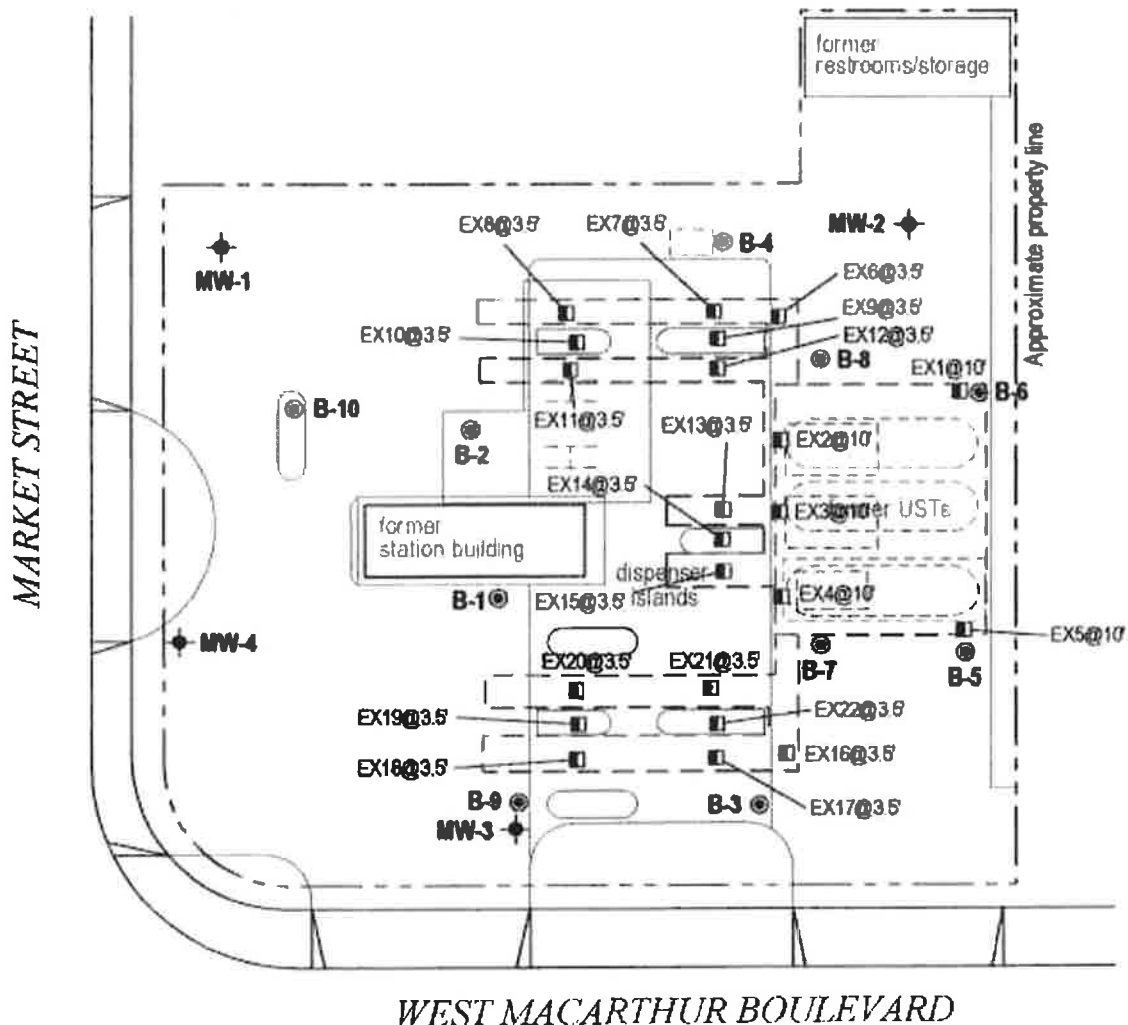


FIGURE
2





Former Chevron Station 9-2029
 890 W. MacArthur Boulevard
 Oakland, California



C A M B R I A

**UST, Dispenser Island and
 Product Line Sampling Locations**

EXPLANATION

- MW-1  Monitoring well location
- SB-1  Soil boring location
- EX24@12  Soil sample location
-  Limits of excavation

