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RECEIVED
By Alameda County Environmental Health at 10:47 am, Aug 29, 2014

RE: **Offsite Well Installation Report**
Former Chevron Service Station 97127
Grant Line Road and Interstate 580
Tracy, California
RWQCB # RO0000185

Dear Mr. Detterman:

ARCADIS U.S., Inc. (ARCADIS), at the request of Chevron Environmental Management Company (Chevron), has prepared the enclosed Offsite Well Installation Report for Former Chevron Service Station 97127, located at Grant Line Road and Interstate 580 in Tracy, California.

I declare to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct. The enclosed report is submitted pursuant to the requirements of California Water Code Section 13267 (b)(1).

Sincerely,

Carryl MacLeod
Project Manager

ARCADIS
Infrastructure · Water · Environment · Buildings

Imagine the result

Chevron Environmental Management Company

Offsite Monitoring Well Installation Report

Chevron Site No. 97127
Grant Line Road and Interstate 580
Tracy, California
RWQCB # RO0000185

August 28, 2014

ARCADIS

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Offsite Monitoring Well Installation Report
Grant Line Road and Interstate 580
Tracy, California

Prepared for:
Chevron Environmental Management Company

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Our Ref.:
B0047959.0007

Date:
August 28, 2014

Appendices

1. Introduction

On behalf of Chevron Environmental Management Company (CEMC), ARCADIS U.S., Inc. (ARCADIS) prepared this Additional Site Assessment Report (report) for Former Chevron Service Station No. 97127, located at Grant Line Road and Interstate 580 in Tracy, California (site; Figure 1). This report documents the field activities conducted as proposed in the Additional Site Assessment Work Plan (work plan; ARCADIS 2013) and approved by the Alameda County Environmental Health Department (ACEHD) in their July 10, 2013 approval letter.

The objective of offsite monitoring well installation activities were to collect additional soil and groundwater data and to aid in defining the groundwater plume.

2. Background Information

This section describes the site's physical setting, geology, hydrogeology, relevant site investigation and remediation history, and current environmental conditions. Site information is also presented in the Site Conceptual Model Table (Appendix A).

2.1 Site Description and Vicinity

The site is a vacant lot located on the east side of Grant Line Road, just south of Interstate-580 in a rural area of Tracy, California (Figure 1). Former service station facilities at the site included three fuel underground storage tanks (USTs) (two 10,000-gallon capacity and one 1,000-gallon capacity), one steel used oil UST (1,000-gallon capacity), one heating oil UST (750-gallon capacity), product line piping and pump islands, and station building (Figure 2). The five USTs and associated piping were removed in April 1991. The station building and pump islands were subsequently razed, and the site is currently a vacant lot.

The site elevation is approximately 320 feet above mean sea level and the topography is generally hilly. The site is situated in the San Joaquin Basin of California (California Department of Water Resources [DWR] 2006).

Based on historical sampling results, the primary constituents of potential concern (COPC) in soil and groundwater beneath the site are total petroleum hydrocarbons in the gasoline range (TPH-GRO). Additional COPCs include benzene, toluene, ethylbenzene, and total xylenes (BTEX); and the fuel oxygenate methyl tertiary-butyl ether (MTBE).

2.2 Regional Geology and Hydrogeology

The site is situated in the Tracy Subbasin of the San Joaquin Valley Basin, in the southern extent of the Great Valley Geomorphic Province. According to California's Groundwater Bulletin 118, the Great Valley is structural basin between the folded and faulted structure of the Coast Range on the west and the Sierra Nevada Mountain Range on the east. Shallow alluvial deposits consisting of a mixture of unconsolidated silt, sand, and gravel are present in or near stream channels, with thicknesses of less than 100 feet. In the northern two-thirds of the San Joaquin Basin, low permeability flood basin deposits, consisting of primarily silts and clays, underlies the surficial alluvium with thicknesses up to 1,400 feet. Near the Coast Range, older, loosely and moderately compacted sand, silt, and gravel are exposed in alluvial fans with thicknesses of up to 150 feet. The Tulare Formation, which consists of poorly sorted, semiconsolidated clay, silt, and gravel, underlies the alluvial and flood deposits. The Corcoran clay, which is located near the upper extent of the Tulare Formation, acts as a confining layer to the underlying regional aquifer (DWR 2006).

Water-bearing deposits of the Tracy Subbasin include sand and gravel intervals in shallow alluvium, low-yield, water-bearing gravel interbeds in flood basin deposits, moderately to highly permeable older alluvium in the Coast Range foothills, and the highly productive Tulare Formation (DWR 2006).

