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By Alameda County Environmental Health 8:23 am, Nov 03, 2015

November 2, 2015

Mr. Mark Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
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Dear Mr. Detterman:

Attached for your review is the *Pilot Test Work Plan* for former Chevron service station 97127, located at 10 Grant Line Road in Mountain House, California (Case #**:** RO0000185). 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 should have any further questions, please do not hesitate to contact me or the Stantec project manager, Brian Westhoff, at (916) 384-0710, or brian.westhoff@stantec.com.

Sincerely,

Carryl MacLeod

Carryl MacLeod
Project Manager

Pilot Test Work Plan

Former Chevron Service Station No. 97127
10 Grant Line Road
Mountain House, California
Alameda County Case No. RO0000185

Submitted to:
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Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
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October 29, 2015

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1.0 INTRODUCTION

On behalf of Chevron Environmental Management Company (CEMC), Stantec Consulting Services Inc. (Stantec) presents this *Pilot Test Work Plan* (Work Plan) for the Former Chevron Service Station No. 97127, located at 10 Grant Line Road in Mountain House, California (the 'site', Figure 1). This Work Plan is provided in response to correspondences from Alameda County Environmental Health (ACEH), dated May 20 and August 14, 2015 (Appendix A).

ARCADIS U.S., Inc. (ARCADIS) submitted a *Feasibility Study/Corrective Action Plan*, dated March 26, 2015, in which dual-phase extraction (DPE), was selected as the technology with the highest likelihood of achieving remediation objectives, followed by air sparging (AS) in combination with soil vapor extraction (SVE) as a secondary alternative. The feasibility of DPE will depend on groundwater pump yields on-site. If groundwater pump yields on-site are low, then DPE will effectively dewater the site which will maximize source mass recovery. If groundwater pump yields are high, then dewatering will require the removal of large volumes of groundwater, making DPE a less effective remedial alternative. High groundwater pumping yields may, however, indicate that source mass in the site subsurface can be volatilized with AS. These vapors could then be recovered and treated via SVE.

Stantec will perform a series of pilot tests to determine which remedial approach will most effectively reduce impacts to soil and groundwater at the site. Stantec will first perform a groundwater pump pilot test to determine the groundwater yield rate at the site. Based on the results of the pump test a DPE or an AS/SVE pilot test will be conducted to evaluate the effectiveness and technical feasibility of a full-scale remediation system. Each pilot test will be based on CEMC guidance documents (CEMC, 2010) and/or sections of the United States Army Corps of Engineers (USACE) Soil Vapor Extraction and Bioventing Engineer Manual EM 1110-1-4001 (USACE, 2002) as appropriate.

2.0 BACKGROUND

2.1 SITE DESCRIPTION

The site is currently a vacant parcel (Alameda County assessor parcel number 99B-7700-12-2) located on the east side of Grant Line Road, south of Interstate 580 in Mountain House, California (Figure 1). The site is bordered by Grant Line Road to the west, an Interstate 580 on-ramp to the north, and undeveloped (grazing) land to the east and south. A former fuel-dispensing service station previously operated at the site from 1971 to 1986, which included one 6,000-gallon and two 10,000-gallon fuel underground storage tanks (USTs), one 1,000-gallon used oil UST, one 750-gallon heating oil UST, product line piping , two dispenser islands, and a station building (Figure 2). The USTs and associated piping were removed in April 1991 and the dispenser islands and station building were demolished soon after. The site is currently undeveloped.

2.2 SITE GEOLOGY

California Department of Water Resources (DWR) described the geology beneath the site as Holocene age surficial valley-fill materials that range in thickness from tens of feet to 400 feet (DWR, 2006). Data collected from previous investigations indicate subsurface materials consisting of interbedded fine (silt and silty clay) and coarse-grained (well-graded to clayey sand) strata to a depth of approximately 20 feet below ground surface (bgs). The site subsurface is underlain by fractured sandstone bedrock that extends to the maximum explored depth of 40 feet bgs.

Generalized geologic cross-sections for the site were included in ARCADIS *Feasibility Study/Corrective Action Plan*, dated March 26, 2015 are available as Appendix B.

2.3 SITE HYDROGEOLOGY

The site is located in the Livermore Valley groundwater basin, as identified in the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB-SFBR's) 2010 *San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan),* dated December 31, 2011. This basin has been designated as having existing beneficial uses for municipal, domestic, industrial process, industrial service, and agricultural water supply.

Groundwater at the site has been encountered historically from approximately 10 to 32 feet bgs, with groundwater elevations ranging from approximately 292 to 306 feet above mean sea level (amsl). Based on the most recent (September 2015) well gauging data, depth to water (DTW) measurements at the site ranged from 14.71 to 33.19 ft bgs (Table 1) with groundwater elevations ranging from 300.13 to 301.24 feet amsl. Groundwater flow was to the north at a gradient of approximately 0.010 foot per foot (ft/ft), to the east at a gradient of approximately

0.011 ft/ft, and to the west at a gradient of approximately 0.006 ft/ft. Historically groundwater flow has been observed between north and north-northeast at gradients ranging between 0.0006 and 0.07 ft/ft, with an average groundwater gradient of approximately 0.009 ft/ft. Groundwater flow and gradient were not calculated prior to 2005 at the site. Historical groundwater monitoring data and analytical results are presented in Table 2.

2.4 PREVIOUS ASSESSMENT WORK

A site location map and site plan are presented as Figures 1 and 2, respectively. Current and historical groundwater monitoring data and analytical results are summarized in Tables 1 and 2. Soil boring and well construction details are summarized in Table 3. The groundwater gradient and flow direction data are summarized in Table 4. Historical bi-monthly LNAPL monitoring and recovery data are summarized in Table 5. Historical grab groundwater, soil, and soil vapor analytical results are summarized in Tables 6 through 8, respectively. Site history and previous investigations are included as Appendix C.

2.5 GROUNDWATER MONITORING AND SAMPLING HISTORY

Historically, groundwater monitoring wells were sampled quarterly from May 1995 to November 1996 and semiannually from May 1997 to November 2011. Groundwater monitoring wells have been sampled quarterly from February 2012 to present.

2.6 WATER SUPPLY WELL SURVEY

In November 2013, DWR and Zone 7 Water Agency provided well log completion files to ARCADIS for a water supply well survey (ARCADIS, 2015). The survey conducted a search for wells located within a quarter-mile radius distance of the site. The survey found four private domestic water supply wells within 2,000 feet of the site, three of which are located at the Jess Ranch approximately 1,000 feet west-southwest. The fourth domestic well was found at the adjacent property immediately south of the site, but well details are unknown. A water supply well (total depth of 82 feet with screen interval from 27 to 80 feet bgs) existed at the site and was destroyed on March 6, 2015. The survey also concluded that no public water supply wells existed within 2,500 feet of the site.

2.7 PETROLEUM HYDROCARBON DISTRIBUTION

Based on a review of historical soil and groundwater analytical data, total petroleum hydrocarbons as gasoline range organics (TPH-GRO), benzene, toluene, ethylbenzene, total xylenes (collectively BTEX), and methyl tertiary butyl ether (MTBE) have been detected at concentrations exceeding their respective CRWQCB-SFBR ESLs for soil and/or groundwater (in which groundwater is or may be a potential source of drinking water). The following table presents the current groundwater analytical data for the site.

First Quarter 2015 Groundwater Analytical Data Summary				
Constituent	*Frequency of Detection Above the LRL[1]*	*Range of Detected Concentrations (µg/L)*	*California Primary MCL[2] (µg/L)*	*Frequency of Exceedances*
TPH-GRO	5 : 6	200 – 34,000	--	--
Benzene	5 : 6	34 – 14,000	1	5 : 5
Toluene	4 : 6	0.7 – 1,600	150	2 : 4
Ethylbenzene	3 : 6	12 – 610	300	1 : 3
Total Xylenes	4 : 6	2 – 1,200	1,750	0 : 4
MTBE	2 : 6	1 – 2	13	0 : 2

Notes:
1. LRL = laboratory reporting limit
2. MCL = maximum contaminant level in micrograms per Liter (µg/L)

2.7.1 Light Non-Aqueous Phase Liquid Impacts

LNAPL has been observed historically in groundwater monitoring wells MW-1, MW-3, MW-10, and MW-11. LNAPL thickness historically ranged between 1.29 and 2.65 ft in MW-1, 0.06 and 0.73 ft in MW-3, 0.28 and 2.46 ft in MW- 10, and 0.05 and 1.33 ft in MW-11. During first quarter 2015, LNAPL was observed in groundwater monitoring wells MW-1, MW-10, and MW-11 with measured thicknesses of 1.36, 0.98, and 0.05 ft, respectively. Current and historical LNAPL thickness monitoring data are summarized in Tables 1 and 2. LNAPL was recovered in four well locations (MW-1, MW-3, MW-10, and MW-11) during bi-monthly events between January and May 2015 and the LNAPL monitoring and recovery data are summarized in Table 5.

Based on ARCADIS *Additional Site Assessment Report*, dated February 6, 2014, evaluations demonstrate that LNAPL at the site is mobile within the existing LNAPL plume, stable and not migrating beyond the plume footprint. In October 2013, soil borings SB-1 through SB-13 were advanced through the sandstone bedrock until no LNAPL response was detected to depths of 25 to 40 ft bgs. Positive field screening responses for LNAPL were identified in four (SB-1 through SB-4) of the 13 soil borings. Based on field observations and positive field screening responses in SB-1 through SB-4, LNAPL is delineated and is greatest in the vicinity of former dispenser islands and former USTs, extending approximately 100 feet to the north-northeast at the site. LNAPL delineation and investigation summary table and figure are presented as Appendix D.

A total of 35 feet of undisturbed soil cores were collected from four boring locations (SB-MW-1, SB-MW-3, SB-2A, and SB-3A) at various depths based on historical gauging data and oleophilic (having affinity for oils and not for water) dye responses across the LNAPL smear zone, which is typically located below the water table at all locations. Soil cores were analyzed by a petrophysical laboratory by first taking photographs under natural light to show soil structure and under ultraviolet light to show LNAPL distribution in soil cores (brighter fluorescence indicates higher LNAPL saturation zones). Appendix E includes soil core photographs. Visual assessments of these photographs indicate LNAPL saturations at depths between approximately:

- 24 and 30 feet bgs from SB-MW-1 north of MW-1, downgradient of source area;
- 27 and 34 feet bgs in SB-MW-3 north of MW-3, downgradient of source area;
- 20 and 32 feet bgs in SB-2A east of MW-1, in the vicinity of source area; and
- 26 and 34 feet bgs in SB-3A west of MW-11, downgradient of source area.

Additional petrophysical analyses were performed on select soil cores (total of 15) based on soil structure and visual assessment using various methodologies to provide LNAPL field and residual saturation levels in soil cores. These methodologies include Residual Saturation by Water Drive (RSWD) - proprietary method by PTS and Method API RP 40, Free Product Mobility (FPM) by Methods API RP 40 and ASTM D425M, Air-Water Capillary Pressure Drainage (AWCD) by Method ASTME D6836, centrifugal method, and Laser Particle Size Analysis by Method ASTM D422. Of the 15 soil cores analyzed, only 1 field saturation slightly exceeded residual saturation in a soil core sample from SB-MW-1 at 27.5 feet bgs. LNAPL is mobile when field saturation exceeds residual saturation. Field and residual LNAPL saturation levels in soil cores are summarized in a table included as Appendix F.

2.7.2 Extent of Groundwater Impacts

Primary constituents of concern (COC) that currently exceed the RWQCB-SFBR ESLs for groundwater of beneficial use include TPH-GRO, benzene, toluene, and ethylbenzene. The current location of the dissolved phase plume has been illustrated using TPH-GRO and benzene isoconcentration maps using analytical data collected during fourth quarter 2014 and have are included as Appendix G.

Dissolved-phase TPH-GRO impacts at concentrations above the RWQCB-SFBR ESLs extend from well MW-9 (adjacent to former dispenser islands and former USTs) to well MW-14 (downgradient of former dispenser islands and former USTs) and benzene impacts extend from well MW-4 (upgradient of former USTs) to well MW-14 (downgradient of former dispenser islands and former USTs). The extent of the dissolved phase hydrocarbon plume has been generally delineated, and the dissolved phase mass is centered on former dispenser islands (well MW-15) and downgradient (well MW-14).

Historical grab groundwater analytical results are summarized in Table 6. Hydrographs of historical dissolved-phase concentrations and depth to groundwater in monitoring wells MW-1, MW-3, MW-4, and MW-9 through MW-15 are included as Appendix H. These graphs indicate that concentrations of TPH-GRO, BTEX, and MTBE have generally remained stable or decreased over the history of monitoring at the site.

2.7.3 Extent of Smear Zone Impacts

Based on a review of historical groundwater fluctuations in site monitoring wells, historical soil boring logs, and historical soil analytical data, the vertical extent of the smear zone has been defined to extend from the bottom of the vadose zone (approximately 10 feet bgs across the site) to 31 feet bgs. The primary COC that exceed the RWQCB-SFBR ESLs in smear zone (deep)

soils are TPH-GRO and BTEX. The majority of smear zone soil impacts have been observed in the vicinity of the former dispenser islands, former USTs and downgradient direction to the north-northeast. Exceeding smear zone TPH-GRO impacts have been observed in soil ranging between 670 (SB-4 at the former dispenser islands at 27 feet bgs in 2013) and 8,100 (MW-1 at the former UST complex at 29 feet bgs in 1992) milligrams per kilograms (mg/kg). Exceeding smear zone soil benzene impacts have been observed in soil ranging between 0.048 (SB-3 near well MW-11 downgradient of the source area at 29 feet bgs in 2013) and 30 (Cap at the former UST complex at 15 feet bgs in 1991) mg/kg. Photo ionization detector (PID) readings from soil borings for MW-1, MW-9, MW-10, MW-15, B-12, and SB-2 were considered near the former USTs, readings from soil borings SB-4 and B-8 through B-11 near the former dispenser islands, and readings from B-1, MW-3, MW-11 through MW-14, and SB-3 were considered to be downgradient of the source area. Historical soil boring PID readings versus depth have been plotted in Figure 3 to generally present the extent of smear zone impacts. Historical soil analytical results are summarized in Table 7.

2.7.4 Extent of Vadose Zone Impacts

Based on a review of historical groundwater fluctuations in site monitoring wells, historical soil boring logs, and historical soil analytical data, the unsaturated zone has been defined from the ground surface to an approximate depth of 10 feet bgs across the site. The primary area where petroleum hydrocarbon impact, specifically benzene, has historically exceeded the commercial Direct Contact and Outdoor Air Exposure criteria in the California State Water Resources Control Board (SWRCB) Low-Threat Underground Storage Tank Case Closure Policy (LTCP) has been defined in the vicinity of the former dispenser island (sample #11 at 4 feet bgs). The highest PID reading detected in historical soil boring logs is 543 parts per million by volume (ppmv) from soil boring B-12 at 10 feet bgs located within the former UST complex. Vadose zone impacts are very limited in extent and have been adequately delineated. Two samples exceeded the residential Direct Contact and Outdoor Air Exposure criteria for benzene (samples #1 at 2.5 feet bgs and #11 at 4 feet bgs); however, these samples were collected in 1991. Four soil samples collected to date at the site have exceeded the RWQCB-SFBR residential ESLs in shallow soil (less than three meters or 9.84 feet bgs) for benzene (samples #1 at 2.5 feet bgs, #10, #11, and #12 at 4 feet bgs); however, these samples were also collected in 1991. Historical soil and soil vapor analytical results are summarized in Table 7 and Table 8, respectively.

2.8 REMEDIAL HISTORY

During April 1991, Blaine Tech Services, Inc. (BTS) demolished the service station removing two 10,000-gallon and one 6,000-gallon gasoline USTs, one 1,000-gallon used oil UST, a 750-gallon heating oil UST, two dispenser islands and associated product piping. The USTs were all constructed of fiberglass, and no holes were observed during UST removal activities. Elevated petroleum hydrocarbons were observed during the initial confirmation soil sampling in the UST pit area and the product piping area, therefore, over excavation was conducted to depths ranging from 13 to 18 feet bgs. Final confirmation soil samples contained concentrations of TPH-

GRO at 710 mg/kg and benzene at 0.085 mg/kg at depths of 15 and 14 feet bgs, respectively. In an effort to reduce the concentrations of TPH-GRO in excavated soil to less than 10 mg/kg, Blaine Tech aerated the excavated soil on-site. Blaine Tech then used the aerated excavation soil as backfill (BTS 1991). Figure 2 presents the location of the soil samples collected during the over excavation.

During 1993, Pacific Environmental Group (PEG) bailed LNAPL on a weekly basis from MW-1. In January 1993, PEG also installed a passive skimmer in monitoring well MW-1. As of March 1993, approximately 2 gallons total of LNAPL had been recovered from MW-1 (PEG 1993a).

In August 1998, Chevron's subcontractor installed Oxygen Release Compound® (ORC) socks in wells MW-1, MW-2 and MW-4 to enhance biodegradation and reduce petroleum hydrocarbon concentrations. PEG replaced the ORC sock in monitoring well MW-1 in July 2001 with a passive skimmer (Delta Environmental Consultants, Inc. [Delta] 2003). Chevron's subcontractor removed the ORC socks in the remaining wells at an unknown date.

Cambria Environmental Technology (Cambria), now Conestoga Rovers Associates [CRA]) injected hydrogen peroxide at various concentrations in MW-1 and MW-3 in December 1999 to reduce LNAPL and petroleum hydrocarbon concentrations in groundwater at the site (Cambria 2000).

In July 2001, Delta installed a passive skimmer in well MW-1 and seven groundwater vacuum extraction events were conducted through April 2002. During these vacuum extraction events, Delta removed approximately 8,300 gallons of groundwater and 2.19 gallons of LNAPL from well MW-1. Delta initiated vacuum extraction from well MW-3 in July 2002. Delta terminated vacuum extraction from both wells in October 2002 due to an increase in LNAPL thickness (Delta 2003).

Delta submitted a Remedial Action Plan and Feasibility Study (RAP/FS) in April 2003. Based on data presented in the report, Delta suggested that a perched zone of groundwater was present at approximately 10 to 40 feet bgs with confining bedrock underlying the perched zone. Delta also suggested that impacted soil is limited in the areas near the former USTs of the capillary fringe zone at approximately 25 to 30 feet bgs. The preferred remedial alternative of this RAP/FS was the use of an active mechanical skimmer with monitored natural attenuation (Delta 2003).

During March and April, CRA removed approximately 5,100 gallons of impacted groundwater from well MW-1 in a series of three batch groundwater extraction events. LNAPL thickness was 0.5 feet before the first event, 0.36 before the second event, and 0.39 before the third event.

During May 2007, CRA submitted a CAP which evaluated the following alternatives: oxygen injection, batch groundwater extraction, and surfactant-enhanced recovery. The preferred remedial alternative was surfactant-enhanced recovery with groundwater extraction (CRA 2007a).

To further characterize hydrocarbon distribution, hydrogeologic conditions, and facilitate the remediation of groundwater and soil vapor from bedrock fracture, the October 2007 IRAP proposed the installation of three monitoring wells surrounding MW-1. In addition, surfactant-enhanced recovery was recommended to remove LNAPL from the pore space of the subsurface (CRA 2007b).

In order to further evaluate the hydrogeologic conditions and behavior of groundwater at the site, CRA recommended groundwater pumping tests in the December 2008 CAP Addendum and Proposed FS (CRA 2008).

In May 2010, CRA performed a vacuum extraction pilot test in order to remove LNAPL and evaluate hydrogeologic conditions to evaluate if surfactant-enhanced recovery would be an effective remedial option for the removal of LNAPL. The results of the pilot test indicated that MW-1 and MW-3 were hydrogeologically connected, as evidence of drawdown and a reduction in LNAPL observed in MW-3. It was also observed that MW-5 through MW-7 were hydrogeologically connected with MW-1 and MW-3. It was assumed that if surfactant were placed in MW-1 and MW-3, the surfactant could be easily recovered. In addition, surrounding monitoring wells would be useful as observation wells. Surfactant-enhanced recovery was identified as a preferred and feasible alternative. A work plan outlining this method was submitted to ACEH (CRA 2010). ACEH didn't agree with the proposed alternative.

LNAPL recovery events have been occurring since January 2015, as outlined within ARCADIS' LNAPL Recovery Work Plan dated August 28, 2014. LNAPL removal data is presented in Table 8 and results will be reported within semi-annual groundwater monitoring reports.

On February 17, 2015, BTS attempted to complete an eight hour pump test at MW-1 to determine the aquifer recovery rate. The results of the test would aid in determining if DPE would be a feasible technology at the site. Monitoring well MW-1 was chosen as it is the only 4-inch diameter well installed at the site. The test was stopped after approximately one hour of pumping because there wasn't sufficient groundwater in the well casing to sustain a steady flow using a pneumatic pump.

3.0 REMEDIAL OBJECTIVES

On June 3, 2015, ACEH compared the current site conditions to the closure criteria presented in the SWRCB LTCP, effective August 17, 2012, and remedial objectives developed to address any LTCP criteria is not currently met.

3.1 LTCP EVALUATION

Based on current site use and projected site use in the near future, the site has been evaluated under commercial conditions.

3.1.1 General Criteria

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

  No.

- **The unauthorized release consists only of petroleum?**

  Yes.

- **The unauthorized release has been stopped?**

  Yes.

- **Free product has been removed to the maximum extent practicable, per CCR Chapter 16 Section 2655 a-c?**

  No.

- **A CSM has been developed?**

  Yes.

- **Secondary Source Removal has been addressed?**

  No. Some secondary source removal has been completed previously at the site as described in Section 2.8.

- **Soil and groundwater has been tested for MTBE and results reported in accordance with Health and Safety Code section 25296.15?**

  Yes.

- **Nuisance as defined by Water Code section 13050 does not exist at the site?**

  No.

3.1.2 Media Specific Criteria

3.1.2.1 Groundwater-Specific Criteria

The current site conditions do not satisfy Groundwater-Specific Criteria Scenarios 1 through 4 as follows:

- The contaminant plume that exceeds water quality objectives is greater than 100 feet in length (excludes meeting Scenario 1).
- Free product is present at the site (excludes meeting Scenarios 2, 3, and 4).

3.1.2.2 Petroleum Vapor Intrusion to Indoor Air

The site is currently an undeveloped, vacant parcel. However, the owners have indicated developing the site into a commercial petroleum fueling facility, and therefore, may be exempt from the Petroleum Vapor Intrusion to Indoor Air Criteria. If site redevelopment changes to something other than a commercial petroleum fueling facility, then we will re-evaluate this pathway.

3.1.2.3 Direct Contact and Outdoor Air Exposure

The current site conditions do not satisfy all of the commercial LTCP direct contact and outdoor air exposure criteria. Historical soil samples collected from the top 10 feet of the subsurface do not include analyses of naphthalene and polyaromatic hydrocarbons.

3.2 OBJECTIVES

In order to achieve case closure under the LTCP at the site, the objectives that need to be met are the performance of source remediation in soil and groundwater such that groundwater conditions demonstrate low threat to human health and environment (removal and no recurrence of LNAPL in on-site groundwater monitoring wells) and reduction of dissolved concentrations to achieve water quality objectives within a reasonable timeframe (one order magnitude above water quality objectives, LTCP Groundwater-Specific Criteria Scenario 5).

To achieve this objective, the target zone of remediation has been determined to consist of the areas where LNAPL and/or elevated dissolved source concentrations have been observed historically around:

- Former USTs near MW-1 and MW-10;

- Former dispenser islands near MW-15; and

- Immediately downgradient to the north and north-northeast of the former USTs and dispenser islands near MW-3, MW-11, and MW-14.

Remediation at the site will need to demonstrate source remediation to achieve objectives.

4.0 PILOT TEST OVERVIEW

The groundwater yield rate at the site must be understood in order to evaluate the feasibility of DPE as a primary remedial alternative and AS/SVE as a secondary remedial alternative. Groundwater yields will increase when influenced by a vacuum such as would be present during DPE activities. Consequently, if the groundwater yield at the site is found to be greater than approximately 2.5 gallons per minute (gpm) without a vacuum present than DPE would not be an effective remedial approach due to the difficulty presented in dewatering the extraction wells and the issue of addressing the large volume of water that would be generated. If DPE was selected regardless of groundwater yield, then a strategy to deal with the extracted groundwater, such as reinjection, would need to be implemented. Otherwise use of an AS system to volatize dissolved hydrocarbon impacts and an SVE system to capture the mobilized hydrocarbon vapors would be more appropriate for remediation of the site.

To determine which remediation technology to apply at the site, the following pilot test scope of work is proposed.

- Perform an initial 24-hour groundwater pump test utilizing monitoring well MW-1 to determine groundwater yield at the site. If groundwater yield is sustained below 2.5 gpm up to a period of 24 hours, then a subsequent DPE test will be performed. If groundwater yield is sustained above 2.5 gpm between a period of five and eight hours, the initial groundwater pump test will be terminated and a subsequent AS/SVE test will be performed. Section 5.0 below describes the initial pump only test in more detail.

- If the groundwater pump test as described above results in sustained groundwater yields less than 2.5 gpm, a DPE pilot test will be performed in order to collect and evaluate parameters for full-scale implementation of this remedial alternative. Section 6.0 below describes the DPE only pilot test in more detail.

- If the groundwater pump test as described above results in sustained groundwater yields greater than 2.5 gpm, an AS/SVE pilot test will be performed in order to collect and evaluate parameters for full-scale implementation of this remedial alternative. Section 7.0 below describes the AS/SVE only pilot test in more detail.

4.1 TECHNOLOGY DESCRIPTION

A DPE or an AS/SVE pilot test will be conducted depending on the initial groundwater pump test results. The following sections briefly describe each remedial approach.

4.1.1 Multi-Phase Extraction and Dual-Phase Extraction

Multi-phase extraction (MPE) involves the simultaneous extraction of groundwater and soil vapor from the subsurface. The MPE process can cause groundwater level drawdown in the vicinity of

the extraction wells, thereby exposing additional impacted soils to be addressed by the SVE process. MPE is used to remove various combinations of contaminated groundwater, LNAPL, and petroleum hydrocarbon vapor from the subsurface. It is particularly effective in removing LNAPL from the subsurface, thereby significantly reducing concentrations of petroleum hydrocarbons in both the saturated and unsaturated zones.

DPE is a form of MPE in which groundwater is extracted via a down well pump. During a DPE pilot test, groundwater is extracted at a constant rate until pseudo steady-state dewatering has occurred. Concurrently, a vacuum is applied to the extraction well to mobilize volatile constituents of petroleum products in soils exposed through the dewatering process. Data collected from extraction and observation wells are used to evaluate the vacuum radius of influence (ROI) and expected soil vapor hydrocarbon concentrations during normal DPE operations.

4.1.2 Air Sparging

Air sparging reduces concentrations of volatile constituents of petroleum products that are adsorbed to soils and dissolved in groundwater. This technology, which also is known as "in-situ air stripping" and "in-situ volatilization," involves the injection of contaminant-free air into the subsurface saturated zone, enabling a phase transfer of hydrocarbons from a dissolved state to a vapor phase. The air then vents through the unsaturated zone. The effectiveness of air sparging to allow a phase transfer will primarily depend on the intrinsic permeability of soils at the site and the volatility of the hydrocarbon. The higher the intrinsic permeability and the higher the vapor pressure of the hydrocarbon the more effective air sparging will be. In addition, air sparging facilitates in-situ remediation by supplying oxygen to bacteria capable of degrading petroleum hydrocarbons.

4.1.3 Soil Vapor Extraction

SVE, also known as “soil venting” or “vacuum extraction,” reduces concentrations of volatile constituents of petroleum products adsorbed to the soil matrix in the vadose zone. With this technology, a vacuum is applied to the soil matrix to create a negative pressure gradient that causes movement of vapors toward extraction wells. Depending on subsurface permeability and the constituents’ vapor pressures, the volatile constituents will readily be removed from the subsurface through the extraction wells. The extracted vapors will then be treated, as necessary, and discharged to the atmosphere. This technology is effective in reducing concentrations of petroleum hydrocarbons and certain semi-volatile organic compounds found in petroleum products at UST sites. SVE has been generally more successful when applied to the lighter (more volatile) petroleum products such as gasoline. Less volatile diesel fuel, heating oils, and kerosene are not readily treated by SVE (United States Environmental Protection Agency [USEPA], 2004).

4.1.4 Air Sparge with Soil Vapor Extraction

AS in combination with SVE is an effective remedial approach for reducing petroleum hydrocarbon concentrations dissolved in groundwater and adsorbed in the unsaturated, vadose zone. AS enables the phase transfer of hydrocarbons from dissolved in the saturated zone to vapor phase within the unsaturated zone. These vapors are then influenced by the negative pressure created in the unsaturated zone by an SVE system and are routed towards extraction wells for capture.

4.2 PILOT TEST OBJECTIVES

The DPE pilot test will provide estimates of mass removal rates, approximate vacuum and dewatering ROI, the relationship between applied vacuums and vapor extraction flow rates, groundwater extraction rates, and evaluation of dewatering potential. Information collected during the DPE pilot test will be used to properly design a full-scale DPE system if it is shown to be effective, which involves determining the appropriate number of extraction wells based on the vacuum ROI and drawdown data, choosing the appropriate method of extracting groundwater, choosing the appropriate blower size and type based on the applied vacuums and vapor extraction flow rates, selecting the appropriate vapor abatement system based on the initial mass removal rates, and selecting the appropriate water treatment and disposal system.

The AS/SVE pilot test will help determine if the target air sparge flow rate on 10 cubic feet per minute (cfm) is achievable below the fracture pressure, the relationship between the wellhead pressures and air flow rates, if petroleum hydrocarbon mass is transferred from the saturated zone into the unsaturated zone, the relationship between applied vacuum and vapor extraction flow rates, and the approximate vacuum ROI. Information collected during the AS/SVE pilot test will be used to properly design a full-scale AS/SVE system, which involves choosing the appropriate compressor size and type based on the wellhead pressures and air flow rates, determining the appropriate number of sparge and vapor extraction wells, selection of the appropriate SVE blower size and type based on the applied vacuums and vapor extraction flow rates, and selection of the appropriate vapor abatement system based on the initial mass removal rates.

4.3 PILOT TEST HEALTH AND SAFETY PLAN

As required by the Occupational Safety and Health Administration Standard "Hazardous Waste Operations and Emergency Response" guidelines (29 CFR 1910.120), and by the California Occupational Safety and Health Administration "Hazardous Waste Operations and Emergency Response" guidelines (CCR Title 8, Section 5192), Stantec will create a site-specific Health and Safety Plan (HASP) prior to the commencement of field work. The HASP will outline potential hazards to Stantec field personnel during the field activities described herein. Job safety analyses for tasks performed by Stantec personnel (e.g., driving, oversight of boring advancement, sample collection, etc.) will be included. The HASP will also include specifications for required personal protective equipment worn by Stantec field personnel for

each task. In addition, Stantec will produce a Journey Management Plan (JMP) to prevent losses associated with motor vehicle incidents. A copy of Stantec's HASP and JMP will be distributed to subcontractors prior to field work, and will be available on site during field activities.

Subcontractors will also develop a site-specific HASP and JMP for tasks applicable to them (e.g., driving, air-knifing, advancing soil borings, etc.). Stantec will review subcontractor HASPs prior to commencing field activities. Appropriate subcontractor HASPs will also be available on site.

5.0 GROUNDWATER PUMP TEST

A groundwater pump test will be conducted to determine the groundwater yield rate at the site. Based on the results of the pump test either a DPE or an AS/SVE pilot test will be performed.

5.1 EQUIPMENT PROCUREMENT AND SETUP

An air compressor with a receiving tank, a portable generator, a pneumatic down well pump, and a 6,900 gallon holding tank will be procured for the groundwater pump test. Secondary containment will be installed around the holding tank and generator. A temporary chain link fence will be constructed around these major system components. Work areas around the extraction well will be protected from traffic with high-visibility traffic cones with flags or delineators that are at least 48 inches high and orange construction fencing.

The air compressor will be capable of generating air flow up to 20 scfm at the required pneumatic pump head pressure. A regulator located after the receiving tank will be used to control the air pressure to the pump. A qualified person will connect the generator to the air compressor, which will be grounded appropriately.

A bottom-loading pneumatic pump will be used to extract groundwater from well MW-1. This is the only four inch diameter well installed at the site and was chosen to accommodate potentially high groundwater yields. A minimum 2-inch diameter flexible vacuum-rated hose will be used to connect system components to the extraction well which will be equipped with a vacuum seal cap containing fittings for connection to the pneumatic pump as well as a return water three-way valve for timing and sampling flow rate into a known-volume bucket. Extracted groundwater will be passed through a totalizer and stored in the 6,900 gallon holding tank.

5.2 BASELINE DATA COLLECTION

Prior to starting the initial groundwater pump test, the DTW, depth to product (DTP), and depth to bottom (DTB) will be measured in wells MW-1, MW-9, MW-10, MW-11, and MW-15. Baseline data will be recorded on field data sheets.

5.3 PUMP TEST DATA COLLECTION

The initial 24-hour groundwater pump test utilizing monitoring well MW-1 will be performed to determine groundwater yield at the site. If the groundwater yield is sustained above 2.5 gpm between a period of five and eight hours, the test will be terminated due to high groundwater yield. If the groundwater yield is sustained below 2.5 gpm, then the test will continue for up to 24 hours.

The following data will be recorded on field data sheets:

1. DTW, DTP, and DTB levels will be measured in the observation wells (MW-9, MW-10, MW-11, and MW-15) using either data logging transducers or manual measurements.

2. Estimated groundwater recovery volume and rates (per a groundwater totalizer and/or timing and sampling return water using three-way valve at well head).

3. After completion of the pump test, the DTW, DTP, and DTB will be measured in the pumping well.

5.4 DEMOBILIZATION AND WASTE DISPOSAL

At the conclusion of the pump test the system will be dismantled and demobilized from the site. Recovered groundwater will be transported by a licensed waste-hauler to an approved waste facility for disposal. All wells will be secured, and the property will be restored to its pre-pilot test appearance.

5.5 DATA EVALUATION

Data collected during the initial 24-hour groundwater pump test utilizing monitoring well MW-1 will be evaluated. If the observed groundwater yield is less than 2.5 gpm up to a period of 24-hours, then a DPE pilot test will be performed based on Section 6.0 below. If the observed groundwater yield is greater than 2.5 gpm and sustained for a period between 5 and 8 hours, then an AS/SVE pilot test will be performed based on Section 7.0 below.

6.0 DPE ONLY TEST - LOW WATER YIELD

If the results of the initial groundwater pump test indicate that the sustained groundwater yield is less than 2.5 gpm, a DPE pilot test will be performed at the site. The pilot test will utilize existing monitoring well MW-1, screened across the fractured sandstone bedrock, as the extraction well and monitoring wells MW-9, MW-10, MW-11, and MW-15 as observation wells. The following tables summarize the proposed pilot testing schedule and well construction specifications.

Scheduled Time	Extraction Well	Observation Wells	Tasks
Pre-event	--	MW-1, MW-9, MW-10, MW-11, and MW-15	1. Collect baseline parameters (see Section 6.4) 2. Mobilization 3. System setup and shakedown 4. Perform critical device inspections and system safety checks (no well gas extracted)
Day 1	MW-1	MW-9, MW-10, MW-11, and MW-15	1. Initiate DPE pilot test
Day 2	MW-1	MW-9, MW-10, MW-11, and MW-15	1. DPE pilot test
Day 3	MW-1	MW-9 MW-10, MW-11, and MW-15	1. DPE pilot test 2. Post-pilot test data collection 3. Shut system down at end of day 4. Dismantle/remove system 5. Demobilization

Approximate distances between each observation well and the extraction well:
MW-9 = 65 feet ; MW-10 = 35 feet ; MW-11 = 60 feet ; MW-15 = 70 feet

Well I.D.	Install Date	Bore hole	Casing	Slot Size	Total Depth	Screen	Filter Pack	Bentonite	Cement
		(inches)			(feet bgs)				
MW-1	12/8/92	10	4	0.020	39.5	22-37	20-38	18-20	0-18
MW-9	8/22/11	6	2	0.010	37	27-37	25-37	23-25	0-23
MW-10	8/23/11	6	2	0.010	37	27-37	25-37	23-25	0-23
MW-11	8/23/11	6	2	0.010	37	24-34	22-37	20-22	0-20
MW-15	8/25/11	6	2	0.010	38	25.5-35.5	23.5-38	21.5-23.5	0-21.5

Note: All wells are constructed using schedule 40 polyvinyl chloride (PVC) pipe.

6.1 PERMITTING AND NOTIFICATION

Stantec will obtain a permit exemption from the Bay Area Air Quality Management District (BAAQMD) for conducting the DPE pilot test. A generator with a valid portable equipment registration from the California Air Resources Board (CARB) Portable Equipment Registration Program will be used during the pilot test. Required notification will be provided to BAAQMD, the property owner, and ACEH prior to the initiation of field work.

6.2 EQUIPMENT PROCUREMENT AND SETUP

A mobile remediation trailer (MRT), a portable generator, and a 6,900 gallon holding tank will be procured for the pilot test. If a DPE test is conducted, a pneumatic pump and an air compressor with a receiving tank capable of generating air flow up to 20 scfm at the required pneumatic pump head pressure will additionally be obtained. A regulator located after the receiving tank will be used to control the pressure and an inline flow meter will be used to estimate the flow rate. The holding tank and generator will be double contained. Based on the initial groundwater yields, additional holding tanks may be used. The MRT will consist of the following components:

- A minimum 200 scfm thermal oxidizer or minimum 300 scfm electrical catalytic oxidizer;
- A blower (minimum 7.5 hp) capable of producing flow rates of at least 200 actual cubic feet per minute (acfm) and vacuums up to 20 "Hg; and
- An air/water separator.

The proposed MRT will provide flexibility and is capable of treating the extracted vapors without limiting the vacuum/flow rates from the extraction well. Stantec expects the extracted vapor concentrations to be high initially based on the recent groundwater analytical data and will decrease, remain constant, or increase depending on the rate of mass desorption from the vadose zone.

After mobilizing the MRT to the site, a technician will assist with start-up procedures and during the pilot test. The MRT and, if required, the air compressor will be powered by an appropriately sized diesel generator. A qualified person will connect the generator to the MRT and air compressor, which will be grounded appropriately.

A bottom-loading pneumatic pump will used to extract groundwater from well MW-1 to accommodate groundwater yields observed during the initial groundwater pump test. The extracted groundwater will be pumped to the holding tank. Water present in the vapor stream will be removed via an air/water separator and also routed to the holding tank.

A temporary chain link fence will be constructed around the major system components. An extraction manifold will be constructed of schedule 80 PVC pipe and flexible, vacuum-rated

hose (minimum single 2-inch diameter or dual 1.5-inch diameter) to connect the system components to the extraction well points. Work areas around the extraction and observation wells will be protected from traffic with high-visibility traffic cones with flags or delineators that are at least 48 inches high and orange construction fencing.

6.3 MEASUREMENT METHODS

Fittings will be installed in the length of PVC pipe connected to the DPE well in order to provide access for the velocity and temperature measurement device as well as a Magnehelic® or other gauges. At a minimum, a vacuum gauge will be installed at the extraction wellhead to measure applied vacuum. Anemometer and pitot tube connections will be installed to provide a minimum of 10 pipe diameters upstream of the device and five pipe diameters downstream of the device without obstructions or bends in the piping for flow measurements. Redundant air flow measurements using averaging pitot tubes and hot-wire anemometers will be collected pre- and post-blower for comparison to blower curves and for data validation.

Observation wellheads will be fitted with well caps that include a hose barb valve sample port to allow for induced vacuum readings (via a Magnehelic® gauge or electronic instrument such as digital manometer) and allow for field measurement of volatile organic compounds (VOC) using a flame ionization detector (FID) and/or PID. Data logging transducers may by installed within each observation well for DTW and induced vacuum measurements. A barometric pressure meter will also be utilized throughout the pilot test to correct induced and applied vacuum readings to absolute pressure.

A FID calibrated to hexane and a five gas meter (oxygen [O_2], carbon dioxide [CO_2], carbon monoxide [CO], lower explosive limit [LEL], and VOCs [PID]) will be used for vapor monitoring of petroleum hydrocarbons and other gases that may affect system operation or design. A sampling pump and chamber with Tedlar® bags will be used to collect vapor samples from the well head, pressure side of the blower (process), and effluent at a minimum. An interface probe will be used for measurement of DTW and DTP. Equipment checklists for the DPE pilot test will be completed according to Chevron technical guidelines.

6.4 BASELINE DATA COLLECTION

Prior to starting the DPE pilot test, the DTW, DTP, DTB and casing vacuums will be measured in wells MW-1, MW-9, MW-10, MW-11, and MW-15. The observation wells will be equipped with hose barb valve for vacuum measurements and sample collection. The extraction well MW-1 will be equipped with a vacuum seal cap containing fittings for connection to the pneumatic pump as well as a hose barb valve for vacuum measurements and sample collection. Vapor samples will be collected from the extraction well in Tedlar® bags for field analysis with a FID. The radial distances from the extraction well to each observation well will be measured. All baseline data will be recorded on field data sheets.

6.5 CONDUCTING THE DPE PILOT TEST

The DPE pilot test will be conducted over a 72 hour period. If steady state conditions are observed in less than 72 hours, the test will be terminated. The information generated during the DPE pilot test will be recorded on field data sheets. The following procedures will be used:

1. The following parameters will be recorded throughout the test:

    a. The vacuum reading at the vacuum side of the blower (post-dilution) and the pressure reading at the pressure side of the blower;

    b. The wellhead vacuum in MW-1 and the induced vacuum in observation wells (MW-9, MW-10, MW-11, and MW-15);

    c. The vapor flow rate and temperature at the pressure side of the blower and dilution air (to determine well flow versus total flow);

    d. The DTW levels will be measured in the observation wells (MW-9, MW-10, MW-11, and MW-15) using either data logging transducers or manual measurements.

    e. Estimated groundwater recovery volume and rates (per the totalizer and air/water separator site glass)

2. Vapor samples at the wellhead, at the pressure side of the blower, and at the effluent will be collected in Tedlar® bags throughout the test for field analysis with a FID and five gas meter, and readings will be recorded. Readings with and without a carbon filter on the FID will be collected to differentiate between methane and non-methane volatile organic hydrocarbons.

3. One suite of influent water samples will be collected and sent under chain of custody to a California certified laboratory for any analyses required for the purposes of waste groundwater profiling and/or future discharge permitting (i.e. injection, surface discharge).

4. Process vapor samples will be collected in Tedlar® bags for laboratory analysis after one hour of constant-rate testing, at the approximate midpoint of the test, and near the conclusion of the DPE test. See section 6.6 for more details on the sampling schedule.

5. The volume of water collected in the air/water separator will be recorded at the end of the DPE test.

6.6 ANALYTICAL DATA COLLECTION

If Tedlar® bags are used, they must be received at the laboratory within 24 hours following sample collection. Laboratory analyses will include TPHg by USEPA Method TO-3 Modified and BTEX and oxygenates by EPA Method TO-15 for both influent samples. In addition, the influent sample collected near the conclusion of the DPE test will be analyzed for tetra-ethyl lead (TEL) via National Institute for Occupational Safety and Health (NIOSH) Method 2533; tetra-methyl lead (TML) via NIOSH Method 2534; full-scan VOCs via USEPA Method TO-15; methane and fixed gases (carbon dioxide and oxygen) via American Society for Testing and Materials (ASTM) Method D-1946; and sulfur compounds via ASTM Method D-5504. Lead, sulfides, and halogenated hydrocarbons are catalyst deactivation agents that may potentially be present at the site. Analysis of these compounds is recommended for evaluation of DPE off-gas treatment options. For analysis of TEL and TML, a 30-liter (L) grab sample will be passed through a sorbent tube (XAD in series) at a flow rate not to exceed 0.2 L/min. Effluent vapor samples will be collected and monitored in accordance with permit exemption requirements.

Vapor samples collected for laboratory analysis of TEL/TML will be shipped to ALS Laboratory Group in Salt Lake City, Utah via Federal Express. All other vapor samples will be shipped or picked up by a courier and transported to a laboratory under proper chain of custody documentation within required hold times. Note that the hold time for samples undergoing analysis for sulfur compounds is 24 hours.

Day	Sample Time	Sample Location	Sample Analysis
Pre-event	During baseline data collection	--	No samples to be submitted for analytical
Day 1	One hour into DPE test at MW-1	MW-1	-TPHg by EPA TO-3M -BTEX and oxygenates by EPA TO-15
Day 2	Midpoint of DPE test at MW-1	MW-1	-TPHg by EPA TO-3M -BTEX and oxygenates by EPA TO-15
Day 3	End of DPE test at MW-1	MW-1	-TPHg by EPA TO-3M -TEL & TML by NIOSH 2533M -Methane, O_2, & CO_2 by ASTM D-1946 -Sulfur compounds by ASTM D-5504 -Full list VOCs (including chlorinated solvents) by EPA TO-15

6.7 SHORT-CIRCUITING TEST

The potential for short-circuiting exists at the property and should be evaluated if it is suspected during the pilot test (i.e., high vapor flow rates are achieved under a low applied vacuum, the ROI is smaller than expected, etc.). Short-circuiting can be evaluated by visually investigating system piping and areas around the extraction and observation wells for possible short-circuit pathways. The degree of soil moisture around the extraction well may also indicate the potential for short-circuiting (i.e., wet soil conditions typically prevent or significantly reduce short-circuiting). As a qualitative test, distilled water may be poured around the extraction well as the system is operating to evaluate short-circuiting; normally, if a well is short-circuiting, pouring water around the well will create a temporary seal in the immediate area of the well causing a temporary increase in the vacuum ROI.

6.8 POST-PILOT TEST DATA COLLECTION

After completion of the pilot test but prior to system shutdown, the DTW, DTP, and DTB will be measured in the observation wells and casing vacuums will be measured in the extraction and observation wells. Vapor samples will be collected from the extraction well in Tedlar® bags for field analysis with a FID and five gas meter, and the readings will be recorded. Post-pilot test data will be recorded on field data sheets.

6.9 DEMOBILIZATION AND WASTE DISPOSAL

At the conclusion of the pilot test, the system will be dismantled and demobilized from the site. Recovered groundwater will be transported by a licensed waste-hauler to an approved waste facility for disposal. All wells will be secured, and the property will be restored to its pre-pilot test appearance.

6.10 DATA EVALUATION AND REPORT PREPARATION

Results of the DPE pilot test will be evaluated for the following objective feasibility criteria.

- Subsurface vacuum distribution (ROI) and extracted vapor flow rates: Subsurface vacuums are inversely proportional to the square root of the radial distance from an extraction well; therefore, by monitoring subsurface vacuum levels at various distances from an extraction well, the data can be plotted on a semi-log graph to obtain a straight line. To assess the vacuum ROI, normalized vacuum (vacuum observed at the observation well divided by the applied wellhead vacuum) will be plotted on a logarithmic scale (y-axis) and radial distance from the remediation well will be plotted on an arithmetic scale (x-axis). EMC guidance suggests 1% of the applied wellhead vacuum can be used to determine ROI.