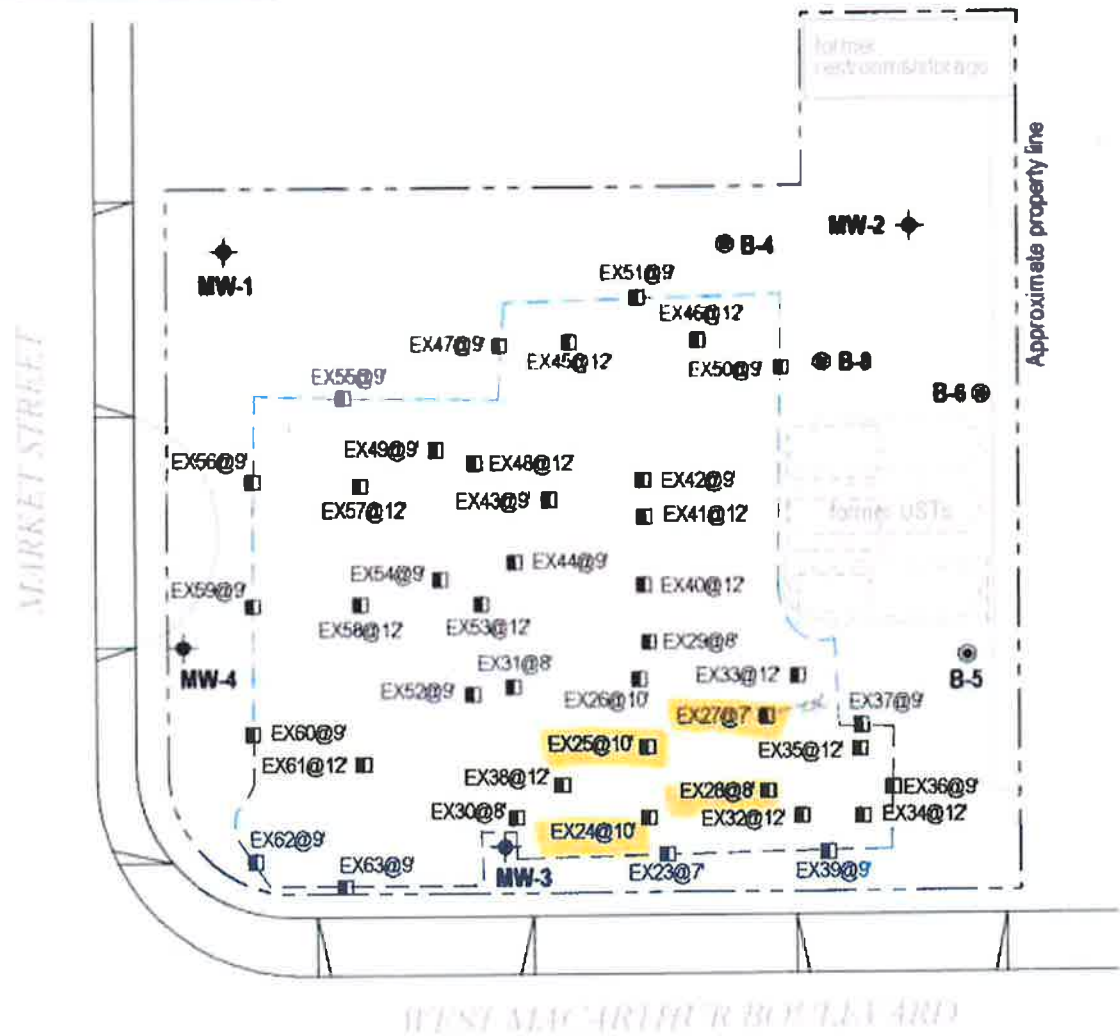