The Upper Tulare Aquifer lies from approximately 5 to 200 feet bgs. The Corcoran clay, consisting of low permeability silty diatomaceous clay, is generally encountered at 200 feet bgs, and is approximately 100 feet thick. The confined Lower Tulare Aquifer lies below the Corcoran clay (USGS, 1998a. Environmental Setting of the San Joaquin-Tulare Basins, California). Primary municipal, industrial, and agricultural water is sourced from beneath the Corcoran clay of the Tulare Formation. Some domestic wells extract water from above the clay; however, water quality and production rate is often reduced. Wells completed beneath the Corcoran clay reportedly pump groundwater at rates up to 3,000 gallons per minute (DWR 2006).

2.3 Site Geology

Data collected during subsurface investigations indicate that heterogeneous layers of consolidated fine-grained sediments underlie the site and immediate vicinity. Boring logs from previous site investigations indicate that soil beneath the site consists primarily of fill (combinations of sand, silt and clay), silty clay, clayey sand, silty sand

and gravel to a maximum depth of approximately 19 feet below ground surface (bgs). Site soils are underlain by sandstone that extends to the maximum explored depth of 40 feet below ground surface (bgs). Geologic cross-sections are provided as Figures 3 through 6.

2.4 Previous Site Investigations and Extent of Constituents of Potential Concern

2.4.1 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 below ground surface (bgs). Based on the soil vapor sample analytical results, EA determined that LNAPL may exist near the USTs and pump island (EA 1987).

2.4.2 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. 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 water well. Both taps are supplied by the on-site domestic water well located near the southeast corner of the site. The water samples collected from the 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.

2.4.3 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 water well and conveyance piping. During January 1988, GeoStrategies collected water samples from the tap located adjacent to the on-site domestic water 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, detectable concentration of benzene were not found. During March 1989, Gettler-Ryan (G-R) collected water

samples from the on-site domestic well, the tap located adjacent to the on-site domestic water 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 Inc. 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).

2.4.4 April 1991 – Tank, Product Piping, and Dispenser Island Removal

During April 1991, Blaine Tech Services Inc. (Blaine Tech) 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 (Blaine Tech 1991).

2.4.5 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 separate phase hydrocarbons (SPH) in monitoring well MW-1 at a thickness of 1.67 feet. PEG sampled the water supply well was sampled 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 BTEX. (PEG 1993).

2.4.6 January 1993 – LNAPL Removal

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

2.4.7 May 1993 – Monitoring Well Installation

PEG advanced one soil boring (B-3) was advanced and two monitoring wells (MW-4 and MW-5) were installed in 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 1993).

2.4.8 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 (Weiss Associates [WA] 1994).

2.4.9 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).

2.4.10 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*).*

2.4.11 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.

2.4.12 December 1999 – Hydrogen Peroxide Injection

Cambria Environmental Technology (Cambria, now CRA) injected hydrogen peroxide at various concentrations in MW-1 and MW-3 during December 1999 to reduce SPH and petroleum hydrocarbon concentrations in groundwater at the site (Cambria 2000*).*

2.4.13 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 SPH 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 SPH thickness. (Delta 2003)

2.4.14 April 2003 – Remedial Action Plan (RAP) and Feasibility Study (FS)

Delta submitted a 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 underling 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).

2.4.15 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.

2.4.16 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).

2.4.17 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).

2.4.18 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).

2.4.19 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, it 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 (CRA 2010). In their letter dated December 16, 2010, ACEHD requested additional site characterization prior to surfactant-enhanced recovery.

2.4.20 October to November 2013 Site Investigation

Between October and November 2013, Cascade Drilling, LP (Cascade), under the supervision of ARCADIS, installed 13 soil borings to delineate soil and grab groundwater impacts. Four additional soil borings were installed to collect depth-discrete samples for saturated core analysis. A LNAPL baildown test was also completed at monitoring well MW-1 in October 2013 to evaluate the transmissivity of LNAPL at the site. After the baildown test, a LNAPL sample was submitted for chemical analysis. 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 2014).

3. Offsite Monitoring Well Installation Activities

This section summarizes activities completed during the recent investigation.

3.1 Pre-Field Activities

3.1.1 Health and Safety Plan

Prior to initiating field activities, ARCADIS updated the existing site-specific Health and Safety Plan (HASP) to verify that all tasks were conducted in a safe manner, according to CEMCs and ARCADIS' corporate health and safety policies. All personnel, including on-site subcontractors and regulatory personnel, were required to familiarize themselves with and sign the HASP.

3.1.2 Permitting

Prior to conducting field activities; ARCADIS secured a drilling permit from the Zone 7 Water Agency.