- VOC mass removal rates will be calculated based on vapor concentrations (lab measured) and extraction well air flow rates as follows:

$$Mass Removed (lbs) = \frac{Conc.(ppmv)}{1{,}000{,}000} x \frac{MW gas}{24.45(*)} x \frac{28.317 L}{ft^3} x \frac{1 lbs}{453.592 g} x flow (scfm) x \frac{60 mins}{1 hour} x hours$$

* gas constant = 24.45 L/mole at 25 °C and 760 millimeters Mercury
MW_{GRO} = 114 g/mole
$MW_{benzene}$ = 78.11 g/mole
lbs = pounds
g = grams

$$Mass Removal Rate (lbs/day) = \frac{Mass Removed (lbs)}{Operating hours} x \frac{24 hours}{day}$$

ft^3 = cubic feet

- Groundwater extraction rates and smear zone dewatering ROI will be measured based on field data (totalizer and tank volume readings to measure extraction rates and data logging transducer data or manual readings for dewatering ROI).

Subjective criteria (i.e., noise restrictions, available space, permitting vapor discharge, vapor and water treatment options) will also be considered when determining the feasibility of DPE for remediation of adsorbed and dissolved source mass.

Results of the DPE pilot test will be summarized in a report submitted to the ACEH. The report will include a description of field activities, a site location map, a site plan, a summary of analytical results, certified laboratory analysis reports and chain-of-custody documentation, an evaluation of pilot test results, conclusions, and recommendations.

7.0 AS/SVE ONLY PILOT TEST - HIGH WATER YIELD

If the result of the initial groundwater pump test indicates a sustained groundwater yield greater than 2.5 gpm, an AS/SVE pilot test will be performed at the site. The AS/SVE pilot test will utilize existing monitoring well MW-1 screened across the fractured sandstone bedrock as the extraction well, one new proposed air sparge well AS-1, and four existing observation wells. The following sections describe the well installation scope of work and the AS/SVE pilot test.

7.1 SPARGE WELL INSTALLATION

Stantec proposes to install one air sparge well AS-1 as shown on Figure 2 prior to AS/SVE pilot test. Well AS-1 will be installed between groundwater monitoring wells MW-1 and MW-10 within the former UST complex, screened within the fractured sandstone bedrock near the bottom extent of the source smear zone. Stantec's field procedures are described below.

7.1.1 Permitting and Notification

Prior to well installation activities, a sub-surface drilling permit will be obtained from the Zone 7 Water Agency for the installation of AS-1. EMC has previously obtained an access agreement with the owner of the property (Mr. Ardavan Onsori). Stantec will notify the Zone 7 Water Agency at least 72 hours prior to the initiation of field work.

7.1.2 Underground Utility Location and Clearance

Prior to initiating field activities, Stantec will mark the locations of the proposed well and contact Underground Service Alert (USA) North at least 48 hours prior to field activities to allow the USA member to mark subsurface utility locations. Additionally, Stantec will contract a private utility locator to verify the subsurface utility locations marked by USA members and investigate the presence of other subsurface utilities not owned or operated by USA members. The top 8 feet of the subsurface will be removed from the proposed well borings using an air-knife or hand auger to prevent damaging undiscovered subsurface utilities. If a proposed boring location is between 5 and 10 feet of a subsurface utility and/or the subsurface utility depth is deeper than 8 feet bgs, the boring will be cleared by air knife or hand auger to the known subsurface utility depth.

7.1.3 Air Sparge Well Installation

The borehole for well AS-1 will be advanced using 8-inch diameter sonic drilling equipment. The top of the sparge screen will be set to a depth approximately five feet below the base of the identified smear zone. Based on a review of historic data, the smear zone in the location proposed is anticipated to extend to approximately 31 feet bgs. This would result in a borehole advanced to approximately 40 feet bgs and a screen interval of approximately 36-38 feet bgs. Actual well construction will be dependent on the smear zone interval identified in the field. The

smear zone will be evaluated using a PID on soil cuttings that are removed from the borehole. The well will be constructed using 2-inch diameter schedule 40 PVC casing with a 2-foot blank at the bottom and a 2-foot long 0.020-inch factory slotted screen interval, or most appropriate based on encountered subsurface lithology, above the blank. The annular space around the blank will be filled with bentonite and the annular space around the slotted screen will be filled with sand (appropriately sized based on selected well screen size) to a depth of 1 foot above the screen interval, a 2 foot bentonite seal will be emplaced above the sand filter pack, and neat cement grout (mixed at a ratio of 94 pounds of cement per 6 gallons of water) will be emplaced above the annular seal to one foot bgs. The well will be completed at the surface with a traffic rated well box set in concrete and a locking well cap.

7.1.4 Soil Sample Collection and Analysis

Soil samples from the soil borings associated AS-1 will be collected for evaluation of soil stratigraphy, on-site qualitative analysis for the presence of residual hydrocarbons (i.e. field screened using a PID), and laboratory analysis. Soils encountered within borings will be described in accordance with the Unified Soil Classification System (USCS) by Stantec field staff under the direction of a California Professional Geologist.

Soil samples will be collected in brass or stainless steel liners inserted into a California modified soil sampler. Soil samples collected at 5 feet bgs, from the bottom of the borehole, and with the highest PID reading will be submitted for laboratory analysis. The soil samples will be placed on ice, transported to a California state-certified laboratory under chain-of-custody protocol, and analyzed for the presence of TPH-GRO, BTEX, and MTBE by EPA Method 8260B. Soil samples collected from a depth of 5 feet bgs will additionally be analyzed for the presence of naphthalene by EPA Method 8260B.

7.1.5 Well Development

Prior to development of well AS-1, the bentonite seal and neat cement grout will be allowed to cure for a period of at least 48 hours. AS-1 will be developed by surging the well over the length of the screen interval and by purging approximately 10 casing volumes of water.

7.1.6 Well Surveying

Newly installed well AS-1 will be surveyed by Stantec to the North American Datum (NAD) 83 (1986) for geographical location, and to the North American Vertical Datum (NAVD) 88 for elevation. The survey will tie into previous surveys performed at the site using at least two existing site features as references.

7.1.7 Investigation Derived Waste

Investigation derived waste (IDW; e.g. soil cuttings, decontamination rinsate water, and purged groundwater) generated during drilling operations will be containerized and properly disposed

of. A temporary staging area for the IDW will be identified prior to commencing field activities. Copies of the disposal manifests will be included in the report or submitted under separate cover.

7.2 AS/SVE ONLY TEST

The AS/SVE pilot test will utilize existing monitoring well MW-1 screened across the fractured sandstone bedrock as the extraction well, one newly installed air sparge well AS-1, and four existing observation wells as indicated in the table below. The following table summarizes the proposed pilot testing schedule.

Scheduled Time	Extraction Wells	Sparge Wells	Observation Wells	Tasks
Pre-event	--	--	AS-1, MW-1, MW-9, MW-10, MW-11, and MW-15	1. Collect baseline parameters (see Section 7.2.4) 2. Mobilization 3. System setup and shakedown 4. Perform critical device inspections and system safety checks (no well gas extracted)
Day 1	MW-1	--	MW-9, MW-10, MW-11, and MW-15	1. Check that GW near static conditions. 2. Step-rate SVE-only test 3. Constant-rate SVE-only test
Day 2	MW-1	AS-1	MW-9, MW-10, MW-11, and MW-15	1. Sparge test with SVE extraction and mounding evaluation 2. Shut down all systems
Day 3	--	--	AS-1, MW-1, MW-9, MW-10, MW-11, and MW-15	1. Post-pilot test data collection 2. Dismantle/remove system 3. Demobilization

Well I.D.	Install Date	Bore hole ø	Casing ø	Slot Size	Total Depth	Screen	Filter Pack	Bentonite	Cement
		(inches)			(feet bgs)				
MW-1	12/08/92	10	4	0.020	39.5	22-37	20-38	18-20	0-18
MW-9	8/22/11	6	2	0.010	37	27-37	25-37	23-25	0-23
MW-10	8/23/11	6	2	0.010	37	27-37	25-37	23-25	0-23
MW-11	8/23/11	6	2	0.010	37	24-34	22-37	20-22	0-20
MW-15	8/25/11	6	2	0.010	38	25.5-35.5	23.5-38	21.5-23.5	0-21.5
AS-1	Prior to pilot test	8	2	0.020	*40	*36-38	*35-38	*33-35	*0-33

Notes:
All wells are constructed using schedule 40 PVC pipe.
* Final construction details of AS-1 will depend on field conditions.

7.2.1 Permitting and Notification

Stantec will obtain a permit exemption from the BAAQMD for conducting the SVE pilot test. A generator with a valid portable equipment registration from the CARB Portable Equipment Registration Program will be used during the pilot test. Required notification will be provided to BAAQMD, the property owner, and ACEH prior to the initiation of field work.

7.2.2 Equipment Procurement and Setup

A MRT, an air compressor with a receiving tank, and a holding tank used to store water from air/water separator will be procured for the pilot test. An air compressor capable of generating air flow up to 20 scfm at the maximum estimated well fracture pressure will be used during the pilot test. A regulator located after the receiving tank will be used to control the pressure and an inline flow meter will be used to estimate the flow rate. The holding tank will have a capacity of at least 500 gallons. The MRT will consist of the following components:

- A minimum 200 scfm thermal oxidizer or minimum 300 scfm electrical catalytic oxidizer;
- A blower capable of producing flow rates of at least 200 acfm and vacuums up to 20 "Hg; and
- An air/water separator.

The proposed MRT will provide flexibility and will be capable of treating the extracted vapors without limiting the vacuum/flow rates from the extraction well. Stantec expects the extracted vapor concentrations to be high initially based on the recent groundwater analytical data and will decrease, remain constant, or increase depending on the rate of mass desorption from the vadose zone and on how effective the mass transfer is from the saturated zone into the vadose zone due to sparging.

After mobilizing the MRT to the site, a technician will assist with start-up procedures and during the pilot test. The MRT and the air compressor will be powered by an appropriately sized diesel generator. A qualified person will connect the generator to the MRT and air compressor, which will be grounded appropriately.

Groundwater collected by the air/water separator will be stored on-site in a poly tank equipped with secondary containment. A temporary chain link fence will be constructed around the major system components (MRT, air compressor, generator, and holding tank). Secondary containment will also be utilized for the generator. An extraction manifold will be constructed of schedule 80 PVC pipe and flexible, vacuum-rated hose (minimum single 2-inch diameter or dual 1.5-inch diameter) to connect the system components to the extraction well points. A sparge manifold will be constructed of flexible pressure-rated hose (minimum single 1-inch diameter) with connected whip checks on each end to connect system components to the sparge well point. Traffic-rated hose ramp will be used to protect hoses in areas of traffic. Work areas around the sparge, extraction, and observation wells will be protected from traffic with high-visibility traffic cones with flags or delineators that are at least 48 inches high and orange construction fencing.

7.2.3 Measurement Methods

Fittings will be installed in the length of PVC pipe connected to the SVE well in order to provide access for the velocity and temperature measurement device as well as a Magnehelic® or other gauges. At a minimum, a vacuum gauge will be installed at the extraction wellhead to measure applied vacuum. Anemometer and pitot tube connection will be installed to provide a minimum of 10 pipe diameters upstream of the device and five pipe diameters downstream of the device without obstructions or bends in the piping for flow measurements. Redundant air flow measurements using averaging pitot tubes and hot-wire anemometers will be collected pre- and post-blower for comparison to blower curves and for data validation.

Observation wells will be fitted with well caps that include a hose barb valve sample port to allow for induced vacuum readings (via a Magnehelic® gauge or electronic instrument such as digital manometer) and allow for field measurement of VOCs using a FID and/or PID. Data logging transducers may be installed within the vapor extraction well and each observation well for DTW and induced vacuum measurements. A barometric pressure meter will also be utilized throughout the pilot test to correct induced and applied vacuum readings to absolute pressure.

A FID calibrated to hexane and five gas meter (O_2, CO_2, CO, LEL, and PID) will be used for vapor monitoring of petroleum hydrocarbons and other gases that may affect system operation or design. A sampling pump and chamber with Tedlar® bags will be used to collect vapor samples from the well head, pressure side of the blower (process), and effluent at a minimum. An interface probe will be used for measurement of DTW and DTP. Equipment checklists for the AS/SVE pilot tests will be completed according to Chevron technical guidelines.

7.2.4 Base Line Data Collection

Prior to starting the AS/SVE pilot test, the DTW will be measured in wells AS-1, MW-1, MW-9, MW-10, MW-11, and MW-15. In addition, casing vacuums will be measured in the extraction, sparge, and observation wells. Vapor samples will be collected from the extraction well and observation wells in Tedlar® bags for field analysis with a FID, and the readings will be recorded. Extraction well MW-1 will be equipped with a vacuum seal cap containing fittings for a hose barb valve sample port for vacuum measurements and sample collection. The radial distances from the extraction well to each observation well will also be measured. Baseline data will be recorded on field data sheets.

7.2.5 Conducting the AS/SVE Pilot Test

A primary objective of the AS/SVE pilot test is to evaluate if injection flow rates of 10 to 20 scfm can be achieved below fracture pressure in the sparge well. In addition, the AS/SVE pilot test will include a SVE-only step rate and constant rate test to evaluate extracted airflow rates and vacuum ROI over a range of applied vacuums and for comparison to the AS/SVE simultaneous testing. Data from the tests will show effects on SVE mass recovery during sparge injection, and air transmission to the vadose zone by measuring groundwater mounding. The following procedures will be used:

1. Prior to system start-up DTW will be measured in the sparge well (AS-1) and in the observation wells (MW-1, MW-9, MW-10, MW-11, and MW-15) to document equilibrium conditions.

2. The system will be started and a step-rate SVE-only test will be performed by applying various vacuums to extraction well MW-1. The SVE-only test will be conducted for up to four hours. The following parameters will be recorded every 30 to 60 minutes:

    a. The vacuum reading at the vacuum side of the blower (post-dilution) and the pressure reading at the pressure side of the blower;

    b. The wellhead vacuum in MW-1 and the observation wells (MW-9, MW-10, MW-11, and MW-15);

    c. The vapor flow rate and temperature at the MW-1 wellhead, at the vacuum side of the blower (post-dilution), and at the pressure side of the blower;

    d. Vapor samples at the wellhead, at the pressure side of the blower, and at the effluent will be collected in Tedlar® bags for field analysis with a FID and five gas meter, and readings will be recorded. Readings with and without a carbon filter on the FID will be collected to differentiate between methane and non-methane volatile organic hydrocarbons.

3. A constant rate SVE test will be performed for the remainder of the day and evening to determine baseline SVE parameters. At least one sample will be collected for laboratory analyses of TPHg by USEPA Method TO-3 Modified and BTEX and oxygenates by EPA Method TO-15 near the end of the SVE only extraction event to compare to AS/SVE mass removal rates.

4. A four hour AS test will be performed using well AS-1 at maximum flow rates below the fracture pressures. During the AS test, well MW-1 will be operated at the optimum applied vacuum determined during the step-rate SVE test and reduced as needed to respond to possible water mounding resulting from air sparging.

    a. Prior to applying air pressure to AS-1, the hydrostatic and fracture pressures will be calculated in psi specific to the sparge well. The following equations are based on Chevron guidelines.

    $$P_h = 0.43(z_s - z_w)$$

    $$P_f = 0.73(z_s)$$

    Where:
    P_h = hydrostatic pressure (psi)
    P_f = fracture pressure (psi)
    z_s = depth of the top of the sparge well screen (feet bgs)
    z_w = DTW in the sparge well (feet bgs)

    b. The air compressor with a receiving tank and inline pressure regulator and flow meter will be turned on to begin operation, the pressure regulator will be adjusted to obtain a sparge wellhead pressure below the hydrostatic pressure as a means to perform a leak check. Following leak checks the injection pressure will be increased with the objective of obtaining a flow rate of 10 cfm. The injection pressure will at no point exceed 90% of the calculated fracture pressure. The system will be operated on 60 minute cycles (60 minutes on followed by 60 minutes off) at the injection pressure that generates 10 cfm or at 90% of the fracture pressure for the remainder of the test.

    c. The following system operating parameters will be recorded at least once every 15 minutes following start of test or following adjustments during testing:

        i. The pressure, temperature, and flow rate readings after the receiving tank (at the pressure regulator location);

        ii. The pressure, temperature, and flow rate readings at the sparge wellhead;

        iii. The induced pressure/vacuum at the observation wells;

iv. The DTW at the observation wells; and

v. Influent vapor samples from well MW-1 will be collected in Tedlar® bags for field analysis with a FID, and readings will be recorded. Readings with and without a carbon filter on the FID will be collected to differentiate between methane and non-methane volatile organic hydrocarbons.

vi. At least one sample will be collected for laboratory analyses of TPHg by EPA Method TO-3 Modified and BTEX and oxygenates by EPA Method TO-15

7.2.6 Analytical Data Collection

If Tedlar® bags are used, they must be received at the laboratory within 24 hours following sample collection. Laboratory analyses will include TPHg by EPA Method TO-3 Modified and BTEX and oxygenates by EPA Method TO-15 for both influent samples. In addition, the influent sample collected near the conclusion of the SVE/AS test will be analyzed for TEL via NIOSH Method 2533; TML via NIOSH Method 2534; full-scan VOCs via USEPA Method TO-15; methane and fixed gases (carbon dioxide and oxygen) via ASTM Method D-1946; and sulfur compounds via ASTM Method D-5504. Lead, sulfides, and halogenated hydrocarbons are catalyst deactivation agents that may potentially be present at the site. Analysis of these compounds is recommended for evaluation of SVE off-gas treatment options. For analysis of TEL and TML, a 30-L grab sample will be passed through a sorbent tube (XAD in series) at a flow rate not to exceed 0.2 L/min. Effluent vapor samples will be collected and monitored in accordance with permit exemption requirements.

Day	Sample Time	Sample Location	Sample Analysis
Pre-event	(1) During baseline data collection	--	No samples to be submitted for analytical
Day 1	(2) During constant rate SVE test at MW-1	MW-1	-TPHg by EPA TO-3M -BTEX and oxygenates by EPA TO-15
Day 2	(3) End of AS/SVE test at MW-1	MW-1	-TPHg by EPA TO-3M -TEL & TML by NIOSH 2533M -Methane, O_2, & CO_2 by ASTM D-1946 -Sulfur compounds by ASTM D-5504 -Full list VOCs (including chlorinated solvents) by EPA TO-15

7.2.7 Short-Circuiting Test

The potential for short-circuiting exists at the property and should be evaluated if it is suspected during the pilot test (i.e., high vapor flow rates are achieved under a low applied vacuum, the ROI is smaller than expected, etc.). Short-circuiting can be evaluated by visually investigating system piping and areas around the extraction and observation wells for possible short-circuit pathways. The degree of soil moisture around the extraction well may also indicate the potential for short-circuiting (i.e., wet soil conditions typically prevent or significantly reduce short-circuiting). As a qualitative test, distilled water may be poured around the extraction well as the system is operating to evaluate short-circuiting; normally, if a well is short-circuiting, pouring water around the well will create a temporary seal in the immediate area of the well causing a temporary increase in the vacuum ROI.

7.2.8 Post-Pilot Test Data Collection

After completion of the pilot test but prior to system shutdown, the DTW, DTP, and DTB will be measured in the observation wells and casing vacuums will be measured in the extraction and observation wells. Vapor samples will be collected from the extraction well and observation wells in Tedlar® bags for field analysis with a FID and five gas meter, and the readings will be recorded. Post-pilot test data will be recorded on field data sheets.

7.2.9 Demobilization and Waste Disposal

At the conclusion of the pilot test, the system will be dismantled and demobilized from the site. Recovered groundwater will be transported by a licensed waste-hauler to an approved waste facility for disposal. All wells will be secured, and the property will be restored to its pre-pilot test appearance. Vapor samples collected for laboratory analysis of TEL/TML will be shipped to ALS Laboratory Group in Salt Lake City, Utah via Federal Express. All other vapor samples will be shipped or picked up by a courier and transported to the laboratory under proper chain of custody documentation within required hold times. Note that the hold time for samples undergoing analysis for sulfur compounds is 24 hours.

7.2.10 Data Evaluation and Report Preparation

Results of the AS/SVE pilot test will be evaluated for the following objective feasibility criteria.

- Achievable air sparge flow rate below the fracture pressure (based on field readings with a target injection flow rate of 10 scfm).

- Evaluation of air being transferred from the saturated interval to the vadose zone (based on increased VOC influent concentrations in the SVE well and a typical mounding cycle in observation wells).

Subjective criteria (i.e., noise restrictions, available space, permitting vapor discharge, vapor and water treatment options) will also be considered when determining the feasibility of AS/SVE for remediation of adsorbed and dissolved source mass.

Results of the AS/SVE pilot test will be summarized in a report submitted to the ACEH. The report will include a description of field activities, a site location map, a site plan, a summary of analytical results, certified laboratory analysis reports and chain-of-custody documentation, an evaluation of pilot test results, conclusions, and recommendations.

8.0 SCHEDULE OF ACTIVITIES

The well installation and pilot test activities will be scheduled upon approval of this Work Plan by ACEH. The following presents a schedule for the proposed scope of work:

- The initial groundwater pump test activities on-site can be scheduled within four weeks of ACEH Work Plan approval and will take approximately 1 day to perform.

- DPE or AS/SVE pilot test activities on-site can be scheduled within six weeks after completing the initial groundwater pump test activities and will take approximately one week to perform.

- Stantec will summarize and evaluate the data collected during the pilot test activities. Pilot test results will then be reviewed by Chevron's technical team for peer review. If the pilot test findings provide sufficient supporting information to determine a definitive source remediation strategy, then a CAP Addendum will be prepared and submitted. Otherwise additional site work may be proposed and implemented as necessary to investigate source remediation strategies further prior to submitting a CAP Addendum.

9.0 LIMITATIONS AND CERTIFICATION

This work plan was prepared in accordance with the scope of work outlined in Stantec's contract and with generally accepted professional environmental consulting practices existing at the time this work plan was prepared and applicable to the location of the site. It was prepared for the exclusive use of EMC, 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 work plan 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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Reviewed By:

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Information, conclusions, and recommendations provided by Stantec in this document have been prepared under the supervision of and reviewed by the licensed professionals whose signatures and responsibilities appear below.

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STATE OF CALIFORNIA

Date: October 29, 2015

Signature:

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REGISTERED PROFESSIONAL ENGINEER
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C66152
EXP. 06-30-16
CIVIL
STATE OF CALIFORNIA

Date: October 29, 2015

Signature:

PILOT TEST WORK PLAN

Former Chevron Service Station No. 97127
Limitations and Certification
October 29, 2015

Copies: Ms. Carryl MacLeod, EMC (via electronic upload to Strata)
Mr. Ardavan Onsori, DM Livermore, Inc.
Mr. Wyman Hong, Zone 7 Water Agency
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10.0 REFERENCES CITED

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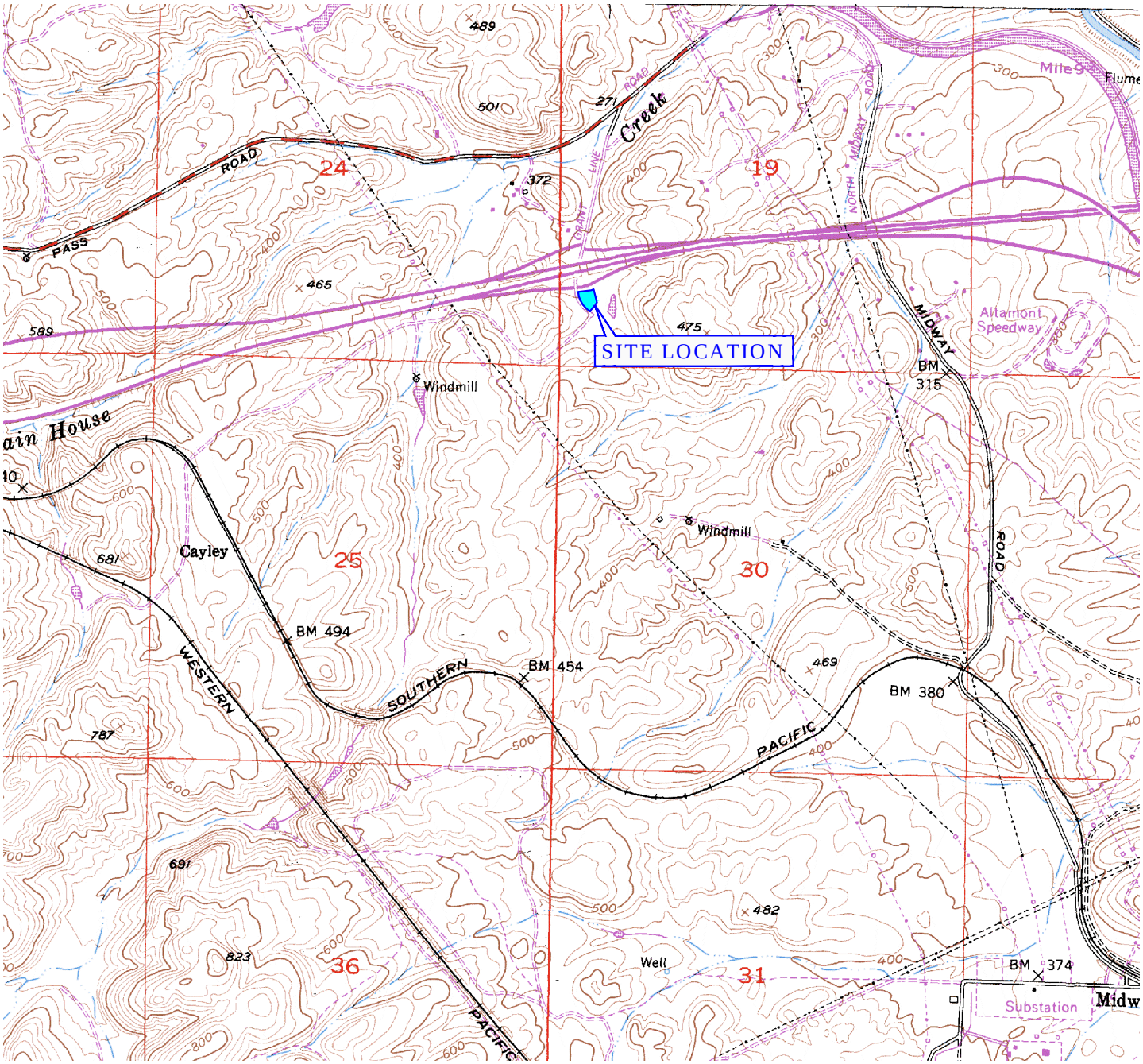
FIGURES



CALIFORNIA

1 1/2 0 1

SCALE IN MILE

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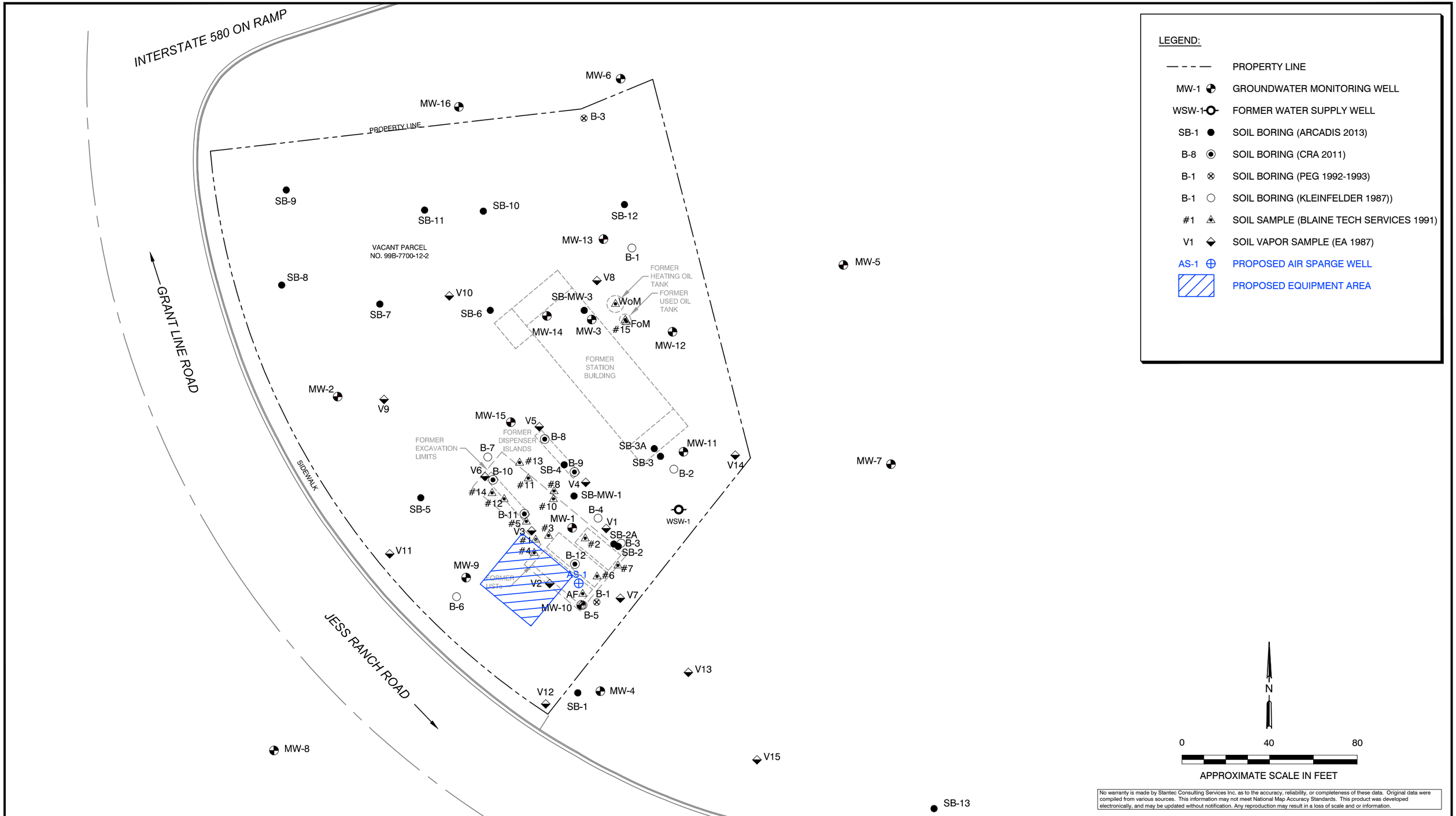
SCALE IN FEET

REFERENCE: CA Digital Raster Graphics(http://gis.ca.gov/casil/usgs.gov/)
7.5 Minute Series, Albers NAD83, Trimmed
Block o37121f5, Dated 1953; Revised 1980

Stantec

FOR:			FIGURE:
FORMER CHEVRON SERVICE STATION NO. 97127 10 GRANT LINE ROAD, MOUTAIN HOUSE, CALIFORNIA		**SITE LOCATION MAP**	**1**
JOB NUMBER: 185750361	DRAWN BY: JY	CHECKED BY: JR	APPROVED BY: BW	DATE: 09/01/15

FILEPATH:C:\Users\jlieberman\Desktop\97127\CH-9-7-7127_SLM.dwg|jlieberman|Sep 03, 2015 at 16:08|Layout: Layout1 (2)



LEGEND:

- PROPERTY LINE
- MW-1 GROUNDWATER MONITORING WELL
- WSW-1 FORMER WATER SUPPLY WELL
- SB-1 SOIL BORING (ARCADIS 2013)
- B-8 SOIL BORING (CRA 2011)
- B-1 SOIL BORING (PEG 1992-1993)
- B-1 SOIL BORING (KLEINFELDER 1987))
- #1 SOIL SAMPLE (BLAINE TECH SERVICES 1991)
- V1 SOIL VAPOR SAMPLE (EA 1987)
- AS-1 PROPOSED AIR SPARGE WELL
- PROPOSED EQUIPMENT AREA

Stantec

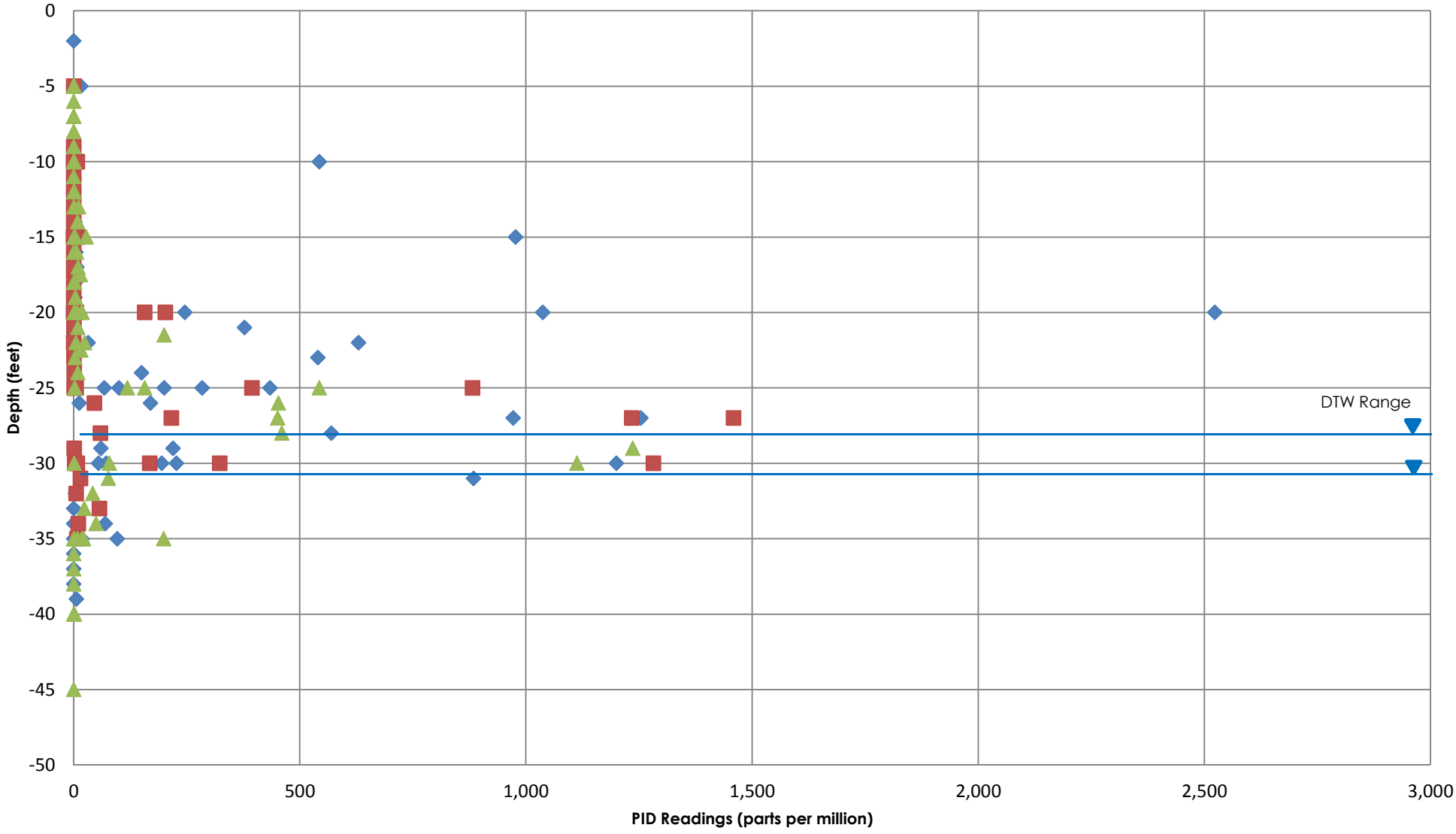
FOR:
FORMER CHEVRON SERVICE
STATION NO. 97127
10 GRANT LINE ROAD
MOUNTAIN HOUSE, CALIFORNIA

SITE PLAN WITH PROPOSED WELL

FIGURE: **2**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185750361	JY	JR	BW	09/11/15

FIGURE 3
Soil Boring PID Readings Versus Depth
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, CA



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TABLES

Table 1
Current Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-1	05/21/15	SPH	331.83	32.08	1.60	300.95	--	--	--	--	--	--	
	09/09/15	SPH		33.19	2.34	300.40	--	--	--	--	--	--	
MW-2	05/21/15		329.89	28.98	0.00	300.91	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
	09/09/15	ANN		29.54	0.00	300.35	--	--	--	--	--	--	
MW-3	05/21/15	SPH	331.93	30.99	0.02	300.96	--	--	--	--	--	--	
	09/09/15			31.61	0.00	300.32	18,000	8,400	77	770	830	<3	
MW-4	05/21/15		329.27	28.29	0.00	300.98	1,200	180	15	14	33	<1	
	09/09/15			28.80	0.00	300.47	700	12	6	<0.5	4	<0.5	
MW-5	05/21/15		315.83	15.03	0.00	300.80	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
	09/09/15	ANN		15.48	0.00	300.35	--	--	--	--	--	--	
MW-6	05/21/15		314.84	14.08	0.00	300.76	<50	<0.5	<0.5	<0.5	<0.5	1	
	09/09/15			14.71	0.00	300.13	<50	<0.5	<0.5	<0.5	<0.5	1	
MW-7	05/21/15		316.32	15.40	0.00	300.92	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
	09/09/15	ANN		15.77	0.00	300.55	--	--	--	--	--	--	
MW-8	05/21/15		333.02	31.98	0.00	301.04	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
	09/09/15			32.48	0.00	300.54	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-9	05/21/15		332.46	31.51	0.00	300.95	4,400	1,200	470	10	140	<10	
	09/09/15			32.05	0.00	300.41	8,100	1,800	250	100	570	<5	
MW-10	05/21/15	SPH	331.68	31.68	1.29	300.97	--	--	--	--	--	--	
	09/09/15	SPH		32.72	1.92	300.40	--	--	--	--	--	--	
MW-11	05/21/15	SPH	331.88	30.98	0.05	300.94	--	--	--	--	--	--	
	09/09/15	SPH		31.58	1.06	301.10	--	--	--	--	--	--	
MW-12	05/21/15		332.44	31.58	0.00	300.86	620	93	0.8	<0.5	2	1	
	09/09/15			31.20	0.00	301.24	280	2	<0.5	<0.5	<0.5	0.6	
MW-13	05/21/15		331.51	30.68	0.00	300.83	230	32	<0.5	0.6	<0.5	1	
	09/09/15			30.68	0.00	300.83	250	62	<0.5	<0.5	<0.5	1	
MW-14	05/21/15		332.13	31.25	0.00	300.88	12,000	3,900	660	280	1,000	<10	
	09/09/15			31.81	0.00	300.32	17,000	5,700	240	460	910	<25	
MW-15	05/21/15		332.78	31.88	0.00	300.90	39,000	13,000	1,100	750	1,600	<10	
	09/09/15			32.45	0.00	300.33	52,000	27,000	930	1,500	3,800	<250	
MW-16	05/21/15		318.20	17.41	0.00	300.79	<50	<0.5	<0.5	<0.5	<0.5	0.5	
	09/09/15			17.92	0.00	300.28	<50	<0.5	<0.5	<0.5	<0.5	<0.5	

Table 1
Current Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Notes:

TPH-GRO = Total petroleum hydrocarbons as gasoline range organics

B = Benzene

T = Toluene

E = Ethylbenzene

X = Total xylenes

MTBE = Methyl tertiary butyl ether

SPH = Separate phase hydrocarbons

TOC = Top of casing (surveyed)

MSL = Mean sea level

µg/L = Microgram per liter

< = Analyte was not detected above laboratory method detection limit

-- = Not measured or analyzed

Calc. GW Elev. = Calculated groundwater elevation = TOC - Depth to Water + 0.75*(Measured SPH Thickness); assuming a specific gravity of 0.75 for SPH

Well survey data (TOC elevation) provided by Muir Consulting, Inc., July 2014

ANN = An approved annual sampling program was in place at this time; the well was not scheduled for sampling during this event

SPH = Well not sampled due to presence of separate phase hydrocarbons (SPH)

TABLE 2
Historical Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-1	12/28/92		329.17	30.78	1.67	300.00	--	--	--	--	--	--	25
MW-1	02/15/94		329.17	29.77	0.00	299.00	99,000	20,000	24,000	2000	9800	--	
MW-1	04/21/94		329.17	29.85	0.00	299.00	--	--	--	--	--	--	
MW-1	06/01/94		329.17	29.92	0.00	299.00	56,000	12,000	15,000	1100	5800	--	
MW-1	06/28/94		329.17	30.15	0.00	299.00	--	--	--	--	--	--	
MW-1	07/19/94		329.17	20.30	0.00	309.00	--	--	--	--	--	--	
MW-1	09/02/94		329.17	30.61	0.50	299.00	--	--	--	--	--	--	
MW-1	09/12/94		329.17	31.66	0.66	298.00	--	--	--	--	--	--	
MW-1	10/12/94		329.17	31.70	1.54	299.00	--	--	--	--	--	--	
MW-1	11/30/94		329.17	29.95	0.77	300.00	--	--	--	--	--	--	
MW-1	03/09/95		329.17	29.54	0.31	300.00	--	--	--	--	--	--	
MW-1	04/18/95		329.17	29.01	0.00	300.00	--	--	--	--	--	--	
MW-1	05/17/95		329.17	29.09	0.00	300.00	130,000	22,000	30,000	2000	10,000	--	
MW-1	06/07/95		329.17	29.24	0.00	300.00	--	--	--	--	--	--	
MW-1	07/21/95		329.17	29.66	0.00	300.00	--	--	--	--	--	--	
MW-1	08/15/95		329.17	29.87	0.00	299.00	41,000	9400	12,000	1400	7700	--	
MW-1	09/07/95		329.17	29.85	0.00	299.00	--	--	--	--	--	--	
MW-1	10/09/95		329.17	30.01	0.00	299.00	--	--	--	--	--	--	
MW-1	11/15/95		329.17	29.88	0.00	299.00	68,000	15,000	9600	1100	5500	<2,000	
MW-1	12/30/95		329.17	29.99	0.00	299.00	--	--	--	--	--	--	
MW-1	01/29/96		329.17	29.32	0.00	300.00	--	--	--	--	--	--	
MW-1	02/27/96		329.17	28.51	0.00	301.00	520	48	71	<0.5	27	28	
MW-1	03/05/96		329.17	28.44	0.00	301.00	--	--	--	--	--	--	
MW-1	04/23/96		329.17	28.20	0.00	301.00	--	--	--	--	--	--	
MW-1	05/30/96		329.17	28.47	0.00	301.00	57,000	15,000	11,000	1100	4900	<250	
MW-1	06/19/96		329.17	28.43	0.00	301.00	--	--	--	--	--	--	
MW-1	07/15/96		329.17	28.66	0.00	301.00	--	--	--	--	--	--	
MW-1	08/27/96		329.17	28.73	0.00	300.00	74,000	11,000	9500	790	3600	<120	
MW-1	09/06/96		329.17	28.85	0.00	300.00	--	--	--	--	--	--	
MW-1	10/28/96		329.17	28.53	0.00	301.00	--	--	--	--	--	--	
MW-1	11/11/96		329.17	28.77	0.00	300.00	69,000	13,000	9100	810	3200	<250	
MW-1	05/06/97		329.17	28.12	0.00	301.00	98,000	23,000	17,000	1100	5200	<500	
MW-1	07/27/97		329.17	28.18	0.00	301.00	--	--	--	--	--	--	
MW-1	11/18/97		329.17	28.73	0.00	300.00	58,000	19,000	9700	1100	4000	<500	
MW-1	05/31/98		329.17	27.03	0.05	302.00	180,000	25,000	25,000	1700	9300	19,000	
MW-1	05/31/98		329.17	27.03	0.05	302.00	--	--	--	--	--	<500	3
MW-1	08/12/98		329.17	27.18	0.00	302.00	--	--	--	--	--	--	2
MW-1	11/23/98		329.17	27.54	0.00	302.00	131,000	14,600	23,700	1,990	13,600	<200	
MW-1	05/11/99		329.17	27.28	0.00	302.00	--	--	--	--	--	--	2,7
MW-1	11/24/99		329.17	28.11	0.20	301	--	--	--	--	--	--	8
MW-1	05/23/00	SPH	329.17	27.61	0.97	302.00	--	--	--	--	--	--	1
MW-1	10/31/00	SPH	329.17	28.35	0.81	301.00	--	--	--	--	--	--	
MW-1	05/18/01	SPH	329.17	28.62	0.90	301.00	--	--	--	--	--	--	
MW-1	11/16/01	SPH	329.17	28.57	0.04	301.00	--	--	--	--	--	--	15

TABLE 2
Historical Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-1	07/01/02	SPH	329.17	29.36	0.71	300.00	--	--	--	--	--	--	15
MW-1	11/08/02	SPH	329.17	29.82	0.90	300.00	--	--	--	--	--	--	15
MW-1	06/13/03	SPH	329.17	28.83	0.31	301.00	--	--	--	--	--	--	15
MW-1	11/20/03	INA	329.17	--	--	--	--	--	--	--	--	--	
MW-1	05/18/04	INA	329.17	--	--	--	--	--	--	--	--	--	
MW-1	11/19/04	INA	329.17	--	--	--	--	--	--	--	--	--	
MW-1	05/03/05	INA	329.17	--	--	--	--	--	--	--	--	--	
MW-1	11/28/05	INA	329.17	--	--	--	--	--	--	--	--	--	
MW-1	05/25/06	INA	329.17	--	--	--	--	--	--	--	--	--	
MW-1	11/21/06	INA	329.17	--	--	--	--	--	--	--	--	--	
MW-1	05/09/07	SPH	329.17	29.70	0.39	300.00	--	--	--	--	--	--	
MW-1	11/17/07	SPH	329.17	30.83	1.67	300.00	--	--	--	--	--	--	
MW-1	04/30/08	SPH	329.17	31.54	0.83	298.00	--	--	--	--	--	--	
MW-1	11/26/08	SPH	329.17	31.90	1.82	299.00	--	--	--	--	--	--	
MW-1	05/22/09	SPH	329.17	31.95	0.97	298.00	--	--	--	--	--	--	24
MW-1	11/24/09	SPH	329.17	32.06	1.59	298.00	--	--	--	--	--	--	
MW-1	05/25/10	SPH	329.17	30.68	0.88	299.00	--	--	--	--	--	--	
MW-1	11/29/10	SPH	329.17	31.67	2.68	300.00	--	--	--	--	--	--	
MW-1	05/02/11	SPH	329.17	29.63	0.20	300.00	--	--	--	--	--	--	
MW-1	11/23/11	SPH	331.93	31.43	1.53	302.00	--	--	--	--	--	--	
MW-1	02/21/12	SPH	331.93	31.20	1.32	302.00	--	--	--	--	--	--	
MW-1	06/25/12	SPH	331.93	31.85	1.80	300.00	--	--	--	--	--	--	
MW-1	09/22/12	SPH	331.93	32.85	2.42	299.00	--	--	--	--	--	--	
MW-1	12/10/12	SPH	331.93	32.21	1.90	300.00	--	--	--	--	--	--	
MW-1	03/26/13	SPH	331.81	31.30	1.29	301.00	--	--	--	--	--	--	
MW-1	06/13/13	SPH	331.81	32.39	2.03	301.00	--	--	--	--	--	--	
MW-1	09/04/13	SPH	331.81	33.23	2.53	300.00	--	--	--	--	--	--	
MW-1	12/04/13	SPH	331.81	33.05	2.34	301.00	--	--	--	--	--	--	
MW-1	03/06/14	SPH	331.81	32.33	1.85	301.00	--	--	--	--	--	--	
MW-1	06/09/14	SPH	331.81	33.16	2.36	300.00	--	--	--	--	--	--	
MW-1	09/22/14	SPH	331.83	33.73	2.65	300.00	--	--	--	--	--	--	
MW-1	12/19/14	SPH	331.83	32.39	1.62	301.00	--	--	--	--	--	--	
MW-1	03/27/15	SPH	331.83	31.66	1.36	301.00	--	--	--	--	--	--	
MW-1	05/21/15	SPH	331.83	32.08	1.60	300.95	--	--	--	--	--	--	
MW-1	09/09/15	SPH	331.83	33.19	2.34	300.40	--	--	--	--	--	--	
MW-2	12/28/92		327.22	28.59	0.00	299.00	<50	<0.4	<0.3	<0.3	0.6	--	25
MW-2	02/15/94		327.22	27.09	0.00	300.00	83	21	6.0	1.0	3.0	--	
MW-2	04/21/94		327.22	27.81	0.00	299.00	--	--	--	--	--	--	
MW-2	06/01/94		327.22	27.98	0.00	299.00	<50	1.3	0.5	<0.5	<0.5	--	
MW-2	06/28/94		327.22	28.17	0.00	299.00	--	--	--	--	--	--	
MW-2	07/19/94		327.22	28.35	0.00	299.00	--	--	--	--	--	--	
MW-2	09/02/94		327.22	28.52	0.00	299.00	82	13	16	3.6	14	--	
MW-2	09/12/94		327.22	28.56	0.00	299.00	--	--	--	--	--	--	
MW-2	10/12/94		327.22	28.62	0.00	299.00	--	--	--	--	--	--	