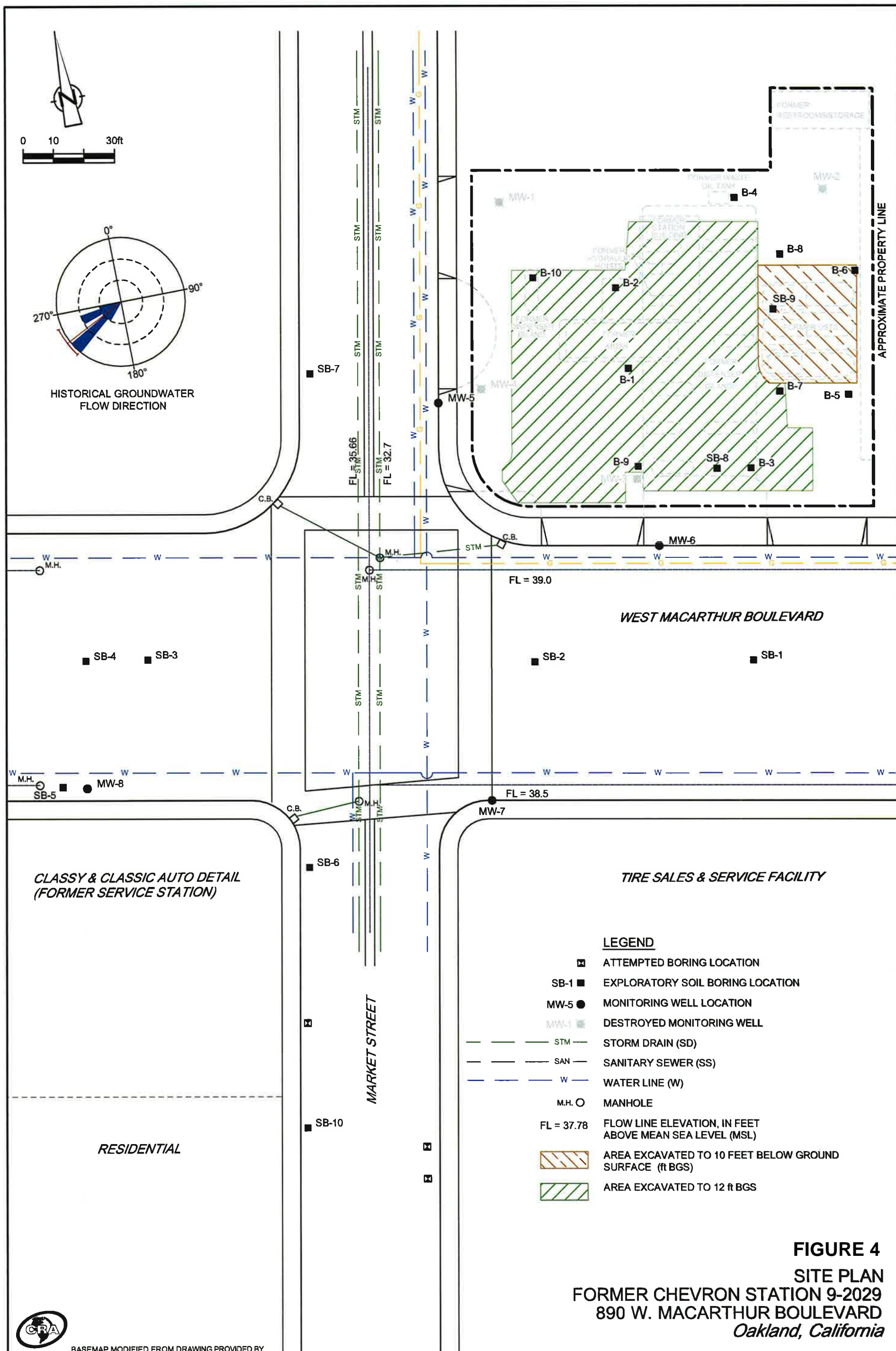