3.1.3 Subsurface Utility Location

Prior to the initiation of site investigation activities, Underground Service Alert (USA) was notified and utilities were marked by the various public utilities. On June 23, 2014, a third-party private utility locator, Ground Penetrating Radar System, Inc. (GPRS), was used for private locating services.

3.2 Offsite Well Installation Activities

Between July 14 and 15, 2014, Cascade Drilling, L.P. (Cascade; California Water Well Drilling Contractor license number C57-938110), under the supervision of ARCADIS, advanced one offsite monitoring well, MW-16 (Figure 2). The monitoring well was advanced using a limited access sonic rig. The location of the monitoring well was selected to delineate soil and groundwater impacts offsite.

3.2.1 Soil Boring Installation

ARCADIS attempted to clear the boring location to a minimum depth of 8 feet 1 inch using hand clearing tools and air knife; however, due to site lithology, the boring was not cleared to the minimum clearance depth due to refusal at approximately 4 feet bgs.

Following initial clearance, the boring was advanced using a limited access sonic drill rig. The soil boring was advanced with 8 inch outer diameter (OD) casing. Core sections varied in length and runs were ceased as the driller observed increased resistance, typically between two and five foot core section intervals. An inner 4-inch diameter core was advanced to collect continuous soil samples. The resultant soil core was extruded into a clear plastic core bag. The boring was advanced to approximately 30 feet bgs approximately 15 feet below first observation of the saturated zone. The total depth of the boring was 30 feet bgs. The boring log is provided in Appendix A.

All down-hole drilling and sampling equipment was pressure-washed prior to and between each boring to prevent cross-contamination. Decontamination of field equipment was conducted using an Alconox® solution and a deionized water rinse between each sample to prevent potential cross-contamination.

3.2.2 Soil Logging, Sampling and Analysis

Soil samples were logged for soil characteristics and screened for the presence of volatile organic compounds (VOC) using a photo-ionization detector (PID).

A total of 4 soil samples were collected for laboratory analyses. Samples were packed on ice, under appropriate chain-of-custody protocols and couriered to Eurofins Lancaster Laboratories, Inc. (Eurofins), a California Department of Public Health-certified analytical laboratory. Soil samples were analyzed for the presence of the following constituents:

- TPH-GRO (C_6-C_{12}) by U.S. Environmental Protection Agency (USEPA) Method 8015B
- BTEX and MTBE by USEPA Method 8260B
- naphthalene by USEPA Method 8260B (shallow soil samples only; collected from 0 to 10 feet bgs)

3.2.3 Installation of Monitoring Well

The monitoring well was constructed with a two-inch outer diameter Schedule 40 polyvinyl chloride (PVC) 0.010-inch screen and solid riser. The well screen was installed from 15 to 30 feet bgs. The solid PVC riser was installed from the top of the screen to approximately 3 feet above ground surface. The annular space was backfilled with No. 2/12 Monterey Sand from total depth to approximately two feet

above the top of the well screen. A hydrated bentonite slurry seal measuring two feet in thickness was placed above the sand pack and allowed to hydrate for at least 30 minutes. The remaining annular space was tremie grouted with neat cement (Portland Type II/V) to about six inches bgs. The well was fitted with a locking well cap and completed with a well monument. Three ballards were also installed around the well monument to protect the well from damage.

3.2.4 Monitoring Well Development

Following installation of the monitoring well, the well was developed to verify that the well functioned properly and to remove residual particulates that settled in the well during installation. The annular seal was allowed time to set prior to well development, thus the well was not developed for at least 48 hours. Well development activities occurred on July 23, 2014.

The monitoring well was developed by surging and bailing the well for approximately 40 minutes, then purging the well with a submersible pump to remove accumulated particulates and draw groundwater into the well. At least ten well volumes of water were removed from the well using a submersible pump. A water quality meter was used to measure the groundwater quality parameters. Groundwater quality parameters were recorded every five minutes on the field data sheet. Development continued until groundwater parameters (temperature, pH, conductivity, turbidity, dissolved oxygen and oxygen reduction potential) stabilized.

Following development, a disposable bailer was used to collect one groundwater sample from MW-16. The groundwater sample was packed on ice and shipped, under appropriate chain-of-custody protocols to Pace Analytical/Zymax Forensics for comparative analysis. Groundwater samples were analyzed for the presence of the following constituents:

- 120 paraffin, isoparaffin, aromatic (includes BTEX), naphthene, and olefin (PIANO) compounds in the gasoline range by modified USEPA method 8260

MW-16 will be monitored and sampled on a quarterly basis and added to the existing monitoring and sampling plan. In accordance with the existing sampling plan, groundwater samples will be collected with new disposable bailers after purging approximately three well volumes of water.