TABLE 2
Historical Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-2	11/30/94		327.22	28.38	0.00	299.00	<50	3.6	4.5	1.0	4.5	--	
MW-2	03/09/95		327.22	27.41	0.00	300.00	--	--	--	--	--	--	
MW-2	04/18/95		327.22	26.79	0.00	300.00	--	--	--	--	--	--	
MW-2	05/17/95		327.22	26.95	0.00	300.00	<50	<0.5	<0.5	<0.5	<0.5	--	
MW-2	06/07/95		327.22	27.06	0.00	300.00	--	--	--	--	--	--	
MW-2	07/21/95		327.22	27.47	0.00	300.00	--	--	--	--	--	--	
MW-2	08/15/95		327.22	27.57	0.00	300.00	<50	<0.5	<0.5	<0.5	<0.5	--	
MW-2	09/07/95		327.22	28.69	0.00	299.00	--	--	--	--	--	--	
MW-2	10/09/95		327.22	27.85	0.00	299.00	--	--	--	--	--	--	
MW-2	11/15/95		327.22	27.91	0.00	299.00	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-2	12/30/95		327.22	27.60	0.00	300.00	--	--	--	--	--	--	
MW-2	01/29/96		327.22	27.16	0.00	300.00	--	--	--	--	--	--	
MW-2	02/27/96		327.22	26.25	0.00	301.00	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-2	03/05/96		327.22	26.70	0.00	301.00	--	--	--	--	--	--	
MW-2	04/23/96		327.22	25.82	0.00	301.00	--	--	--	--	--	--	
MW-2	05/30/96		327.22	26.16	0.00	301.00	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-2	06/19/96		327.22	26.27	0.00	301.00	--	--	--	--	--	--	
MW-2	07/15/96		327.22	26.46	0.00	301.00	--	--	--	--	--	--	
MW-2	08/27/96		327.22	26.72	0.00	301.00	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-2	09/06/96		327.22	26.80	0.00	300.00	--	--	--	--	--	--	
MW-2	10/28/96		327.22	26.83	0.00	300.00	--	--	--	--	--	--	
MW-2	11/11/96		327.22	26.72	0.00	301.00	--	--	--	--	--	--	
MW-2	05/06/97		327.22	26.01	0.00	301.00	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-2	07/27/97		327.22	26.38	0.00	301.00	--	--	--	--	--	--	
MW-2	11/18/97		327.22	26.50	0.00	301.00	--	--	--	--	--	--	
MW-2	05/31/98		327.22	24.47	0.00	303.00	<50	<0.3	<0.3	<0.3	<0.6	<10	
MW-2	11/23/98	ANN	327.22	24.94	0.00	302.00	--	--	--	--	--	--	
MW-2	05/11/99		327.22	24.49	0.00	303.00	<50	<0.5	<0.5	<0.5	<0.5	<2.5	
MW-2	05/23/00		327.22	25.03	0.00	302.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
MW-2	10/31/00		327.22	25.92	0.00	301.00	--	--	--	--	--	--	
MW-2	05/18/01		327.22	26.08	0.00	301.00	<50	0.52	2.6	<0.50	1.9	<2.5	
MW-2	11/16/01		327.22	26.81	0.00	300.00	--	--	--	--	--	--	
MW-2	07/01/02		327.22	26.97	0.00	300.00	<50	<0.50	<0.50	<0.50	<1.5	<2.5	
MW-2	11/08/02		327.22	27.30	0.00	300.00	--	--	--	--	--	--	
MW-2	06/13/03		327.22	26.73	0.00	300.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-2	11/20/03		327.22	26.48	0.00	301.00	--	--	--	--	--	--	
MW-2	05/18/04		327.22	27.08	0.00	300.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-2	11/19/04	ANN	327.22	26.70	0.00	301.00	--	--	--	--	--	--	
MW-2	05/03/05		327.22	27.25	0.00	300.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-2	11/28/05	ANN	327.22	27.45	0.00	300.00	--	--	--	--	--	--	
MW-2	05/25/06		327.22	26.60	0.00	301.00	--	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-2	11/21/06	ANN	327.22	27.01	0.00	300.00	--	--	--	--	--	--	
MW-2	05/09/07		327.22	27.54	0.00	300.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-2	11/17/07	ANN	327.22	27.11	0.00	300.00	--	--	--	--	--	--	

TABLE 2
Historical Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-2	04/30/08		327.22	27.87	0.00	299.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-2	11/26/08	ANN	327.22	28.70	0.00	299.00	--	--	--	--	--	--	
MW-2	05/22/09		327.22	28.20	0.00	299.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-2	11/24/09	ANN	327.22	28.78	0.00	298.00	--	--	--	--	--	--	
MW-2	05/25/10		327.22	28.07	0.00	299.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-2	11/29/10	ANN	327.22	28.70	0.00	299.00	--	--	--	--	--	--	
MW-2	05/02/11		327.22	27.53	0.00	300.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-2	11/23/11	ANN	329.98	28.40	0.00	302.00	--	--	--	--	--	--	
MW-2	02/21/12	ANN	329.98	28.28	0.00	302.00	--	--	--	--	--	--	
MW-2	06/25/12		329.98	28.60	0.00	301.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-2	09/22/12		329.98	29.15	0.00	301.00	--	--	--	--	--	--	
MW-2	12/10/12		329.98	28.79	0.00	301.00	--	--	--	--	--	--	
MW-2	03/26/13		329.88	28.45	0.00	301.00	--	--	--	--	--	--	
MW-2	06/13/13		329.88	28.89	0.00	301.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-2	09/04/13		329.88	29.47	0.00	300.00	--	--	--	--	--	--	
MW-2	12/04/13		329.88	29.31	0.00	301.00	--	--	--	--	--	--	
MW-2	03/06/14		329.88	29.00	0.00	301.00	--	--	--	--	--	--	
MW-2	06/09/14		329.88	29.42	0.00	300.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-2	09/22/14		329.89	29.80	0.00	300.00	--	--	--	--	--	--	
MW-2	12/19/14		329.89	29.20	0.00	301.00	--	--	--	--	--	--	
MW-2	03/27/15		329.89	28.75	0.00	301.00	--	--	--	--	--	--	
MW-2	05/21/15		329.89	28.98	0.00	300.91	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-2	09/09/15	ANN	329.89	29.54	0.00	300.35	--	--	--	--	--	--	
MW-3	12/28/92		329.28	30.69	0.00	299.00	19,000	8,900	660	380	720	--	[25]
MW-3	02/15/94		329.28	29.87	0.00	299.00	23,000	11,000	1,700	540	1,000	--	
MW-3	04/21/94		329.28	29.96	0.00	299.00	--	--	--	--	--	--	
MW-3	06/01/94		329.28	30.11	0.00	299.00	27,000	12,000	2600	600	2,200	--	
MW-3	06/28/94		329.28	30.31	0.00	299.00	--	--	--	--	--	--	
MW-3	07/19/94		329.28	30.50	0.00	299.00	--	--	--	--	--	--	
MW-3	09/02/94		329.28	30.61	0.00	299.00	34,000	16,000	4,100	770	3,000	--	
MW-3	09/12/94		329.28	30.65	0.00	299.00	--	--	--	--	--	--	
MW-3	10/12/94		329.28	30.74	0.00	299.00	--	--	--	--	--	--	
MW-3	11/30/94		329.28	30.44	0.00	299.00	33,000	16,000	3,000	740	2,400	--	
MW-3	03/09/95		329.28	29.53	0.00	300.00	--	--	--	--	--	--	
MW-3	04/18/95		329.28	28.97	0.00	300.00	--	--	--	--	--	--	
MW-3	05/17/95		329.28	29.19	0.00	300.00	27,000	10,000	760	490	1,000	--	
MW-3	06/07/95		329.28	29.24	0.00	300.00	--	--	--	--	--	--	
MW-3	07/21/95		329.28	29.70	0.00	300.00	--	--	--	--	--	--	
MW-3	08/15/95		329.28	29.78	0.00	300.00	39,000	13,000	2,900	700	1,700	--	
MW-3	09/07/95		329.28	29.86	0.00	299.00	--	--	--	--	--	--	
MW-3	10/09/95		329.28	30.02	0.00	299.00	--	--	--	--	--	--	
MW-3	11/15/95		329.28	30.06	0.00	299.00	21,000	8000	2,900	430	1,500	<1,000	
MW-3	12/30/95		329.28	29.75	0.00	300.00	--	--	--	--	--	--	
MW-3	01/29/96		329.28	29.22	0.00	300.00	--	--	--	--	--	--	

TABLE 2
Historical Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-3	02/27/96		329.28	28.43	0.00	301.00	<2,500	5000	500	220	130	710	
MW-3	03/05/96		329.28	28.35	0.00	301.00	--	--	--	--	--	--	
MW-3	04/23/96		329.28	28.10	0.00	301.00	--	--	--	--	--	--	
MW-3	05/30/96		329.28	28.42	0.00	301.00	37,000	13,000	7,200	870	2,900	<120	
MW-3	06/19/96		329.28	28.51	0.00	301.00	--	--	--	--	--	--	
MW-3	07/15/96		329.28	28.63	0.00	301.00	--	--	--	--	--	--	
MW-3	08/27/96		329.28	28.90	0.00	300.00	50,000	9500	6,900	740	2,900	<120	
MW-3	09/06/96		329.28	28.98	0.00	300.00	--	--	--	--	--	--	
MW-3	10/28/96		329.28	28.98	0.00	300.00	--	--	--	--	--	--	
MW-3	11/11/96		329.28	28.84	0.00	300.00	52,000	11,000	5,500	780	3,000	<250	
MW-3	05/06/97		329.28	28.22	0.00	301.00	93,000	23,000	15,000	1,400	6,200	<500	
MW-3	07/27/97		329.28	28.58	0.00	301.00	--	--	--	--	--	--	
MW-3	11/18/97		329.28	28.70	0.00	301.00	81,000	29,000	17,000	1,600	6,700	<500	
MW-3	05/31/98		329.28	26.68	0.00	303.00	78,000	24,000	12,000	1,200	5,800	1,300	
MW-3	05/31/98		329.28	26.68	0.00	303.00	--	--	--	--	--	<500	3
MW-3	08/12/98		329.28	27.03	0.00	302.00	--	--	--	--	--	--	2
MW-3	11/23/98		329.28	27.09	0.00	302.00	97,200	17,900	12,800	1,200	6,950	<100	
MW-3	05/11/99		329.28	26.68	0.00	303.00	51,000	18,000	7,800	670	3,600	<2.5	2
MW-3	05/11/99		329.28	26.68	0.00	303.00	--	--	--	--	--	<100	3
MW-3	11/24/99		329.28	27.45	0.00	302.00	62,800	16,600	8,300	900	4,890	<500	
MW-3	05/23/00		329.28	27.17	0.00	302.00	27,000	14,000	12,000	940	4,600	770	1, 7
MW-3	10/31/00		329.28	28.01	0.00	301.00	110,000	25,700	21,300	1,300	7,320	1,680	1, 10
MW-3	05/18/01		329.28	28.21	0.00	301.00	58,000	19,000	16,000	1,400	7,000	2,300	1, 7, 14
MW-3	11/16/01		329.28	28.87	0.00	300.00	100,000	23,000	16,000	1,400	6,800	<200	1
MW-3	07/01/02		329.28	29.08	0.00	300.00	75,000	16,000	8,800	980	4,000	140	1, 17
MW-3	11/08/02		329.28	29.39	0.00	300.00	45,000	9,800	5,800	590	2,400	<50	
MW-3	06/13/03		329.28	28.82	0.00	300.00	42,000	9,100	4,100	580	1,800	5	19, 20
MW-3	11/20/03		329.28	28.77	0.00	301.00	52,000	12,000	4,500	660	3,200	5	19
MW-3	05/18/04		329.28	29.21	0.00	300.00	57,000	15,000	5,700	840	3,400	9	19
MW-3	11/19/04		329.28	28.86	0.00	300.00	67,000	15,000	4,200	850	3,400	7	19
MW-3	05/03/05		329.28	29.40	0.00	300.00	54,000	13,000	3,400	690	2,600	<10	19
MW-3	11/28/05		329.28	29.56	0.00	300.00	56,000	16,000	1,800	950	3,500	<25	19
MW-3	05/25/06		329.28	28.81	0.00	300.00	38,000	9,400	1,800	680	2,100	<5	19
MW-3	11/21/06		329.28	29.22	0.00	300.00	27,000	10,000	420	650	1,600	<5	19
MW-3	05/09/07		329.28	29.73	0.00	300.00	40,000	9,200	660	590	1,300	<10	19
MW-3	11/17/07		329.28	30.38	0.00	299.00	22,000	9,200	86	610	560	3	19
MW-3	04/30/08		329.28	29.82	0.00	299.00	19,000	8,300	440	510	620	<5	19
MW-3	11/26/08		329.28	30.73	0.00	299.00	20,000	7,500	230	470	640	<10	19
MW-3	05/22/09	SPH	329.28	30.58	0.72	299.00	--	--	--	--	--	--	
MW-3	11/24/09	SPH	329.28	31.16	0.98	299.00	--	--	--	--	--	--	
MW-3	05/25/10	SPH	329.28	30.38	0.25	299.00	--	--	--	--	--	--	
MW-3	11/29/10	SPH	329.28	30.72	0.61	299.00	--	--	--	--	--	--	
MW-3	05/02/11	SPH	329.28	29.68	0.04	300.00	--	--	--	--	--	--	
MW-3	11/23/11	SPH	332.03	30.54	0.04	302.00	--	--	--	--	--	--	

TABLE 2
Historical Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-3	02/21/12	SPH	332.03	30.38	0.01	302.00	--	--	--	--	--	--	
MW-3	06/25/12	SPH	332.03	30.88	0.22	301.00	--	--	--	--	--	--	
MW-3	09/22/12	SPH	332.03	31.58	0.42	300.00	--	--	--	--	--	--	
MW-3	12/10/12	SPH	332.03	31.00	0.06	301.00	--	--	--	--	--	--	
MW-3	03/26/13	SPH	331.91	30.65	0.21	301.00	--	--	--	--	--	--	
MW-3	06/13/13	SPH	331.91	31.54	0.63	301.00	--	--	--	--	--	--	
MW-3	09/04/13	SPH	331.91	32.08	0.73	300.00	--	--	--	--	--	--	
MW-3	12/04/13	SPH	331.91	31.72	0.34	300.00	--	--	--	--	--	--	
MW-3	03/06/14	SPH	331.91	31.23	0.20	301.00	--	--	--	--	--	--	
MW-3	06/09/14	SPH	331.91	32.02	0.56	300.00	--	--	--	--	--	--	
MW-3	09/22/14	SPH	331.93	32.44	0.63	300.00	--	--	--	--	--	--	
MW-3	12/19/14	SPH	331.93	31.33	0.09	301.00	--	--	--	--	--	--	
MW-3	03/27/15		331.93	30.78	0.00	301.00	--	--	--	--	--	--	
MW-3	05/21/15	SPH	331.93	30.99	0.02	300.96	--	--	--	--	--	--	
MW-3	09/09/15		331.93	31.61	0.00	300.32	18,000	8,400	77	770	830	<3	
MW-4	05/21/93		--	--	--	--	<50	12	2.0	<0.5	1.0	--	
MW-4	11/05/93		--	--	--	--	300	56	10	0.8	3.0	--	
MW-4	02/15/94		329.44	29.90	0.00	300.00	260	47	12	2.0	4.0	--	
MW-4	04/21/94		329.44	29.99	0.00	299.00	--	--	--	--	--	--	
MW-4	06/01/94		329.44	30.14	0.00	299.00	860	200	23	2.8	9.6	--	
MW-4	06/28/94		329.44	30.32	0.00	299.00	--	--	--	--	--	--	
MW-4	07/19/94		329.44	30.50	0.00	299.00	--	--	--	--	--	--	
MW-4	09/02/94		329.44	30.62	0.00	299.00	1700	250	27	6.4	15	--	
MW-4	09/12/94		329.44	30.69	0.00	299.00	--	--	--	--	--	--	
MW-4	10/12/94		329.44	30.75	0.00	299.00	--	--	--	--	--	--	
MW-4	11/30/94		329.44	30.51	0.00	299.00	830	350	29	8.1	22	--	
MW-4	03/09/95		329.44	29.61	0.00	300.00	--	--	--	--	--	--	
MW-4	04/18/95		329.44	29.08	0.00	300.00	--	--	--	--	--	--	
MW-4	05/17/95		329.44	29.22	0.00	300.00	470	200	2.2	0.9	2.1	--	
MW-4	06/07/95		329.44	29.27	0.00	300.00	--	--	--	--	--	--	
MW-4	07/21/95		329.44	29.72	0.00	300.00	--	--	--	--	--	--	
MW-4	08/15/95		329.44	29.77	0.00	300.00	100	4.2	0.8	<0.5	<0.5	--	
MW-4	09/07/95		329.44	29.85	0.00	300.00	--	--	--	--	--	--	
MW-4	10/09/95		329.44	30.02	0.00	299.00	--	--	--	--	--	--	
MW-4	11/15/95		329.44	30.05	0.00	299.00	270	94	9.4	0.77	4.3	27	
MW-4	12/30/95		329.44	29.79	0.00	300.00	--	--	--	--	--	--	
MW-4	01/29/96		329.44	29.31	0.00	300.00	--	--	--	--	--	--	
MW-4	02/27/96		329.44	28.58	0.00	301.00	690	100	15	<0.5	2.0	79	
MW-4	03/05/96		329.44	28.55	0.00	301.00	--	--	--	--	--	--	
MW-4	04/23/96		329.44	28.15	0.00	301.00	--	--	--	--	--	--	
MW-4	05/30/96		329.44	28.40	0.00	301.00	700	240	4.0	0.6	3.9	<5.0	
MW-4	06/19/96		329.44	28.47	0.00	301.00	--	--	--	--	--	--	
MW-4	07/15/96		329.44	28.62	0.00	301.00	--	--	--	--	--	--	
MW-4	08/27/96		329.44	28.85	0.00	301.00	<50	11	<0.5	<0.5	<0.5	<5.0	

TABLE 2
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Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-4	09/06/96		329.44	28.92	0.00	301.00	--	--	--	--	--	--	
MW-4	10/28/96		329.44	28.90	0.00	301.00	--	--	--	--	--	--	
MW-4	11/11/96		329.44	28.78	0.00	301.00	240	57	1.4	0.7	1.8	<5.0	
MW-4	05/06/97		329.44	28.11	0.00	301.00	240	74	2.7	<0.5	1.6	<5.0	
MW-4	07/27/97		329.44	28.43	0.00	301.00	--	--	--	--	--	--	
MW-4	11/18/97		329.44	28.58	0.00	301.00	270	230	3.5	1.0	1.6	<2.5	
MW-4	05/31/98		329.44	26.53	0.00	303.00	1000	450	3.4	4.5	<6.0	<20	
MW-4	08/12/98		329.44	26.82	0.00	303.00	--	--	--	--	--	--	2
MW-4	11/23/98		329.44	23.92	0.00	306.00	--	--	--	--	--	--	6
MW-4	12/23/98		329.44	24.19	0.00	305.00	--	--	--	--	--	--	6
MW-4	05/11/99		329.44	23.20	0.00	306.00	470	260	2.6	<0.5	4.3	35	2
MW-4	05/11/99		329.44	23.20	0.00	306.00	--	--	--	--	--	<2.0	3
MW-4	11/24/99		329.44	23.03	0.00	306.00	2,400	562	<5.0	11	10	38	
MW-4	05/23/00		329.44	24.14	0.00	305.00	370	470	1.1	9.7	5.9	84	1, 8, 9
MW-4	10/31/00		329.44	25.02	0.00	304.00	672	224	<5.00	<5.00	<15.0	<25.0	1, 11
MW-4	05/18/01		329.44	25.21	0.00	304.00	230	37	<0.50	1.3	0.95	22	1, 7, 14
MW-4	11/16/01		329.44	25.91	0.00	304.00	290	36	<0.50	<0.50	<1.5	<2.5	16
MW-4	07/01/02		329.44	26.11	0.00	303.00	410	60	<0.50	2.1	<1.5	<2.5	
MW-4	11/08/02		329.44	26.43	0.00	303.00	64	7	<0.50	<0.50	<1.5	<2.5	
MW-4	06/13/03		329.44	26.86	0.00	303.00	79	4	<0.5	<0.5	<0.5	<0.5	19
MW-4	11/20/03		329.44	26.63	0.00	303.00	350	36	<0.5	2	0.7	<0.5	19
MW-4	05/18/04		329.44	26.31	0.00	303.00	160	22	<0.5	2	1	<0.5	19
MW-4	11/19/04		329.44	26.88	0.00	303.00	480	93	2	4	4	<0.5	19
MW-4	05/03/05		329.44	26.48	0.00	303.00	180	40	0.8	1	1	<0.5	19
MW-4	11/28/05		329.44	26.68	0.00	303.00	630	96	2	5	5	<0.5	19
MW-4	05/25/06		329.44	25.85	0.00	304.00	2,400	490	11	33	21	<0.5	19
MW-4	11/21/06		329.44	26.28	0.00	303.00	<50	3	<0.5	<0.5	<0.5	<0.5	19
MW-4	05/09/07		329.44	26.75	0.00	303.00	940	170	5	9	11	<0.5	19
MW-4	11/17/07		329.44	27.41	0.00	302.00	580	150	5	4	7	<0.5	19
MW-4	04/30/08		329.44	27.00	0.00	302.00	73	15	0.6	0.7	0.9	<0.5	19
MW-4	11/26/08		329.44	27.92	0.00	302.00	530	63	6	5	10	<0.5	19
MW-4	05/22/09		329.44	27.49	0.00	302.00	400	56	6	4	16	<0.5	19
MW-4	11/24/09		329.44	28.14	0.00	301.00	1,400	160	18	10	38	<0.5	19
MW-4	05/25/10		329.44	27.40	0.00	302.00	1,100	93	19	15	32	<0.5	19
MW-4	11/29/10		329.44	28.05	0.00	301.00	520	130	9	3	24	<0.5	19
MW-4	05/02/11		329.44	26.88	0.00	303.00	420	59	7	5	16	<0.5	19
MW-4	11/23/11		320.22	27.68	0.00	293.00	1,400	140	32	20	47	<0.5	19
MW-4	02/21/12	SA	320.22	27.62	0.00	293.00	--	--	--	--	--	--	
MW-4	06/25/12		320.22	27.88	0.00	292.00	1,300	170	44	23		<0.5	
MW-4	09/22/12		329.44	28.35	0.00	301.00	--	--	--	--	--	--	
MW-4	12/10/12		329.44	28.11	0.00	301.00	490	<0.5	<0.5	<0.5	25	<0.5	
MW-4	03/26/13		329.25	27.73	0.00	302.00	--	--	--	--	--	--	
MW-4	06/13/13		329.25	28.16	0.00	301.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-4	09/04/13		329.25	28.75	0.00	301.00	--	--	--	--	--	--	

TABLE 2
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10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-4	12/04/13		329.25	28.62	0.00	301.00	1,900	320	19	6	100	<0.5	
MW-4	03/06/14		329.25	28.35	0.00	301.00	--	--	--	--	--	--	
MW-4	06/09/14		329.25	28.69	0.00	301.00	1,500	160	7	5	21	<0.5	
MW-4	09/22/14		329.27	29.04	0.00	300.00	--	--	--	--	--	--	
MW-4	12/19/14		329.27	28.55	0.00	301.00	900	120	13	7	30	<0.5	
MW-4	03/27/15		329.27	28.04	0.00	301.00	--	--	--	--	--	--	
MW-4	05/21/15		329.27	28.29	0.00	300.98	1,200	180	15	14	33	<1	
MW-4	09/09/15		329.27	28.80	0.00	300.47	700	12	6	<0.5	4	<0.5	
MW-5	05/25/93		--	--	--	--	<50	<0.5	<0.5	<0.5	0.9	--	
MW-5	11/05/93		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	
MW-5	02/15/94		312.88	25.10	0.00	288.00	<50	<0.5	1.0	<0.5	1.0	--	
MW-5	04/21/94		312.88	13.21	0.00	300.00	--	--	--	--	--	--	
MW-5	06/01/94		312.88	13.39	0.00	299.00	<50	<0.5	<0.5	<0.5	<0.5	--	
MW-5	06/28/94		312.88	13.73	0.00	299.00	--	--	--	--	--	--	
MW-5	07/19/94		312.88	13.80	0.00	299.00	--	--	--	--	--	--	
MW-5	09/02/94		312.88	14.02	0.00	299.00	<50	3.2	1.8	<0.5	2.1	--	
MW-5	09/12/94		312.88	14.03	0.00	299.00	--	--	--	--	--	--	
MW-5	10/12/94		312.88	14.15	0.00	299.00	--	--	--	--	--	--	
MW-5	11/30/94		312.88	13.91	0.00	299.00	<50	<0.5	<0.5	<0.5	<0.5	--	
MW-5	03/09/95		312.88	12.97	0.00	300.00	--	--	--	--	--	--	
MW-5	04/18/95		312.88	12.48	0.00	300.00	--	--	--	--	--	--	
MW-5	05/17/95		312.88	12.71	0.00	300.00	150	1.0	<0.5	<0.5	<0.5	--	
MW-5	06/07/95		312.88	12.85	0.00	300.00	--	--	--	--	--	--	
MW-5	07/21/95		312.88	13.30	0.00	300.00	--	--	--	--	--	--	
MW-5	08/15/95		312.88	13.41	0.00	299.00	<50	<0.5	<0.5	<0.5	<0.5	--	
MW-5	09/07/95		312.88	13.42	0.00	299.00	--	--	--	--	--	--	
MW-5	10/09/95		312.88	13.61	0.00	299.00	--	--	--	--	--	--	
MW-5	11/15/95		312.88	13.63	0.00	299.00	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-5	12/30/95		312.88	13.30	0.00	300.00	--	--	--	--	--	--	
MW-5	01/29/96		312.88	12.75	0.00	300.00	--	--	--	--	--	--	
MW-5	02/27/96		312.88	12.02	0.00	301.00	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-5	03/05/96		312.88	11.96	0.00	301.00	--	--	--	--	--	--	
MW-5	04/23/96		312.88	11.77	0.00	301.00	--	--	--	--	--	--	
MW-5	05/30/96		312.88	12.17	0.00	301.00	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-5	06/19/96		312.88	12.25	0.00	301.00	--	--	--	--	--	--	
MW-5	07/15/96		312.88	12.39	0.00	300.00	--	--	--	--	--	--	
MW-5	08/27/96		312.88	12.65	0.00	300.00	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-5	09/06/96		312.88	12.68	0.00	300.00	--	--	--	--	--	--	
MW-5	10/28/96		312.88	12.72	0.00	300.00	--	--	--	--	--	--	
MW-5	11/11/96		312.88	12.61	0.00	300.00	--	--	--	--	--	--	
MW-5	05/06/97		312.88	12.06	0.00	301.00	<50	2.2	2.0	<0.5	1.7	<5.0	
MW-5	07/27/97		312.88	12.39	0.00	300.00	--	--	--	--	--	--	
MW-5	11/18/97		312.88	12.45	0.00	300.00	--	--	--	--	--	--	
MW-5	05/31/98		312.88	10.58	0.00	302.00	<50	<0.3	<0.3	<0.3	<0.6	<10	

TABLE 2
Historical Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-5	11/23/98	ANN	312.88	10.92	0.00	302.00	--	--	--	--	--	--	
MW-5	05/11/99		312.88	10.49	0.00	302.00	<50	<0.5	<0.5	<0.5	<0.5	<2.5	
MW-5	05/23/00		312.88	11.09	0.00	302.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
MW-5	10/31/00		312.88	11.91	0.00	301.00	--	--	--	--	--	--	
MW-5	05/18/01		312.88	12.06	0.00	301.00	<50	0.52	2.0	<0.50	1.0	<2.5	
MW-5	11/16/01		312.88	12.77	0.00	300.00	--	--	--	--	--	--	
MW-5	07/01/02		312.88	12.94	0.00	300.00	<50	<0.50	<0.50	<0.50	<1.5	<2.5	
MW-5	11/08/02		312.88	13.27	0.00	300.00	--	--	--	--	--	--	
MW-5	06/13/03		312.88	12.85	0.00	300.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-5	11/20/03		312.88	12.67	0.00	300.00	--	--	--	--	--	--	
MW-5	05/18/04		312.88	12.90	0.00	300.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-5	11/19/04	ANN	312.88	12.83	0.00	300.00	--	--	--	--	--	--	
MW-5	05/03/05		312.88	12.88	0.00	300.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-5	11/28/05	ANN	312.88	13.49	0.00	299.00	--	--	--	--	--	--	
MW-5	05/25/06		312.88	12.30	0.00	301.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-5	11/21/06	ANN	312.88	12.76	0.00	300.00	--	--	--	--	--	--	
MW-5	05/09/07		312.88	13.12	0.00	300.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-5	11/17/07	ANN	312.88	13.65	0.00	299.00	--	--	--	--	--	--	
MW-5	04/30/08		312.88	13.76	0.00	299.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-5	11/26/08	ANN	312.88	14.65	0.00	298.00	--	--	--	--	--	--	
MW-5	05/22/09		312.88	13.70	0.00	299.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-5	11/24/09	ANN	312.88	14.71	0.00	298.00	--	--	--	--	--	--	
MW-5	05/25/10		312.88	14.28	0.00	299.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-5	11/29/10	ANN	312.88	14.57	0.00	298.00	--	--	--	--	--	--	
MW-5	05/02/11		312.88	13.68	0.00	299.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-5	11/23/11	ANN	315.97	14.47	0.00	302.00	--	--	--	--	--	--	
MW-5	02/21/12	ANN	315.97	14.38	0.00	302.00	--	--	--	--	--	--	
MW-5	06/25/12	INA	315.97	14.68	0.00	301.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-5	09/22/12		315.97	15.19	0.00	301.00	--	--	--	--	--	--	
MW-5	12/10/12		315.97	14.63	0.00	301.00	--	--	--	--	--	--	
MW-5	03/26/13	INA	315.84	--	--	--	--	--	--	--	--	--	
MW-5	06/13/13		315.84	14.96	0.00	301.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-5	09/04/13		315.84	15.52	0.00	300.00	--	--	--	--	--	--	
MW-5	12/04/13		315.84	15.33	0.00	301.00	--	--	--	--	--	--	
MW-5	03/06/14		315.84	15.03	0.00	301.00	--	--	--	--	--	--	
MW-5	06/09/14		315.84	15.50	0.00	300.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	Bucket Purge
MW-5	09/22/14		315.83	15.81	0.00	300.00	--	--	--	--	--	--	
MW-5	12/19/14		315.83	--	--	--	--	--	--	--	--	--	Unable to Access
MW-5	03/27/15		315.83	14.86	0.00	301.00	--	--	--	--	--	--	
MW-5	05/21/15		315.83	15.03	0.00	300.80	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-5	09/09/15	ANN	315.83	15.48	0.00	300.35	--	--	--	--	--	--	
MW-6	11/22/95		312.20	13.20	0.00	299.00	<50	<0.50	<0.50	<0.50	<0.50	--	[25]
MW-6	12/30/95		312.20	13.65	0.00	298.55	--	--	--	--	--	--	
MW-6	01/29/96		312.20	12.18	0.00	300.02	--	--	--	--	--	--	

TABLE 2
Historical Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-6	02/27/96		312.20	11.45	0.00	300.75	70	1.1	<0.5	<0.5	<0.5	<5.0	
MW-6	03/05/96		312.20	11.32	0.00	300.88	--	--	--	--	--	--	
MW-6	04/23/96		312.20	11.12	0.00	301.08	--	--	--	--	--	--	
MW-6	05/30/96		312.20	11.45	0.00	300.75	60	1.3	<0.5	<0.5	0.9	<5.0	
MW-6	06/19/96		312.20	11.54	0.00	300.66	--	--	--	--	--	--	
MW-6	07/15/96		312.20	11.76	0.00	300.44	--	--	--	--	--	--	
MW-6	08/27/96		312.20	11.95	0.00	300.25	90	1.6	<0.5	<0.5	<0.5	<5.0	
MW-6	09/06/96		312.20	12.02	0.00	300.18	--	--	--	--	--	--	
MW-6	10/28/96		312.20	12.01	0.00	300.19	--	--	--	--	--	--	
MW-6	11/11/96		312.20	11.90	0.00	300.30	110	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-6	05/06/97		312.20	11.28	0.00	300.92	170	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-6	07/27/97		312.20	11.68	0.00	300.52	--	--	--	--	--	--	
MW-6	11/18/97		312.20	11.77	0.00	300.43	<50	<0.5	<0.5	<0.5	<0.5	<2.5	
MW-6	05/31/98		312.20	9.81	0.00	302.39	<50	0.89	0.65	<0.3	<0.6	<10	
MW-6	11/23/98	INA	312.20	--	--		--	--	--	--	--	--	Unable to locate
MW-6	12/23/98		312.20	10.32	0.00	301.88	66	<0.5	<0.5	<0.5	<0.5	<2.5	
MW-6	05/11/99		312.20	9.80	0.00	302.40	<50	1.9	<0.5	<0.5	<0.5	2.9	
MW-6	11/24/99		312.20	10.65	0.00	301.55	77.2	13.5	<0.5	<0.5	<0.5	<2.5	
MW-6	05/23/00		312.20	10.35	0.00	301.85	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
MW-6	10/31/00		312.20	10.37	0.00	301.83	<50.0	<0.500	<0.500	<0.500	<1.50	5.08	
MW-6	05/18/01		312.20	11.31	0.00	300.89	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
MW-6	11/16/01		312.20	11.89	0.00	300.31	<50	<0.50	<0.50	<0.50	<1.5	<2.5	
MW-6	07/01/02		312.20	12.16	0.00	300.04	<50	<0.50	<0.50	<0.50	<1.5	<2.5	
MW-6	11/08/02		312.20	12.50	0.00	299.70	<50	<0.50	<0.50	<0.50	<1.5	<2.5	
MW-6	06/13/03	INA	312.20	--	--		--	--	--	--	--	--	Unable to locate
MW-6	11/20/03	INA	312.20	--	--		--	--	--	--	--	--	Unable to locate
MW-6	05/18/04		312.20	12.26	0.00	299.94	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-6	11/19/04		312.20	12.04	0.00	300.16	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-6	05/03/05		312.20	12.22	0.00	299.98	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-6	11/28/05		312.20	12.61	0.00	299.59	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-6	05/25/06		312.20	11.83	0.00	300.37	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-6	11/21/06		312.20	12.10	0.00	300.10	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-6	05/09/07		312.20	12.38	0.00	299.82	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-6	11/17/07		312.20	12.95	0.00	299.25	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-6	04/30/08		312.20	13.64	0.00	298.56	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-6	11/26/08		312.20	13.80	0.00	298.40	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-6	05/22/09		312.20	12.94	0.00	299.26	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-6	11/24/09		312.20	14.04	0.00	298.16	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-6	05/25/10		312.20	13.22	0.00	298.98	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-6	11/29/10		312.20	13.86	0.00	298.34	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-6	05/02/11		312.20	12.71	0.00	299.49	<50	1	<0.5	<0.5	<0.5	0.7	[19]
MW-6	11/23/11		314.91	13.53	0.00	301.38	<50	<0.5	<0.5	<0.5	<0.5	0.8	[19]
MW-6	02/21/12	SA	314.91	13.40	0.00	301.51	--	--	--	--	--	--	
MW-6	06/25/12		314.91	13.79	0.00	301.12	<50	<0.5	<0.5	<0.5	<0.5	1	

TABLE 2
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10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-6	09/22/12		314.91	14.33	0.00	300.58	--	--	--	--	--	--	
MW-6	12/10/12		314.91	13.87	0.00	301.04	<50	<0.5	<0.5	<0.5	<0.5	1	
MW-6	03/26/13		314.92	13.56	0.00	301.36	--	--	--	--	--	--	
MW-6	06/13/13		314.92	14.08	0.00	300.84	<50	<0.5	<0.5	<0.5	<0.5	2	
MW-6	09/04/13		314.92	14.65	0.00	300.27	--	--	--	--	--	--	
MW-6	12/04/13		314.92	14.43	0.00	300.49	<50	<0.5	<0.5	<0.5	<0.5	2	
MW-6	03/06/14		314.92	14.08	0.00	300.84	--	--	--	--	--	--	
MW-6	06/09/14		314.92	14.57	0.00	300.35	<50	<0.5	<0.5	<0.5	<0.5	2	
MW-6	09/22/14		314.84	14.95	0.00	299.89	--	--	--	--	--	--	
MW-6	12/19/14		314.84	14.14	0.00	300.70	<50	<0.5	<0.5	<0.5	<0.5	0.5	
MW-6	03/27/15		314.84	13.87	0.00	300.97	--	--	--	--	--	--	
MW-6	05/21/15		314.84	14.08	0.00	300.76	<50	<0.5	<0.5	<0.5	<0.5	1	
MW-6	09/09/15		314.84	14.71	0.00	300.13	<50	<0.5	<0.5	<0.5	<0.5	1	
MW-7	11/22/95		313.36	14.15	0.00	299.21	<50	<0.50	<0.50	<0.50	<0.50	--	[25]
MW-7	12/30/95		313.36	12.38	0.00	300.98	--	--	--	--	--	--	
MW-7	01/29/96		313.36	13.14	0.00	300.22	--	--	--	--	--	--	
MW-7	02/27/96		313.36	12.34	0.00	301.02	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-7	03/05/96		313.36	12.35	0.00	301.01	--	--	--	--	--	--	
MW-7	04/23/96		313.36	12.13	0.00	301.23	--	--	--	--	--	--	
MW-7	05/30/96		313.36	12.42	0.00	300.94	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-7	06/19/96		313.36	12.57	0.00	300.79	--	--	--	--	--	--	
MW-7	07/15/96		313.36	12.70	0.00	300.66	--	--	--	--	--	--	
MW-7	08/27/96		313.36	12.85	0.00	300.51	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-7	09/06/96		313.36	12.90	0.00	300.46	--	--	--	--	--	--	
MW-7	10/28/96		313.36	12.84	0.00	300.52	--	--	--	--	--	--	
MW-7	11/11/96		313.36	12.75	0.00	300.61	--	--	--	--	--	--	
MW-7	05/06/97		313.36	12.14	0.00	301.22	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-7	07/27/97		313.36	12.45	0.00	300.91	--	--	--	--	--	--	
MW-7	11/18/97		313.36	12.54	0.00	300.82	--	--	--	--	--	--	
MW-7	05/31/98		313.36	10.75	0.00	302.61	<50	<0.3	<0.3	<0.3	<0.6	<10	
MW-7	11/23/98	ANN	313.36	10.84	0.00	302.52	--	--	--	--	--	--	
MW-7	05/11/99		313.36	10.40	0.00	302.96	<50	<0.5	<0.5	<0.5	<0.5	<2.5	
MW-7	05/23/00		313.36	10.97	0.00	302.39	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
MW-7	10/31/00		313.36	11.85	0.00	301.51	--	--	--	--	--	--	
MW-7	05/18/01		313.36	12.02	0.00	301.34	<50	<0.50	1.7	<0.50	1.2	<2.5	
MW-7	11/16/01		313.36	12.83	0.00	300.53	--	--	--	--	--	--	
MW-7	07/01/02		313.36	12.94	0.00	300.42	<50	<0.50	<0.50	<0.50	<1.5	<2.5	
MW-7	11/08/02		313.36	13.25	0.00	300.11	--	--	--	--	--	--	
MW-7	06/13/03		313.36	12.81	0.00	300.55	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-7	11/20/03		313.36	12.59	0.00	300.77	--	--	--	--	--	--	
MW-7	05/18/04		313.36	12.83	0.00	300.53	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-7	11/19/04	ANN	313.36	12.79	0.00	300.57	--	--	--	--	--	--	
MW-7	05/03/05		313.36	12.81	0.00	300.55	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-7	11/28/05	ANN	313.36	13.58	0.00	299.78	--	--	--	--	--	--	

TABLE 2
Historical Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-7	05/25/06		313.36	12.29	0.00	301.07	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-7	11/21/06	ANN	313.36	12.74	0.00	300.62	--	--	--	--	--	--	
MW-7	05/09/07		313.36	13.05	0.00	300.31	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-7	11/17/07	ANN	313.36	13.73	0.00	299.63	--	--	--	--	--	--	
MW-7	04/30/08		313.36	13.93	0.00	299.43	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-7	11/26/08	ANN	313.36	14.86	0.00	298.50	--	--	--	--	--	--	
MW-7	05/22/09		313.36	13.61	0.00	299.75	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-7	11/24/09	ANN	313.36	15.01	0.00	298.50	--	--	--	--	--	--	
MW-7	05/25/10		313.36	14.43	0.00	298.93	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-7	11/29/10	ANN	313.36	14.75	0.00	298.61	--	--	--	--	--	--	
MW-7	05/02/11		313.36	13.95	0.00	299.41	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-7	11/23/11	ANN	316.39	14.75	0.00	301.64	--	--	--	--	--	--	
MW-7	02/21/12	ANN	316.39	14.58	0.00	301.81	--	--	--	--	--	--	
MW-7	06/25/12	INA	316.39	14.98	0.00	301.41	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-7	09/22/12		316.39	15.46	0.00	300.93	--	--	--	--	--	--	
MW-7	12/10/12		316.39	14.93	0.00	301.46	--	--	--	--	--	--	
MW-7	03/26/13		316.28	14.85	0.00	301.43	--	--	--	--	--	--	
MW-7	06/13/13		316.28	15.28	0.00	301.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-7	09/04/13		316.28	15.83	0.00	300.45	--	--	--	--	--	--	
MW-7	12/04/13		316.28	15.70	0.00	300.58	--	--	--	--	--	--	
MW-7	03/06/14		316.28	15.40	0.00	300.88	--	--	--	--	--	--	
MW-7	06/09/14		316.28	15.80	0.00	300.48	<50	<0.5	<0.5	<0.5	<0.5	<0.5	Bucket Purge
MW-7	09/22/14		316.32	16.15	0.00	300.17	--	--	--	--	--	--	
MW-7	12/19/14		316.32	15.60	0.00	300.72	--	--	--	--	--	--	
MW-7	03/27/15		316.32	15.23	0.00	301.09	--	--	--	--	--	--	
MW-7	05/21/15		316.32	15.40	0.00	300.92	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-7	09/09/15	ANN	316.32	15.77	0.00	300.55	--	--	--	--	--	--	
MW-8	11/22/95		329.91	30.35	0.00	299.56	<50	<0.50	<0.50	<0.50	<0.50	--	[25]
MW-8	12/30/95		329.91	30.30	0.00	299.61	--	--	--	--	--	--	
MW-8	01/29/96		329.91	29.56	0.00	300.35	--	--	--	--	--	--	
MW-8	02/27/96		329.91	28.68	0.00	301.23	<50	<0.5	<0.5	<0.5	<5.0	<5.0	
MW-8	03/05/96		329.91	28.75	0.00	301.16	--	--	--	--	--	--	
MW-8	04/23/96		329.91	28.25	0.00	301.66	--	--	--	--	--	--	
MW-8	05/30/96		329.91	28.44	0.00	301.47	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-8	06/19/96		329.91	28.51	0.00	301.40	--	--	--	--	--	--	
MW-8	07/15/96		329.91	28.67	0.00	301.24	--	--	--	--	--	--	
MW-8	08/27/96		329.91	28.92	0.00	300.99	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-8	09/06/96		329.91	28.99	0.00	300.92	--	--	--	--	--	--	
MW-8	10/28/96		329.91	29.06	0.00	300.85	--	--	--	--	--	--	
MW-8	11/11/96		329.91	28.98	0.00	300.93	--	--	--	--	--	--	
MW-8	05/06/97		329.91	28.14	0.00	301.77	<50	3.6	3.1	0.7	2.5	<5.0	
MW-8	07/27/97		329.91	28.55	0.00	301.36	--	--	--	--	--	--	
MW-8	11/18/97		329.91	28.80	0.00	301.11	--	--	--	--	--	--	
MW-8	05/31/98		329.91	26.57	0.00	303.34	<50	<0.3	<0.3	<0.3	<0.6	<10	