FIGURE
3

Former Chevron Station 9-2029
890 W. MacArthur Boulevard
Oakland, California



**Remedial Soil Excavation and
Soil Sampling Location**

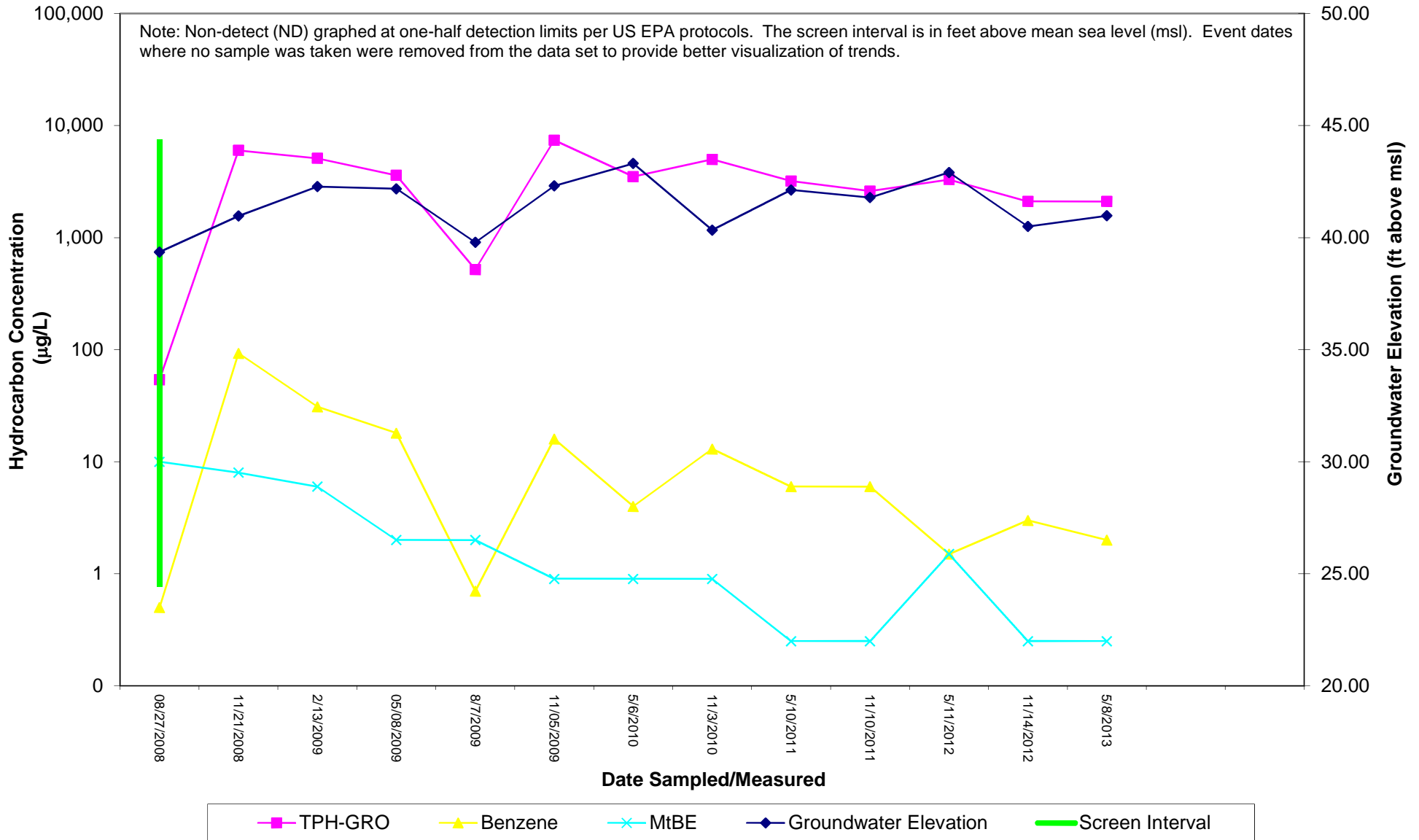