3.2.5 Investigative Derived Waste

All soil cuttings, purge water, and decontamination water generated during drilling operations will be containerized in Department of Transportation (DOT) – approved 55-gallon drums and temporarily stored on site pending disposal. A Chevron disposal contractor will transport waste to an appropriate disposal or treatment facility.

3.3 Soil and Groundwater Results PIANO Forensic Analysis

3.3.1 Soil Analytical Results

Soil analytical results are included in Table 1. TPH-GRO, BTEX and naphthalene were not detected in any of the soil samples collected from MW-16. On May 1, 2012, the State Water Resources Control Board (SWRCB) adopted resolution 2012-0016, otherwise known as the Low-Threat UST Case Closure Policy (LTCP; SWRCB 2012). Soil analytical results were screened against LTCP direct contact criteria for commercial/industrial scenarios. Laboratory analytical reports are included as Appendix B.

3.3.2 PIANO Forensic Analysis

Following well development activities on July 23, 2014, one groundwater sample was collected and analyzed for PIANO compounds by modified USEPA Method 8260. No sheen was observed in the samples by the lab prior to analysis. Results are tabulated in the order of their class of compound (e.g., paraffins, isoparaffins, etc) and relative molecular weight within each class. Group class concentrations (e.g., P, I, A, etc) and Total PIANO concentrations were calculated. The PIANO composition of each sample was graphed, and diagnostic ratios of selected compounds, useful in differentiating hydrocarbon sources, were calculated and plotted. The list of analytes is provided in Table 2 and the analytical report is included in Appendix B.

MW-16 did not contain any PIANOS compounds, indicating that MW-16 has no impact from the gasoline release. The only detected constituent is 1,1-dichloroethene (EDC) at a concentration of 8.03 (µg/L). The California Primary Maximum Contaminant Level [(MCL] CDPH 2008) for EDC is 0.5 µg/L.

4. Conclusions

Between July 14 and July 23, 2014, ARCADIS installed and developed one offsite monitoring well at the site. As presented within the report there is no evidence of petroleum hydrocarbon contamination at this offsite location in soil and groundwater. Thus the groundwater plume is delineated and stable.

As requested by ACEHD, ARCADIS will submit a LNAPL Recovery Work Plan during the third quarter 2014.

5. References

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Tables

Table 1
Soil Analytical Results
Total Petroleum Hydrocarbons and Volatile Organic Compounds

Offsite Well Installation Report
Grant Line Road and I-580
Tracy, California

Sample ID	Sample Date	Sample Depth (ft bgs)	USEPA Method 8015B	USEPA Method 8260B					
			TPH-GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Naphthalene
RWQCB Direct Contact Screening Levels (Commercial/Industrial) for 0 to 5 ft bgs[1]			NA	8.2	NA	89	NA	NA	45
RWQCB Direct Contact Screening Levels (Commercial/Industrial) for 5 to 10 ft bgs[1]			NA	12	NA	134	NA	NA	45
MW-16-S-2	07/14/14	2	<1.1	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001
MW-16-S-5	07/15/14	5	<1.1	<0.0006	<0.001	<0.001	<0.001	<0.0006	<0.001
MW-16-S-10	07/15/14	10	<1	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.001
MW-16-S-16	07/15/14	16	<1.1	<0.0006	<0.001	<0.001	<0.001	<0.0006	--

NOTES:
Concentrations are in milligrams per kilogram (mg/kg).
-- = Not Analyzed
< = Less than the stated laboratory detection limit
ft bgs = feet below ground surface
MTBE = Methyl tert-butyl ether
TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics
RWQCB = Regional Water Quality Control Board
USEPA = United States Environmental Protection Agency
[1] = Screening Levels from RWQCB Low-Threat Underground Storage Tank Case Closure Policy, Concentrations of Petroleum Constituents in Soil That Will Have No Significant Risk of Adversely Affecting Human Health;
http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf

Table 2
PIANO Concentrations

Offsite Well Installation Report
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Tracy, California