TABLE 2
Historical Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-8	11/23/98	ANN	329.91	26.96	0.00	302.95	--	--	--	--	--	--	
MW-8	05/11/99		329.91	26.48	0.00	303.43	<50	<0.5	<0.5	<0.5	<0.5	<2.5	
MW-8	05/23/00		329.91	27.09	0.00	302.82	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
MW-8	10/31/00		329.91	11.13	0.00	318.78	--	--	--	--	--	--	
MW-8	05/18/01		329.91	28.24	0.00	301.67	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
MW-8	11/16/01		329.91	29.07	0.00	300.84	--	--	--	--	--	--	
MW-8	07/01/02		329.91	29.17	0.00	300.74	<50	<0.50	<0.50	<0.50	<1.5	<2.5	
MW-8	11/08/02		329.91	29.51	0.00	300.4	--	--	--	--	--	--	
MW-8	06/13/03		329.91	29.14	0.00	300.77	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-8	11/20/03		329.91	28.94	0.00	300.97	--	--	--	--	--	--	
MW-8	05/18/04		329.91	29.35	0.00	300.56	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-8	11/19/04	ANN	329.91	29.10	0.00	300.81	--	--	--	--	--	--	
MW-8	05/03/05		329.91	29.51	0.00	300.40	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-8	11/28/05	ANN	329.91	29.74	0.00	300.17	--	--	--	--	--	--	
MW-8	05/25/06		329.91	28.95	0.00	300.96	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-8	11/21/06	ANN	329.91	29.14	0.00	300.77	--	--	--	--	--	--	
MW-8	05/09/07		329.91	29.72	0.00	300.19	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
MW-8	11/17/07	ANN	329.91	30.08	0.00	299.83	--	--	--	--	--	--	
MW-8	04/30/08		329.91	28.97	0.00	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19, 22]
MW-8	11/26/08		329.91	--	--	--	--	--	--	--	--	--	Well Damaged, [22]
MW-8	05/22/09		329.91	--	--	--	--	--	--	--	--	--	Well Damaged, [22]
MW-8	11/24/09		329.91	--	--	--	--	--	--	--	--	--	Well Damaged, [22]
MW-8	03/26/13		333.00	--	--	--	--	--	--	--	--	--	
MW-8	06/13/13		333.00	31.75	0.00	301.25	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-8	09/04/13		333.00	32.33	0.00	300.67	--	--	--	--	--	--	
MW-8	12/04/13		333.00	32.23	0.00	300.77	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-8	03/06/14		333.00	32.00	0.00	301.00	--	--	--	--	--	--	
MW-8	06/09/14		333.00	32.29	0.00	300.71	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-8	09/22/14		333.02	32.63	0.00	300.39	--	--	--	--	--	--	
MW-8	12/19/14		333.02	32.06	0.00	300.96	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-8	03/27/15		333.02	31.77	0.00	301.25	--	--	--	--	--	--	
MW-8	05/21/15		333.02	31.98	0.00	301.04	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-8	09/09/15		333.02	32.48	0.00	300.54	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-9	11/18/11		332.56	30.98	0.00	301.58	--	--	--	--	--	--	[26]
MW-9	11/23/11		332.56	30.98	0.00	301.58	2,500	480	81	55	52	<3	[19]
MW-9	02/21/12		332.56	30.88	0.00	301.68	2,900	590	100	64	81	<5	[19]
MW-9	06/25/12		332.56	31.13	0.00	301.43	2,400	370	84	59	62	<0.5	
MW-9	09/22/12		332.56	31.65	0.00	300.91	5,200	1,100	950	110	300	<5	
MW-9	12/10/12		332.56	31.34	0.00	301.22	6,800	1,400	1,100	90	370	<5	
MW-9	03/26/13		332.45	31.00	0.00	301.45	4,400	700	110	57	120	<0.5	
MW-9	06/13/13		332.45	31.42	0.00	301.03	1,400	190	11	24	10	<0.5	
MW-9	09/04/13		332.45	31.99	0.00	300.46	5,900	930	350	30	230	<1	
MW-9	12/04/13		332.45	31.84	0.00	300.61	9,600	2300	1500	54	330	<3	
MW-9	03/06/14		332.45	31.58	0.00	300.87	9,500	1700	1100	100	660	<1	

TABLE 2
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10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-9	06/09/14		332.45	31.95	0.00	300.50	8,200	1,700	630	140	810	<1	
MW-9	09/22/14		332.46	32.29	0.00	300.17	6,000	1,500	290	16	320	<3	
MW-9	12/19/14		332.46	32.73	0.00	299.73	7,900	2,300	1,300	42	230	<5	
MW-9	03/27/15		332.46	31.64	0.00	300.82	1,500	200	20	12	48	<0.5	
MW-9	05/21/15		332.46	31.51	0.00	300.95	4,400	1,200	470	10	140	<10	
MW-9	09/09/15		332.46	32.05	0.00	300.41	8,100	1,800	250	100	570	<5	
MW-10	11/18/11		331.77	30.18	0.00	301.59	--	--	--	--	--	--	26
MW-10	11/23/11		331.77	30.15	0.00	301.62	8,700	500	220	58	430	<3	19
MW-10	02/21/12		331.77	30.08	0.00	301.69	1,300	260	90	25	130	<3	19
MW-10	06/25/12		331.77	30.32	0.00	301.45	2,500	420	70	27	180	<5	
MW-10	09/22/12		331.77	30.85	0.00	300.92	2,900	620	470	30	160	<5	
MW-10	12/10/12		331.77	36.64	0.00	295.13	3,100	630	27	<5	37	<5	
MW-10	03/26/13		331.66	30.16	0.00	301.50	920	150	18	4	26	<0.5	
MW-10	06/13/13		331.66	30.63	0.00	301.03	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-10	09/04/13		331.66	31.14	0.00	300.52	6,800	1,300	510	14	180	<1	
MW-10	12/04/13	SPH	331.66	31.34	0.28	300.53	--	--	--	--	--	--	
MW-10	03/06/14	SPH	331.66	32.30	1.92	300.80	--	--	--	--	--	--	
MW-10	06/09/14	SPH	331.66	32.50	1.68	300.42	--	--	--	--	--	--	
MW-10	09/22/14	SPH	331.68	32.77	1.56	300.08	--	--	--	--	--	--	
MW-10	12/19/14	SPH	331.68	32.67	2.46	300.86	--	--	--	--	--	--	
MW-10	03/27/15	SPH	331.68	31.23	0.98	301.19	--	--	--	--	--	--	
MW-10	05/21/15	SPH	331.68	31.68	1.29	300.97	--	--	--	--	--	--	
MW-10	09/09/15	SPH	331.68	32.72	1.92	300.40	--	--	--	--	--	--	
MW-11	11/18/11		331.98	30.15	0.00	301.83	--	--	--	--	--	--	26
MW-11	11/23/11		331.98	30.42	0.00	301.56	61,000	5,500	11,000	1,300	6,400	<5	19
MW-11	02/21/12		331.98	30.35	0.00	301.63	62,000	6,400	7,800	1,100	5,000	<25	19
MW-11	06/25/12		331.98	30.63	0.00	301.35	47,000	9,800	7,900	880	3,900	<50	
MW-11	09/22/12		331.98	31.15	0.00	300.83	51,000	9,000	7,200	1,200	4,600	<50	
MW-11	12/10/12		331.98	30.88	0.00	301.10	41,000	8,400	6,800	720	3,600	<25	
MW-11	03/26/13	SPH	331.87	31.35	1.26	300.52	--	--	--	--	--	--	
MW-11	06/13/13	SPH	331.87	31.96	1.33	300.91	--	--	--	--	--	--	
MW-11	09/04/13	SPH	331.87	32.36	1.26	300.46	--	--	--	--	--	--	
MW-11	12/04/13	SPH	331.87	32.23	1.12	300.48	--	--	--	--	--	--	
MW-11	03/06/14	SPH	331.87	31.84	1.09	300.85	--	--	--	--	--	--	
MW-11	06/09/14	SPH	331.87	32.04	0.69	300.35	--	--	--	--	--	--	
MW-11	09/22/14	SPH	331.88	32.35	0.69	300.05	--	--	--	--	--	--	
MW-11	12/19/14	SPH	331.88	31.58	0.48	300.66	--	--	--	--	--	--	
MW-11	03/27/15	SPH	331.88	30.76	0.05	301.16	--	--	--	--	--	--	
MW-11	05/21/15	SPH	331.88	30.98	0.05	300.94	--	--	--	--	--	--	
MW-11	09/09/15	SPH	331.88	31.58	1.06	301.10	--	--	--	--	--	--	
MW-12	11/18/11		332.53	30.42	0.00	302.11	--	--	--	--	--	--	26
MW-12	11/23/11		332.53	31.03	0.00	301.50	4,100	880	190	160	150	<1	19
MW-12	02/21/12		332.53	30.92	0.00	301.61	2,800	750	9	150	18	<5	19
MW-12	06/25/12		332.53	31.23	0.00	301.30	570	21	0.8	38	3	<0.5	

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Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-12	09/22/12		332.53	31.78	0.00	300.75	350	2	<0.5	6	<0.5	<0.5	
MW-12	12/10/12		332.53	31.37	0.00	301.16	380	17	<0.5	1	0.9	<0.5	
MW-12	03/26/13		332.42	31.05	0.00	301.37	240	7	0.7	0.9	1	<0.5	
MW-12	06/13/13		332.42	31.51	0.00	300.91	180	7	0.6	0.6	0.5	<0.5	
MW-12	09/04/13		332.42	32.06	0.00	300.36	160	12	<0.5	<0.5	0.7	<0.5	
MW-12	12/04/13		332.42	31.90	0.00	300.52	470	140	1	<0.5	3	<0.5	
MW-12	03/06/14		332.42	31.60	0.00	300.82	1,300	320	3	0.7	4	<0.5	
MW-12	06/09/14		332.42	32.03	0.00	300.39	470	39	0.6	<0.5	<0.5	<0.5	
MW-12	09/22/14		332.44	32.37	0.00	300.07	340	4	<0.5	<0.5	<0.5	<0.5	
MW-12	12/19/14		332.44	31.73	0.00	300.71	640	110	0.7	2	1	0.9	
MW-12	03/27/15		332.44	31.38	0.00	301.06	560	34	0.7	<0.5	2	1	
MW-12	05/21/15		332.44	31.58	0.00	300.86	620	93	0.8	<0.5	2	1	
MW-12	09/09/15		332.44	31.20	0.00	301.24	280	2	<0.5	<0.5	<0.5	0.6	
MW-13	11/18/11		331.60	30.13	0.00	301.47	--	--	--	--	--	--	[26]
MW-13	11/23/11		331.60	30.14	0.00	301.46	1,100	150	61	26	55	2	[19]
MW-13	02/21/12		331.60	30.02	0.00	301.58	430	43	1	13	2	3	[19]
MW-13	06/25/12		331.60	30.34	0.00	301.26	290	22	0.7	2	1	2	
MW-13	09/22/12		331.60	30.89	0.00	300.71	290	11	0.6	4	0.7	2	
MW-13	12/10/12		331.60	30.47	0.00	301.13	240	16	<0.5	5	1	1	
MW-13	03/26/13		331.49	30.15	0.00	301.34	290	23	<0.5	2	<0.5	2	
MW-13	06/13/13		331.49	30.62	0.00	300.87	240	22	<0.5	<0.5	<0.5	2	
MW-13	09/04/13		331.49	31.19	0.00	300.30	210	40	<0.5	<0.5	<0.5	2	
MW-13	12/04/13		331.49	31.00	0.00	300.49	430	110	<0.5	1	<0.5	2	
MW-13	03/06/14		331.49	30.68	0.00	300.81	320	35	<0.5	1	<0.5	2	
MW-13	06/09/14		331.49	31.12	0.00	300.37	550	130	0.6	2	0.9	2	
MW-13	09/22/14		331.51	31.49	0.00	300.02	430	130	<0.5	<0.5	<0.5	2	
MW-13	12/19/14		331.51	30.81	0.00	300.70	410	56	<0.5	<0.5	<0.5	2	
MW-13	03/27/15		331.51	30.45	0.00	301.06	200	65	<0.5	<0.5	<0.5	2	
MW-13	05/21/15		331.51	30.68	0.00	300.83	230	32	<0.5	0.6	<0.5	1	
MW-13	09/09/15		331.51	30.68	0.00	300.83	250	62	<0.5	<0.5	<0.5	1	
MW-14	11/18/11		332.24	30.71	0.00	301.53	--	--	--	--	--	--	[26]
MW-14	11/23/11		332.24	30.72	0.00	301.52	68,000	19,000	9,400	1,400	4,900	<25	[19]
MW-14	02/21/12		332.24	30.60	0.00	301.64	80,000	17,000	8,900	1,100	3,900	<10	[19]
MW-14	06/25/12		332.24	30.92	0.00	301.32	80,000	23,000	9,800	1,100	4,300	<50	
MW-14	09/22/12		332.24	31.45	0.00	300.79	83,000	25,000	9,900	1,800	6,600	<25	
MW-14	12/10/12		332.24	31.07	0.00	301.17	70,000	19,000	8,700	1,200	4,600	<50	
MW-14	03/26/13		332.12	30.74	0.00	301.38	92,000	23,000	6,200	1,200	4,700	<5	
MW-14	06/13/13		332.12	31.21	0.00	300.91	76,000	24,000	7,000	1,300	4,900	<10	
MW-14	09/04/13		332.12	31.77	0.00	300.35	100,000	23,000	8,200	1,400	5,500	<25	
MW-14	12/04/13		332.12	31.60	0.00	300.52	64,000	23,000	8,000	1,500	5,500	<50	
MW-14	03/06/14		332.12	31.28	0.00	300.84	77,000	25,000	3,400	1,600	4,200	<25	
MW-14	06/09/14		332.12	31.70	0.00	300.42	61,000	20,000	6,200	1,300	4,500	<10	
MW-14	09/22/14		332.13	32.08	0.00	300.05	31,000	10,000	2,100	730	2,500	<10	
MW-14	12/19/14		332.13	31.50	0.00	300.63	22,000	3,600	3,900	250	1,900	<5	

TABLE 2
Historical Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
MW-14	03/27/15		332.13	31.05	0.00	301.08	14,000	3,700	800	200	970	<10	
MW-14	05/21/15		332.13	31.25	0.00	300.88	12,000	3,900	660	280	1,000	<10	
MW-14	09/09/15		332.13	31.81	0.00	300.32	17,000	5,700	240	460	910	<25	
MW-15	11/18/11		332.88	31.32	0.00	301.56	--	--	--	--	--	--	26
MW-15	11/23/11		332.88	31.33	0.00	301.55	24,000	9,500	2,200	260	990	<10	19
MW-15	02/21/12		332.88	31.22	0.00	301.66	110,000	25,000	8,800	1,000	3,800	<13	19
MW-15	06/25/12		332.88	31.51	0.00	301.37	88,000	28,000	8,400	1,100	4,300	<50	
MW-15	09/22/12		332.88	32.05	0.00	300.83	77,000	29,000	9,000	1,700	6,400	<25	
MW-15	12/10/12		332.88	31.70	0.00	301.18	71,000	22,000	5,900	1,200	4,800	<100	
MW-15	03/26/13		332.77	31.36	0.00	301.41	96,000	25,000	4,300	1,200	4,400	<5	
MW-15	06/13/13		332.77	31.81	0.00	300.96	58,000	24,000	4,500	1,100	3,900	12	
MW-15	09/04/13		332.77	32.37	0.00	300.40	95,000	24,000	4,400	1,200	4,400	<25	
MW-15	12/04/13		332.77	32.22	0.00	300.55	50,000	20,000	2,300	1,100	3,700	<50	
MW-15	03/06/14		332.77	31.91	0.00	300.86	62,000	22,000	1,300	1,200	3,400	<25	
MW-15	06/09/14		332.77	32.31	0.00	300.46	64,000	23,000	1,900	1,100	3,400	<10	
MW-15	09/22/14		332.78	32.69	0.00	300.09	53,000	19,000	1,100	1,200	3,000	<25	
MW-15	12/19/14		332.78	32.11	0.00	300.67	11,000	3,500	290	160	370	<5	
MW-15	03/27/15		332.78	31.86	0.00	300.92	34,000	14,000	1,600	610	1,200	<25	
MW-15	05/21/15		332.78	31.88	0.00	300.90	39,000	13,000	1,100	750	1,600	<10	
MW-15	09/09/15		332.78	32.45	0.00	300.33	52,000	27,000	930	1,500	3,800	<250	
MW-16	09/22/14		318.20	18.89	0.00	299.31	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-16	12/19/14		318.20	17.51	0.00	300.69	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-16	03/27/15		318.20	17.16	0.00	301.04	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-16	05/21/15		318.20	17.41	0.00	300.79	<50	<0.5	<0.5	<0.5	<0.5	0.5	
MW-16	09/09/15		318.20	17.92	0.00	300.28	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
WSW-1	11/15/95		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
WSW-1	11/11/96		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
WSW-1	07/27/97		--	--	--	--	--	--	--	--	--	--	
WSW-1	11/18/97		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	
WSW-1	05/31/98		--	--	--	--	--	--	--	--	--	--	
WSW-1	11/23/98		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.0	
WSW-1	05/11/99		--	--	--	--	--	--	--	--	--	--	
WSW-1	11/24/99		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	
WSW-1	05/23/00	ANN	--	--	--	--	--	--	--	--	--	--	
WSW-1	10/30/00		--	--	--	--	--	--	--	--	--	--	
WSW-1	05/18/01		--	--	--	--	--	--	--	--	--	--	
WSW-1	11/16/01		--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	
WSW-1	07/01/02		--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	
WSW-1	11/08/02		--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	
WSW-1	11/20/03		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	19
WSW-1	05/18/04	ANN	--	--	--	--	--	--	--	--	--	--	
WSW-1	11/19/04		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	19
WSW-1	05/03/05	ANN	--	--	--	--	--	--	--	--	--	--	
WSW-1	11/28/05		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	19

TABLE 2
Historical Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
WSW-1	05/25/06	ANN	--	--	--	--	--	--	--	--	--	--	
WSW-1	11/21/06		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
WSW-1	11/17/07		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
WSW-1	04/30/08	ANN	--	--	--	--	--	--	--	--	--	--	
WSW-1	11/26/08		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
WSW-1	11/24/09		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
WSW-1	05/25/10	ANN	--	--	--	--	--	--	--	--	--	--	
WSW-1	11/29/10		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
WSW-1	05/02/11	ANN	--	--	--	--	--	--	--	--	--	--	
WSW-1	11/23/11		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
WSW-1	02/21/12	ANN	--	--	--	--	--	--	--	--	--	--	
WSW-1	06/25/12		--	--	--	--	--	--	--	--	--	--	
WSW-1	09/22/12		--	--	--	--	--	--	--	--	--	--	
WSW-1	12/10/12		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
WSW-1	03/26/13		--	--	--	--	--	--	--	--	--	--	
WSW-1	06/13/13		--	--	--	--	--	--	--	--	--	--	
WSW-1	09/04/13		--	--	--	--	--	--	--	--	--	--	
WSW-1	12/04/13		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
WSW-1	03/06/14		--	--	--	--	--	--	--	--	--	--	
WSW-1	06/09/14		--	--	--	--	--	--	--	--	--	--	
WSW-1	09/22/14		--	--	--	--	--	--	--	--	--	--	
WSW-1	12/19/14		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
WSW-1	03/06/15	DEST	--	--	--	--	--	--	--	--	--	--	
BAILER BLANK	02/15/94		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	
TRIP BLANK	02/15/94		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	
TRIP BLANK	06/01/94		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	
TRIP BLANK	09/02/94		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	
TRIP BLANK	11/30/94		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	
TRIP BLANK	05/17/95		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	
TRIP BLANK	08/15/95		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	
TRIP BLANK	11/15/95		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
TRIP BLANK	02/27/96		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
TRIP BLANK	05/30/96		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
TRIP BLANK	08/27/96		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
TRIP BLANK	11/11/96		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
TRIP BLANK	05/06/97		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
TRIP BLANK	07/27/97		--	--	--	--	--	--	--	--	--	--	
TRIP BLANK	11/18/97		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	
TRIP BLANK	05/31/98		--	--	--	--	<50	<0.3	<0.3	<0.3	<0.6	<10	
TRIP BLANK	11/23/98		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.0	
TRIP BLANK	05/11/99		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	
TRIP BLANK	05/23/00		--	--	--	--	<50.0	<0.500	<0.500	<0.500	<0.500	<2.5	
TRIP BLANK	10/31/00		--	--	--	--	<50.0	<0.500	<0.500	<0.500	<1.50	49.0	
TRIP BLANK	05/18/01		--	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	

TABLE 2
Historical Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Well No.	Date	Notes	TOC Elevation (feet MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Groundwater Elevation (feet MSL)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Comments
QA	11/16/01		--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	
QA	07/01/02		--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	
QA	11/08/02		--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	
QA	06/13/03		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
QA	11/20/03		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
QA	05/18/04		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
QA	11/19/04		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
QA	05/03/05		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
QA	11/28/05		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
QA	05/25/06		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
QA	11/21/06		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
QA	05/09/07		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
QA	11/17/07		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
QA	04/30/08		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
QA	11/26/08		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]
QA	05/22/09		--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	[19]

TABLE 2
Historical Groundwater Monitoring Data and Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, California

Notes:

TPH-GRO = Total petroleum hydrocarbons as gasoline range organics
B = Benzene
T = Toluene
E = Ethylbenzene
X = Total xylenes
MTBE = Methyl tertiary butyl ether
SPH = Separate phase hydrocarbons
TOC = Top of casing (surveyed)
MSL = Mean sea level
µg/L = Microgram per liter
< = Analyte was not detected above laboratory method detection limit
- = Not measured or analyzed
Calc. GW Elev. = Calculated groundwater elevation = TOC - Depth to Water + 0.75*(Measured SPH Thickness); assuming a specific gravity of 0.75 for SPH
ANN = An approved annual sampling program was in place at this time; the well was not scheduled for sampling during this event
DEST = Well destroyed
INA = Well inaccessble due to steep terrain, grab samples collected
SA = An approved semi-annual sampling program was in place at this time; the well was not scheduled for sampling during this event
* = TOC elevations are relative to msl.
** = GWE has been corrected for the presence of SPH, correction factor = [(TOC - DTW) + (SPHT x 0.80)].
TOC elevations were surveyed on September 6, 2011, by Virgil Chavez Land Surveying and was provided on October 28, 2011.
1 = ORC present in well.
2 = ORC Installed.
3 = Confirmation run.
4 = Due to the presence of Separate Phase Hydrocarbons results for EPA 8015/8020 do not represent true values for TPH-Gasoline, BTEX, or MTBE. The results were reported = respectively as 24,000, 140, 830, 210, 1,500, and <0.05 mg/Kg.
5 = Estimated Groundwater Elevation.
6 = Well was not sampled due to damaged casing and debris in well. Ground water elevation is an estimate.
7 = Laboratory report indicates gasoline C6-C12.
8 = Laboratory report indicates gasoline C6-C12 + unidentified hydrocarbons <C6.
9 = Laboratory report indicates result exceeds the linear range of calibration.
10 = Laboratory report indicates gasoline.
11 = Laboratory report indicates the results for this hydrocarbon is elevated due to the presence of single analyte peak(s) in the quantitation range.
12 = Chromatogram pattern indicates an unidentified hydrocarbon.
13 = Product + Water removed.
14 = MTBE by EPA Method 8260 was analyzed outside the EPA recommended holding time.
15 = Skimmer in well.
16 = ORC not present in well.
17 = MTBE by EPA Method 8260.
18 = 4.5 liters of SPH removed from skimmer and 2.5 liters of SPH removed from well.
19 = BTEX and MTBE by EPA Method 8260.
20 = Removed ORC from well.
21 = Area inaccessible to truck; unable to purge.
22 = TOC has been altered; unable to determine GWE.
23 = Product only removed from well.
24 = Skimmer removed from well.
25 = Depth to water and analytical data provided by CRA.
26 = Well development performed.

TABLE 3
Soil Boring and Well Construction Details
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, CA

Location I.D.	Installation Date	TOC Elevation (feet)	Total Depth (feet bgs)	Borehole Diameter (inches)	Casing Diameter (inches)	Casing Material	Slot Size (inches)	Screened Interval (feet bgs)	Filter Pack Interval (feet bgs)	Bentonite Seal Interval (feet bgs)	Cement Seal Interval (feet bgs)	Comments
Borehole (B)												
B-1	12/09/92	--	22	6	--	--	--	--	--	--	0-22	
B-2	05/21/93	--	37	8-7/8	--	--	--	--	--	--	--	Borehole for MW-4
B-3	05/21/93	--	25	3.7	--	--	--	--	--	--	0-25	
B-4	05/25/93	--	25	8-7/8	--	--	--	--	--	--	--	Borehole for MW-5
Boring (B)												
B-1	12/07/87	--	19.5	--	--	--	--	--	--	--	0-19.5	
B-2	12/07/87	--	19.5	--	--	--	--	--	--	--	0-19.5	
B-3	12/07/87	--	14	--	--	--	--	--	--	--	0-14	
B-4	12/07/87	--	19.5	--	--	--	--	--	--	--	0-19.5	
B-5	12/07/87	--	5.67	--	--	--	--	--	--	--	0-5.67	
B-6	12/07/87	--	8.75	--	--	--	--	--	--	--	0-8.75	
B-7	12/07/87	--	8	--	--	--	--	--	--	--	0-8	
B-8	08/25/11	--	30	6	--	--	--	--	--	--	0-30	
B-9	08/25/11	--	30	6	--	--	--	--	--	--	0-30	
B-10	08/25/11	--	30	6	--	--	--	--	--	--	0-30	
B-11	08/26/11	--	30	6	--	--	--	--	--	--	0-30	
B-12	08/26/11	--	30	6	--	--	--	--	--	--	0-30	
Monitoring Wells (MW)												
MW-1	12/08/92	29.18	39.5	10	4	Sch 40 PVC	0.020	22-37	20-38	18-20	0-18	Slough 38-39.5 ft bgs
MW-2	12/10/92	27.22	37	8	2	Sch 40 PVC	0.020	21-36	19-37	17-19	0-17	
MW-3	12/10/92	29.26	40	8	2	Sch 40 PVC	0.020	22.5-37.5	20.5-37.5	18.5-20.5	0-18.5	Slough 37.5-40 ft bgs
MW-4	05/21/93	--	37	8-7/8	2	Sch 40 PVC	0.020	22-37	20-37	18-20	0-18	Borehole B-2
MW-5	05/25/93	--	25	8-7/8	2	Sch 40 PVC	0.020	5-25	4-25	3-4	0-3	Borehole B-4
MW-6	10/27/95	--	30	6.5	2	Sch 40 PVC	0.020	7-30	6-30	5-6	0-5	
MW-7	10/24/95	--	25	6.5	2	Sch 40 PVC	0.020	5-25	4-25	3-4	0-3	
MW-8	10/27/95	--	40	6.5	2	Sch 40 PVC	0.020	20-40	18-40	17-18	0-17	
MW-9	08/22/11	332.56	37	6	2	Sch 40 PVC	0.010	27-37	25-37	23-25	0-23	
MW-10	08/23/11	331.77	37	6	2	Sch 40 PVC	0.010	27-37	25-37	23-25	0-23	
MW-11	08/23/11	331.98	37	6	2	Sch 40 PVC	0.010	24-34	22-37	20-22	0-20	
MW-12	08/24/11	332.53	37	6	2	Sch 40 PVC	0.010	22-32	20-37	18-20	0-18	

TABLE 3
Soil Boring and Well Construction Details
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, CA

Location I.D.	Installation Date	TOC Elevation (feet)	Total Depth (feet bgs)	Borehole Diameter (inches)	Casing Diameter (inches)	Casing Material	Slot Size (inches)	Screened Interval (feet bgs)	Filter Pack Interval (feet bgs)	Bentonite Seal Interval (feet bgs)	Cement Seal Interval (feet bgs)	Comments
Monitoring Wells (MW) continued												
MW-13	08/24/11	331.6	47	6	2	Sch 40 PVC	0.010	24-39	22-47	20-22	0-20	
MW-14	08/24/11	332.24	37	6	2	Sch 40 PVC	0.010	22-32	20-37	18-20	0-18	
MW-15	08/25/11	332.88	38	6	2	Sch 40 PVC	0.010	25.5-35.5	23.5-38	21.5-23.5	0-21.5	
MW-16	07/14/14	318.2	30	6-7/8	2	Sch 40 PVC	0.010	15-30	13-30	10-13	0-10	
Soil Boring (SB)												
SB-1	10/21/13	--	40	6-7/8	--	--	--	30-40	--	--	0-40	Temporary pre-packed 1" diameter well
SB-2	10/21/13	--	38	6-7/8	--	--	--	28-38	--	--	0-38	Temporary pre-packed 1" diameter well
SB-3	10/18/13	--	36	6-7/8	--	--	--	26-36	--	--	0-36	Temporary pre-packed 1" diameter well
SB-4	10/18/13	--	35	6-7/8	--	--	--	25-35	--	--	0-35	Temporary pre-packed 1" diameter well
SB-5	10/21/13	--	40	6-7/8	--	--	--	25-35	--	--	0-40	Temporary pre-packed 1" diameter well
SB-6	10/17/13	--	39	6-7/8	--	--	--	28-38	--	--	0-39	Temporary pre-packed 1" diameter well
SB-7	10/17/13	--	39	6-7/8	--	--	--	29-39	--	--	0-39	Temporary pre-packed 1" diameter well
SB-8	10/15/13	--	36	6-7/8	--	--	--	26-36	--	--	0-36	Temporary pre-packed 1" diameter well
SB-9	10/15/13	--	37	6-7/8	--	--	--	32-37	--	--	0-37	Temporary pre-packed 1" diameter well
SB-10	10/17/13	--	34	6-7/8	--	--	--	24-34	--	--	0-34	Temporary pre-packed 1" diameter well
SB-11	10/17/13	--	39	6-7/8	--	--	--	29-39	--	--	0-39	Temporary pre-packed 1" diameter well
SB-12	10/16/13	--	37	6-7/8	--	--	--	27-37	--	--	0-37	Temporary pre-packed 1" diameter well
SB-13	10/22/13	--	25	6-7/8	--	--	--	15-25	--	--	0-25	Temporary pre-packed 1" diameter well
SB-2A	10/31/13	--	32	4	--	--	--	--	--	--	0-32	
SB-3A	10/29/13	--	34	4	--	--	--	--	--	--	0-34	
SB-MW-1	10/30/13	--	32	4	--	--	--	--	--	--	0-32	
SB-MW-3	10/29/13	--	34	4	--	--	--	--	--	--	0-34	

Notes:

-- = not applicable or not available

bgs = below ground surface

Elevations are in US survey feet, Vertical Datum is NAVD 88

I.D. = Identification

Sch 40 PVC = Schedule 40 poly-vinyl chloride

TOC = Top of casing

TABLE 4
Groundwater Gradient and Flow Direction Data
Former Chevron Service Station No. 97127
10 Grant Line Rd, Mountain House, CA

Monitoring Date	Groundwater Gradient (feet per foot)	Groundwater Flow Direction	Groundwater Flow Direction														
			N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
5/3/2005	0.02	North-Northwest																1
11/28/2005	0.02	North	1															
5/25/2006	0.02	North	1															
11/21/2006	0.02	North	1															
5/9/2007	0.02 - 0.05	North-Northwest																1
11/17/2007	0.01 - 0.05	North-Northwest																1
4/30/2008	0.01 - 0.07	North-Northeast		1														
11/26/2008	0.009 - 0.06	North-Northeast		1														
5/22/2009	0.02 - 0.07	North-Northeast		1														
11/24/2009	0.05	North	1															
5/25/2010	0.007 - 0.05	North-Northeast		1														
11/29/2010	0.007 - 0.03	North	1															
5/2/2011	0.02 - 0.05	North-Northeast		1														
11/23/2011	0.0008 - 0.0031	North-Northeast		1														
2/21/2012	0.0006 - 0.0031	North-Northeast		1														
6/25/2012	0.001	North	1															
9/22/2012	0.001	North	1															
12/10/2012	0.001	North-Northwest																1
3/26/2013	0.001	North	1															
6/13/2013	0.002	North-Northeast		1														
9/4/2013	0.001	North-Northeast		1														
12/4/2013	0.001	North-Northeast		1														
3/6/2014	0.001	North-Northeast		1														
6/9/2014	0.0011	North-Northeast		1														
9/22/2014	0.002	North-Northeast		1														
12/19/2014	0.001	North	1															
3/27/2015	0.008	North-Northeast		1														
5/21/2015	0.0008	North-Northeast		1														
9/9/2015	0.006 - 0.011	NNW, ENE, WSW				0.33								0.33				0.33
			9	15	0	0	0	0	0	0	0	0	0	0	0	0	0	4

Summary:

Total number of groundwater monitoring events between 1SA05 and 1Q15: 29

TABLE 5
Historical Bi-Monthly LNAPL Monitoring and Recovery Data
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, CA

Well I.D.	Date	Initial SPH Thickness (feet)	Final SPH Thickness (feet)	Approximate Volume of SPH Removed (Liters)	Approximate Volume of Groundwater Removed (Liters)
MW-1	1/17/2015	1.43	1.09	18	2
MW-1	1/31/2015	1.41	1.21	18	2
MW-1	2/13/2015	1.23	1.11	19	4
MW-1	2/25/2015	1.25	0.60	10	2
MW-1	3/15/2015	1.29	1.12	10	1
MW-1	3/27/2015	1.36	0.86	12	4
MW-1	4/10/2015	1.38	1.07	22	6.5
MW-1	4/24/2015	1.50	1.37	8.5	19
MW-1	5/8/2015	1.54	1.36	24	16
MW-1	5/21/2015	1.60	1.27	20	2
MW-1	6/3/2015	1.95	1.45	12	4
MW-1	6/19/2015	1.81	1.52	11	2
MW-1	7/2/2015	1.92	0.00	0	0
MW-1	7/17/2015	2.03	1.65	15	11
MW-1	7/30/2015	2.12	1.85	15	0
MW-1	8/15/2015	2.22	1.07	14	3
MW-3	1/17/2015	0.07	0.03	0.06	0.06
MW-3	1/31/2015	0.06	0.04	0.02	0.25
MW-3	2/13/2015	0.02	0.00	0.02	0.08
MW-3	2/25/2015	0.00	0.00	0	0
MW-3	3/15/2015	0.00	0.00	0	0
MW-3	3/27/2015	0.00	0.00	0	0
MW-3	4/10/2015	0.00	0.00	0	0
MW-3	4/24/2015	0.00	0.00	0	0
MW-3	5/8/2015	0.00	0.00	0	0
MW-3	5/21/2015	0.02	0.00	0.1	0.1
MW-3	6/3/2015	0.00	0.00	0	0
MW-3	6/19/2015	0.00	0.00	0	0
MW-3	7/2/2015	0.00	0.00	0	0
MW-3	7/17/2015	0.00	0.00	0	0
MW-3	7/30/2015	0.00	0.00	0	0
MW-3	8/15/2015	0.00	0.00	0	0
MW-10	1/17/2015	1.39	0.48	3.5	1.5
MW-10	1/31/2015	1.26	0.42	3.5	0.5
MW-10	2/13/2015	1.14	0.46	4	1
MW-10	2/25/2015	1.21	0.42	3	1
MW-10	3/15/2015	1.07	0.59	4	1
MW-10	3/27/2015	0.98	0.63	3	1
MW-10	4/10/2015	1.21	0.42	2.5	1
MW-10	4/24/2015	1.23	0.48	1.5	6
MW-10	5/8/2015	1.26	0.52	1	2
MW-10	5/21/2015	1.29	0.46	4	1
MW-10	6/3/2015	1.24	0.59	9	3
MW-10	6/19/2015	1.41	0.52	4.5	1.5

TABLE 5
Historical Bi-Monthly LNAPL Monitoring and Recovery Data
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, CA

Well I.D.	Date	Initial SPH Thickness (feet)	Final SPH Thickness (feet)	Approximate Volume of SPH Removed (Liters)	Approximate Volume of Groundwater Removed (Liters)
MW-10	7/2/2015	1.46	0.7	3.5	9
MW-10	7/17/2015	1.57	0.64	4	3
MW-10	7/30/2015	1.61	0.47	2	0
MW-10	8/15/2015	1.69	0.2	4.5	2
MW-11	1/17/2015	0.47	0.05	0.77	0.23
MW-11	1/31/2015	0.10	0.07	0.08	0.50
MW-11	2/13/2015	0.06	0.02	0.06	0.04
MW-11	2/25/2015	0.06	0.04	0.02	0.08
MW-11	3/15/2015	0.05	0.03	0.02	0.08
MW-11	3/27/2015	0.05	0.05	0.02	0.08
MW-11	4/10/2015	0.06	0.03	0.5	1
MW-11	4/24/2015	0.06	0.06	0.1	2
MW-11	5/8/2015	0.07	0.07	0.5	1
MW-11	5/21/2015	0.05	0.05	0.2	0.1
MW-11	6/3/2015	0.05	0.05	0.1	0.1
MW-11	6/19/2015	0.08	0.02	0.1	0.1
MW-11	7/2/2015	0.07	0.00	0.2	2
MW-11	7/17/2015	0.03	0.00	0.05	2
MW-11	7/30/2015	0.01	0.00	0.04	2
MW-11	8/15/2015	0.04	0.02	0.2	0.5

Notes:

I.D. = Identification

LNAPL = Light non-aqueous phase liquids

SPH = Separate-phase hydrocarbons

All data provided based on groundwater monitoring field data sheets provided by field personnel

TABLE 6
Historical Grab Groundwater Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, CA

Sample I.D.	Sample Date	Sample Depth (feet bgs)	TPH-GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)
SB-1-W-40	10/22/13	40	**4,100**	**170**	**170**	**78**	**280**	<0.5
SB-2-W-38	10/21/13	38	**150,000**	**17,000**	**29,000**	**1,700**	**8,100**	<25
SB-3-W-36	10/21/13	36	**110,000**	**13,000**	**23,000**	**1,300**	**6,300**	<10
SB-4-W-35	10/18/13	35	**170,000**	**28,000**	**24,000**	**2,100**	**9,200**	**98**
SB-5-W-40	10/21/13	40	**1,500**	**230**	**140**	**22**	**63**	<0.5
SB-6-W-38	10/17/13	38	**9,300**	**2,600**	**8**	**190**	**290**	<1
SB-7-W-39	10/18/13	39	<50	<0.5	<0.5	<0.5	<0.5	<0.5
SB-8-W-36	10/16/13	36	<50	<0.5	<0.5	<0.5	<0.5	<0.5
SB-9-W-37	10/15/13	37	<50	<0.5	<0.5	<0.5	<0.5	<0.5
SB-10-W-34	10/16/13	34	**800**	**7**	<0.5	**27**	**0.9**	**0.8**
SB-11-W-39	10/17/13	39	**3,100**	**41**	**2**	**240**	**340**	<0.5
SB-12-W-37	10/16/13	37	**66**	<0.5	<0.5	<0.5	<0.5	**2**
SB-13-W-25	10/22/13	25	<50	<0.5	<0.5	<0.5	<0.5	<0.5
QA-T-131015	10/15/13	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
QA-T-131017	10/17/13	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
QA-T-131022	10/22/13	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5
Screening Levels: California Primary MCLs			NA	1	150	300	1,750	13

Notes:

Concentrations are in micrograms per Liter (µg/L).

Bolded values indicate detected concentrations above the laboratory detection limit.

Benzene, toluene, ethylbenzene, and total xylenes by USEPA Method 8260B

< = Less than the laboratory detection limit

bgs = Below ground surface

MTBE = Methyl tert-butyl ether by USEPA Method 8260B

TPH-GRO = Total petroleum hydrocarbons as gasoline range organics by USEPA Method 8015B

USEPA = United States Environmental Protection Agency

NA = Not available

MCL = California Primary Maximum Contaminant Levels (California Department of Public Health. 2008. Maximum Contaminant Levels and Regulatory Dates for Drinking Water U.S. EPA vs California. November 28.)

TABLE 7
Historical Soil Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, CA

Sample I.D.	Sample Date	Sample Depth (feet bgs)	TPH-GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	Naph-thalene (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Zinc (mg/kg)	Nickel (mg/kg)	Halogenated VOCs (mg/kg)	Lead (mg/kg)	TOG (mg/kg)	TPHd (mg/kg)
Borehole (B)																	
B-1	12/07/87	10	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--
B-1	12/09/92	7	<1.0	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--
B-1	12/09/92	12.5	**4**	<0.005	<0.005	<0.005	**0.015**	--	--	--	--	--	--	--	--	--	--
B-1	12/09/92	17.5	<1.0	<0.005	**0.014**	<0.005	**0.025**	--	--	--	--	--	--	--	--	--	--
B-1	12/09/92	21.5	<1.0	<0.005	**0.013**	<0.005	**0.018**	--	--	--	--	--	--	--	--	--	--
B-2	12/07/87	20	**0.8**	**0.001**	ND	**0.003**	**0.004**	--	--	--	--	--	--	--	--	--	--
B-3	12/07/87	14	**76**	**1.2**	**0.68**	**0.80**	**2.0**	--	--	--	--	--	--	--	--	--	--
B-4	12/07/87	15	**2,300**	**19**	**85**	**28**	**140**	--	--	--	--	--	--	--	--	--	--
B-5	12/07/87	5	**0.50**	**0.076**	**0.007**	**0.002**	**0.03**	--	--	--	--	--	--	--	--	--	--
B-6	12/07/87	5	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--
B-7	12/07/87	5	**0.70**	**0.022**	**0.003**	**0.024**	**0.046**	--	--	--	--	--	--	--	--	--	--
Monitoring Well (MW)																	
MW-1	12/08/92	19	<1.0	<0.005	**0.0056**	<0.005	**0.0079**	--	--	--	--	--	--	--	--	--	--
MW-1	12/08/92	24	**2,600**	<5.0	**79**	**30**	**200**	--	--	--	--	--	--	--	--	--	--
MW-1	12/08/92	29	**8,100**	**21**	**560**	**150**	**840**	--	--	--	--	--	--	--	--	--	--
MW-1	12/08/92	30.5	<1.0	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--
MW-1	12/08/92	38.5	<1.0	<0.005	**0.013**	<0.005	**0.024**	--	--	--	--	--	--	--	--	--	--
MW-5/B-4	05/25/93	10	<1.0	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--
MW-5/B-4	05/25/93	15	<1.0	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--
MW-6	10/27/95	9.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--
MW-6	10/27/95	14.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--
MW-6	10/27/95	29.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--
MW-7	10/24/95	10.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--
MW-7	10/24/95	14.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--
MW-7	10/24/95	24.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--
MW-8	10/25/95	24.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--
MW-8	10/25/95	29.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--
MW-8	10/25/95	39.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--
Soil Boring (B)																	
SB-1-S-2	10/10/13	2	<1.3	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-1-S-4.5	10/10/13	4.5	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-1-S-9.5	10/21/13	9.5	<1.2	**0.002**	**0.005**	<0.001	**0.001**	<0.0006	<0.001	--	--	--	--	--	--	--	--

TABLE 7
Historical Soil Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, CA

Sample I.D.	Sample Date	Sample Depth (feet bgs)	TPH-GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	Naph-thalene (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Zinc (mg/kg)	Nickel (mg/kg)	Halogenated VOCs (mg/kg)	Lead (mg/kg)	TOG (mg/kg)	TPHd (mg/kg)
Soil Boring (B) continued																	
SB-1-S-27.5	10/21/13	27.5	**9.0**	<0.0006	<0.001	<0.001	**0.002**	<0.0006	--	--	--	--	--	--	--	--	--
SB-2-S-2	10/09/13	2	<1.1	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-2-S-4.5	10/09/13	4.5	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-2-S-9.5	10/21/13	9.5	<1.0	**0.002**	**0.004**	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-2-S-22	10/21/13	22	**770**	**0.028**	**1.3**	**6.9**	**42**	<0.028	--	--	--	--	--	--	--	--	--
SB-2-S-27	10/21/13	27	**440**	**1.0**	**21**	**6.4**	**35**	<0.031	--	--	--	--	--	--	--	--	--
SB-3-S-2	10/08/13	2	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-3-S-4.5	10/09/13	4.5	<1.3	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-3-S-9.5	10/18/13	9.5	<1.0	**0.0007**	**0.002**	<0.001	<0.001	<0.0005	<0.001	--	--	--	--	--	--	--	--
SB-3-S-29	10/18/13	29	**120**	**0.048**	**0.93**	**0.47**	**2.7**	<0.027	--	--	--	--	--	--	--	--	--
SB-4-S-2	10/09/13	2	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-4-S-4	10/18/13	4	<1.1	**0.001**	**0.004**	<0.001	**0.003**	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-4-S-9.5	10/18/13	9.5	<1.0	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-4-S-27	10/18/13	27	**670**	**0.11**	**3.5**	**8.5**	**40**	<0.027	--	--	--	--	--	--	--	--	--
SB-5-S-2	10/21/13	2	<1.2	**0.003**	**0.006**	<0.001	**0.001**	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-5-S-4.5	10/21/13	4.5	<1.2	**0.001**	**0.001**	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-5-S-9.5	10/21/13	9.5	<1.1	**0.0009**	**0.001**	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-5-S-22	10/21/13	22	<1.0	**0.001**	**0.002**	<0.001	<0.001	<0.0006	--	--	--	--	--	--	--	--	--
SB-5-S-29	10/21/13	29	<1.1	**0.0009**	**0.001**	<0.001	<0.001	<0.0006	--	--	--	--	--	--	--	--	--
SB-6-S-2	10/07/13	2	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-6-S-4.5	10/07/13	4.5	<1.3	<0.0007	<0.001	<0.001	<0.001	<0.0007	<0.001	--	--	--	--	--	--	--	--
SB-6-S-9.5	10/17/13	9.5	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-6-S-27.5	10/17/13	27.5	<1.2	**0.001**	**0.002**	<0.001	<0.001	<0.0006	--	--	--	--	--	--	--	--	--
SB-7-S-2	10/08/13	2	<1.3	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-7-S-4.5	10/17/13	4.5	<1.1	**0.0009**	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-7-S-9.5	10/17/13	9.5	<1.1	**0.003**	**0.004**	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-7-S-29	10/17/13	29	<1.1	<0.0006	<0.001	<0.001	<0.001	<0.0006	--	--	--	--	--	--	--	--	--
SB-8-S-2	10/15/13	2	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	--	--	--	--	--	--	--	--
SB-8-S-4.5	10/15/13	4.5	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-8-S-9.5	10/15/13	9.5	<1.1	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	--	--	--	--	--	--	--	--
SB-8-S-22	10/15/13	22	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	--	--	--	--	--	--	--	--	--
SB-9-S-2	10/08/13	2	<1.1	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001	--	--	--	--	--	--	--	--
SB-9-S-4.5	10/15/13	4.5	<1.1	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--

TABLE 7
Historical Soil Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, CA

Sample I.D.	Sample Date	Sample Depth (feet bgs)	TPH-GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	Naph-thalene (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Zinc (mg/kg)	Nickel (mg/kg)	Halogenated VOCs (mg/kg)	Lead (mg/kg)	TOG (mg/kg)	TPHd (mg/kg)
Soil Boring (B) continued																	
SB-9-S-9.5	10/15/13	9.5	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-9-S-22	10/15/13	22	<1.1	<0.0006	<0.001	<0.001	<0.001	<0.0006	--	--	--	--	--	--	--	--	--
SB-10-S-2	10/07/13	2	<1.1	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-10-S-4.5	10/10/13	4.5	<1.3	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-10-S-9.5	10/16/13	9.5	<1.1	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-10-S-27	10/16/13	27	<1.1	<0.0006	<0.001	<0.001	<0.001	<0.0006	--	--	--	--	--	--	--	--	--
SB-11-S-2	10/08/13	2	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-11-S-4.5	10/08/13	4.5	<1.1	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-11-S-9.5	10/16/13	9.5	<1.1	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-11-S-27	10/17/13	27	<1.1	**0.0008**	<0.001	<0.001	<0.001	<0.0006	--	--	--	--	--	--	--	--	--
SB-12-S-2	10/08/13	2	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-12-S-4.5	10/08/13	4.5	<1.3	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-12-S-9.5	10/16/13	9.5	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-12-S-30.5	10/16/13	30.5	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-12-S-30.5	10/16/13	30.5	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	--	--	--	--	--	--	--	--	--
SB-13-S-2	10/22/13	2	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-13-S-4.5	10/22/13	4.5	<1.2	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001	--	--	--	--	--	--	--	--
SB-13-S-9.5	10/22/13	9.5	<1.3	<0.0007	<0.001	<0.001	<0.001	<0.0007	<0.001	--	--	--	--	--	--	--	--
SB-13-S-18	10/22/13	18	<1.3	<0.0006	<0.001	<0.001	<0.001	<0.0006	--	--	--	--	--	--	--	--	--
Removal - Dispenser Island / Product Line																	
#1	04/04/91	2.5	**1,200**	**3.3**	**17**	**17**	**86**	--	--	--	--	--	--	--	**17**	--	--
#10	04/04/91	4	**3.3**	**0.20**	**0.043**	**0.06**	**0.16**	--	--	--	--	--	--	--	**7.7**	--	--
#11	04/04/91	4	**750**	**12**	**33**	**19**	**110**	--	--	--	--	--	--	--	**9.5**	--	--
#12	04/04/91	4	**15**	**0.23**	**0.19**	**0.26**	**1.3**	--	--	--	--	--	--	--	**6.9**	--	--
#5	04/16/91	13	**220**	<0.25	**0.80**	**1.7**	**10**	--	--	--	--	--	--	--	**2.6**	--	--
#8	04/16/91	14	**33**	**0.085**	**0.24**	**0.27**	**1.5**	--	--	--	--	--	--	--	**6.1**	--	--
#13	04/16/91	15	**11**	<0.025	**0.047**	**0.044**	**0.31**	--	--	--	--	--	--	--	**6.1**	--	--
#14	04/16/91	13	**9.2**	**0.0050**	**0.0060**	**0.03**	**0.13**	--	--	--	--	--	--	--	**3.6**	--	--
Removal - Heating-Oil Tank																	
FoM	04/04/91	11	**170**	<0.50	<0.50	<0.50	**2.7**	--	--	**4.8**	**7.9**	**23**	**10**	ND	**1.7**	<30	<1.0
Removal - Used-Oil Tank																	
WoM	04/04/91	11	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	**2.2**	**4.4**	**13**	**8.5**	ND	**3.3**	<30	<1.0

TABLE 7
Historical Soil Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, CA

Sample I.D.	Sample Date	Sample Depth (feet bgs)	TPH-GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	Naph-thalene (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Zinc (mg/kg)	Nickel (mg/kg)	Halogenated VOCs (mg/kg)	Lead (mg/kg)	TOG (mg/kg)	TPHd (mg/kg)
Removal - UST																	
AF	04/04/91	14	**4,000**	<13	**41**	**66**	**310**	--	--	--	--	--	--	--	**13**	--	--
Aop	04/04/91	13.5	**1.0**	**0.0070**	<0.0050	**0.005**	**0.03**	--	--	--	--	--	--	--	**9.1**	--	--
BF	04/04/91	14	**5,700**	**20**	**220**	**110**	**560**	--	--	--	--	--	--	--	**80**	--	--
Bop	04/04/91	14	ND	**0.0070**	**0.016**	**0.012**	**0.03**	--	--	--	--	--	--	--	**7.7**	--	--
CF	04/04/91	12.5	**2.1**	**0.018**	**0.013**	**0.014**	**0.046**	--	--	--	--	--	--	--	**6.9**	--	--
Cop	04/04/91	15	**2,900**	**30**	**180**	**60**	**350**	--	--	--	--	--	--	--	**14**	--	--
Cop	04/16/91	13	**16**	**0.0090**	**0.014**	**0.021**	**0.17**	--	--	--	--	--	--	--	**3.6**	--	--
Cop	04/16/91	15	**710**	**0.013**	**0.063**	**0.096**	**0.41**	--	--	--	--	--	--	--	**8.1**	--	--

Notes:

Concentrations are in milligrams per kilogram (mg/kg).