BASEMAP MODIFIED FROM DRAWING PROVIDED BY

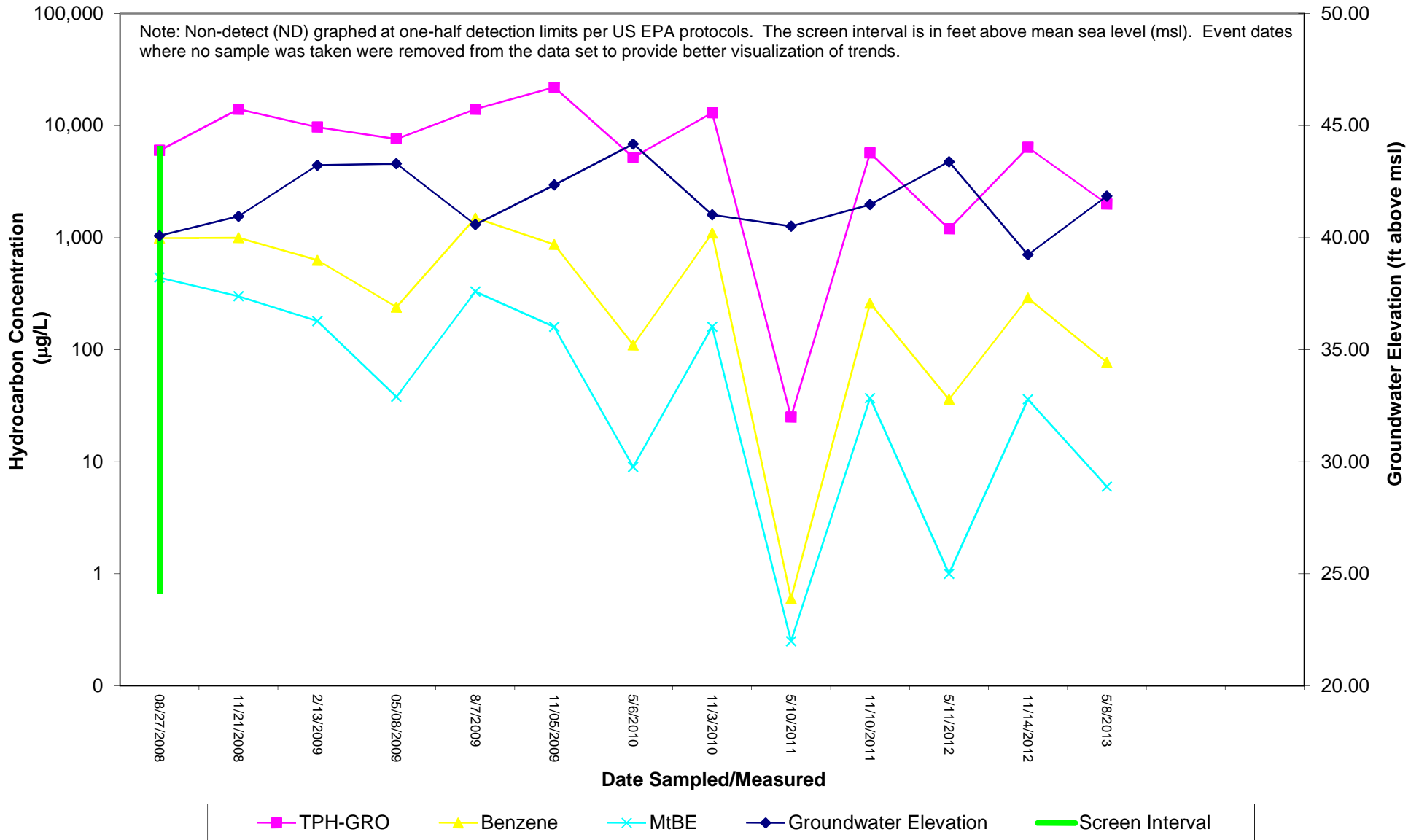
Appendix D

Hydrographs

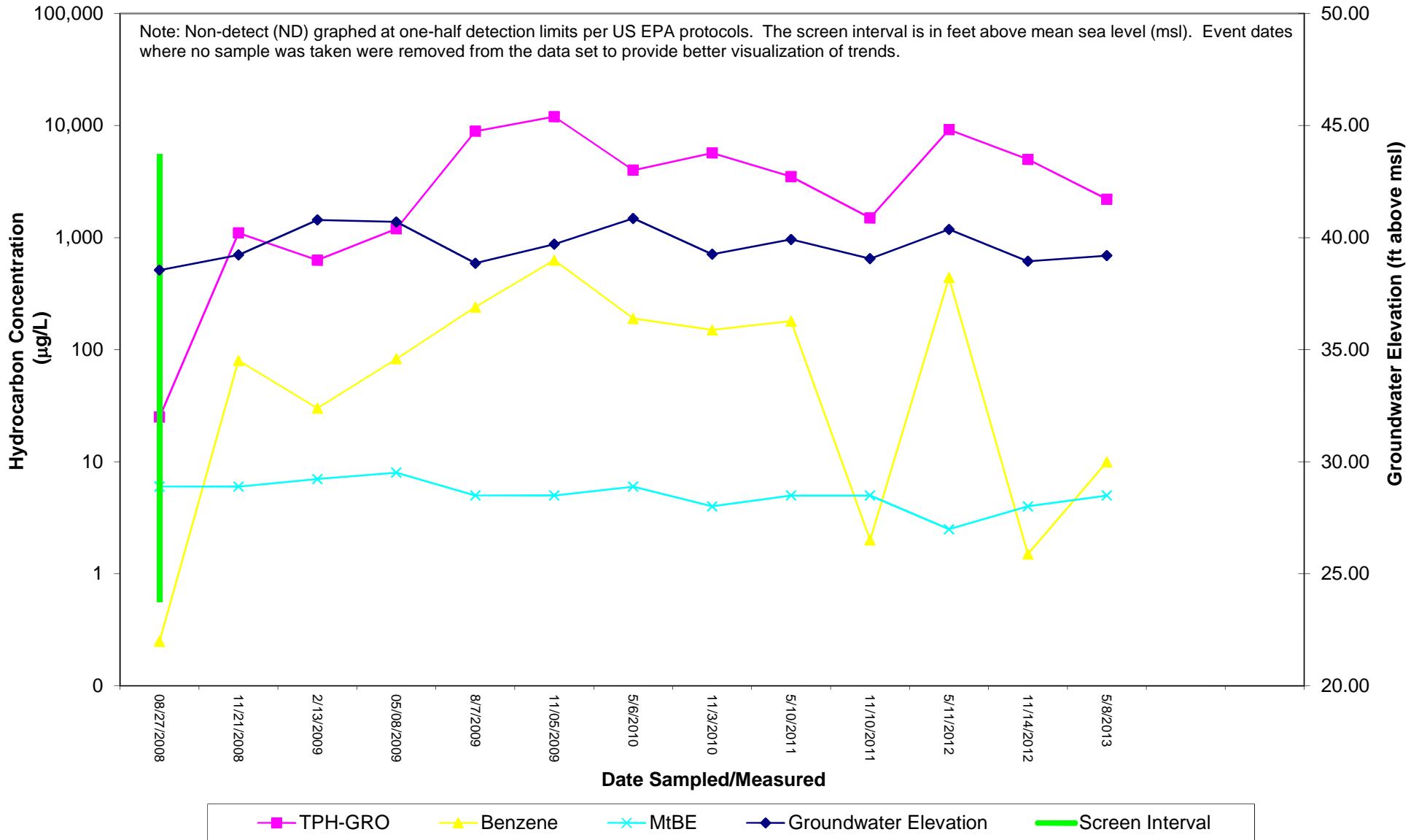
MW-5 TPH-GRO, Benzene, & MtBE Concentrations and Groundwater Elevations vs. Time
 Former Chevron-branded Service Station 92029
 890 West MacArthur Boulevard
 Oakland, California