Well ID	Laboratory Number	Date Sampled	Parafins	Butane	Pentane	Hexane	Heptane	Octane	Nonane	Decane	Undecane	Isoparafins	Isobutane	Isopentane	2,2-Dimethylbutane	2,3-Dimethylbutane	2-Methylpentane	3-Methylpentane	2,2-Dimethylpentane	2,4-Dimethylpentane	3,3-Dimethylpentane	2-Methylhexane	2,3-Dimethylpentane	3-Methylhexane	2,2,4-Trimethylpentane	2,5-Dimethylhexane	2,4-Dimethylhexane	2,3,4-Trimethylpentane	2,3-Dimethylhexane	2-Methylheptane	4-Methylheptane	2,3,3-Trimethylpentane	3,4-Dimethylhexane	3-Ethyl-3-methylpentane
MW-16	**43669-1**	**7/23/2014**		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
All concentrations are reported in micrograms per Liter.
ND = Non-detect
Detection Limit = 1.00
1 = Total PIANOS is the sum of the Parafins, Isoparafins, Aromatics, Naphthenes, Olefins and Sulfurs.

Table 2
PIANO Concentrations

Offsite Well Installation Report
Grant Line Road and I-580
Tracy, California

Well ID	Laboratory Number	Date Sampled	3-Methylheptane	2,2-Dimethylheptane	2,4,4-Trimethylhexane	2,4-Dimethylheptane	2,6-Dimethylheptane	2,5-Dimethylheptane	3-Ethylheptane	3-Methyloctane	2,3-Dimethylheptane	4-Methyloctane	2-Methyloctane	3,3,5-Trimethylheptane	2,2-Dimethyloctane	3-Methylnonane	3,3-Dimethyloctane	3,3,4-Trimethylheptane	**Aromatics**	Benzene	Toluene	Ethylbenzene	m,p-Xylenes	o-Xylene	Isopropylbenzene	n-Propylbenzene	1-Methyl-3-ethylbenzene	1-Methyl-4-ethylbenzene	1,3,5-Trimethylbenzene	1-Methyl-2-ethylbenzene	1,2,4-Trimethylbenzene	1-Methyl-3-isopropylbenzene	sec-Butylbenzene
MW-16	**43669-1**	**7/23/2014**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
All concentrations are reported in microgr
ND = Non-detect
Detection Limit = 1.00
1 = Total PIANOS is the sum of the Parafi

Table 2
PIANO Concentrations

Offsite Well Installation Report
Grant Line Road and I-580
Tracy, California

Well ID	Laboratory Number	Date Sampled	1,2,3-Trimethylbenzene	Indane	1,3-Diethylbenzene	n-Butylbenzene	1,3-Dimethyl-5-ethylbenzene	1,4-Diethylbenzene	1-Methyl-2-propylbenzene	1,4-Dimethyl-2-ethylbenzene	1,3-Dimethyl-4-ethylbenzene	1,2-Dimethyl-4-ethylbenzene	1,3-Dimethyl-2-ethylbenzene	1,2,4,5-Tetramethylbenzene	1,2,3,5-Tetramethylbenzene	1,2,3,4-Tetramethylbenzene	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene	n-Pentylbenzene	**Naphthenes**	Cyclopentane	Methylcyclopentane	Cyclohexane	trans-1,3-Dimethylcyclopentane	cis-1,3-Dimethylcyclopentane	1,2-Dimethylcyclopentane	Methylcyclohexane	trans-1,4-Dimethylcyclohexane	trans-1,2-Dimethylcyclohexane	Ethylcyclohexane	1,2,4-Trimethylcyclohexane	1,1,2-Trimethylcyclohexane
MW-16	**43669-1**	**7/23/2014**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
All concentrations are reported in microgr
ND = Non-detect
Detection Limit = 1.00
1 = Total PIANOS is the sum of the Parafi

Table 2
PIANO Concentrations

Offsite Well Installation Report
Grant Line Road and I-580
Tracy, California

Well ID	Laboratory Number	Date Sampled	Isopropylcyclohexane	**Olefins**	Isobutene	3-Methyl-1-butene	1-Pentene	2-Methyl-1-butene	trans-2-Pentene	cis-2-Pentene	2-Methyl-2-butene	Cyclopentene	4-Methyl-1-pentene	trans-2-Hexene	2-Methyl-2-pentene	3-Methylcyclopentene	3-Methyl-2-pentene	cis-2-Hexene	1-Methylcyclopentene	5-Methyl-1-hexene	4,4-Dimethyl-2-pentene	2,2,3-Trimethylpentane	trans-2-Heptene	2-Methyl-1-heptene	1-Octene	Styrene	1-Nonene	1-Decene	Indene	**Sulfurs**	Thiophene	2-Methylthiophene	3-Methylthiophene	2-Ethylthiophene
MW-16	**43669-1**	**7/23/2014**	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND

Notes:
All concentrations are reported in microgr
ND = Non-detect
Detection Limit = 1.00
1 = Total PIANOS is the sum of the Parafi