Bolded values indicate detected concentrations above the laboratory detection limit.

-- = Not analyzed for specific parameter or not available

< = Less than the laboratory detection limit

bgs = below ground surface

ND = Less than the laboratory detection limit, reporting limits vary

MTBE = Methyl tert-butyl ether

TPH-GRO = Total petroleum hydrocarbons as gasoline range organics

TPHd = Total petroleum hydrocarbons as diesel

TOG = Total oil and gas

RWQCB = Regional Water Quality Control Board

USEPA = United States Environmental Protection Agency

VOC = Volatile organic compounds

TABLE 8
Historical Soil Vapor Analytical Results
Former Chevron Service Station No. 97127
10 Grant Line Road, Mountain House, CA

Sample I.D.	Date	Depth (feet bgs)	Benzene (ppmv)	Toluene (ppmv)	Detected Hydrocarbons (ppmv)
V1	10/27/87	3	<1	<1	<5
V1/B	10/27/87	5	**650**	**3,200**	**7,500**
V1/C	10/27/87	8	**600**	**2,800**	**20,000**
V2	10/27/87	5	<5.0	**30**	**160**
V3	10/27/87	3	**5.0**	**10**	**30**
V3/B	10/27/87	5	**1.0**	**10**	**15**
V4	10/27/87	3	**3,200**	**5,200**	**28,500**
V4/B	10/27/87	5	**130**	**1,900**	**2,000**
V5	10/27/87	5	<1	<5	<5
V5/B	10/27/87	7	**40**	<1	**750**
V6	10/27/87	5	**540**	**160**	**7,300**
V7	10/27/87	5	<5	<5	**1,400**
V8	10/27/87	3	<1	<1	<1
V8/B	10/27/87	8	<1	<1	<1
V9	10/27/87	8	<1	<10	10
V10	10/27/87	8	<1	<1	<1
V11	10/27/87	5	<1	<1	<1
V12	10/27/87	8	<1	<1	<1
V13	10/27/87	12	<1	<1	**25**
V14	10/27/87	8	<1	<1	<1
V15	10/27/87	12	<1	<1	<1

Notes:

<= Not detected at or above laboratory reporting limit

bgs = Below ground surface

I.D. = Identification

ppmv = Parts per million by volume

APPENDIX A

ACEH Correspondences Dated March 20, 2015 and August 14, 2015

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Agency Director

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

May 20, 2015

Ms. Carryl MacLeod
Chevron Environmental
Management Company
6001 Bollinger Canyon Road
San Ramon, CA 94583
(sent via electronic mail to:
CMacleod@chevron.com)

Mr. Onsori Ardavan
37 Victoria Drive
Atherton, CA 94027-4122
(sent via electronic mail to:
dmbasmatirice@yahoo.com)

Frances & Louis Carnazzo
Carnazzo Land Co, Inc, et al.
P.O. Box 6031
Atascadero, CA 93423-6031

Ahmad & Shahla Mostofi
37 Victoria Drive
Atherton, CA 94027-4122

Subject: Request for Pilot Test Work Plan; Fuel Leak Case No. RO0000185 (Global ID #T0600102298), Chevron #9-7127, I 580 and Grant Line Road, Tracy, CA

Dear Ladies and Gentlemen:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above referenced site including the *Feasibility Study / Corrective Action Plan,* (FS/CAP) dated March 26, 2015 and the *First Quarter 2015 Groundwater Monitoring Report,* dated May 15, 2015. The reports were prepared and submitted on your behalf by ARCADIS US, Inc. (ARCADIS). Thank you for submitting them.

Based on ACEH staff review of the work plan, the proposed scope of work is approved for implementation provided that the technical comments below are incorporated during the proposed work. We request that you address the following technical comments, perform the proposed work, and send us the report described below. Please provide 72-hour advance written notification to this office (e-mail preferred to: mark.detterman@acgov.org) prior to the start of field activities.

TECHNICAL COMMENTS

1. **Work Plan Request** – The FS/CAP evaluated four alternative options for corrective action at the site. These included Monitored Natural Attenuation (MNA), Multi-Phase Extraction (MPE) such as Dual-Phase Extraction (DPE), two soil excavation and pumping options (excavator and bucket auger), and Air Sparging / Soil Vapor Extraction (AS/SVE). Potential problems for DPE include the potential for a limited depression of groundwater in the aquifer and potential extracted water disposal concerns; however, potential benefits (fewer wells) appear to outweigh potential risks. Therefore, the FS/CAP proposed an additional pilot test with the installation of an extraction well and an observation well in the vicinity of well MW-1. The FS/CAP reported the initial pilot test at well MW-1 did not yield useful results because of the depth of the bottom of the screen interval. The well has historically contained the thickest Light Non-Aqueous Phased Liquid (LNAPL) at the site.

   Please be aware that due to drought conditions, the historic smear zone is currently exposed and a substantial depression of groundwater may not be required other than to induce flow to extraction wells.

   The referenced report proposes actions with which ACEH is in general agreement of undertaking. Please submit a work plan by the date identified below. However, because DPE may not be found to

be a viable option for the site, please additionally include in the work plan, contingency actions for other apparently viable site options such as alternative forms of MPE or SVE.

2. **Groundwater Monitoring** – The referenced groundwater monitoring report recommends a reduction of groundwater monitoring at the site from a quarterly to semi-annual interval. While ACEH has concerns as to the stability of the LNAPL and dissolved-phase plumes as previously discussed, ACEH is in concurrence that sufficient stability appears to be present beneath the site that a reduction of the groundwater monitoring interval to semi-annual is appropriate. Should sufficient concentration changes be documented, this interval is to be reevaluated. Therefore, please monitor and sample groundwater during the months of March and September of a given year, and submit reports by the dates identified below. This appears to capture worst-case groundwater concentrations at a majority of site wells.

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 specified file naming convention below, according to the following schedule:

- **August 14, 2015** – Pilot Test Work Plan
  File to be named: RO185_WP_R_R_yyyy-mm-dd

- **December 4, 2015** – Second 2015 Semi-Annual Groundwater Monitoring and Sampling
  File to be named: RO185_GWM_R_yyyy-mm-dd

- **May 13, 2016** – First 2016 Semi-Annual Groundwater Monitoring and Sampling
  File to be named: RO185_GWM_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.

If your email address is not listed on the first page of this letter, ACEH is requesting your email address to help expedite communications and to help lower overall costs. Please provide that information in the next submittal.

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

Sincerely,

Digitally signed by Mark E. Detterman
DN: cn=Mark E. Detterman, o, ou, email, c=US
Date: 2015.05.20 16:56:59 -07'00'

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

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

cc: Tonya Russi, ARCADIS US, Inc, 950 Glenn Drive, Suite 125, Folsom, CA 95630
(sent via electronic mail to Tonya.Russi@arcadis-us.com)

Vera Fischer, Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive #200, Rancho Cordova, CA 95670-6114, (sent via electronic mail to: vera.fischer@waterboards.ca.gov)
Dilan Roe, ACEH, (sent via electronic mail to dilan.roe@acgov.org)
Mark Detterman, ACEH, (sent via electronic mail to mark.detterman@acgov.org)
Geotracker, Electronic File

Attachment 1

Responsible Party(ies) Legal Requirements / Obligations

REPORT REQUESTS

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.

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/).

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**REVISION DATE:** May 15, 2014
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010, July 25, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection**.
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- **Signature pages and perjury statements must be included and have either original or electronic signature.**
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted**.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Submission Instructions

1) Obtain User Name and Password
   - **a)** Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
     - i) Send an e-mail to deh.loptoxic@acgov.org
   - **b)** In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   - **a)** Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
     - (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
   - **b)** Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
   - **c)** Enter your User Name and Password. (Note: Both are Case Sensitive.)
   - **d)** Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   - **e)** With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   - **a)** Send email to deh.loptoxic@acgov.org notify us that you have placed a report on our ftp site.
   - **b)** Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   - **c)** The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
   - **d)** If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Agency Director

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

August 14, 2015
(*Revised August 17, 2015*)

Ms. Carryl MacLeod
Chevron Environmental
Management Company
6001 Bollinger Canyon Road
San Ramon, CA 94583
(sent via electronic mail to:
CMacleod@chevron.com)

Mr. Onsori Ardavan
37 Victoria Drive
Atherton, CA 94027-4122
(sent via electronic mail to:
dmbasmatirice@yahoo.com)

Frances & Louis Carnazzo
Carnazzo Land Co, Inc, et al.
P.O. Box 6031
Atascadero, CA 93423-6031

Ahmad & Shahla Mostofi
37 Victoria Drive
Atherton, CA 94027-4122

Subject: Reduction of LNAPL Recovery Events and Meeting Memorialization; Fuel Leak Case No. RO0000185 (Global ID #T0600102298), Chevron #9-7127, I 580 and Grant Line Road, Tracy, CA

Dear Ladies and Gentlemen:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above referenced site including the *Reduction of Light Non Aqueous Phase Liquid (LNAPL) Recovery Events Request,* dated June 15, 2015. The report was prepared and submitted on your behalf by ARCADIS US, Inc. (ARCADIS).

This letter is also intended to briefly memorialize the deliverables agreed upon in the stakeholder meeting of August 5, 2015.

Based on ACEH staff review of the referenced report we request that you address the following technical comments regarding the site, and send us the technical documents requested below.

TECHNICAL COMMENTS

1. **LNAPL Recovery** – The referenced report documents nine approximately bi-monthly LNAPL recovery events at the site and the volume of recovered LNAPL from each event. The total volume of LNAPL recovered, in comparison to the probable volume of LNAPL present beneath the site, appears to be very limited. Additionally, due to the recent approval of an FS/CAP for the site, the site has identified a Path to Closure and is working towards that end point. Therefore, ACEH is in agreement with the recommendation to terminate bi-monthly LNAPL recovery, and to initiate semi-annual LNAPL recovery in the interim period of time.

2. **August 5, 2015 Meeting Discussions –** As noted above, a majority of stakeholders meet on August 5, 2015 at ACEH in order to identify a Path to Closure for the site that incorporates the complexities of redeveloping the site into an active service station at a location that does not have sewer or water supply infrastructure. The timeline as identified in the meeting is incorporated in the *Technical Report Request* section below.

3. **Water Supply Well Installation Schedule** – As also discussed in the August 5, 2015 meeting, project proponents have committed to scheduling the installation of a water supply well at the site, and communicating the schedule to all stakeholders. As noted in the meeting, the lack of a viable

water supply will necessarily preclude site redevelopment. Please communicate the well installation schedule by the date referenced below.

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 specified file naming convention below, according to the following schedule:

- **September 30, 2015 – Water Supply Well Installation Schedule**
- **October 5, 2015 - Pilot Test Work Plan**
  File to be named: RO185_WP_R_yyyy-mm-dd
- **October 19, 2015 - Field Implementation of Work Plan**
- **December 4, 2015** – Second 2015 Semi-Annual Groundwater Monitoring and Sampling
  File to be named: RO185_GWM_R_yyyy-mm-dd
- **December 12, 2015 - Completion of Pilot Test**
- **January 29, 2016 - Submittal of CAP Addendum (Limited and Simple); with Well Destruction Schedule**; File to be named: RO185_CAP_ADEND_R_yyyy-mm-dd
- **January 31, 2016 - Variance for Septic Notification**
- **February 8, 2016 - Stakeholder Meeting**
- **February 15, 2016 - Start of 30-Day Public Participation Period**
- **May 13, 2016 – First 2016 Semi-Annual Groundwater Monitoring and Sampling**
  File to be named: RO185_GWM_R_yyyy-mm-dd
- **March 15, 2016 - End of 30-Day Public Participation Period**
- **May 16, 2016 - CAP Implementation Plan (With System Design); Schedule Drillers**
  File to be named: RO185_CAIP_R_yyyy-mm-dd
- **August 1, 2016 - System Well Installation**

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.

If your email address is not listed on the first page of this letter, ACEH is requesting your email address to help expedite communications and to help lower overall costs. Please provide that information in the next submittal.

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

Sincerely,

Digitally signed by Mark E. Detterman
DN: cn=Mark E. Detterman, o, ou, email, c=US
Date: 2015.08.17 13:48:54 -07'00'

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

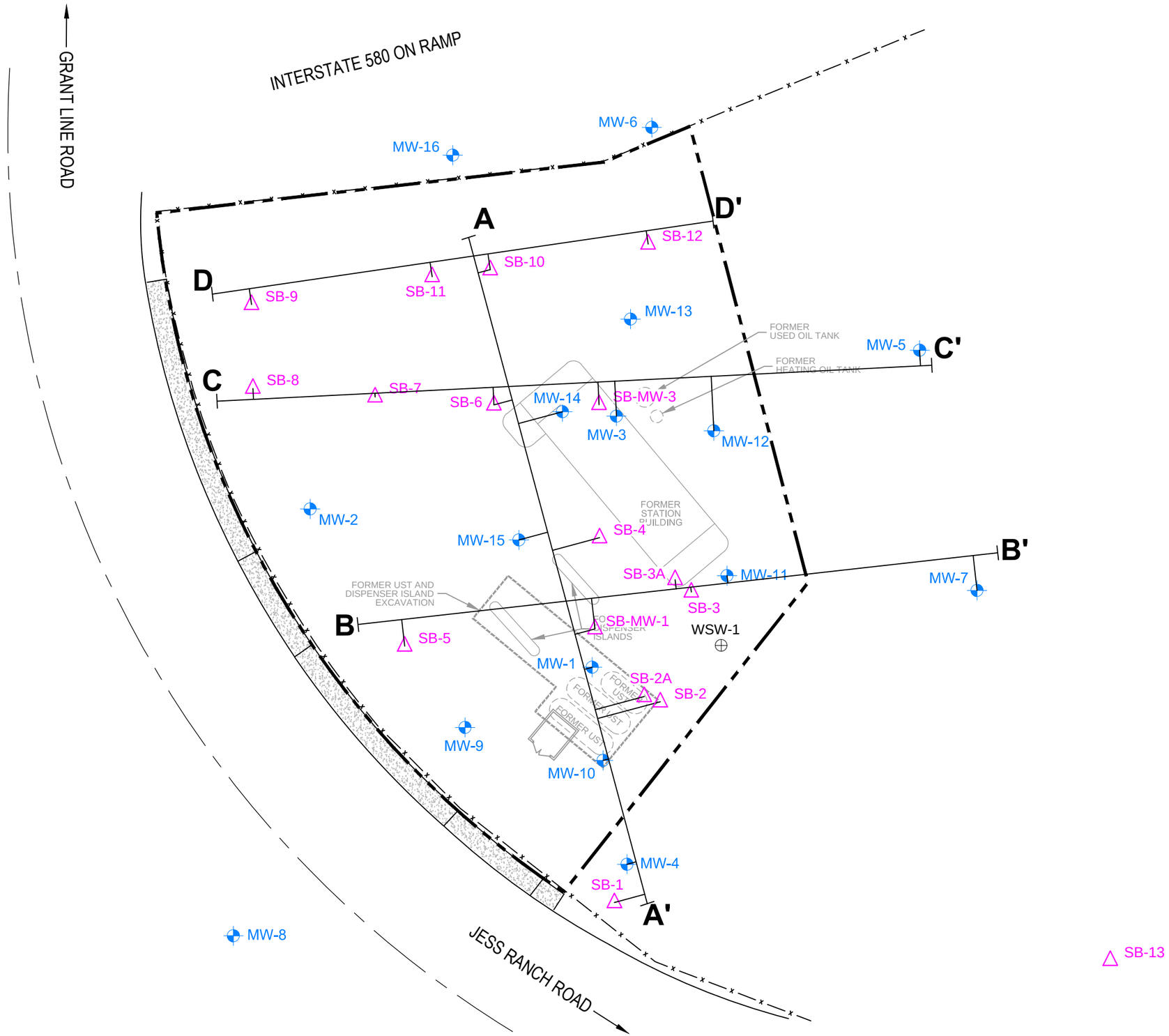
Enclosures: Attachment 1 – Responsible Party (ies) Legal Requirements / Obligations and Electronic Report Upload (ftp) Instructions

cc: Brian Westhoff, Stantec, Inc, 3017 Kilgore Road, Suite 100, Rancho Cordova, CA 95670 (sent via electronic mail to brian.westhoff@stantec.com)

Vera Fischer, Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive #200, Rancho Cordova, CA 95670-6114, (sent via electronic mail to: vera.fischer@waterboards.ca.gov)

Dilan Roe, ACEH, (sent via electronic mail to dilan.roe@acgov.org)
Mark Detterman, ACEH, (sent via electronic mail to mark.detterman@acgov.org)
Geotracker, Electronic File

APPENDIX B
Generalized Geological Cross-Sections



LEGEND

- PROPERTY BOUNDARY
- FENCE
- MW-1 MONITORING WELL LOCATION
- WSW-1 WATER SUPPLY WELL (LIVESTOCK)
- SB-1 SOIL BORING (ARCADIS 2013)[4]
- CROSS SECTION LINE

NOTES:

1. MONITORING WELL LOCATIONS BASED ON SURVEY DATA PROVIDED BY VIRGIL CHAVEZ LAND SURVEYING (SEPTEMBER 2011) DRAWING FILE 305620cad.dwg. MW-6 LOCATION WAS NOT SURVEYED AND IS APPROXIMATE.
2. MAP MODIFIED FROM CONESTOGA-ROVERS & ASSOCIATES (CRA) FIGURE ENTITLED "FIGURE 2 CONCENTRATION MAP" DATED FEBRUARY 21, 2012, DRAWING FILE xsite.dwg. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MONITORING WELL MW-8 DISCONTINUED FROM MONITORING AND SAMPLING PROGRAM.
4. SOIL BORING LOCATIONS ARE APPROXIMATE AND BASED OFF OF FIELD MEASUREMENTS TO GENERATE CROSS SECTIONS. SURVEY DATA WAS NOT AVAILABLE DURING THE TIME CROSS SECTIONS WERE GENERATED.

0 40' 80'

GRAPHIC SCALE

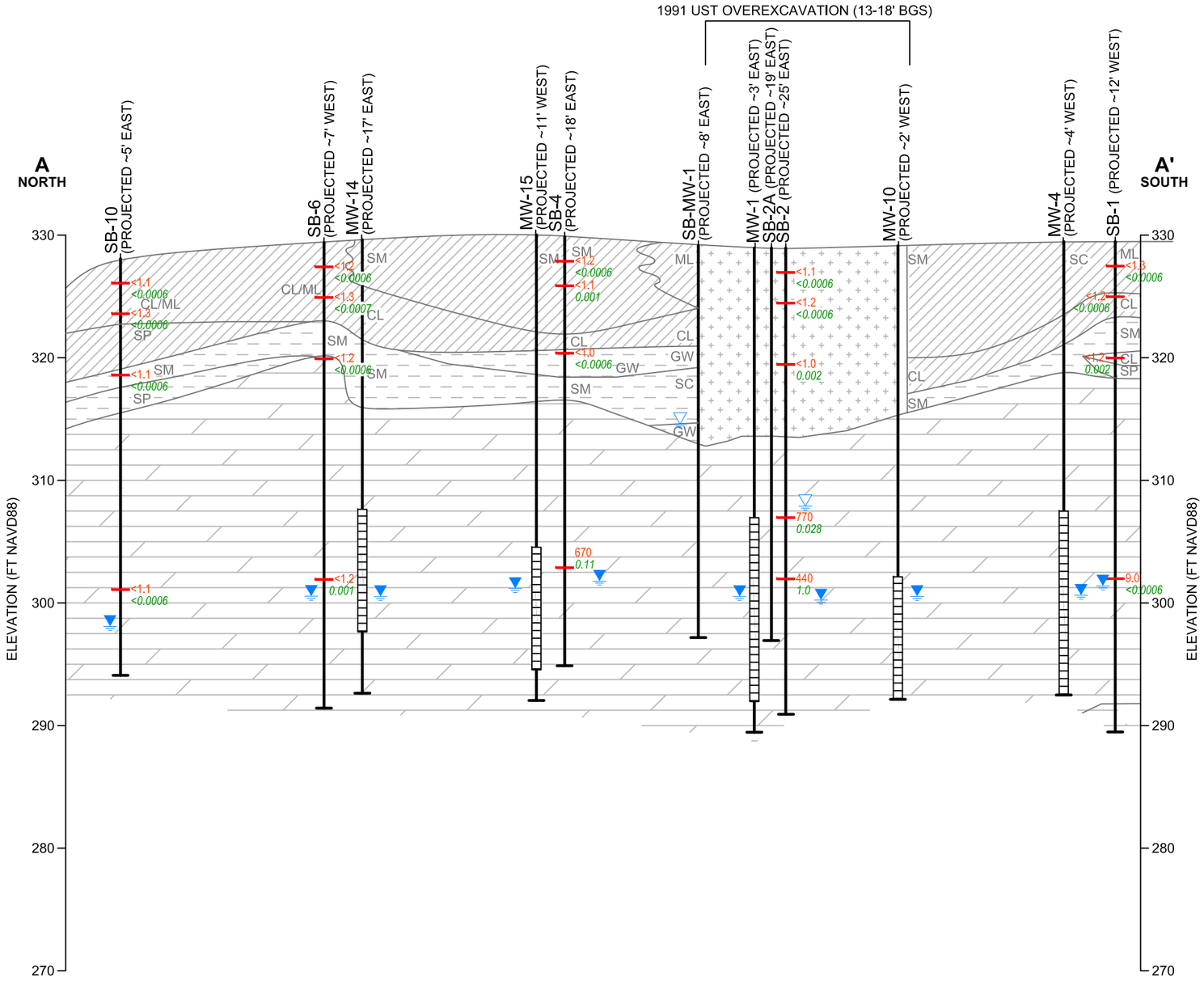
CHEVRON SITE ID 97127
GRANT LINE ROAD AND INTERSTATE 580
TRACY, CALIFORNIA

SITE PLAN SHOWING CROSS SECTION LINES

ARCADIS

FIGURE 5

CITY: SAN RAFAEL, CA (PETALUMA) DIV/GROUP: ENV/CAD DB: J. HARRIS, B. ROBITAILLE
C:\Users\jharris\Desktop\ENVCAD\B00479590008000011\DWG\B00479590003 V01 B.dwg LAYOUT: 5 SAVED: 3/4/2015 7:15 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: SETUP1 PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 3/4/2015 7:15 AM BY: HARRIS, JESSICA



LEGEND:

MW-14 — BORING/WELL IDENTIFICATION

TPHG / *BENZENE* — SOIL - CONCENTRATIONS IN mg/kg

WELL LOCATION

WELL SCREEN

FIRST WATER

SATURATED / WATER LEVEL COLLECTED DURING FOURTH QUARTER 2013 GROUNDWATER MONITORING EVEND (DECEMBER 4, 2013)

FILL

WEATHERED BEDROCK

BEDROCK (SANDSTONE, SILTSTONE, MUDSTONE)

1991 UST OVEREXCAVATION (13-18' BGS)

NAVD88 : NORTH AMERICAN VERTICAL DATUM OF 1988
CL : CLAY
ML : SILT
SC, SM, SW, SP : SAND; CLAYEY, SILTY, WELL GRADED, POORLY GRADED
GW : GRAVEL; WELL GRADED
mg/kg : MILLIGRAMS PER KILOGRAM

0 10 20
VERTICAL SCALE IN FEET

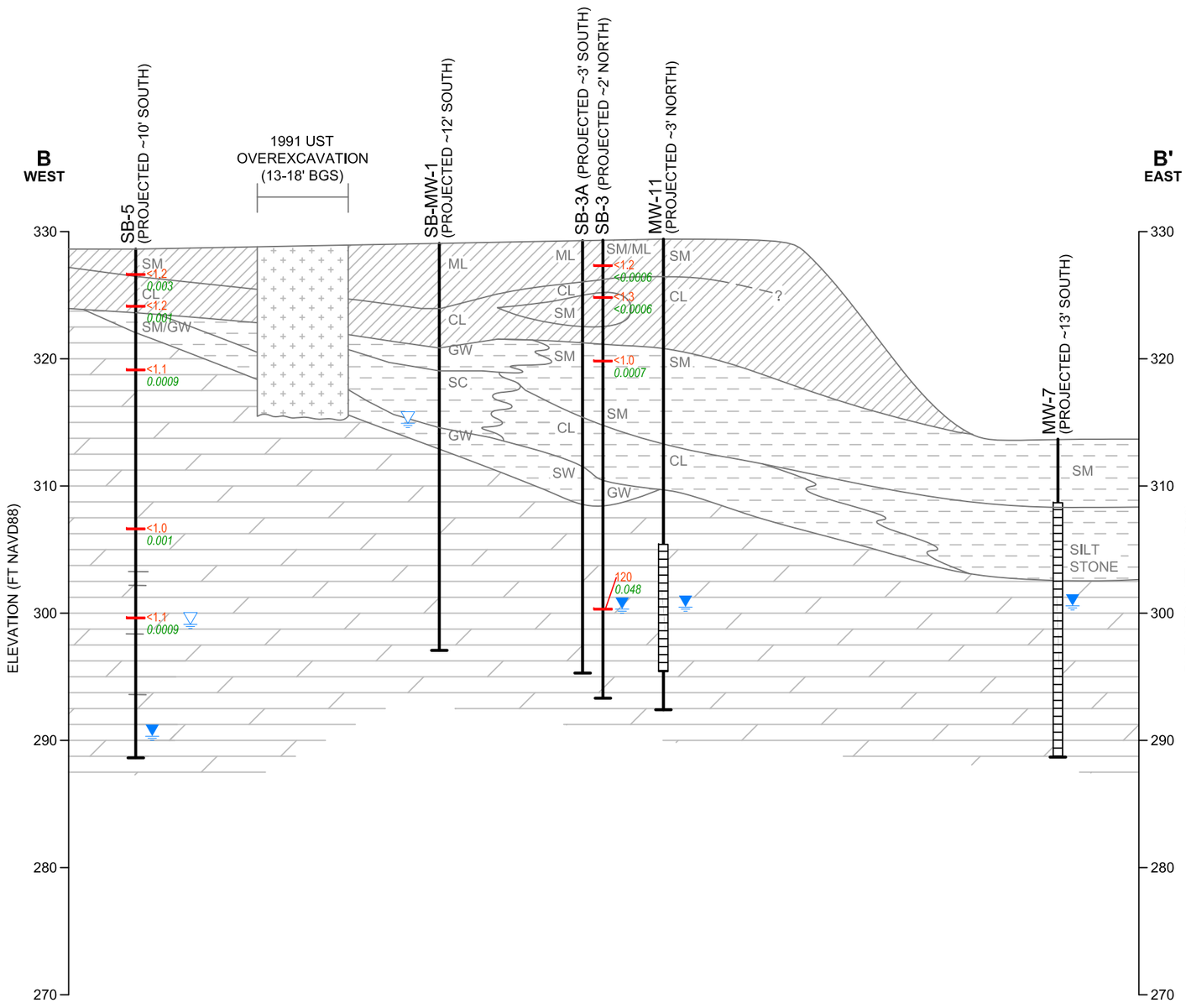
0 30 60
HORIZONTAL SCALE IN FEET

CHEVRON SITE ID 97127
GRANT LINE ROAD AND INTERSTATE 580
TRACY, CALIFORNIA

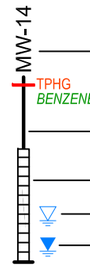
CROSS SECTION A-A'

ARCADIS

FIGURE
6



LEGEND:



- BORING/WELL IDENTIFICATION
- SOIL - CONCENTRATIONS IN mg/kg
- WELL LOCATION
- WELL SCREEN
- FIRST WATER
- SATURATED / WATER LEVEL COLLECTED DURING FOURTH QUARTER 2013 GROUNDWATER MONITORING EVEND (DECEMBER 4, 2013)

- FILL
- WEATHERED BEDROCK
- BEDROCK (SANDSTONE, SILTSTONE, MUDSTONE)
- 1991 UST OVEREXCAVATION (13-18' BGS)

NAVD88 : NORTH AMERICAN VERTICAL DATUM OF 1988
CL : CLAY
ML : SILT
SC, SM, SW, SP : SAND; CLAYEY, SILTY, WELL GRADED, POORLY GRADED
GW : GRAVEL; WELL GRADED
mg/kg : MILLIGRAMS PER KILOGRAM

0 10 20
VERTICAL SCALE IN FEET

0 30 60
HORIZONTAL SCALE IN FEET

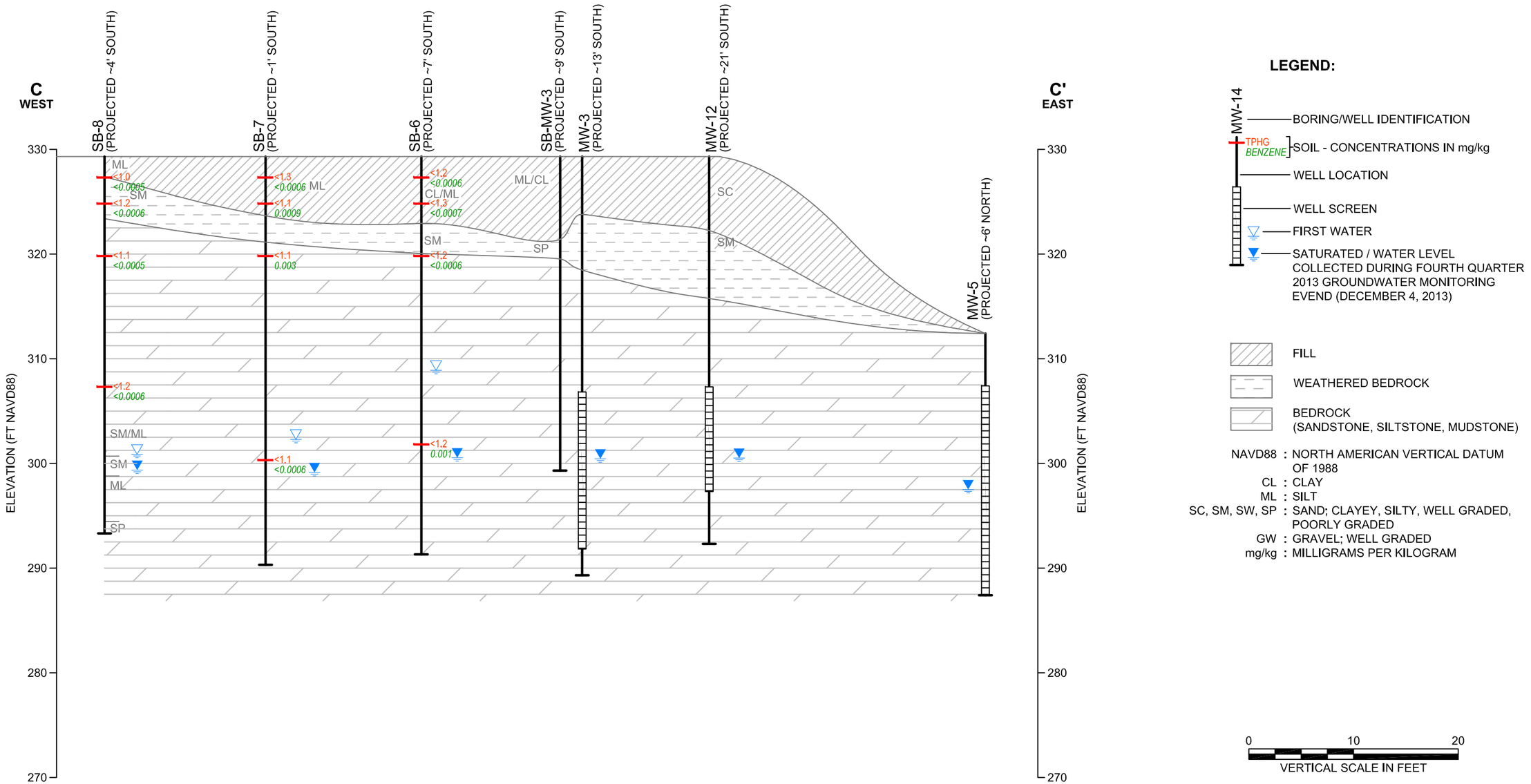
CHEVRON SITE ID 97127
GRANT LINE ROAD AND INTERSTATE 580
TRACY, CALIFORNIA

CROSS SECTION B-B'

ARCADIS

FIGURE
7

CITY: ROSEVILLE, CA DIV/GROUP: ENV DB: BAR PM: RUSSI, TONYA
Z:\ENV\CAD\Roseville-CA\RETURN-TO\Petaluma-CA\B0047959 ret 20140121 vbs s drive\0003\000002\B0047959\0003 V03.dwg LAYOUT: B-B SAVED: 1/10/2014 8:29 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 2/5/2014 7:47 AM BY: LOVING, JEFF



LEGEND:

MW-14
TPHG
BENZENE
BORING/WELL IDENTIFICATION
SOIL - CONCENTRATIONS IN mg/kg
WELL LOCATION
WELL SCREEN
FIRST WATER
SATURATED / WATER LEVEL COLLECTED DURING FOURTH QUARTER 2013 GROUNDWATER MONITORING EVEND (DECEMBER 4, 2013)

FILL
WEATHERED BEDROCK
BEDROCK (SANDSTONE, SILTSTONE, MUDSTONE)

NAVD88 : NORTH AMERICAN VERTICAL DATUM OF 1988
CL : CLAY
ML : SILT
SC, SM, SW, SP : SAND; CLAYEY, SILTY, WELL GRADED, POORLY GRADED
GW : GRAVEL; WELL GRADED
mg/kg : MILLIGRAMS PER KILOGRAM

0 10 20
VERTICAL SCALE IN FEET

0 30 60
HORIZONTAL SCALE IN FEET

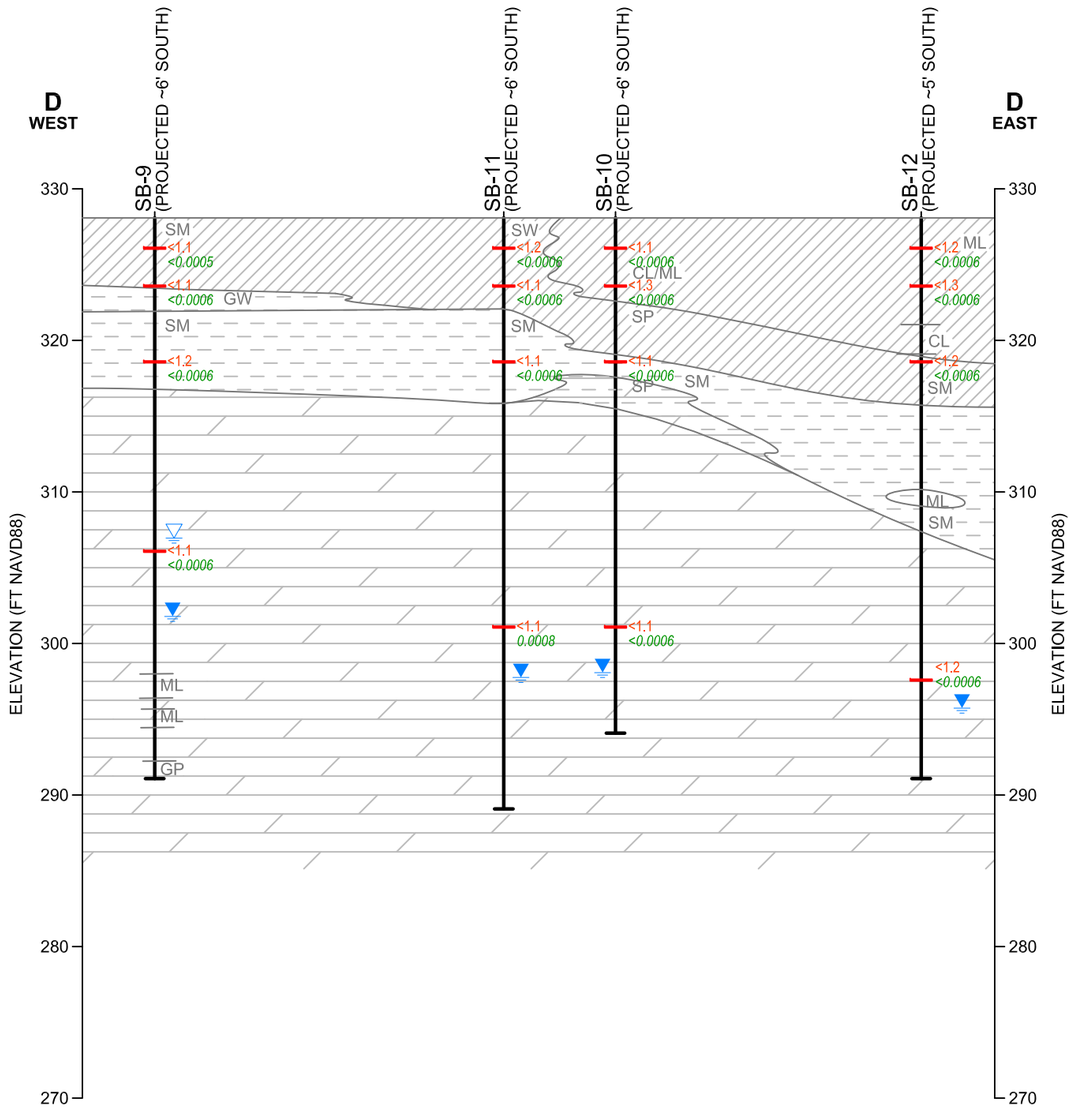
CHEVRON SITE ID 97127
GRANT LINE ROAD AND INTERSTATE 580
TRACY, CALIFORNIA

CROSS SECTION C-C'

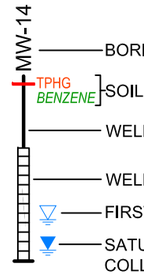
ARCADIS

FIGURE
8

CITY: ROSEVILLE, CA DIV/GROUP: ENV DB: BAR PM: RUSSI, TONYA
Z:\ENV\CAD\Roseville-CA\RETURN-TO\Petaluma-CA\B00479\9 ret 20140121 via s drive\0003\0000\2\B00479590003 V03.dwg LAYOUT: C-C SAVED: 1/10/2014 8:29 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 2/5/2014 7:53 AM BY: LOVING, JEFF



LEGEND:



- BORING/WELL IDENTIFICATION
- SOIL - CONCENTRATIONS IN mg/kg
- WELL LOCATION
- WELL SCREEN
- FIRST WATER
- SATURATED / WATER LEVEL COLLECTED DURING FOURTH QUARTER 2013 GROUNDWATER MONITORING EVEND (DECEMBER 4, 2013)

- FILL
- WEATHERED BEDROCK
- BEDROCK (SANDSTONE, SILTSTONE, MUDSTONE)

NAVD88 : NORTH AMERICAN VERTICAL DATUM OF 1988
CL : CLAY
ML : SILT
SC, SM, SW, SP : SAND; CLAYEY, SILTY, WELL GRADED, POORLY GRADED
GW : GRAVEL; WELL GRADED
mg/kg : MILLIGRAMS PER KILOGRAM

0 10 20
VERTICAL SCALE IN FEET

0 30 60
HORIZONTAL SCALE IN FEET

CHEVRON SITE ID 97127
GRANT LINE ROAD AND INTERSTATE 580
TRACY, CALIFORNIA

CROSS SECTION D-D'

ARCADIS

FIGURE
9

CITY: ROSEVILLE, CA DIV/GROUP: ENV DB: BAR PM: RUSSI, TONYA
Z:\ENVCAD\Roseville-CA\RETURN-TO\Petaluma-CA\B0047959 ret 20140121 via s drive\0003\00002\B0047959\0003 V03.dwg LAYOUT: D-D SAVED: 1/10/2014 8:29 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 2/5/2014 8:02 AM BY: LOVING, JEFF

APPENDIX C
Site History and Previous Investigations

SITE HISTORY AND PREVIOUS INVESTIGATIONS

Former Chevron Service Station No. 97127
October 23, 2015

Former Chevron Service Station No. 97127 (the "site") is currently a vacant parcel (Alameda County assessor parcel number 99B-7700-12-2) located on the east side of Grant Line Road, south of Interstate 580 in Mountain House, California. The site is bordered by Grant Line Road to the west, an Interstate 580 on-ramp to the north, and undeveloped (grazing) land to the east and south. A former fuel-dispensing service station previously operated at the site from 1971 to 1986, which included one 1,000-gallon and two 10,000-gallon fuel underground storage tanks (USTs), one 1,000-gallon used oil UST, one 750-gallon heating oil UST, product line piping , two dispenser islands, and a station building. The USTs and associated piping were removed in April 1991 and the dispenser islands and station building were demolished soon after. The site is currently a vacant parcel. The following site history and previous investigations originated from ARCADIS U.S., Inc *Feasibility Study/Corrective Action Plan*, dated March 26, 2015.

October 1987 – Soil Vapor Investigation
EA Engineering, Science, and Technology, Inc. (EA) collected fifteen soil vapor samples (V1 through V15) from temporary sample points. The soil vapor sample points were located both on- and off-site and ranged in depth from 3 to 12 feet bgs. Based on the soil vapor sample analytical results, EA determined that LNAPL may exist near the USTs and pump island (EA 1987).

1987-1988 – Subsurface Investigation and Well Sampling
During December 1987, Kleinfelder advanced seven on-site soil borings (B-1 through B-7) to depths ranging from 5 to 20 feet bgs. Total petroleum hydrocarbons as gasoline range organics (TPH-GRO) was detected at a maximum concentration of 2,300 milligrams per kilogram (mg/kg) and benzene was detected at a maximum concentration of 19 mg/kg at a depth of 15 feet bgs. In December 1987 and January 1988, Kleinfelder collected water samples from a water tap located on the south side of the former station building and a water tap located adjacent to the on-site domestic well. Both taps are supplied by the onsite domestic well located near the southeast corner of the site. The water samples
collected from both taps had detectable concentrations of benzene of 2 and 4 micrograms per liter (µg/L), exceeding the California recommended action level (Kleinfelder 1988). Water samples were collected as part of the initial site assessment.

1988 through 1991 Domestic Well Monitoring
Due to the benzene concentrations detected during the initial site assessment, GeoStrategies Inc. (GeoStrategies) conducted further water sampling of the on-site domestic well and conveyance piping. During January 1988, GeoStrategies collected water samples from the tap located adjacent to the on-site domestic well, benzene was found at concentrations of 1 and 1.1 µg/L. During February 1988, GeoStrategies collected water samples from the water tap located on the south side of the former station building and the on-site domestic well, detectable concentration of benzene were not found. During March 1989, Gettler-Ryan, Inc. (G-R) collected water samples from the on-site domestic well, the
tap located adjacent to the on-site domestic well, and a spigot located off-site, benzene was found at concentrations of 3.7, 2.7 and 1.4 µg/L, respectively. During April 1989, G-R collected water samples from the spigot located off-site and the on-site domestic well, benzene was found at concentrations of 2 and 7 µg/L (GeoStrategies 1989).

During May 1989, G-R installed a carbon adsorption water treatment system on the wellhead and weekly sampling commenced. Between August 1989 and March 1991, G-R collected water samples from the on-site domestic well. Of the 26 water samples, TPH-GRO and benzene were not detected above their respective laboratory reporting limits with the exception of two

samples; one which contained TPH-GRO at a concentration of 320 µg/L and one which contained benzene at a concentration of 0.07 µg/L (Kleinfelder 1988 and 1989; Pacific Environmental Group [PEG] 1993).

April 1991 – Tank, Product Piping, and Dispenser Island Removal
During April 1991, Blaine Tech Services, Inc. (BTS) demolished the service station removing two 10,000-gallon and one 6,000-gallon gasoline USTs, one 1,000-gallon used oil UST, a 750-gallon heating oil UST, two dispenser islands and associated product piping. The USTs were all constructed of fiberglass, and no holes were observed during UST removal activities. Elevated petroleum hydrocarbons were observed during the initial confirmation soil sampling in the UST pit area and the product piping area, therefore, over excavation was conducted to depths ranging from 13 to 18 feet bgs. Final confirmation soil samples contained concentrations of TPH-GRO at 710 mg/kg and benzene at 0.085 mg/kg at depths of 15 and 14 feet bgs, respectively. In an effort to reduce the concentrations of TPH-GRO in excavated soil to less than 10 mg/kg, Blaine Tech aerated the excavated soil on-site. Blaine Tech then used the aerated excavation soil as backfill (BTS 1991).