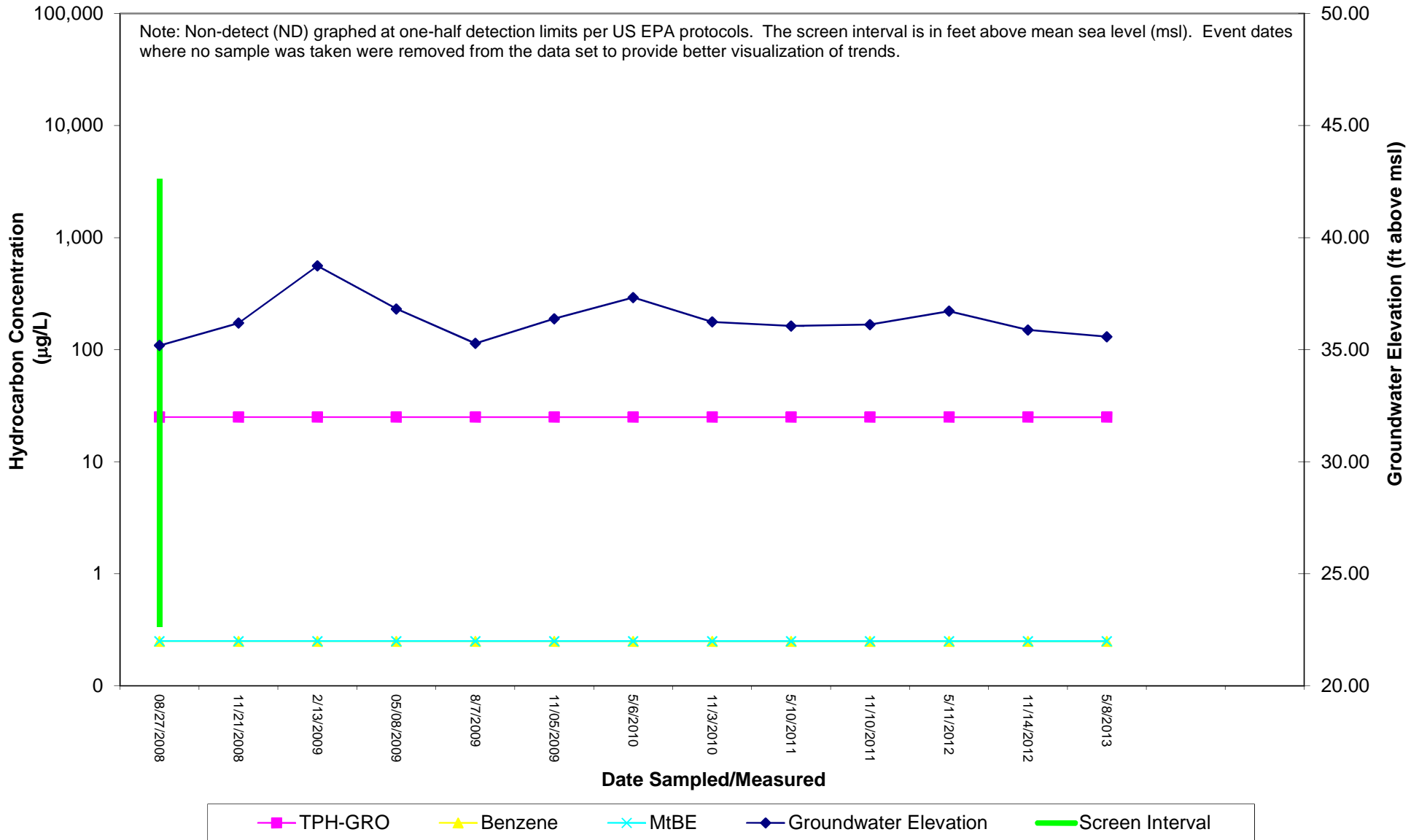
MW-6 TPH-GRO, Benzene, & MtBE Concentrations and Groundwater Elevations vs. Time
 Former Chevron-branded Service Station 92029
 890 West MacArthur Boulevard
 Oakland, California



MW-7 TPH-GRO, Benzene, & MtBE Concentrations and Groundwater Elevations vs. Time
 Former Chevron-branded Service Station 92029
 890 West MacArthur Boulevard
 Oakland, California



MW-8 TPH-GRO, Benzene, & MtBE Concentrations and Groundwater Elevations vs. Time
 Former Chevron-branded Service Station 92029
 890 West MacArthur Boulevard
 Oakland, California



Appendix E

SWRCB LTCP Checklist

Site Name:
Site Address:

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

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

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

Site Name:
 Site Address:

<p>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?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>
<p>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.</p> <p>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.</p> <p>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: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4</p> <p>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?</p> <p>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?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>
<p>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).</p> <p>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)?</p> <p>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?</p> <p>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?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>