Table 2
PIANO Concentrations

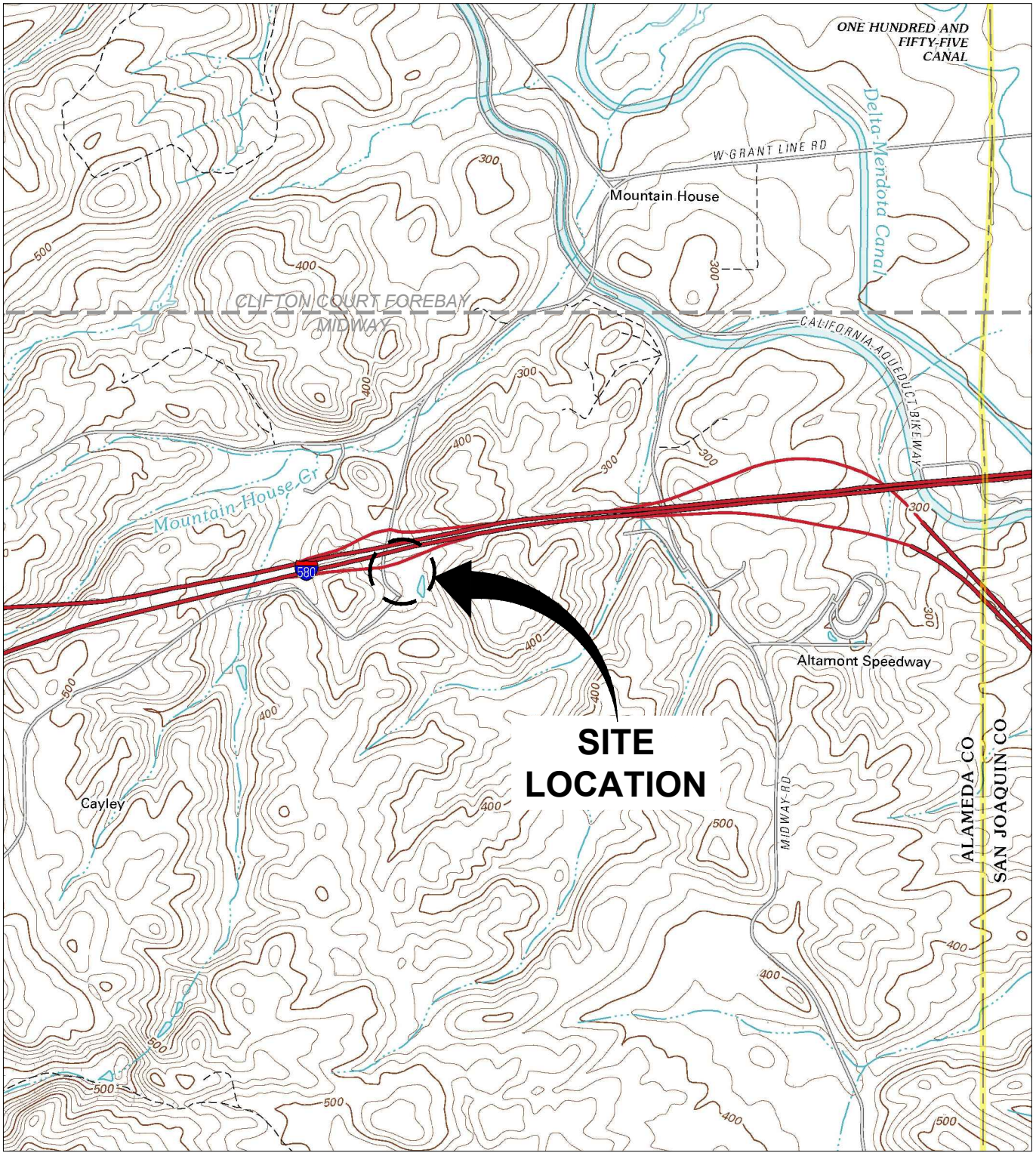
Offsite Well Installation Report
Grant Line Road and I-580
Tracy, California

Well ID	Laboratory Number	Date Sampled	Benzothiophene	N	1,2-Dichloroethane (EDC)	1,2-Dibromoethane (EDB)	Total PIANOS[1]
MW-16	**43669-1**	**7/23/2014**	ND		8.03	ND	0

Notes:
All concentrations are reported in microgr
ND = Non-detect
Detection Limit = 1.00
1 = Total PIANOS is the sum of the Parafi

ARCADIS

Figures



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., MIDWAY AND CLIFTON COURT FOREBAY, CALIFORNIA, 2012.