December 1992 – Monitoring Well Installation/1993 – Water-Supply Well Sampling
During December 1992, PEG installed one soil boring (B-1) and three monitoring wells (MW-1 through MW-3) at the site and collected soil samples at various depths. Concentrations of TPH-GRO were detected up to 8,100 mg/kg and concentrations of benzene were detected up to 21 mg/kg. Subsequent to installation, PEG observed LNAPL in monitoring well MW-1 at a thickness of 1.67 feet. PEG sampled the water supply well weekly from January through March 1993. During one event, water samples contained
benzene and toluene at concentrations of 3 and 2 µg/L, respectively. Water samples from the remaining events did not contain detectable concentrations of TPH-GRO and benzene, toluene, ethlybenzene and total xylenes (collectively, BTEX) (PEG 1993a). Results of the sampling event can be found within the PEG report.

1993 – LNAPL Removal
During 1993, PEG bailed LNAPL on a weekly basis from MW-1. Additionally, in January 1993 installed a passive skimmer in monitoring well MW-1. As of March 1993, approximately 2 gallons total of LNAPL has been recovered from MW-1 (PEG 1993a).

May 1993 – Monitoring Well Installation
PEG advanced one soil boring (B-3) and two monitoring wells (MW-4 and MW-5) during May 1993. Concentrations of TPH-GRO and benzene were not detected in the soil samples collected from monitoring well MW-5 at 10 and 15 feet bgs. PEG collected a grab groundwater sample from boring B-3. The grab groundwater sample contained concentrations of TPH-GRO at 96 µg/L and benzene at 1 µg/L (PEG 1993b).

October 1994 – Comprehensive Site Evaluation
Weiss Associates (WA) performed a comprehensive site evaluation in October 1994 to address an additional investigation request, summarize investigative and remedial activities performed at the site to date, evaluate whether the site meets non-attainment criteria and outline a future action plan. The historical data suggested that the hydrocarbon source areas had been removed and that the plume was primarily contained on-site. The full extent of the plume was still unknown, and the installation of an additional monitoring well off-site, to the north was recommended (WA 1994).

October 1995 – Monitoring Well Installation
PEG installed three monitoring wells (MW-6 through MW-8) at the site in October 1995 and collected soil samples at multiple depths. TPH-GRO and benzene were not detected in any of the soil samples collected (PEG 1996).

June 1997 – Risk-Based Assessment
In June 1997, PEG completed a Tier-2, Risk-Based Corrective Action (RBCA) assessment. PEG determined that due to the elevated concentrations of TPH-GRO and benzene in monitoring wells MW-1, MW-3 and MW-4, groundwater ingestion may pose a risk to human health. In addition the RBCA assessment concluded that the on-site water supply well was a potential receptor for residual petroleum hydrocarbons in soil and groundwater beneath the site (PEG 1997).

1998-2001 – Bioremediation
In August 1998, Chevron's subcontractor installed Oxygen Release Compound® (ORC) socks in wells MW-1, MW-2 and MW-4 to enhance biodegradation and reduce petroleum hydrocarbon concentrations. PEG replaced the ORC sock in monitoring well MW-1 in July 2001 with a passive skimmer. (Delta Environmental Consultants, Inc. [Delta] 2003). Chevron's subcontractor removed the ORC socks in the remaining wells at an unknown date.

December 1999 – Hydrogen Peroxide Injection
Cambria Environmental Technology (Cambria, now Conestoga Rovers Associates [CRA]) injected hydrogen peroxide at various concentrations in MW-1 and MW-3 during December 1999 to reduce LNAPL and petroleum hydrocarbon concentrations in groundwater at the site (Cambria 2000).

May 2001 – Corrective Action Plan (CAP)
During May 2001, Delta submitted a CAP which recommended the destruction of the on-site water supply well and monthly bailing of LNAPL from MW-1 for two quarters (Delta 2001).

2001-2002 – Remedial Activities
In July 2001, Delta installed a passive skimmer in well MW-1 and seven groundwater vacuum extraction events were conducted through April 2002. During these vacuum extraction events, Delta removed approximately 8,300 gallons of groundwater and 2.19 gallons of LNAPL from well MW-1. Delta initiated vacuum extraction from well MW-3 in July 2002. Delta terminated vacuum extraction from both wells in October 2002 due to an increase in LNAPL thickness. (Delta 2003).

April 2003 – Remedial Action Plan and Feasibility Study
Delta submitted a Remedial Action Plan and Feasibility Study (RAP/FS) in April 2003. Based on data presented in the report, Delta suggested that a perched zone of groundwater was present at approximately 10 to 40 feet bgs with confining bedrock underlying the perched zone. Delta also suggested that impacted soil is limited in the areas near the former USTs of the capillary fringe zone at approximately 25 to 30 feet bgs. The preferred remedial alternative of this RAP/FS was the use of an active mechanical skimmer with
monitored natural attenuation (Delta 2003).

March and April 2007 – Groundwater Extraction
During March and April, CRA removed approximately 5,100 gallons of impacted groundwater from well MW-1 in a series of three batch groundwater extraction events. LNAPL thickness was 0.5 feet before the first event, 0.36 before the second event, and 0.39 before the third event.

May 2007 – CAP
During May 2007 CRA submitted a CAP which evaluated the following alternatives: oxygen injection, batch groundwater extraction, and surfactant-enhanced recovery. The preferred remedial alternative was surfactant-enhanced recovery with groundwater extraction (CRA 2007a).

October 2007 – Interim Remedial Action Plan (IRAP)
To further characterize hydrocarbon distribution, hydrogeologic conditions, and facilitate the remediation of groundwater and soil vapor from bedrock fracture, the October 2007 IRAP proposed the installation of three monitoring wells surrounding MW-1. In addition, surfactant-enhanced recovery was recommended to remove LNAPL from the pore space of the subsurface (CRA 2007b).

December 2008 – CAP Addendum and Proposed Feasibility Study
In order to further evaluate the hydrogeologic conditions and behavior of groundwater at the site, CRA recommended groundwater pumping tests in the December 2008 CAP Addendum and Proposed FS (CRA 2008).

May 2010 Vacuum Extraction Event/Pilot Test
In May 2010, CRA performed a vacuum extraction pilot test in order to remove LNAPL and evaluate hydrogeologic conditions to evaluate if surfactant-enhanced recovery would be an effective remedial option for the removal of LNAPL. The results of the pilot test indicated that MW-1 and MW-3 were hydrogeologically connected, as evidence of drawdown and a reduction in LNAPL observed in MW-3. It was also observed that MW-5 through MW-7 were hydrogeological connected with MW-1 and MW-3. It was assumed that if surfactant were placed in MW-1 and MW-3, they could be easily recovered. In addition, surrounding monitoring wells would be useful as observation wells. Surfactant-enhanced recovery was identified as a preferred and feasible alternative. A work plan outlining this method was submitted to ACEHD (CRA 2010). ACEHD didn't agree with the proposed alternative.

August 2011 Site Investigation and Monitoring Well Installation
In August 2011, monitoring wells MW-9 through MW-15 and soil borings B-8 through B-12 were installed onsite. Soil borings B-8 through B-12 were located in the vicinity of the former dispenser islands and gasoline USTs. Monitoring wells MW-9 through MW-12 were installed on the eastern portion of the site. Soil samples were collected for chemical analysis in 5 foot intervals from all the borings with additional soil samples collected at B-9, B-11 and MW-10 due to elevated PID readings. A grab groundwater sample was collected from B-8. Grab groundwater samples were not collected from B-9 through B-12 due to the presence of LNAPL. The highest BTEX concentration in soil was detected in boring B-11 at 27 feet bgs. methyl tertiary butyl ether (MTBE) was not detected in above laboratory detection limits in any of the soil samples (CRA 2011).

October to November 2013 Site Investigation
Between October and November 2013, Cascade Drilling, LP (Cascade), under the supervision of ARCADIS, advanced 13 soil borings to delineate soil and grab groundwater impacts. Four additional soil borings were advanced to collect depth-discrete samples for saturated core analysis. Grab groundwater samples collected from SB-1 through SB-13 were analyzed for approximately 120 volatile hydrocarbons including paraffinic, isoparaffinic, aromatic, naphthenic, olefinic, and sulfur-containing cyclic compounds
(i.e., PIANO) (ARCADIS 2014a).

A video log was completed on the onsite water supply well in November 2013 to determine well construction details and to observe the condition of the water supply well. The screen and the well casing were observed to be in good condition. The screen interval is 27 to 80 feet bgs with a total depth of the well at 82 feet bgs. There was a lot of rust present; however, there was no sheen observed in the water supply well (ARCADIS 2014a).

A LNAPL baildown test was also completed at monitoring well MW-1 in October 2013 to evaluate the transmissivity of LNAPL at the site. LNAPL transmissivity as a result of a LNAPL baildown test completed at monitoring well MW-1 indicates that LNAPL recovery at this well may be significant, as the transmissivity is greater than the lower limit of recoverability of 0.1 to 0.8 foot2/day (ITRC 2009). After the baildown test, a LNAPL sample was submitted for chemical analysis. Forensic analysis of LNAPL from well MW-1 indicates the sample is comprised primarily of light hydrocarbons in the gasoline range.

The LNAPL mobility evaluation shows that the LNAPL is stable and not migrating beyond its current extent. The LNAPL that is present at MW-1 is mobile in the pore scale, meaning, LNAPL will recover back in the well despite draining the LNAPL. The LNAPL has insufficient mobility to result in the expansion of the plume footprint. The LNAPL plume is not migrating and is stable. The extent of the LNAPL plume is defined vertically and horizontally (ARCADIS 2014a).

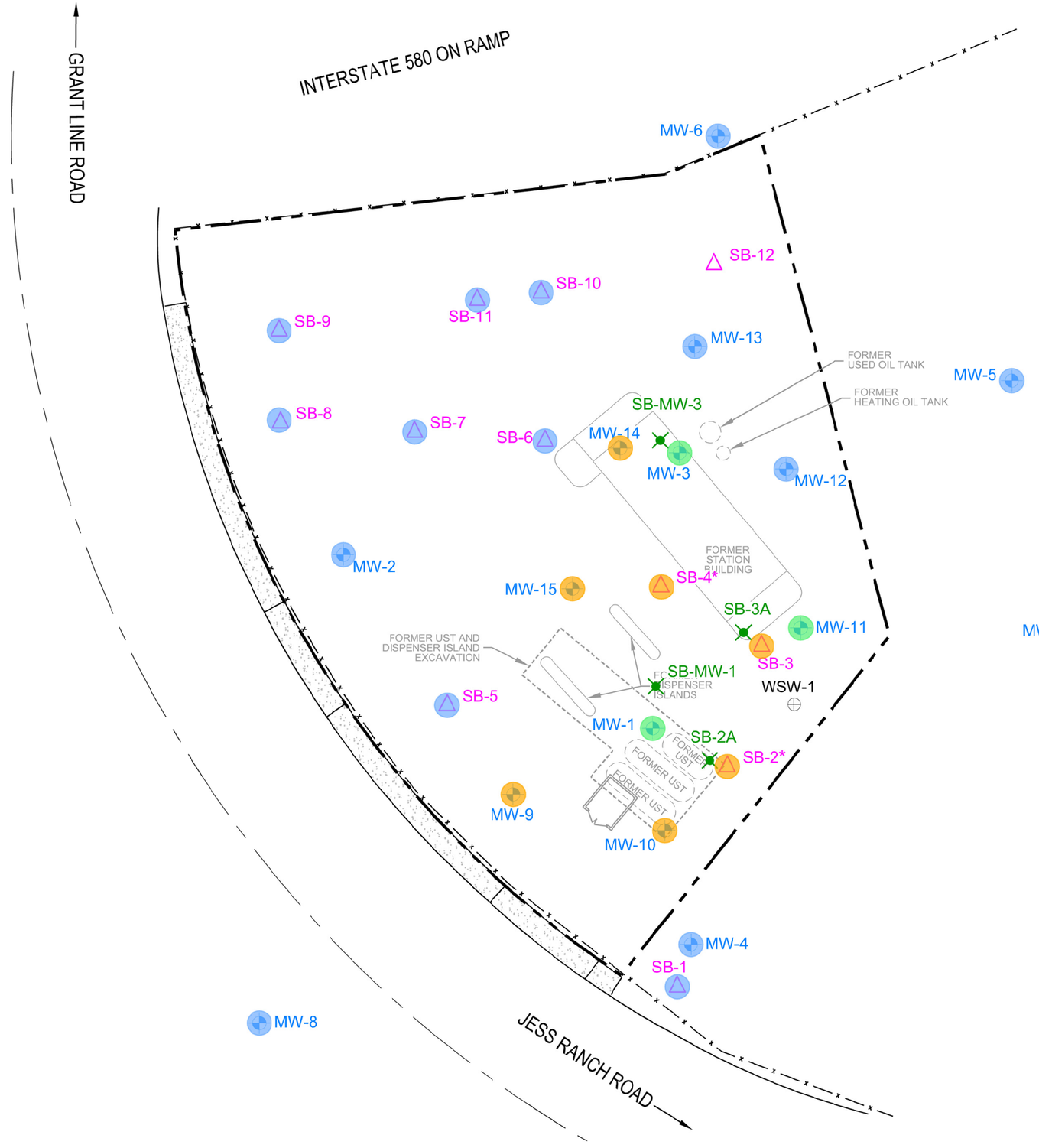
July 2014 Offsite Monitoring Well Installation
Between July 14 and 15, 2014, Cascade, under the supervision of ARCADIS, advanced one offsite monitoring well, MW-16. The location of the monitoring well was selected to delineate soil and groundwater impacts offsite. The well screen was installed from 15 to 30 feet bgs. There is no evidence of petroleum hydrocarbon contamination at this offsite location in soil and groundwater (ARCADIS 2014b).

2015 LNAPL Recovery
LNAPL recovery events have been occurring since January 2015, as outlined within ARCADIS' *Light Non-Aqueous Phase Liquid (LNAPL) Recovery Work* Plan dated August 28, 2014.

February 2015 Pump Test
On February 17, 2015, Blaine Tech Services, Inc. (Blaine Tech) attempted to complete an eight hour pump test at MW-1 to determine the aquifer recovery rate. The results of the test would aid in determining if dual phase extraction system (DPE) would be a feasible technology at the site. Monitoring well MW-1 was chosen as it is the only 4-inch diameter well installed at the site. The test was stopped after approximately one hour of pumping because there wasn't enough water in the water column to sustain a steady flow using a pneumatic pump.

APPENDIX D

Summary of LNAPL Delineation and
LNAPL Investigation Summary



LEGEND

- PROPERTY BOUNDARY
- FENCE
- MW-1 MONITORING WELL LOCATION
- WSW-1 WATER SUPPLY WELL (LIVESTOCK)
- SB-1 SOIL BORING
- SB-2A UNDISTURBED SOIL CORE
- MONITORING WELL
- LNAPL HISTORICALLY PRESENT IN WELL OR PID READING >200 ppm
- LNAPL NOT HISTORICALLY PRESENT IN WELL OR PID READING <200 ppm
- LNAPL MEASURED IN MONITORING WELL IN 2013

NOTES:

1. MONITORING WELL LOCATIONS BASED ON SURVEY DATA PROVIDED BY VIRGIL CHAVEZ LAND SURVEYING (SEPTEMBER 2011) DRAWING FILE 305620cad.dwg. MW-6 LOCATION WAS NOT SURVEYED AND IS APPROXIMATE.
2. MAP MODIFIED FROM CONESTOGA-ROVERS & ASSOCIATES (CRA) FIGURE ENTITLED "FIGURE 2 CONCENTRATION MAP" DATED FEBRUARY 21, 2012, DRAWING FILE xsite.dwg. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MONITORING WELL MW-8 REMOVED FROM MONITORING AND SAMPLING PROGRAM (FOURTH QUARTER 2013).
4. * = POSITIVE OIL-IN-SOIL TEST PERFORMED AT SB-2. NEGATIVE OIL-IN-SOIL TEST PERFORMED AT SB-4.

0 40' 80'
GRAPHIC SCALE

CHEVRON SITE ID 97127
GRANT LINE ROAD AND INTERSTATE 580
TRACY, CALIFORNIA

LNAPL INVESTIGATION SUMMARY

ARCADIS

FIGURE 4

CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS/BAR PM: DAVID EVANS
G:\ENV\CAD\Roseville-CA\RETURN-TO\Petaluma-CA\B0047959\0003100002\B0047959000300002 B01.dwg LAYOUT: 4 SAVED: 1/13/2014 1:25 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: SETUP TRANS PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 1/13/2014 1:26 PM BY: ROBITAILLE, BEVERLY

Table 6
Summary of LNAPL Delineation

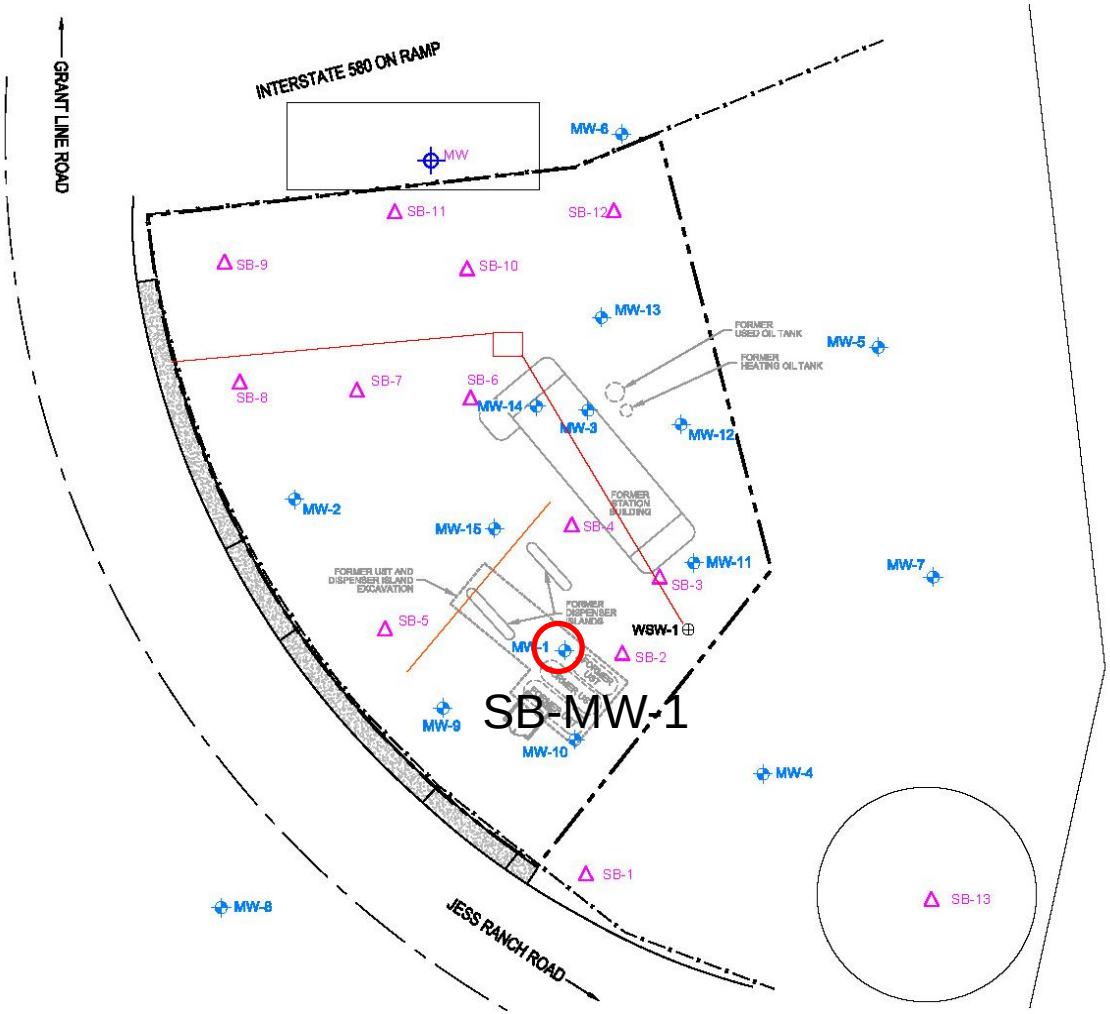
LNAPL Assessment
Former Chevron Service Station No. 97127
Grant Line Road and Interstate 580, Tracy, California

Well	Date Completed	Total Depth of Boring (feet bgs)	Odor Present		Staining/Sheen Present		PID readings		PID Reading Range (ppm)			PID/Odor as LNAPL Indicators		LNAPL in Temporary Well?	Oil-in-Soil response?	Qualitative LNAPL Observation?
			Depth to Top (feet bgs)	Depth to Bottom (feet bgs)	Depth to Top (feet bgs)	Depth to Bottom (feet bgs)	Depth to Top (feet bgs)	Depth to Bottom (feet bgs)	Peak (ppm)	Peak Depth (feet bgs)	Depth Range above 200 ppm (feet bgs)	Peak in Saturated Zone? (Y or N)	PID > 20 ppm above WT? (Y or N)			
MW-1	12/8/1992	38	19	32	NA	NA	5	39	>220	29.5	24 to 30	Yes	Yes	NA	NA	Yes
MW-2	12/10/1992	36	NA	NA	NA	NA	36	37	1	37	NA	Yes	No	NA	NA	No
MW-3	12/10/1992	37.5	29	30	NA	NA	15	40	16	22.5	NA	No	No	NA	NA	Yes
MW-4	5/21/1993	37	10	12	NA	NA	10	30	2	30	NA	Yes	No	NA	NA	No
MW-5	5/25/1993	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	No
MW-6	10/27/1995	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	No
MW-7	10/24/1995	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	No
MW-8	10/24/1995	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	No
MW-9	8/22/2011	37	NA	NA	24.5	25	15	35	434	25	24 to 26	No	Yes	NA	NA	Yes
MW-10	8/23/2011	37	NA	NA	NA	NA	10	35	1254	27	20 to 30	Yes	Yes	NA	NA	Yes
MW-11	8/23/2011	37	NA	NA	NA	NA	5	35	1113	30	29 to 31	Yes	Yes	NA	NA	Yes
MW-12	8/23/2011	37	NA	NA	NA	NA	5	35	8.4	35	NA	Yes	No	NA	NA	No
MW-13	8/23/2011	47	NA	NA	NA	NA	5	45	3.3	15	NA	No	No	NA	NA	No
MW-14	8/23/2011	37	NA	NA	NA	NA	5	35	543	25	24 to 26	No	Yes	NA	NA	Yes
MW-15	8/25/2011	38	NA	NA	NA	NA	10	35	195	30	NA	Yes	Yes	NA	NA	Yes
SB-1	10/21/2013	40	NA	NA	NA	NA	15	34	175	29.5	NA	Yes	Yes	No	NA	Yes
SB-2	10/21/2013	38	12	16	NA	NA	14.5	34	1200	30	20.5 to 31.5	Yes	Yes	No	Yes	Yes
SB-3	10/18/2013	36	NA	NA	NA	NA	14.5	35.5	1236	29.5	26.5 to 29.5	Yes	No	Yes	NA	Yes
SB-4	10/18/2013	35	15.5	24.5	NA	NA	19.5	35.5	216	27.5	26 to 26.5	Yes	No	No	No	Yes
SB-5	10/21/2013	40	NA	NA	NA	NA	22.5	24.5	4.9	22.5	NA	No	No	No	NA	No
SB-6	10/17/2013	38	NA	NA	NA	NA	11.5	29.5	1.8	26.5	NA	No	No	No	NA	No
SB-7	10/17/2013	39	NA	NA	NA	NA	26	26.5	0.1	26.5	NA	No	No	No	NA	No
SB-8	10/15/2013	36	NA	NA	NA	NA	25.5	34.5	1	34.5	NA	No	No	No	NA	No
SB-9	10/15/2013	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	No	NA	No
SB-10	10/16/2013	34	24	26	NA	NA	24.5	31.5	0.3	30.5	NA	Yes	No	No	NA	No
SB-11	10/16/2013	39	NA	NA	NA	NA	30.5	34.5	1.2	32.5	NA	Yes	No	No	NA	No
SB-12	10/16/2013	37	NA	NA	NA	NA	7.5	12.5	0.2	12.5	NA	No	No	No	NA	No
SB-13	10/22/2013	25	NA	NA	NA	NA	21	21.5	0.2	21.5	NA	Yes	No	No	NA	No

General Notes:
Qualitative LNAPL observation based on depth of peak PID, PID readings greater than 20 ppm, staining presence, and/or odor presence.
NA = Not Available
PID = photoionizatation detector
ppm = parts per million
WT = Water Table
bgs = below ground surface

APPENDIX E
Soil Core Photographs

SB-MW-1
Core Photos/Phase 1 Testing



MW-1
12/8/1992

SB-MW-1
10/2013

PACIFIC ENVIRONMENTAL GROUP, INC.

WELL MW-1
PAGE 2 OF 2

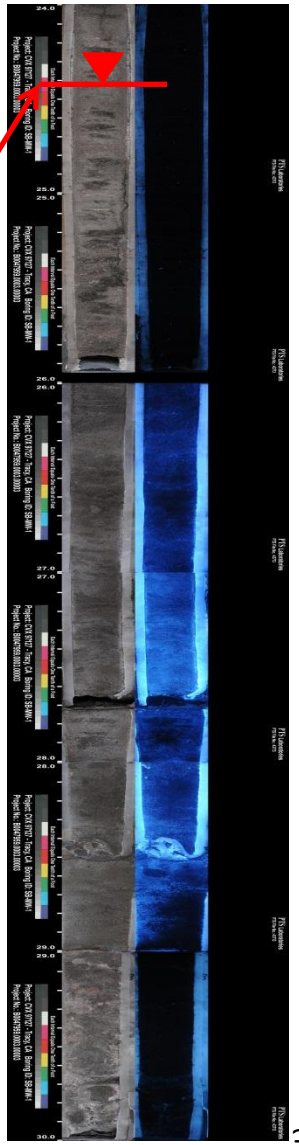
See Page One

PROJECT NO. 325-04.01
LOGGED BY:
DRILLER:
DRILLING METHOD:
SAMPLING METHOD:
CASING TYPE:
SLOT SIZE:
GRAVEL PACK:

CLIENT:
DATE DRILLED:
LOCATION:
HOLE DIAMETER:
HOLE DEPTH:
WELL DIAMETER:
WELL DEPTH:
CASING STICKUP:

Approximate Historical High LNAPL Measurement – 24.34' bgs

WELL COMPLETION	CORE BOX	RUN	MOISTURE CONTENT	PID	ROD (%)	DEPTH (FEET)	RECOVERY	SAMPLE ANALYZED	GRAPHIC	SOIL TYPE	LITHOLOGY
SAND / CAP	2	5	Dp-Mst	>200	22	23–24				SS	SANDSTONE (Neroly Formation): continued
		6				24–25					@23': 1/2" altered epidotized vein at 35° TCA, horizontal parting common; very strong product odor at 25' and continues with depth.
			Dp	>220		25–29					
		7	Dp		53	29–30					@29': bedding at 80° TCA.
						30–31					@31': moderate product odor; equigranular sandstone.
		8	Wt	70	0	31–34					@32': poor core recovery due to saturation of sandstone; weak product odor.
		9	Wt		12	34–37					
SLOUGH			Dp	6		37–39					@38': 5" bed of subrounded conglomerate pebbles from 1/4" to 2" diameter; no product odor. @39': 1mm wide chlorite veinlets at 12° TCA.
						39–44					BOTTOM OF BORING AT 39.5'



MW-1
12/8/1992

SB-MW-1
10/2013

PACIFIC ENVIRONMENTAL GROUP, INC.

WELL MW-1
PAGE 2 OF 2

See Page One

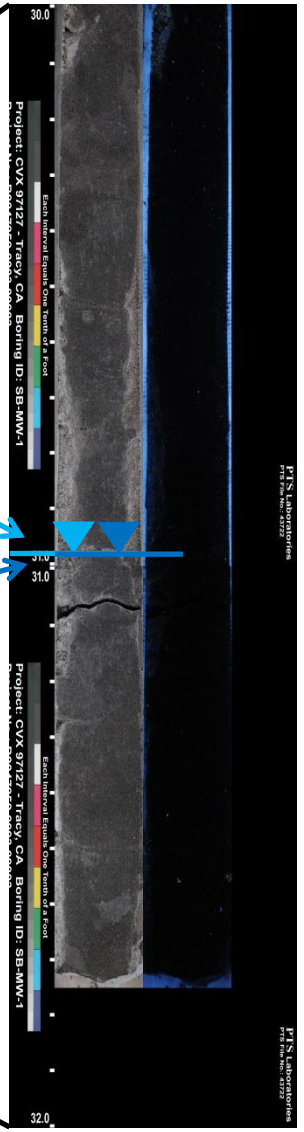
PROJECT NO. 325-04.01
LOGGED BY:
DRILLER:
DRILLING METHOD:
SAMPLING METHOD:
CASING TYPE:
SLOT SIZE:
GRAVEL PACK:

CLIENT:
DATE DRILLED:
LOCATION:
HOLE DIAMETER:
HOLE DEPTH:
WELL DIAMETER:
WELL DEPTH:
CASING STICKUP:

WELL COMPLETION	CORE BOX	RUN	MOISTURE CONTENT	PID	ROD (%)	DEPTH (FEET)	RECOVERY	SAMPLE ANALYZED	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
SAND / CAP	2	5	Dp-Mst	>200	22	23–30				SS	SANDSTONE (Neroly Formation): continued
		6									@23': 1/2" altered epidotized vein at 35° TCA, horizontal parting common; very strong product odor at 25' and continues with depth.
			Dp	>220							@29': bedding at 80°
		7	Dp		53						@31': moderate product odor; equigranular sandstone.
		8	Wt	70	0						@32': poor core recovery due to saturation of sandstone; weak product odor.
SLOUGH		9	Wt		12	37–39					@38': 5" bed of subrounded conglomerate pebbles from 1/4" to 2" diameter; no product odor. @39': 1mm wide chlorite veinlets at 12° TCA.
			Dp	6							BOTTOM OF BORING AT 39.5'

Approximate Groundwater Elevation Measurement during Recent Gauging Event – 30.93' bgs

Approximate Historical Low Groundwater Elevation Measurement – 30.93' bgs



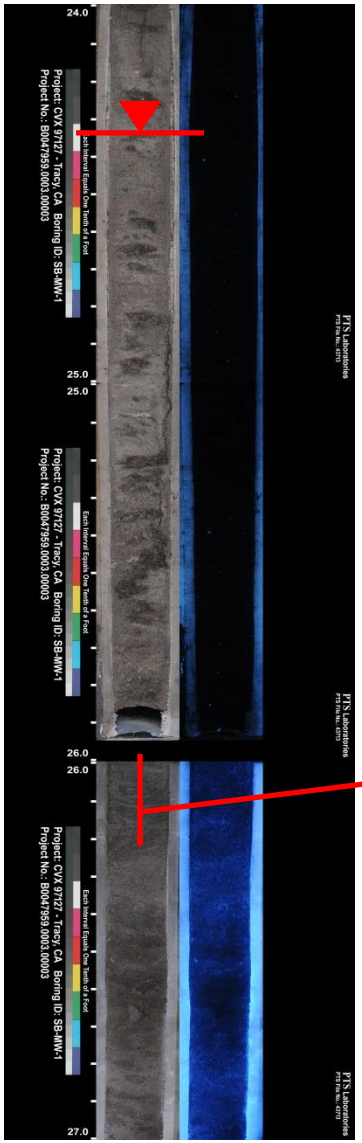
30'

31'

32'

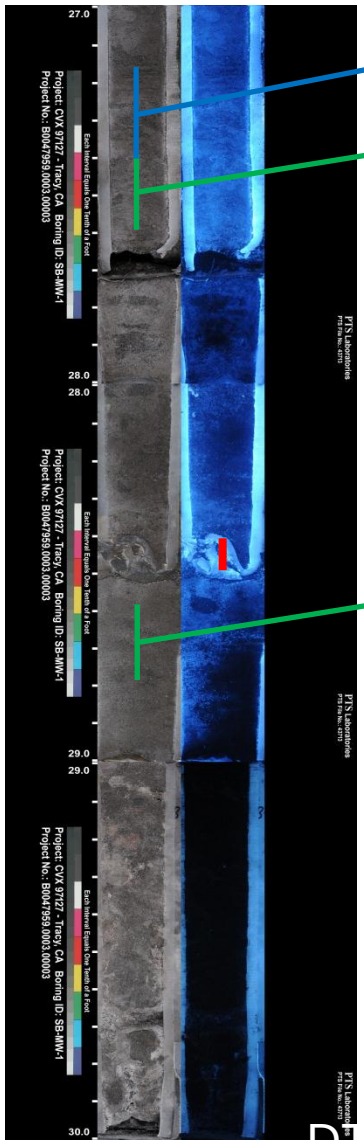
SB-MW-1
10/2013

24-27’



AWCD

27-30’



FPM

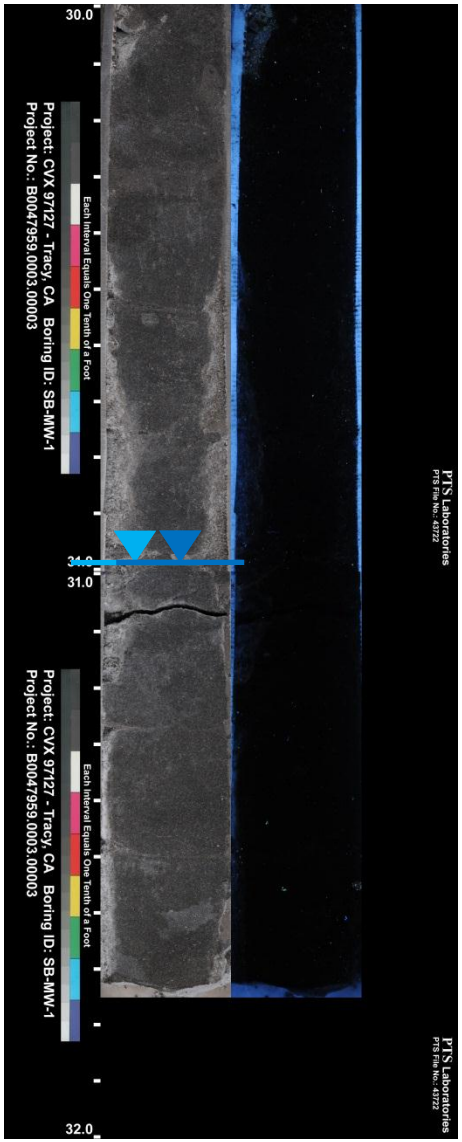
RSWD/GSA

Disturbed

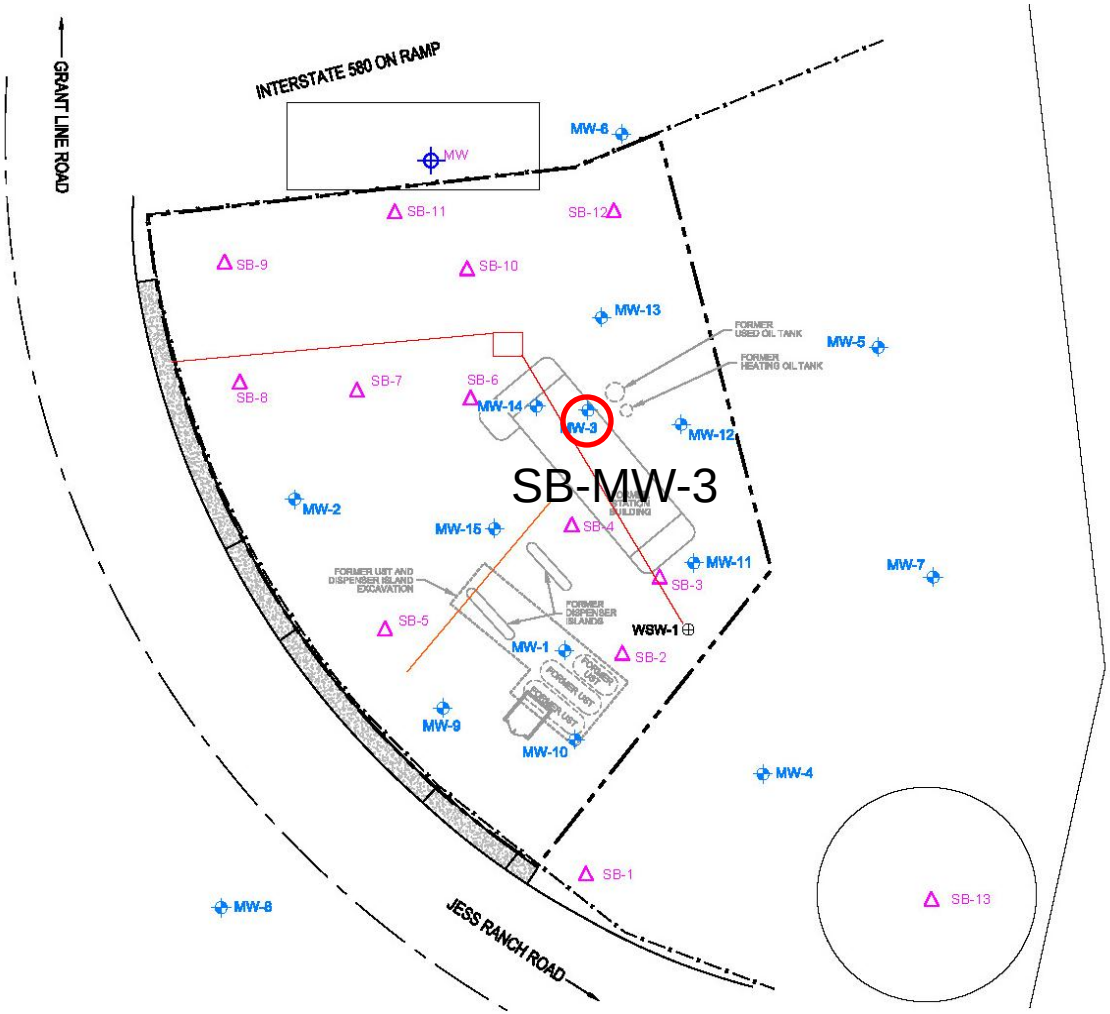
RSWD/GSA

SB-MW-1
10/2013

30-32’



SB-MW-3
Core Photos/Phase 1 Testing



MW-3
12/10/1992

SB-MW-3
10/2013

27’

29’

31’

PACIFIC ENVIRONMENTAL GROUP, INC.

WELL MW-3
PAGE 2 OF 2

See Page One

PROJECT NO. 325-04.01
LOGGED BY:
DRILLER:
DRILLING METHOD:
SAMPLING METHOD:
CASING TYPE:
SLOT SIZE:
GRAVEL PACK:

CLIENT:
DATE DRILLED:
LOCATION:
HOLE DIAMETER:
HOLE DEPTH:
WELL DIAMETER:
WELL DEPTH:
CASING STICKUP:

WELL COMPLETION	CORE BOX	RUN	MOISTURE CONTENT	PID	ROD (%)	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
SAND	2	7	Dp	16	6	23–30				SS	SANDSTONE (Neroly Formation): black; 90% subangular quartz and weathered mafic minerals; minor feldspar grains fine to medium grained; 10% fines; sucrosic texture; homogeneous; moderate to intense fracturing; weakly weathered; low hardness; no product odor. @22-24': slight clay enriched zone; brittle subhorizontal parting. @23.5': bedding at 62° TCA with perpendicular fracture running at 77° TCA. @28': bedding at 77° TCA with similar high angle fracture perpendicular to bedding at 25° TCA; increased hardness due to cementation; parting common along bedding planes at 75° and 83° TCA. @30': slight product odor.
				1		30–31					
	3	8		0	0	32–35					
		9	Mst-Dp		0	36–38					@36': bedding at 55° TCA. @38': high angle fractures at 30° TCA and 11° TCA.
SLOUGH				2		39–40					BOTTOM OF BORING AT 40
						41–44					

Note: Historical LNAPL and GW elevations date begin in June 2012.

MW-3
12/10/1992

SB-MW-3
10/2013

30’

32’

34’

PACIFIC ENVIRONMENTAL GROUP, INC.

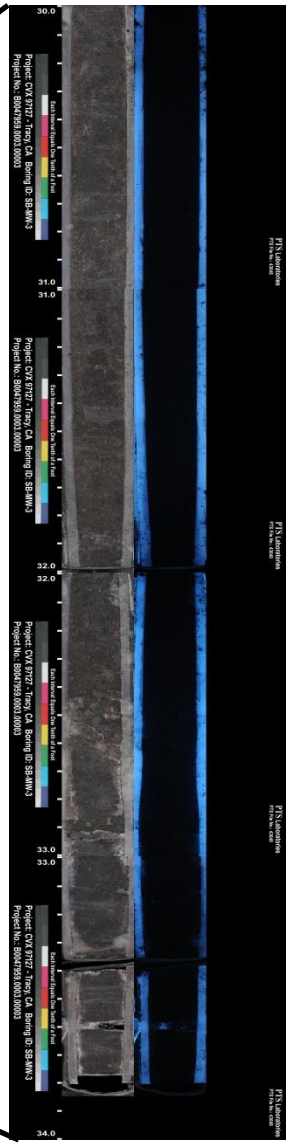
WELL MW-3
PAGE 2 OF 2

See Page One

PROJECT NO. 325-04.01
LOGGED BY:
DRILLER:
DRILLING METHOD:
SAMPLING METHOD:
CASING TYPE:
SLOT SIZE:
GRAVEL PACK:

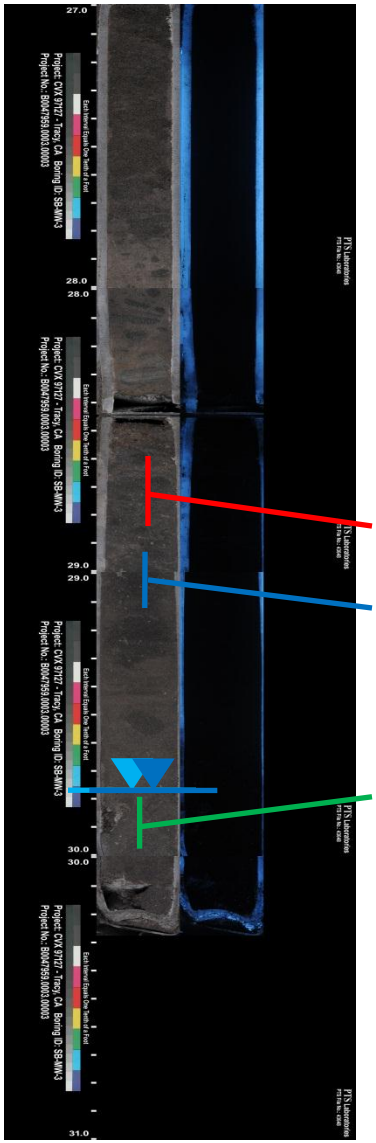
CLIENT:
DATE DRILLED:
LOCATION:
HOLE DIAMETER:
HOLE DEPTH:
WELL DIAMETER:
WELL DEPTH:
CASING STICKUP:

WELL COMPLETION	CORE BOX	RUN	MOISTURE CONTENT	PID	ROD (%)	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
SAND	2			16		23				SS	SANDSTONE (Neroly Formation): black; 90% subangular quartz and weathered mafic minerals; minor feldspar grains; fine to medium grained; 10% fines; sucrosic texture; homogeneous; moderate to intense fracturing; weakly weathered; low hardness; no product odor.
						24					@22-24': slight clay enriched zone; brittle subhorizontal parting.
						25					
			Dp			26					@23.5': bedding at 62° TCA with perpendicular fracture running at 77° TCA.
		7				27					
					6	28					@28': bedding at 77° TCA with similar high angle fracture perpendicular to bedding at 25° TCA; increased hardness due to cementation; parting common along bedding planes at 75° and 83° TCA.
			Dp	1		29					
						30					@30': slight product odor.
						31					
		8			0	32					
						33					
	3			0		34					
						35					
						36					@36': bedding at 55° TCA.
			Mst-Dp			37					
SLOUGH		9			0	38					@38': high angle fractures at 30° TCA and 11° TCA.
						39					
				2		40					BOTTOM OF BORING AT 40'
						41					
						42					
						43					
						44					

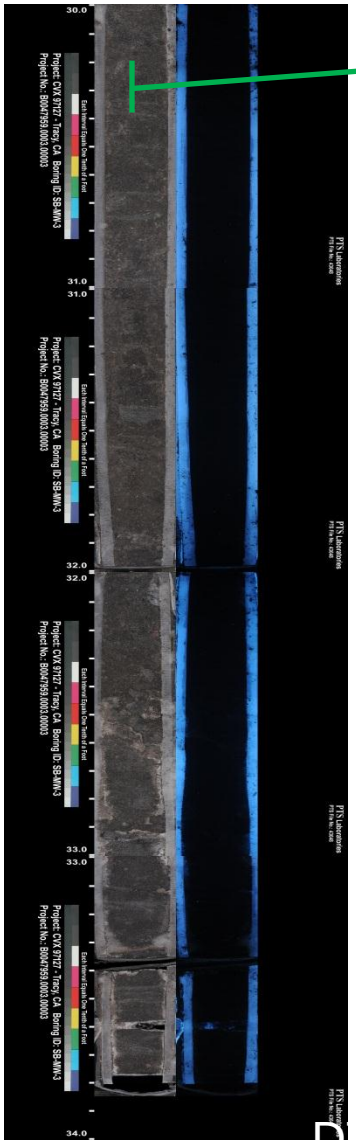


SB-MW-3
10/2013

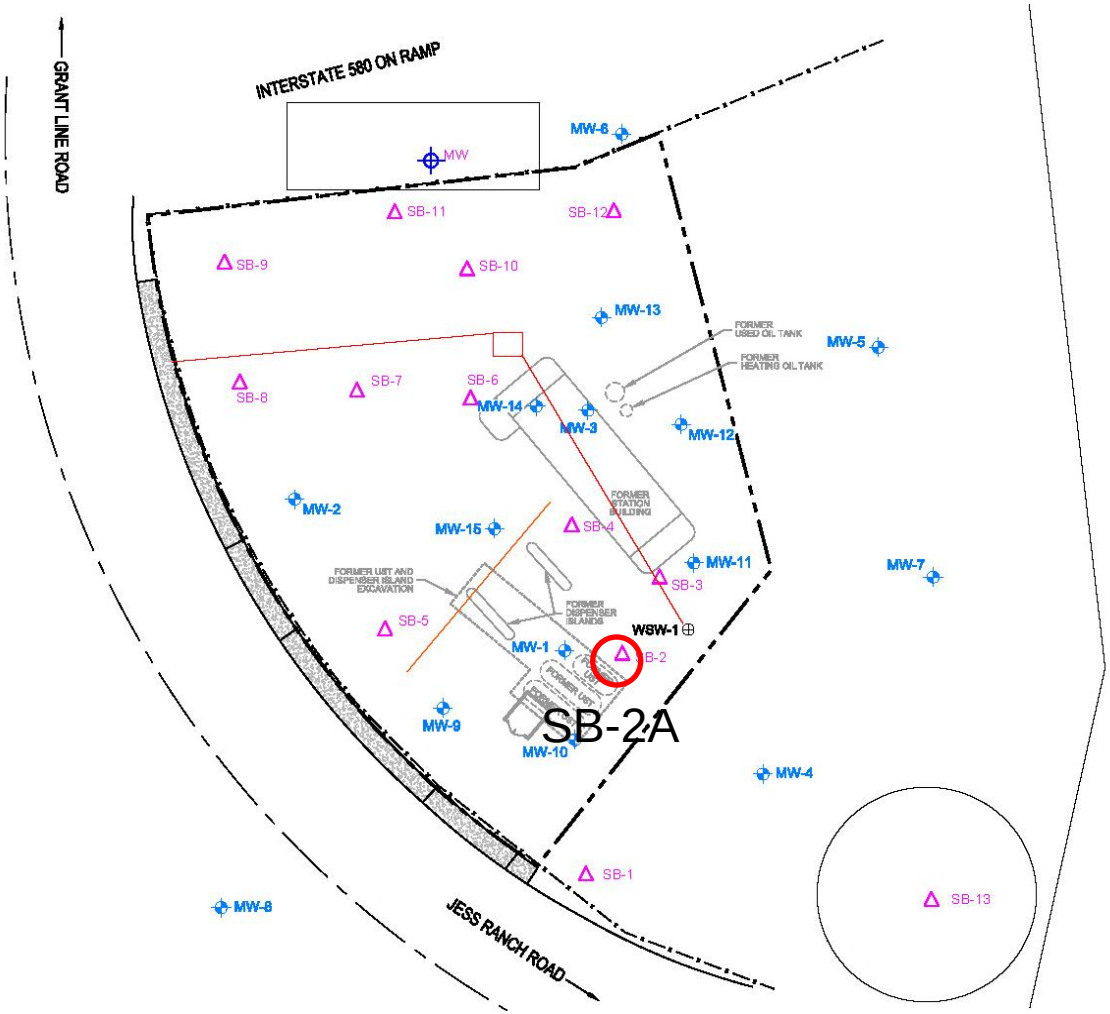
27-31’