0 2000' 4000'

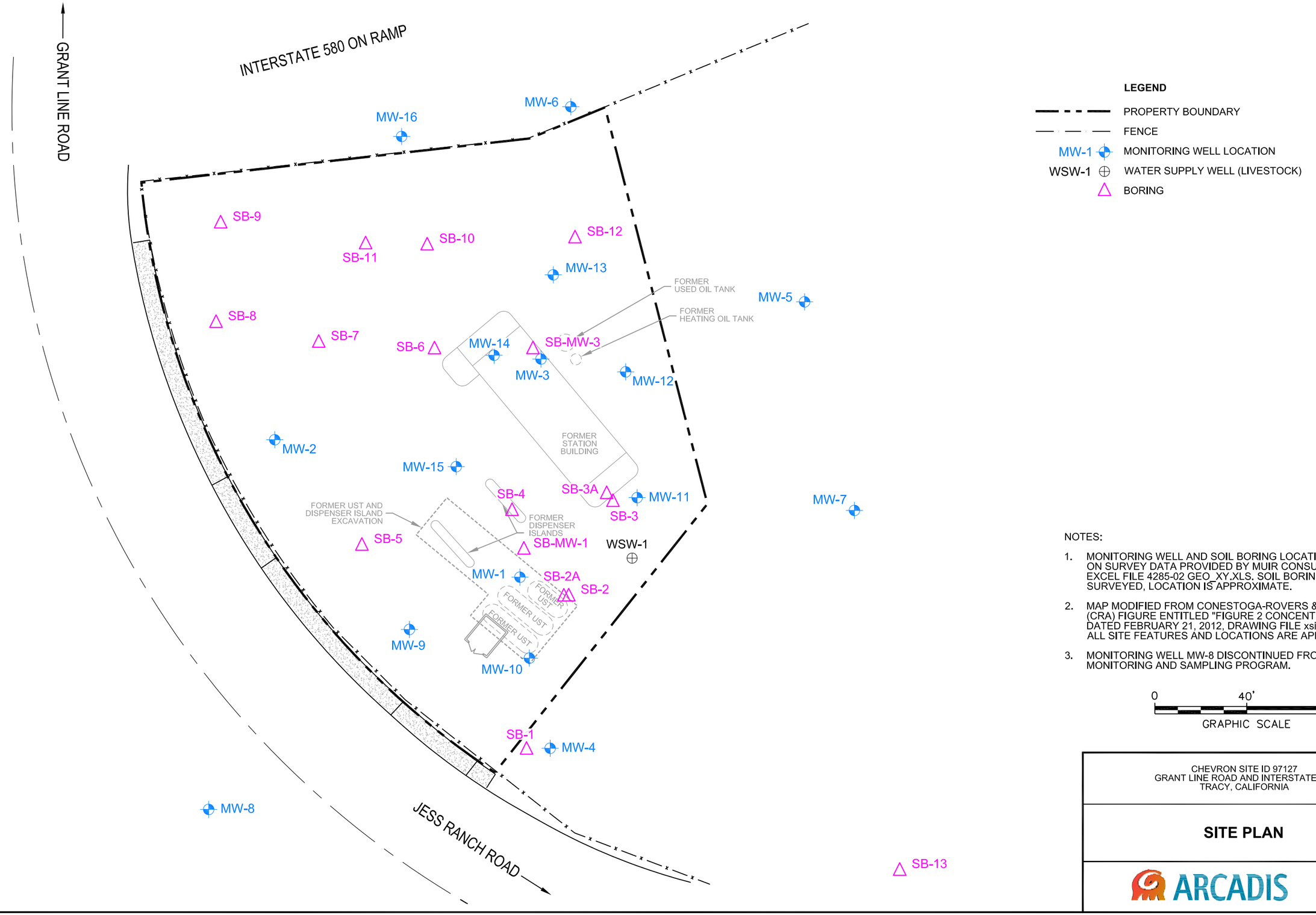
Approximate Scale: 1 in. = 2000 ft.

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

SITE LOCATION MAP

ARCADIS

FIGURE 1



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. MONITORING WELL MW-8 DISCONTINUED FROM MONITORING AND SAMPLING PROGRAM.