30-34’



SB-2A
Core Photos/Phase 1 Testing



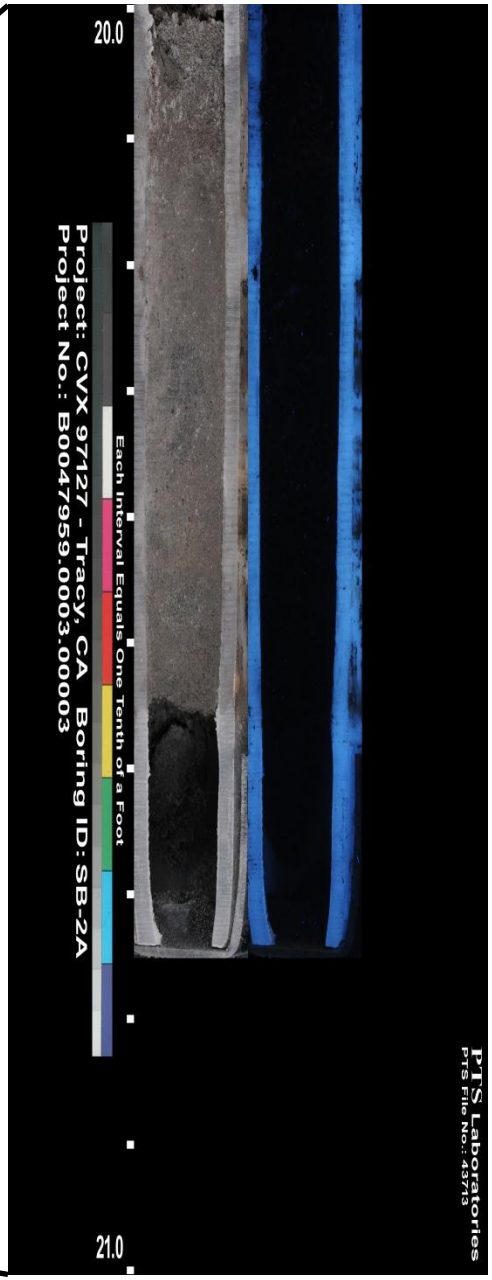
SB-2
10/21/2013

SB-2A
10/2013

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Sample Name
Rob Monic	10/21	Cascade Drilling, LP	CVX 97127 Tracy	SB-2

Method/Equipment:	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft): First Water / Static Water	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
Sonic 814015	6 7/8			38		

Feet (bgs)	Boring or Well Completion	Depth (ft.)	Sample Recovery	Blows/6"	Classification Letter	Description (classification, color w/code using ASTM standard, grain shape, consistency, moisture, other, odor)	PID/FID (ppm)	Sample Name	Feet (bgs)
							vol/wt/vol		
1						previously cleared to 8'			1
2						mix of Sand, loose + dry, powdery silt, dark & damp, Clay dry			2
3									3
4									4
5			—						5
6									6
7									7
8					SM	Sand, some silt, + fine gravel, loose, fsand, damp, gravel = 1/4 to 1" rounded, with occasional Sandstone frags to 2.5"		SB-2-S-9.5	8
9	Next Cement		—						9
10							0.0/0		10
11						@11.5 Clay, blocky, friable	0.0/0		11
12						@12 mottled black & Grey, some rounded fsand (recycled SS & lime gravels)	0.0/0		12
13						Strong odor	0.0/0		13
14		OK					1.1/0.44=17.37		14
15			—			(Dark greenish gray S.S conglomerate) @15 Sandstone disks & fragments. 80%	260/29		15
16						Loose Sand, some silt 20%	180/3		16
17						Sporatic silty/clayey lenses. to 1/2"	48/0		17
18						Strong odor @16 slight moisture increase	7.0/35		18
19						@19. dry powdery Silt between sandstone	40/0		19
20							18/0		20
21			—			@21 Interbedded black, wet, fc sand, l/ moist gray brown Sand, some silt, and 80% Sandstone disks	264/13	SB-2-S-22	21
22							378/44		22
23							630/240/25		23
24						@23 SAA fsand, moist (No m-c) gray brown, l/ Interbedded Sand, some silt & SS	590/220/12		24
25							180/170/3		25



20'

21'

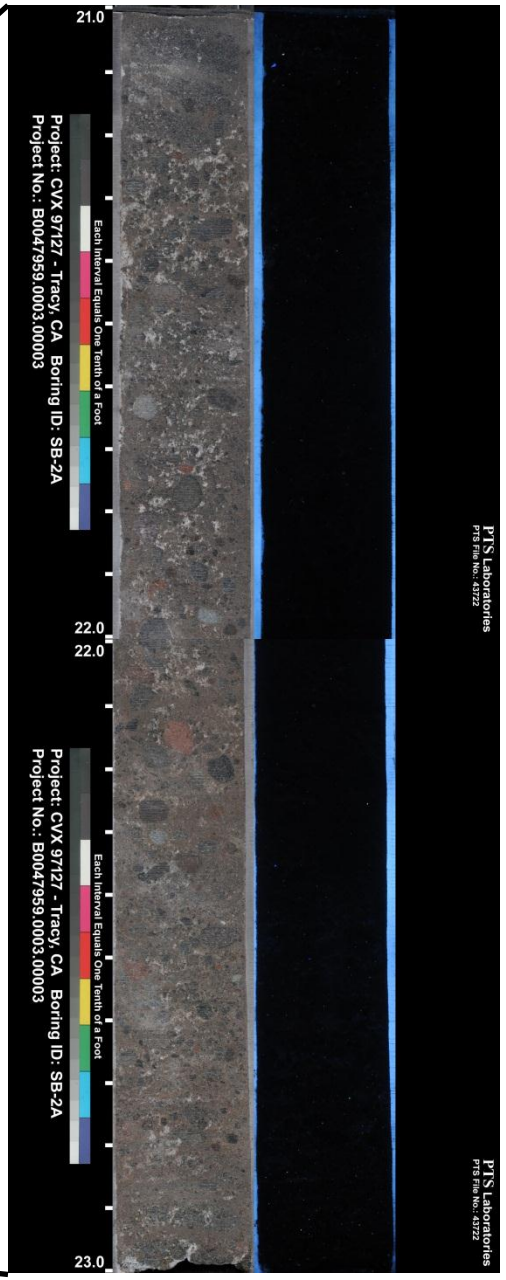
SB-2
10/21/2013

SB-2A
10/2013

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Sample Name
[illegible]	10/21	Cascade Drilling, LP	CVX 97127 Tracy	SB-2

Method/Equipment:	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft): First Water / Static Water	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
Sonic 814015	6 7/8			38		

Feet (bgs)	Boring or Well Completion	Depth (ft.)	Sample Recovery	Blows/6"	Classification Letter	Description (classification, color w/code using ASTM standard, grain shape, consistency, moisture, other, odor)	PID/FID (ppm)	Sample Name	Feet (bgs)
							vol/vol / conc		
1						previously cleared to 8'			1
2						mix of Sand, loose + dry, powdery silt, dark & damp, cuttlecby			2
3									3
4									4
5			—						5
6									6
7									7
8					SM	Sand, some silt, + some gravel, loose, f sand, damp, gravel = 1/4 to 1" rounded,		SB-2-S-9.5	8
9	Next cement		—			with occasional Sandstone frags to 2.5"			9
10							0.0/0		10
11						@11.5, Cuttle clay, blocky, friable	0.0/0		11
12						@12 mottled black & Grey, some rounded	0.0/0		12
13						f sand (recycled SS & lime gravels) Strong odor	0.0/0		13
14		Ok					1.1/0.44=17.37		14
15			—			(Dark greenish gray S.S conglomerate) @15 Sandstone disks & fragments. 80%	260/29		15
16						Loose Sand, some silt 20%	180/3		16
17						Sporatic silty/clayey lenses. to 1/2"	48/0		17
18						Strong odor @16 slight moisture increase	7.0/35		18
19							40/0		19
20						@19. dry powdery Silt between sandstone	18/0		20
21			—			@21 Interbedded black, wet, fc sand,	264/13	SB-2-S-22	21
22						w/ moist gray brown Sand, some silt, and 80% Sandstone disks	378/44		22
23			—				630/240/25		23
24						@23 f sand, moist (No mic), gray brown, w/ Interbedded Sand, some silt & SS	590/220/12		24
25							180/150/3		25



21'

23'

SB-2
10/21/2013

SB-2A
10/2013

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Sample Name
Rob Monic	10/21	Cascade Drilling, LP	CVX 97127 Tracy	SB-2

Method/Equipment:	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft): First Water / Static Water	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
Sonic 814015	6 7/8			38		

Feet (bgs)	Boring or Well Completion	Depth (ft.)	Sample Recovery	Blows/6"	Classification Letter	Description (classification, color w/code using ASTM standard, grain shape, consistency, moisture, other, odor)	PID/FID (ppm) VOC/CO/LEL	Sample Name	Feet (bgs)
1						previously cleared to 8'			1
2						mix of Sand, loose + dry, powdery silt, dark + damp, cuttlecby			2
3									3
4									4
5			—						5
6									6
7									7
8					SM	Sand, some silt, + some gravel, loose, f sand, damp, gravel = 1/4 to 1" rounded,		SB-2-S-9.5	8
9	Next cement		—			with occasional Sandstone frags to 2.5"			9
10							0.0/0		10
11						@11.5, cuttlecby, blocky, friable	0.0/0		11
12						@12 mottled black + Grey, some rounded gravel (recycled SS + lime gravels)	0.0/0		12
13						strong odor	0.0/0		13
14		Ok				(dark greenish gray S.S conglomerate)	1.1/0.44=17.37		14
15			—			@15 Sandstone disks + fragments. 80%	260/29		15
16						Loose Sand, some silt 20%	180/3		16
17						Sporatic silty/clayey lenses. to 1/2"	48/0		17
18						strong odor	7.0/35		18
19						@16 slight moisture increase	40/0		19
20						@19. dry powdery Silt between sandstone	18/0		20
21			—			@21 Interbedded black, wet, fc sand,	264/13	SB-2-S-22	21
22						w/ moist gray brown Sand, some silt,	378/44		22
23			—			and 80% Sandstone disks	630/240/25		23
24						@23 SAA f sand, moist (No m-c), gray brown, w/ Interbedded Sand, some silt + SS	590/220/12		24
25							180/150/3		25

23'

25'

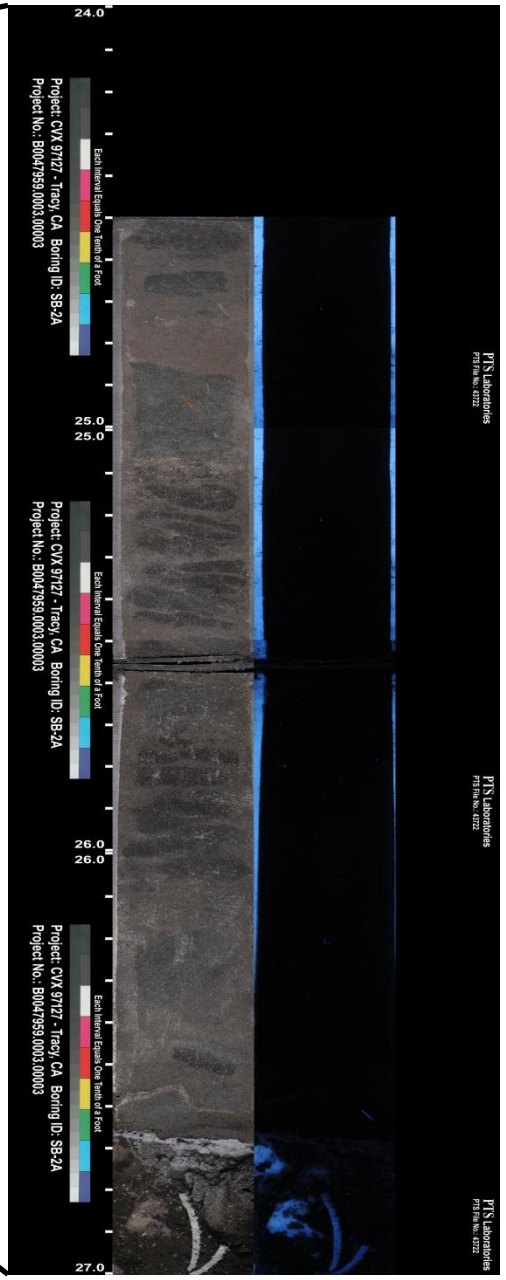
SB-2
10/21/2013

SB-2A
10/2013

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Boring Number:
Rob Monic	10/21/13	Cascade Drilling, LP	CVX 97127 Tracy	SB-2

Method/Equipment:	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft): First Water / Static Water	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
Sonic 8140LS	6 7/8					

Feet (bgs)	Boring or Well Completion	Depth, (ft.)	Sample Recovery	Blows/6"	Classification Letter	Description (classification, color w/code using ASTM standard, grain shape, consistency, moisture, other, odor)	PID/FID (ppm)	Sample Name	Feet (bgs)
26						@26' black, wet fine sand	100/100/1		26
27							170/150/0		27
28						@27 fine sand	972/410/22	SB-2-S-27	28
29	1/4					@28.5 wet, fines, Loose Sand	570/510/70		29
30	010					black, 30% black sandstone frags	60/975/		30
31	Temp					@30 SAA, 80% SS frags	1200/X/X		31
32	pipe					@	884/X/X		32
33						@32 - 80% frags, 20% liquid mud - Sand and fines	37/X/X		33
34							0.1/0/0		34
35						@35 SAA three fines	0.0/0/0		35
36						@35 little fines	0.0/111/0		36
37							0.0/355/0		37
38						@37 three fines	0.0/107/0	SB-2-W-38	38
39						TD = 38	0.0/0/0		39
40						OTW = 28.95 after 20 min			40
41						No product			41
42						"Oil in Soil" test @ 27' = vert vein			42
43						= positive			43
44									44
45									45
46									46
47									47
48									48
49									49
50									50



24’

25.5’

27’

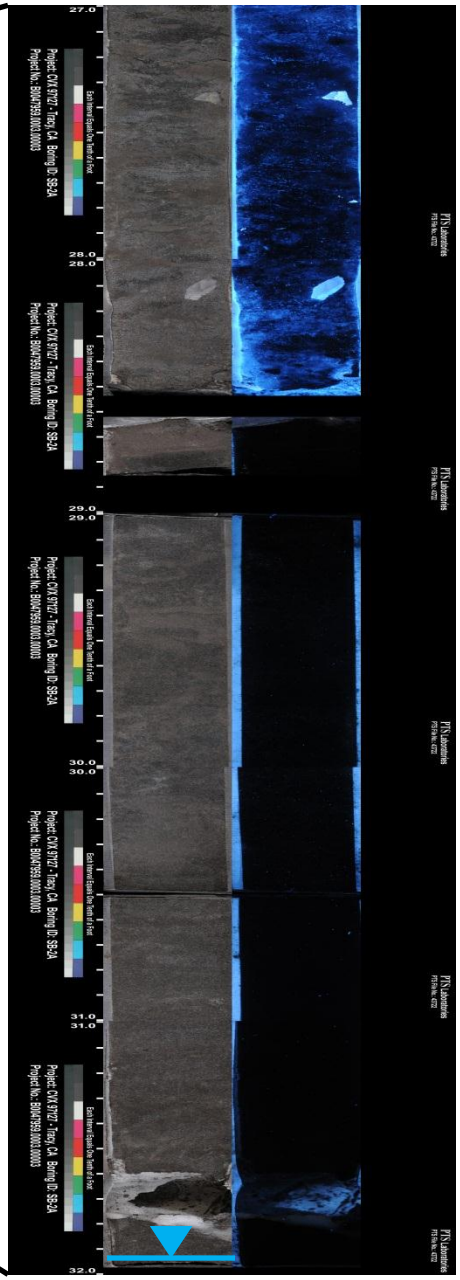
SB-2
10/21/2013

SB-2A
10/2013

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Boring Number:
Rob Monic	10/21/13	Cascade Drilling, LP	CVX 97127 Tracy	SB-2

Method/Equipment:	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft): First Water / Static Water	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
Sonic 8140LS	6 7/8					

Feet (bgs)	Boring or Well Completion	Depth, (ft.)	Sample Recovery	Blows/6"	Classification Letter	Description (classification, color w/ code using ASTM standard, grain shape, consistency, moisture, other, odor)	PID/FID (ppm)	Sample Name	Feet (bgs)
26						@26' black, wet fine sand	100/100/1		26
27							170/150/0		27
28						@27 fine sand	972/410/22	SB-2-S-27	28
29	14					@28.5 wet, trace fines, Loose Sand black, 30% black sandstone frags	570/510/70		29
30	010						60/975/X		30
31	Temp plug					@30 SAA, 80% SS frags	1200/X/X		31
32						@	584/X/X		32
33						@32 - 80% frags 20% liquid mud - Sand and fines	37/X/X		33
34							0.1/0/0		34
35						@33 SAA trace fines	0.0/0/0		35
36						@35 Little fines	0.0/111/0		36
37							0.0/358/0		37
38						@37 trace fines	0.0/102/0	SB-2-W-38	38
39						PID = 38	0.0/0/0		39
40						OTU = 28.95 after 20 min No product			40
41									41
42						"Oil in Soil" test @ 27' - red ring = positive			42
43									43
44									44
45									45
46									46
47									47
48									48
49									49
50									50



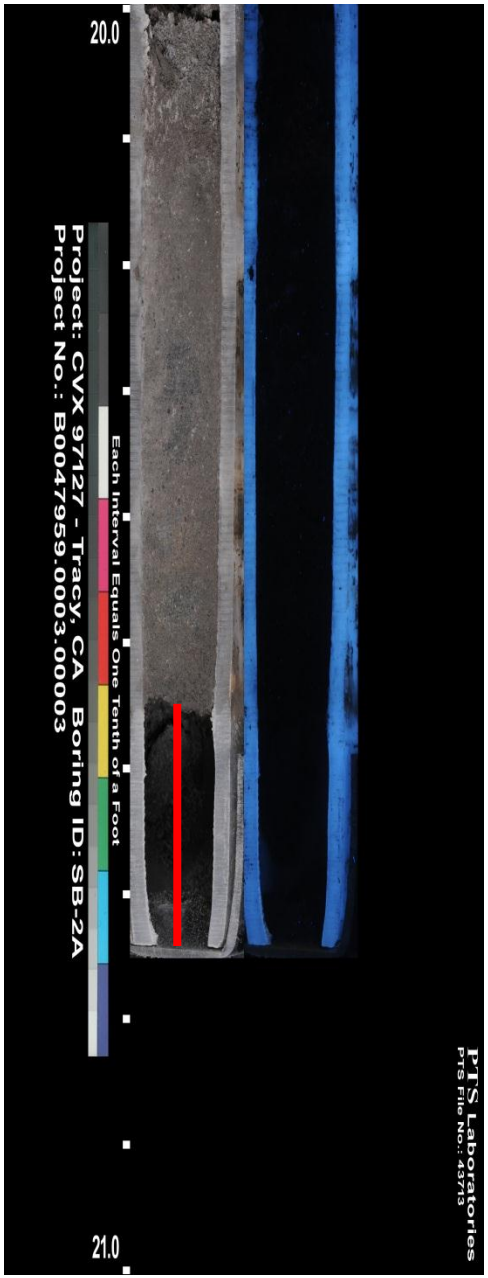
27’

29.5’

32’

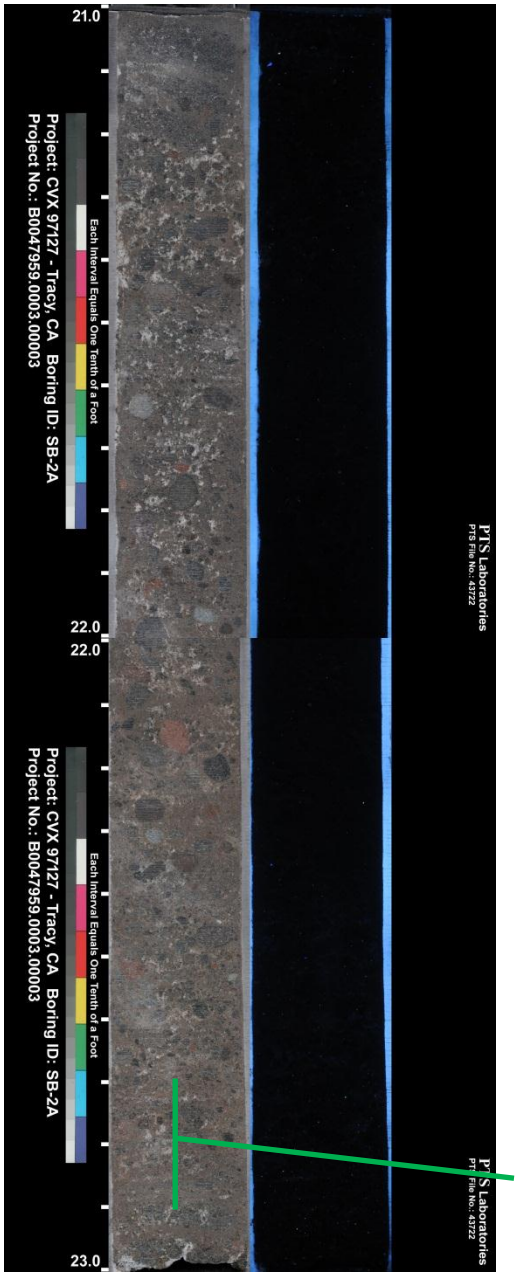
SB-2A
10/2013

20-21’



Disturbed

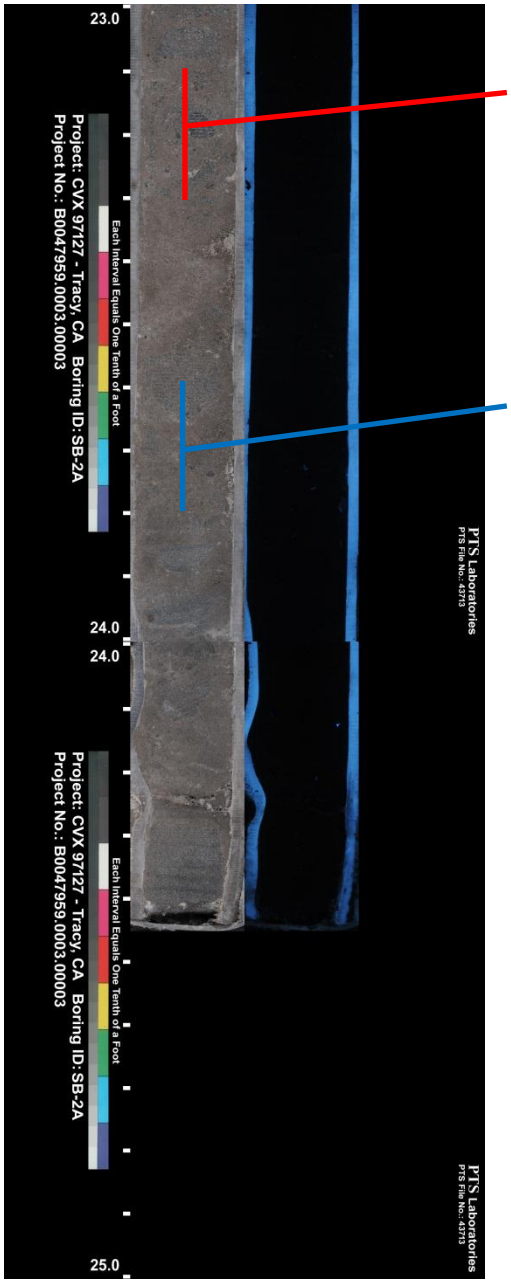
21-23’



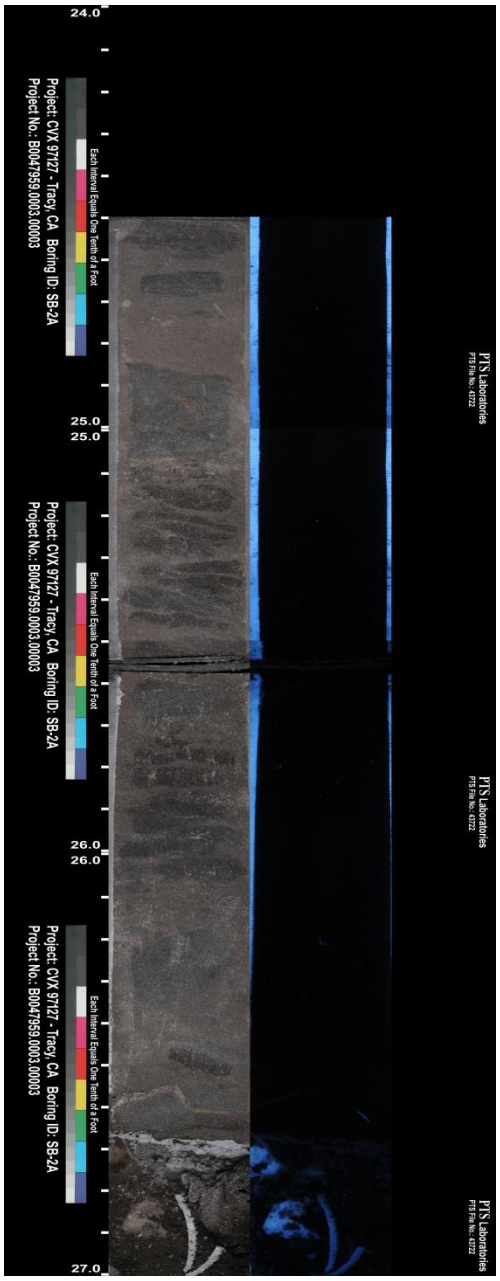
RSWD/GSA

SB-2A
10/2013

23-25’

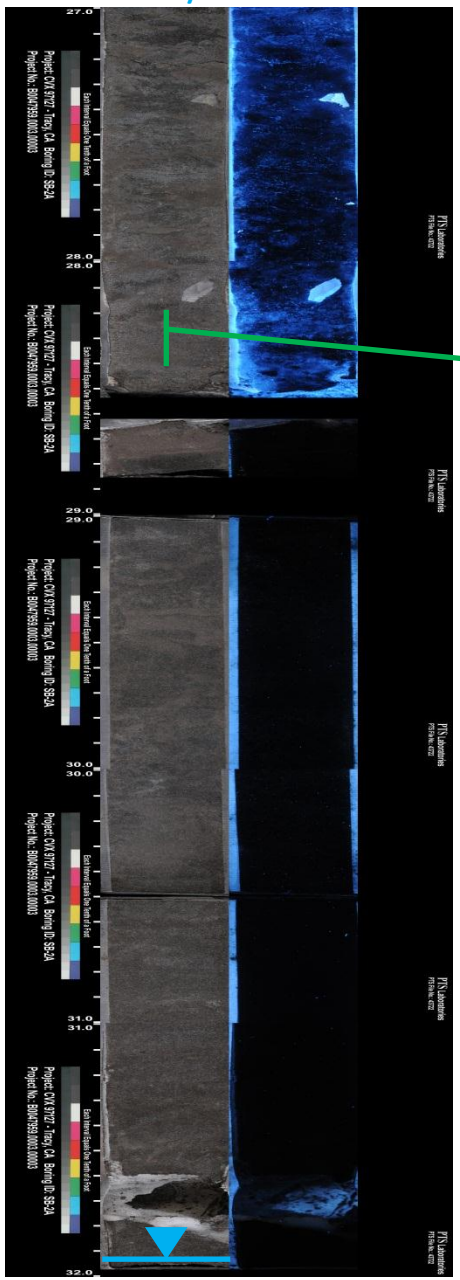


24-27’

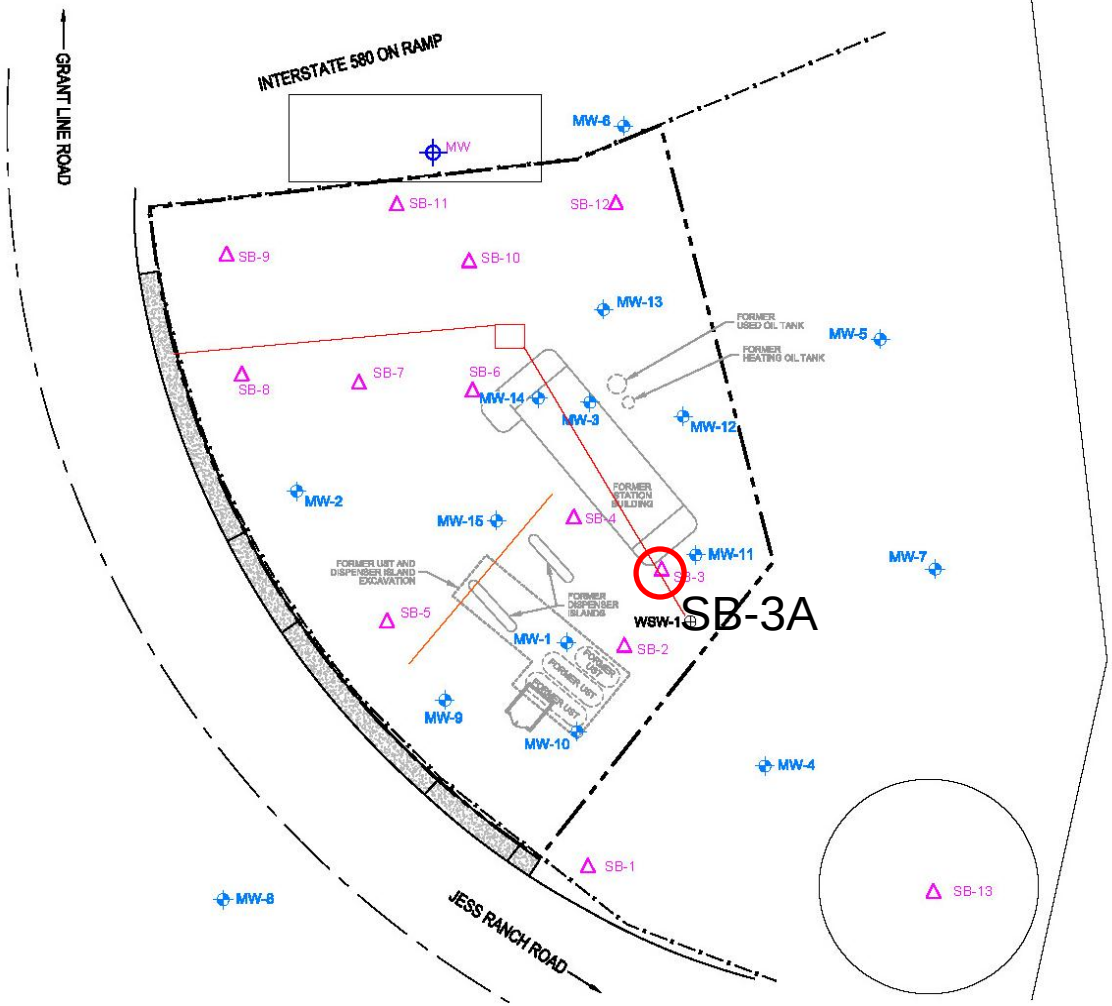


SB-2A
10/2013

27-32’



SB-3A
Core Photos/Phase 1 Testing



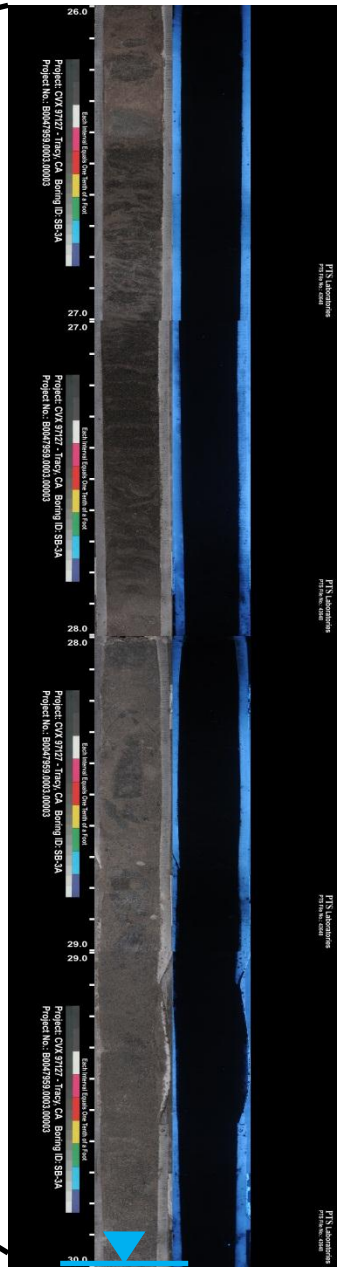
SB-3
10/18/2013

SB-3A
10/2013

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Boring Number:
Rob Monie	10/18	Cascade Drilling, LP	CVX 97127 Tracy	SB-3

Method/Equipment:	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft): First Water ▽ Static Water ▼	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):

Feet (bgs)	Boring or Well Completion	Depth, (ft.)	Sample Recovery	Blows/6"	Classification Letter	Description (classification, color w/code using ASTM standard, grain shape, consistency, moisture, other, odor)	PID/FID (ppm)	Sample Name	Feet (bgs)
26						@26' (Gley 1) black, some silt, 80% fines	119/107		26
27							453/1644		27
28						@28 little silt	451/209		28
29				▽		@29. trace silt wet/moist, loose sand	460/823		29
30				▼		50% fines	1236/424/LEL=51, LEL=6		30
31						@30 wet, 20% fines.	77.1/45		31
32						33-34 = 5% fines	77/51		32
33							42.3/.198		33
34							237/103		34
35							498/202/LEL=2		35
36							21.7/365		36
37						TD=36' bgs			37
38						DTW = 29' bgs after 20 min			38
39						.03 FT SPHC 1710			39
40						TDTW = 28.84			40
41						DTP = 28.91			41
42						Samples SB-3 5-2] during			42
43						" -4.5-] AK			43
44						-9.5			44
45						-29			45
46						W-36			46
47									47
48									48
49									49
50									50



26’

28’

30’

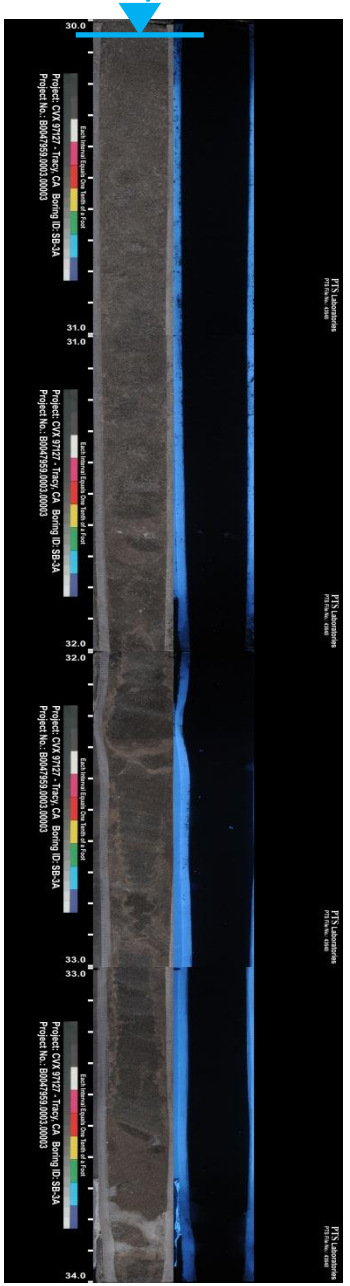
SB-3
10/18/2013

SB-3A
10/2013

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Boring Number:
Rob Monie	10/18	Cascade Drilling, LP	CVX 97127 Tracy	SB-3

Method/Equipment:	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft): First Water ▽ Static Water ▼	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):

Feet (bgs)	Boring or Well Completion	Depth, (ft.)	Sample Recovery	Blows/6"	Classification Letter	Description (classification, color w/code using ASTM standard, grain shape, consistency, moisture, other, odor)	PID/FID (ppm)	Sample Name	Feet (bgs)
26						@26' (Clay) black, some silt, 80% fines	119/107		26
27							453/1614		27
28						@28 little silt	451/209		28
29				▽		@29. trace silt wet/moist, loose sand	400/823		29
30				▼		50% fines	1236/424/LEL=51, H2S=6		30
31						@30 wet, 20% fines.	71.1/45		31
32						33-34 = 5% fines	77/51		32
33							42.3/108		33
34							237/103		34
35							498/202/LEL=2		35
36							21.7/365		36
37									37
38						TD=36' bgs			38
39						DTW=29' bgs after 20 min			39
40						2" SPHC 1710			40
41						TDW=28.94			41
42						DTP=28.91			42
43						Samples SB-3 5-2] during			43
44						-4.5- AR			44
45						-9.5			45
46						-29			46
47						W-36			47
48									48
49									49
50									50



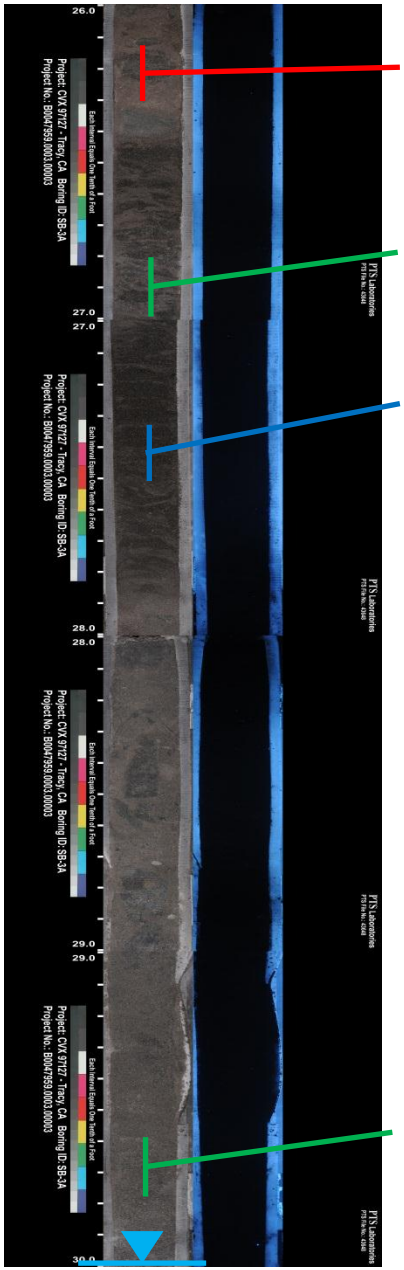
30’

32’

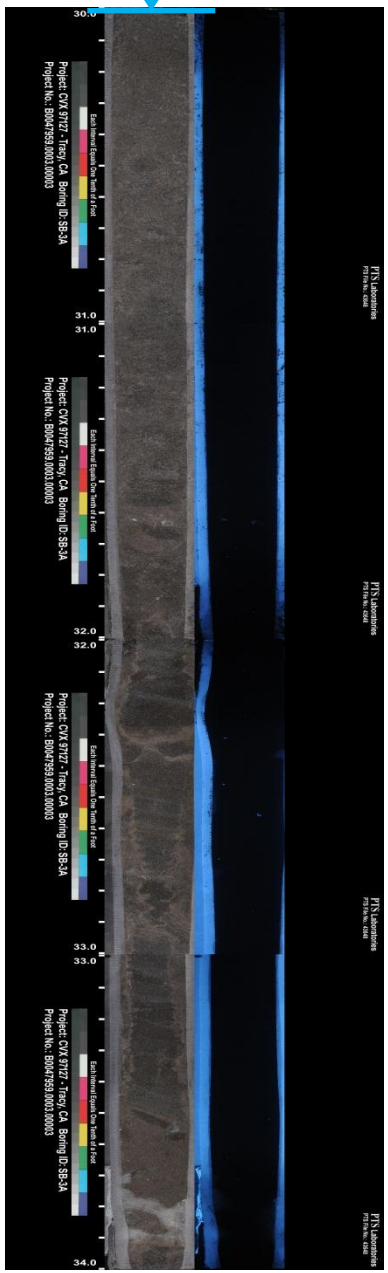
34’

SB-3A
10/2013

26-30’



30-34’



APPENDIX F
Laboratory LNAPL and Water Saturations

Table 3
Laboratory LNAPL and Water Saturations

LNAPL Assessment
Former Chevron Service Station No. 97127
Grant Line Road and Interstate 580, Tracy, California

Location	Depth (feet bgs)	Total Pore Saturation (%)	Initial Water Saturation (%)	Field LNAPL Saturation (%)	Residual LNAPL Saturation (%)	Petrophysical Test
SB-MW-1[1]	24.7	19.7	19.1	0.7	0.7	FPM
SB-MW-1[4]	27.5	35.3	31.9	3.4	3.3	RSWD
SB-MW-1[5]	28.2	59.2	52.0	7.2	7.2	RSWD
SB-2A[1]	23.7	68.8	68.8	ND <0.1	ND <0.1	FPM
SB-2A[2]	22.8	45.9	45.7	0.1	0.1	FPM
SB-2A[2]	26.4	76.2	76.2	ND <0.1	ND <0.1	FPM
SB-2A[6]	28.3	64.8	61.6	3.3	3.3	RSWD
SB-MW-3[1]	27.1	33.8	32.0	1.8	1.8	FPM
SB-MW-3[1]	28.1	73.0	71.9	1.1	1.1	FPM
SB-MW-3[1]	28.8	83.3	81.9	1.4	1.4	FPM
SB-MW-3[7]	29.6	87.1	81.0	6.1	6.1	RSWD
SB-3A[1]	26.5	29.4	27.9	1.5	1.5	FPM
SB-3A[2]	27.2	34.6	33.8	0.9	0.9	FPM
SB-3A[3]	28.2	84.7	83.2	1.5	1.5	FPM
SB-3A[8]	29.4	89.8	89.8	ND <0.1	ND <0.1	RSWD

General Notes:

Bold Field saturation exceeds residual saturation at the same depth interval, indicating mobile LNAPL at the pore-scale, (ITRC, 2009a).

Footnotes:

[1] No visible LNAPL produced. Produced water clear with no hydrocarbon color.

[2] No visible LNAPL produced. Produced water clear with faint hydrocarbon odor.

[3] No visible LNAPL produced. Produced water clear with moderate hydrocarbon odor.

[4] LNAPL produced; 9.3 pore volumes of water injected. Produced water clear with yellow tint and moderate hydrocarbon .

[5] No visible NAPL produced; 10.8 pore volumes of water injected. Produced water clear with yellow tint and no hydrocarbon odor.

[6] No visible NAPL produced; 10.2 pore volumes of water injected. Produced water clear with yellow tint and faint.

[7] No visible LNAPL produced; 9.9 pore volumes of water injected. Produced water clear with yellow tint and no hydrocarbon odor.

[8] No visible LNAPL produced; 11.1 pore volumes of water injected. Produced water clear with yellow tint and no hydrocarbon odor.

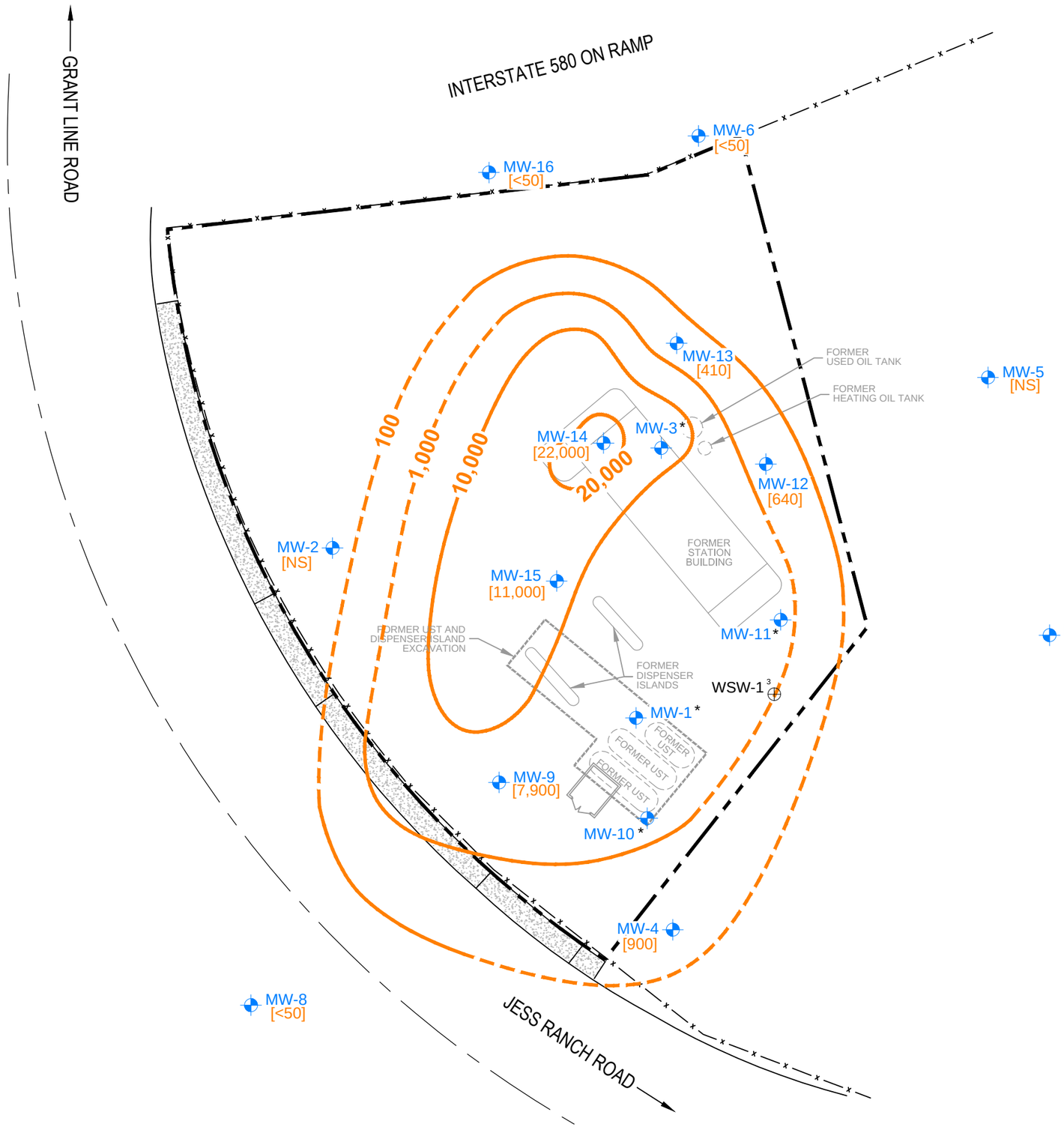
Acronyms and Abbreviations:

% = percent
feet bgs= feet below ground surface
LNAPL = light non-aqueous phase liquid
RSWD = residual saturation by water drive
FPM = free product mobility
ND = not detected

APPENDIX G

Isoconcentration Maps

December 19, 2014



LEGEND

- PROPERTY BOUNDARY
- FENCE
- MW-1 — MONITORING WELL LOCATION
- WSW-1 — WATER SUPPLY WELL (LIVESTOCK)
- [TPH-GRO] — TOTAL PETROLEUM HYDROCARBONS AS GASOLINE RANGE ORGANICS CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
- 1,000 — TPH-GRO ISOCONCENTRATION CONTOUR (µg/L; DASHED WHERE INFERRED)
- [NS] — NOT SAMPLED DURING FOURTH QUARTER 2014
- < — NOT DETECTED ABOVE LABORATORY METHOD DETECTION LIMIT
- * — SEPARATE PHASE HYDROCARBONS (SPH) PRESENT IN WELL

NOTES:

1. MONITORING WELL AND SOIL BORING LOCATIONS BASED ON SURVEY DATA PROVIDED BY MUIR CONSULTING, INC. EXCEL FILE 4285-02 GEO_XY.XLS. SOIL BORING SB-6 NOT SURVEYED, LOCATION IS APPROXIMATE.
2. MAP MODIFIED FROM CONESTOGA-ROVERS & ASSOCIATES (CRA) FIGURE ENTITLED "FIGURE 2 CONCENTRATION MAP" DATED FEBRUARY 21, 2012, DRAWING FILE xsite.dwg. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. WATER SUPPLY WELL (WSW-1) NOT USED TO CONTOUR.

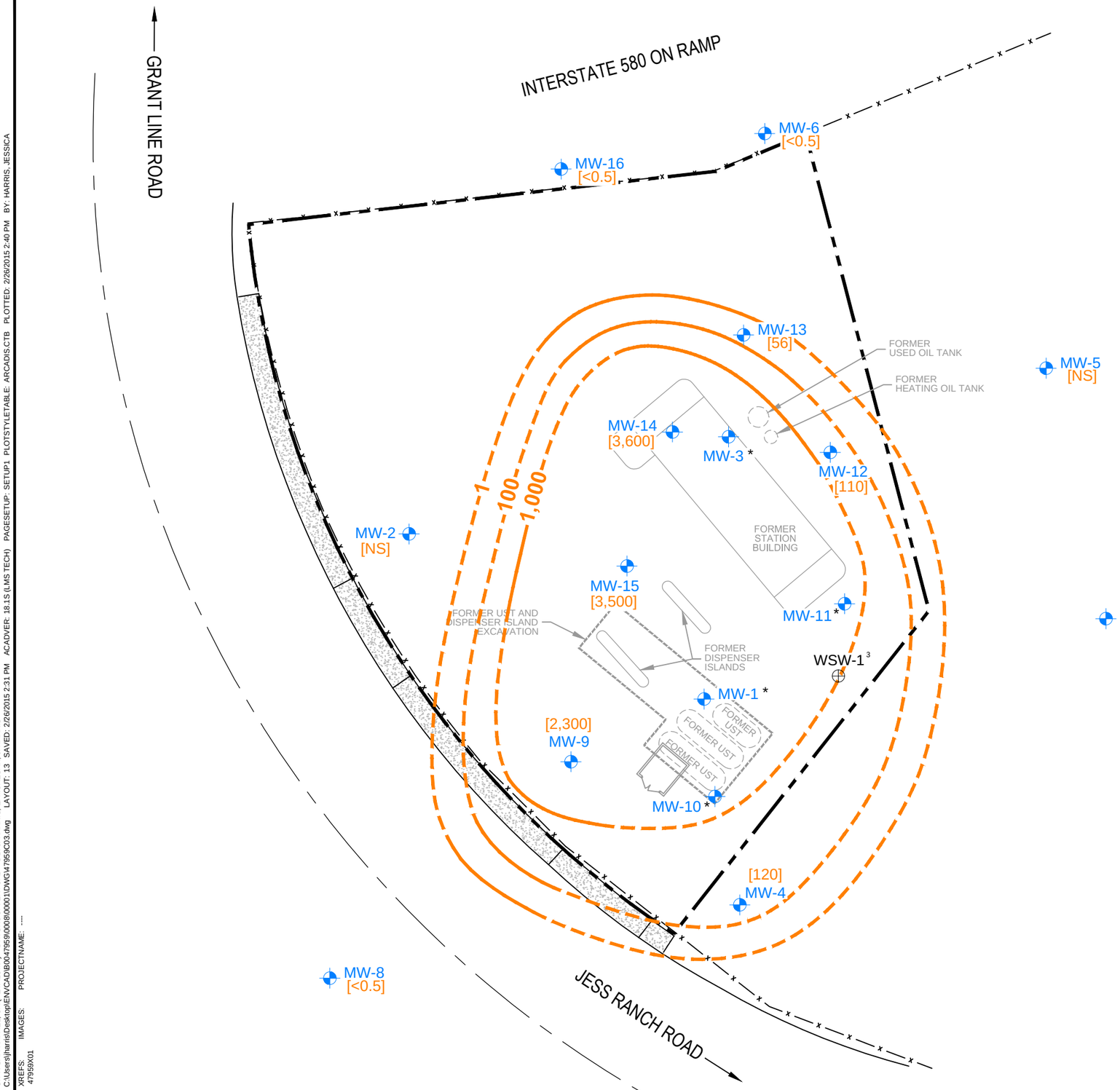
0 40' 80'
GRAPHIC SCALE

CHEVRON SITE ID 97127
GRANT LINE ROAD AND INTERSTATE 580
TRACY, CALIFORNIA

TPH-GRO ISOCONCENTRATION MAP DECEMBER 19, 2014

ARCADIS

FIGURE 12



LEGEND

- PROPERTY BOUNDARY
- FENCE
- MW-1 — MONITORING WELL LOCATION
- WSW-1 — WATER SUPPLY WELL (LIVESTOCK)
- [BENZ] — BENZENE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
- 1,000 — BENZENE ISOCONCENTRATION CONTOUR (µg/L; DASHED WHERE INFERRED)
- [NS] — NOT SAMPLED DURING FOURTH QUARTER 2014
- < — NOT DETECTED ABOVE LABORATORY METHOD DETECTION LIMIT
- * — SEPARATE PHASE HYDROCARBONS (SPH) PRESENT IN WELL

NOTES:

1. MONITORING WELL AND SOIL BORING LOCATIONS BASED ON SURVEY DATA PROVIDED BY MUIR CONSULTING, INC. EXCEL FILE 4285-02 GEO_XY.XLS. SOIL BORING SB-6 NOT SURVEYED, LOCATION IS APPROXIMATE.
2. MAP MODIFIED FROM CONESTOGA-ROVERS & ASSOCIATES (CRA) FIGURE ENTITLED "FIGURE 2 CONCENTRATION MAP" DATED FEBRUARY 21, 2012, DRAWING FILE xsite.dwg. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. WATER SUPPLY WELL (WSW-1) NOT USED TO CONTOUR.

0 40’ 80’

GRAPHIC SCALE

CHEVRON SITE ID 97127
GRANT LINE ROAD AND INTERSTATE 580
TRACY, CALIFORNIA

BENZENE ISOCONCENTRATION MAP DECEMBER 19, 2014

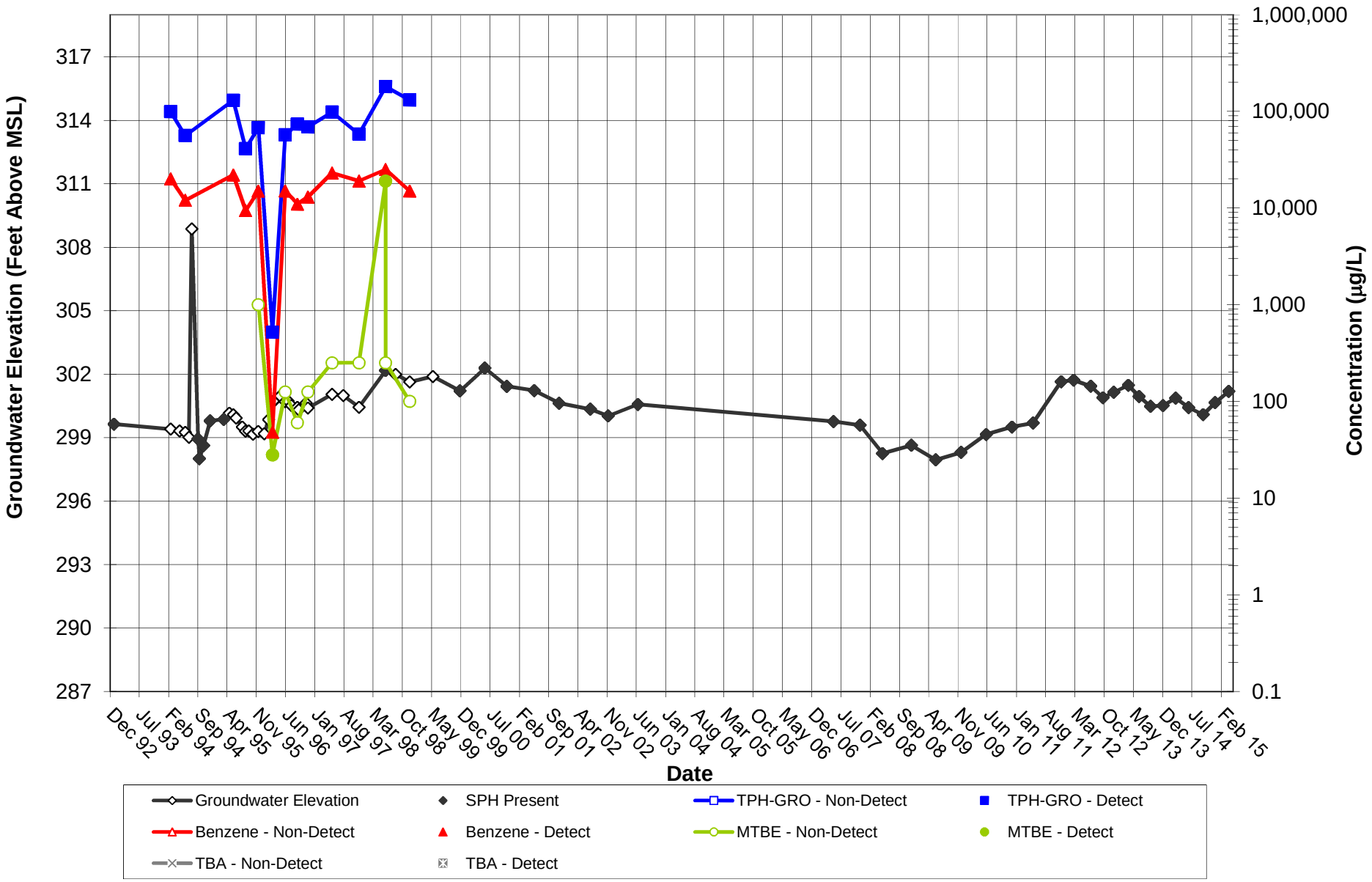
ARCADIS

FIGURE 13

CITY: SAN RAFAEL, CA (PETALUMA) DIV/GROUP: ENVCAD DB: J. HARRIS, E. MURESAN, J. HARRIS
C:\Users\jharris\Desktop\ENVCAD\B00479590008\00001\DWG\479590C03.dwg LAYOUT: 13 SAVED: 2/26/2015 2:31 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: SETUP1 PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 2/26/2015 2:40 PM BY: HARRIS, JESSICA
XREFS: 479590X01 IMAGES: PROJECTNAME: ----

APPENDIX H
Hydrographs

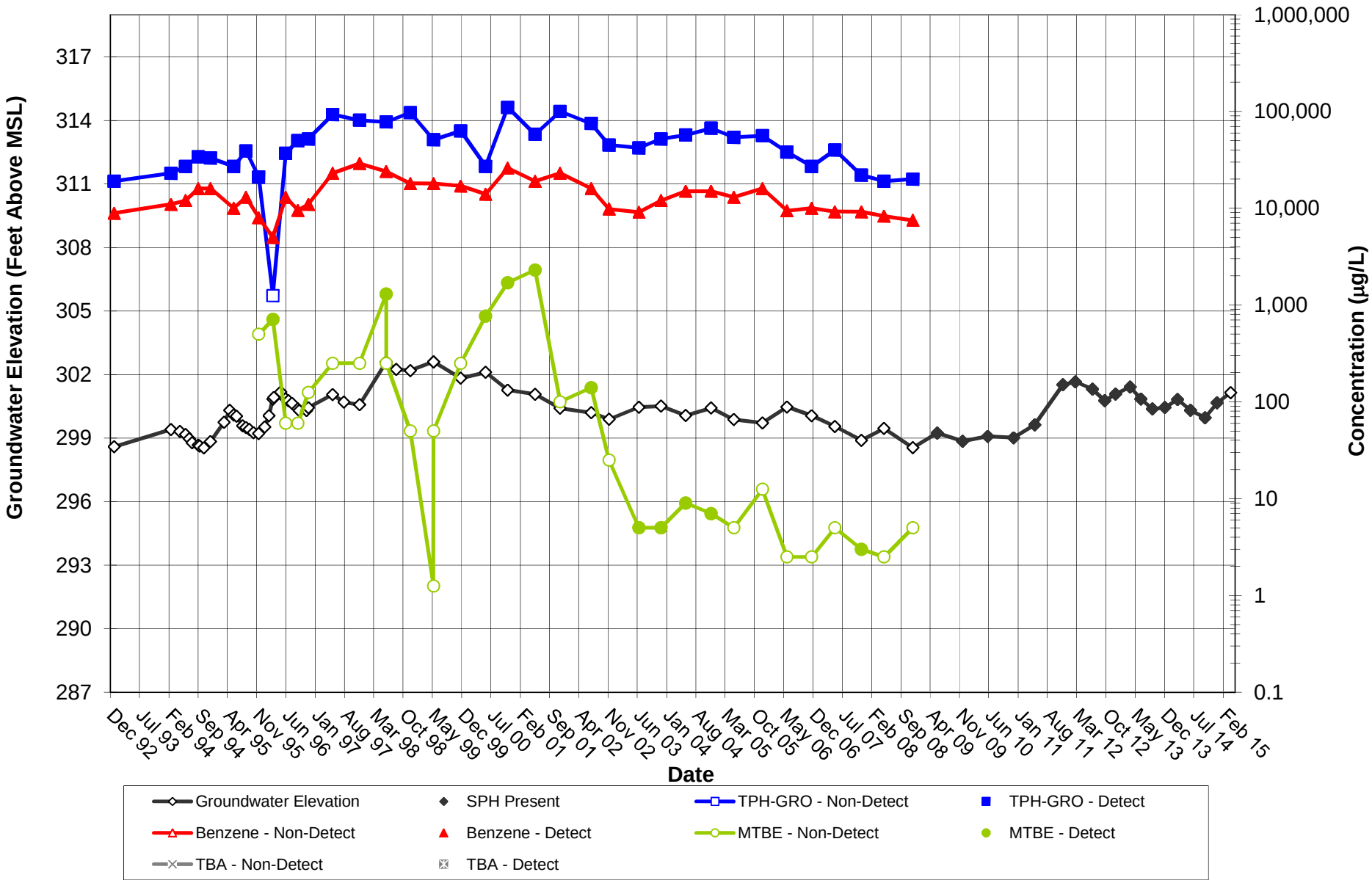
Former Chevron Service Station No. 97127
MW-1 Hydrograph



Notes

1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
3. Trend lines are presented for reference purposes only and do not represent professional interpretation.
4. For additional information about data for a given sampling event (such as no data plotted), refer to Table 1.

Former Chevron Service Station No. 97127
MW-3 Hydrograph



Notes

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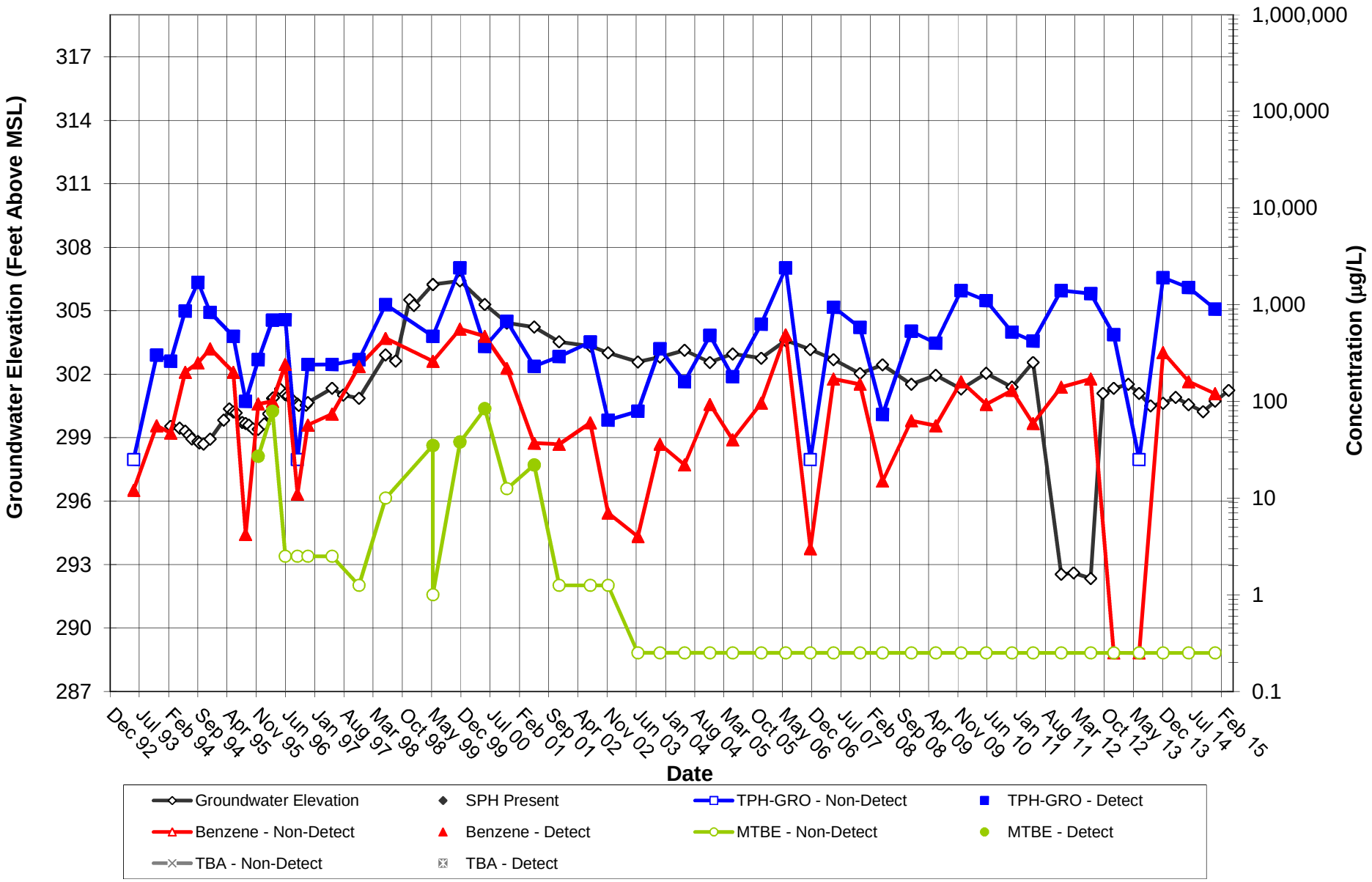
Former Chevron Service Station No. 97127
MW-4 Hydrograph



Notes

1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
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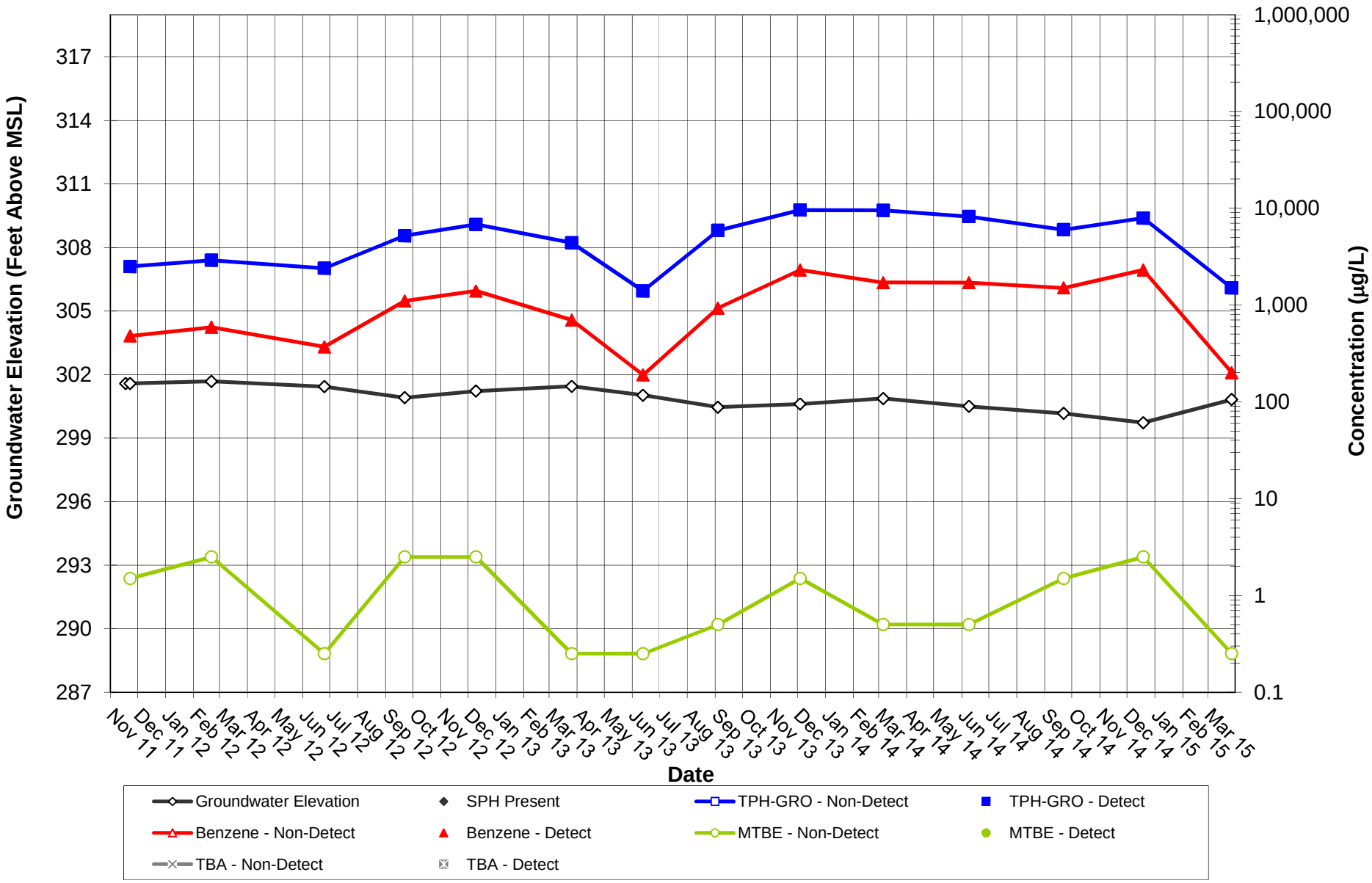
Former Chevron Service Station No. 97127
MW-9 Hydrograph



Notes

1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
3. Trend lines are presented for reference purposes only and do not represent professional interpretation.
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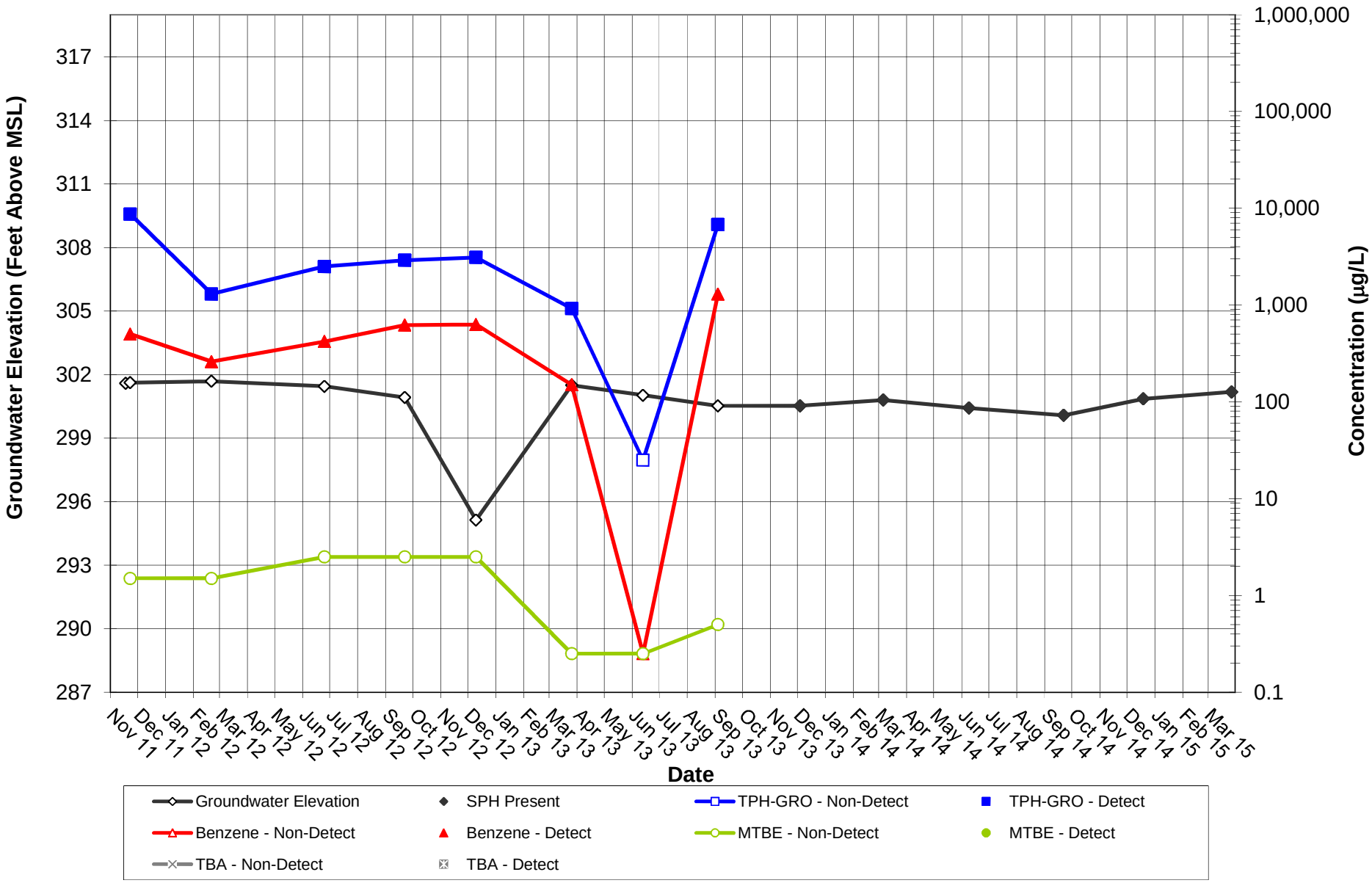
Former Chevron Service Station No. 97127
MW-10 Hydrograph



Notes

1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
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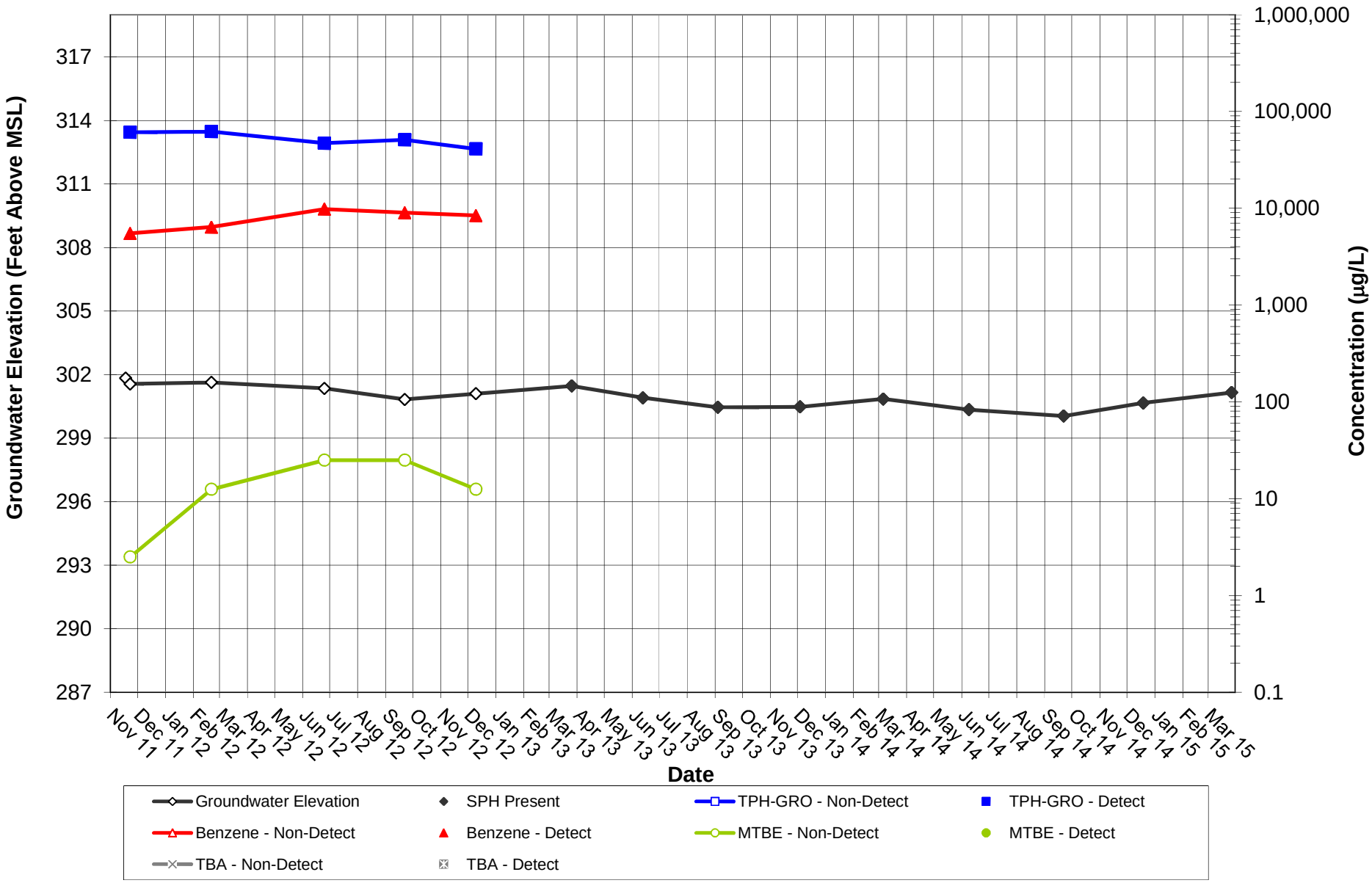
Former Chevron Service Station No. 97127
MW-11 Hydrograph



Notes

1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
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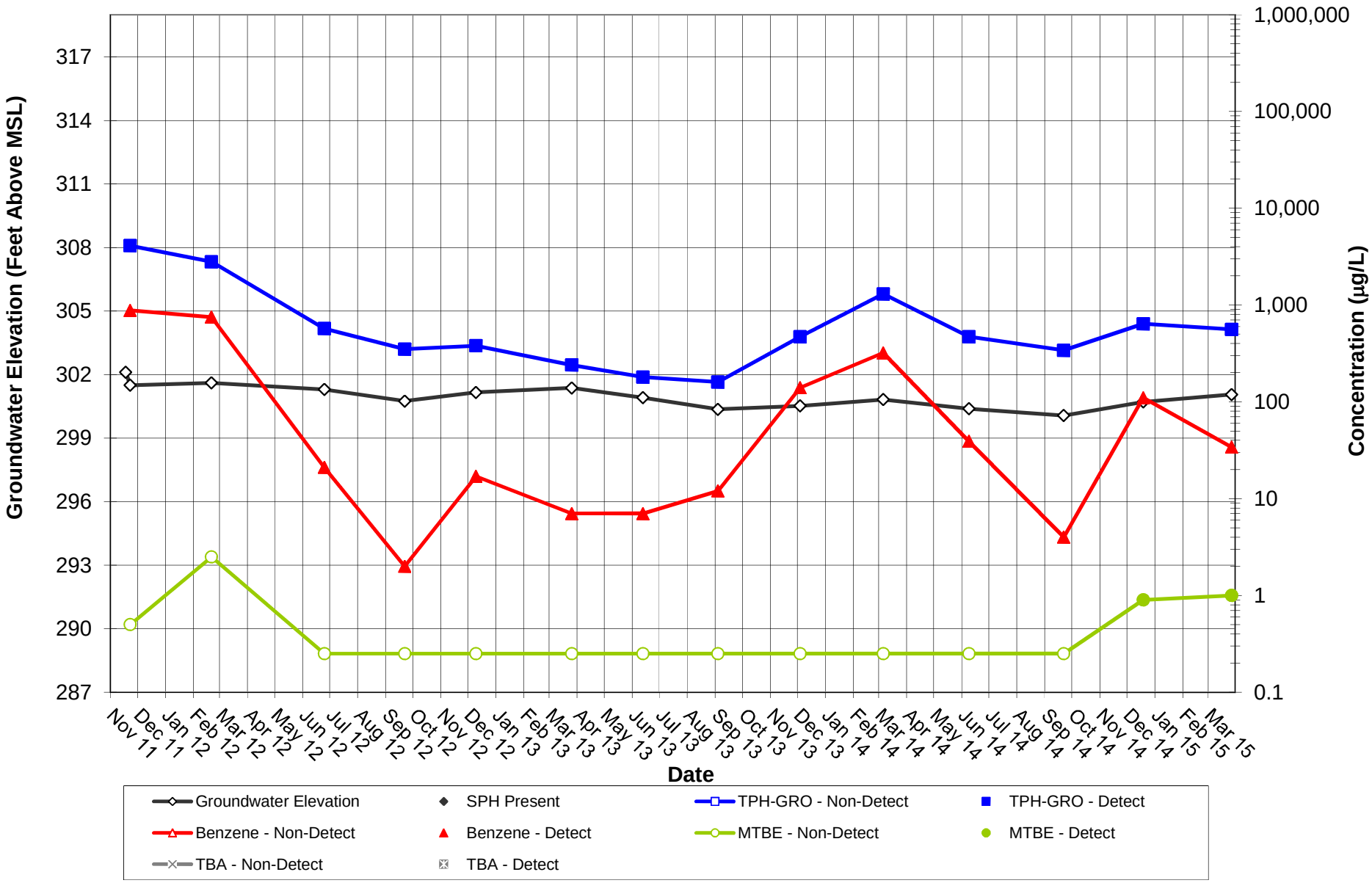
Former Chevron Service Station No. 97127
MW-12 Hydrograph



Notes

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2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
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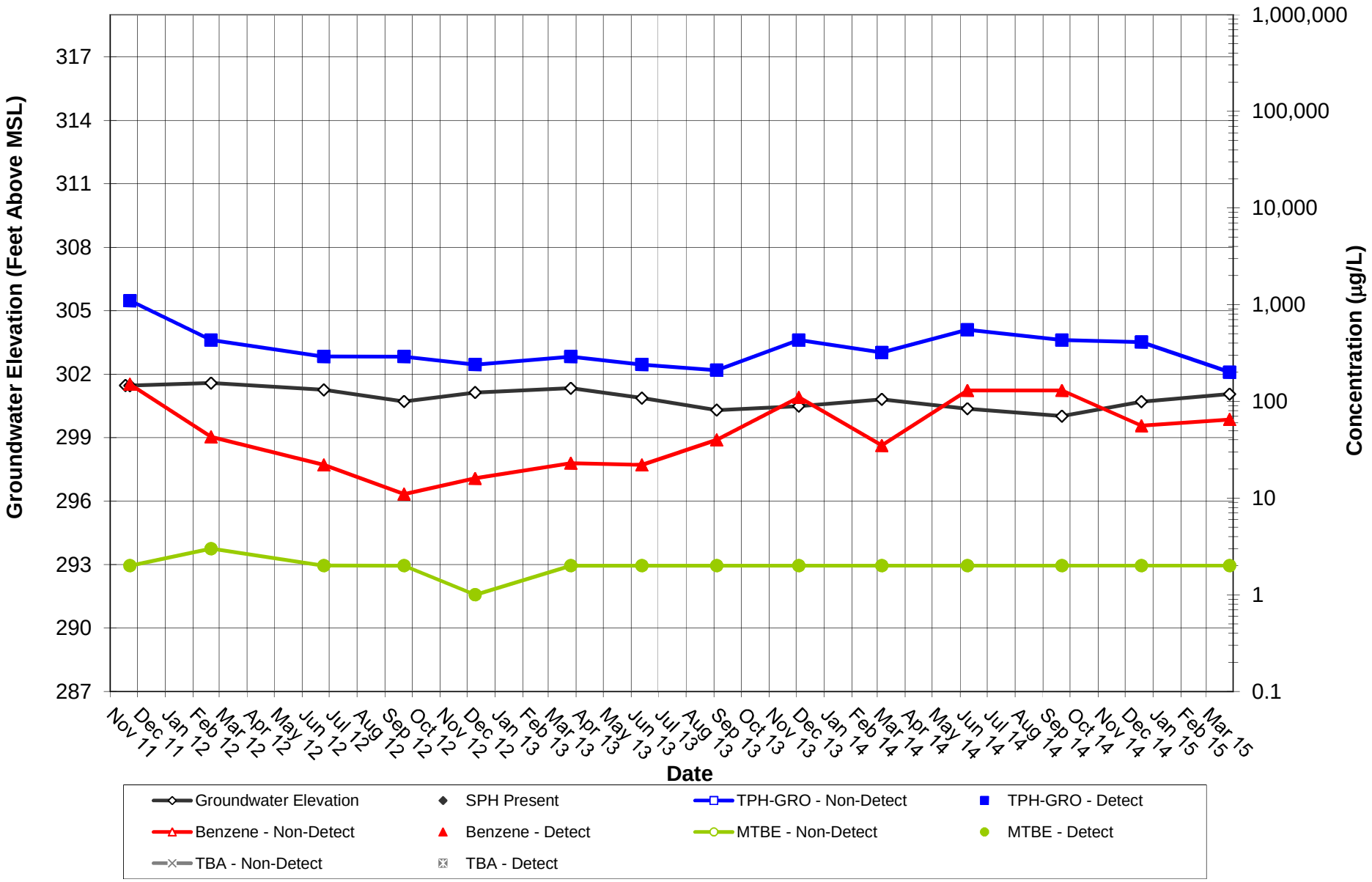
Former Chevron Service Station No. 97127
MW-13 Hydrograph



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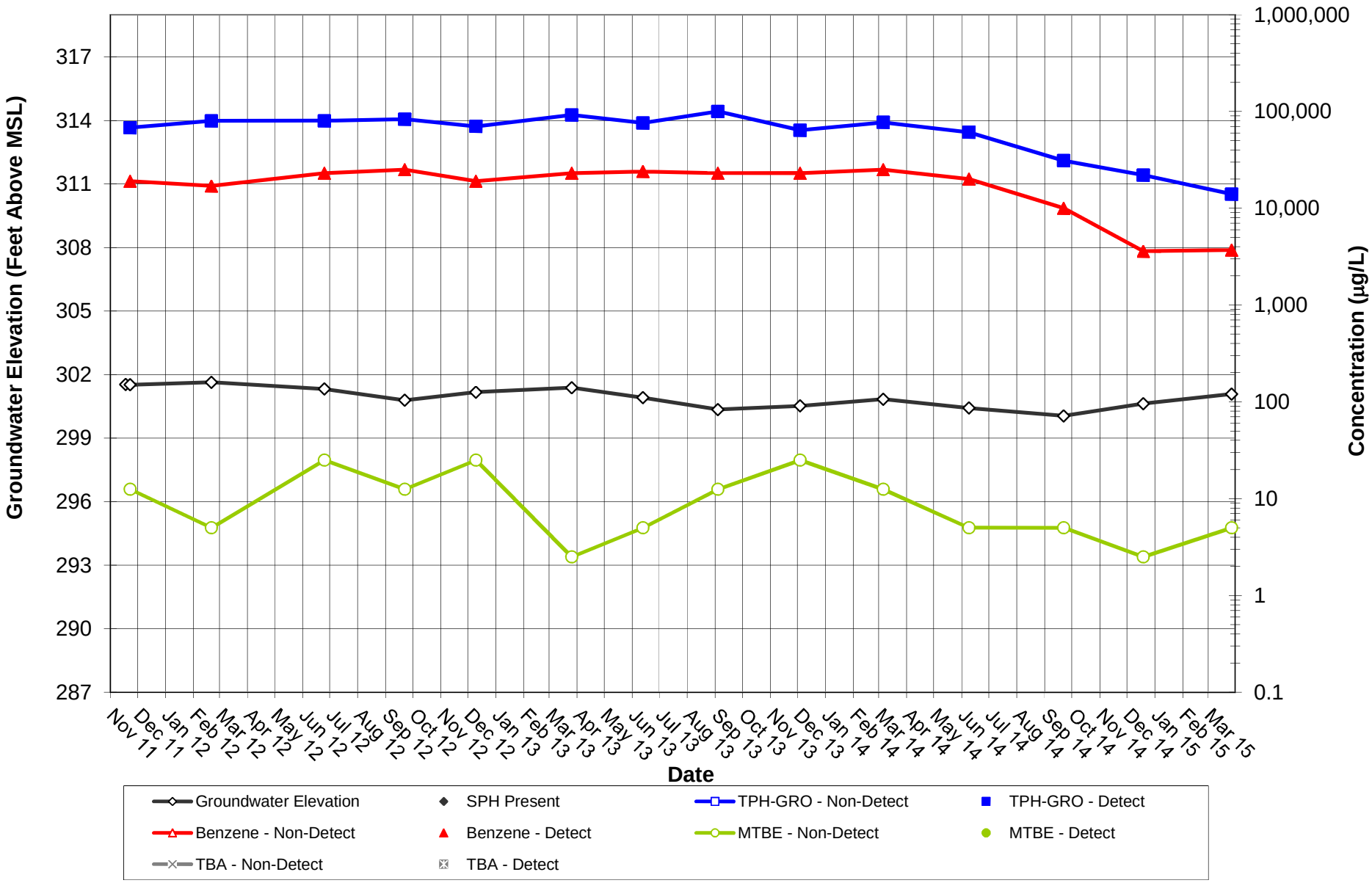
Former Chevron Service Station No. 97127
MW-14 Hydrograph



Notes

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2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
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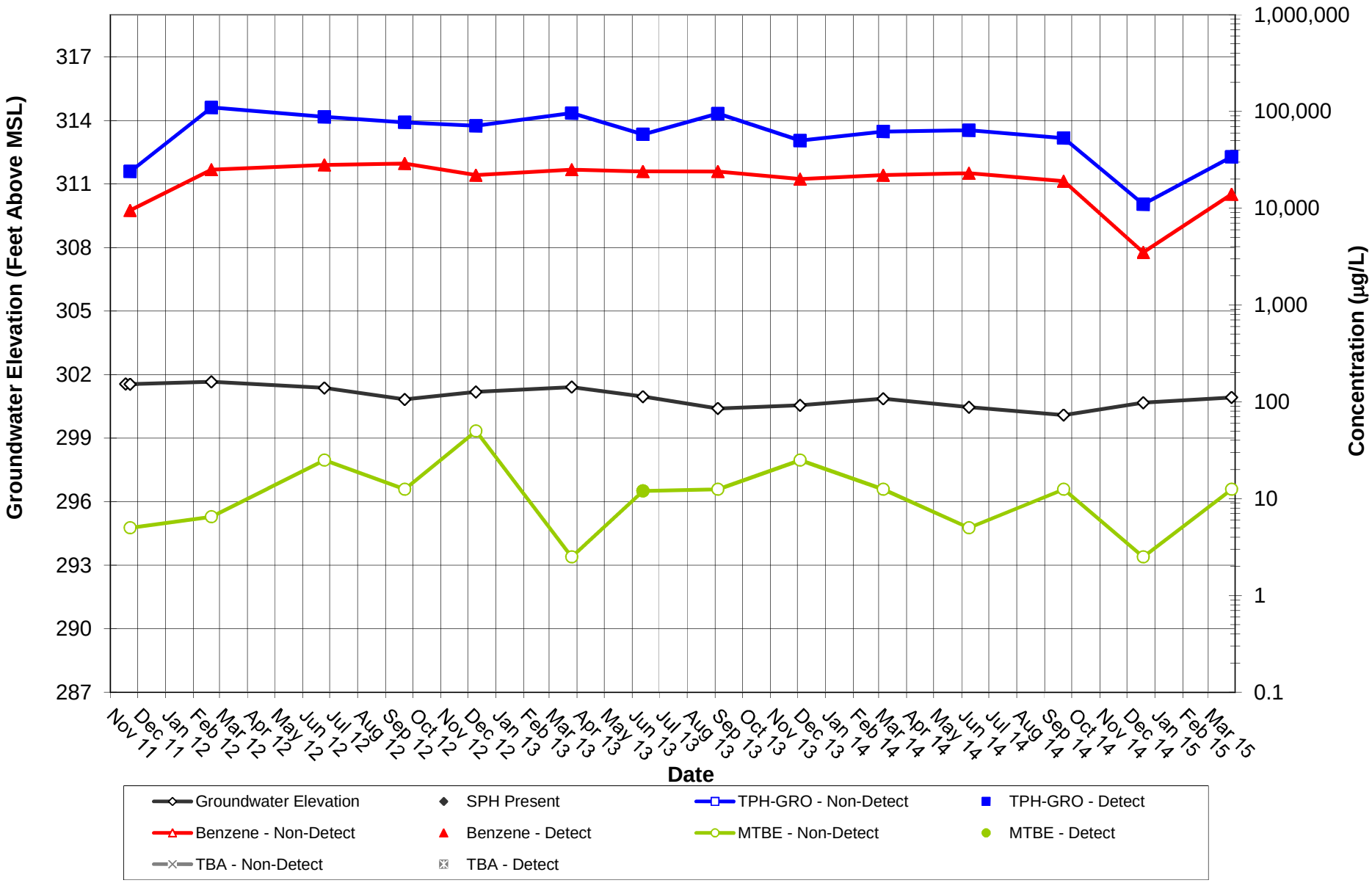
Former Chevron Service Station No. 97127
MW-15 Hydrograph



Notes

1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
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