0 40' 80'
GRAPHIC SCALE

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

SITE PLAN

ARCADIS

FIGURE 2

Appendix A

Boring Log

Date Start/Finish: 7/14/14
Drilling Company: Cascade Drilling
Driller's Name: Greg Schrot
Drilling Method: Sonic
Barrel Size: 6 7/8 in
Rig Type: Geoprobe 8140LS
Sampling Method: Core Barrel
OVA Equipment: PID

Latitude: 37.739622
Longitude: -121.585376
Casing Elevation: 318.20 ft amsl
Surface Elevation:
Borehole Depth: 30 ft bgs
First Water: 17 ft bgs
Stable Water: Greg Schroth
Descriptions By: Rob Moniz

Well/Boring ID: **MW-16**
Client: Chevron 9-7217
Location: Grant Line Rd. at Interstate 580 - Tracy, CA
Reviewed By: **Jacob Henry, P.G.**

DEPTH ft bgs	Analytical Sample	Recovery Interval	PID Measurement (ppm)	Classification Symbol	Geologic Column	Stratigraphic Description	Well/Boring Construction
0				SM		SILTY SAND WITH CLAY, very fine to coarse-grained sand, moderately cemented, very dense, dry, brown (7.5YR 4/2)	Stick-up with bollards
	MW-16-S-2	HA/AK	0				
			0				
			0	SP		POORLY GRADED SAND WITH SILT, fine to medium sand, dry, loose, round grains gives powdery feel, light brownish gray (2.5Y 6/2)	
	MW-16-S-5		0				
-5			0	Sandstone		Neroly Formation SANDSTONE (SP), mix of well cemented black sand lenses and fine loose sand, little silt, dry/moist	Neat cement grout
			0				
			0				
			0			Interbedded sandstone (1/2 to 2 in disks and fragments, moderatley cemented, dark grayish brown (10YR 4/2)) and clayey silty sand (light brownish gray (2.5Y 6/2))	
	MW-16-S-10		0				
-10			0				Bentonite chips
			0			Moist, few silty/clayey laminations	
			0				
			0				
-15			0			Moist/wet, black (10YR 2/1), approximately 80% sandstone fragments and disks and 20% loose welt silty clayey sand DTW = 16.1 ft bgs when hole open to 20 ft bgs	Schedule 40 2-inch PVC
	MW-16-S-16		0				
			0			Wet	
			0			SILTY SAND, well cemented, moist, olive brown (2.5Y 4/3), acts as aquitard for above water, interbedded with silty clayey laminations	
			0				
-20			0				

ARCADIS

Remarks: Abbreviations: ft amsl = feet above mean sea level, ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million, HA/AK = hand auger/air knife, NR = no recovery

Longitude and latitude were measured using the North American Datum of 1983 (NAD 83). Top of casing was measured using the North American Vertical Datum of 1988 (NAVD 88).

Date Start/Finish: 7/14/14
Drilling Company: Cascade Drilling
Driller's Name: Greg Schrot
Drilling Method: Sonic
Barrel Size: 6 7/8 in
Rig Type: Geoprobe 8140LS
Sampling Method: Core Barrel
OVA Equipment: PID

Latitude: 37.739622
Longitude: -121.585376
Casing Elevation: 318.20 ft amsl
Surface Elevation:
Borehole Depth: 30 ft bgs
First Water: 17 ft bgs
Stable Water: Greg Schroth
Descriptions By: Rob Moniz

Well/Boring ID: **MW-16**
Client: Chevron 9-7217
Location: Grant Line Rd. at Interstate 580 - Tracy, CA
Reviewed By: **Jacob Henry, P.G.**

DEPTH ft bgs	Analytical Sample	Recovery Interval	PID Measurement (ppm)	Classification Symbol	Geologic Column	Stratigraphic Description	Well/Boring Construction
-20			0			SAND WITH FINES, wet, little silt and clay, very dark grayish brown (2.5Y 3/2), moisture decreases with depth	#3 Sand; Schedule 40 010-slot screen
			0				
			0			SILTY SAND, well cemented, moist, dark grayish brown (2.5Y 4/2), acts as aquitard for above water, interbedded with loose silty laminations	
			0			SAND WITH FINES, wet, little silt and clay, very dark grayish brown (2.5Y 3/2), 80% sandstone, 20% loose silty sand	
			0			Trace to no fines, very fine to medium sand, 85% sandstone, 15% loose sand	
-25			0			50% sandstone, 50% loose silty clayey sand mud	
			0			SILTY SAND, well cemented, moist, very fine sand, very dark grayish brown (10YR 3/2)	
			0			POORLY GRADED SAND, wet, 20% sandstone, 80% loose sand, trace clay, very fine to medium grained sand	
			0			Silt increases, percentage of loose sand increases	
			0			80% sandstone disks	
-30			0			SILTY SAND, sandstone disks interbedded with silty clayey laminations of very fine to fine, loose sand, moist, dark grayish brown (10YR 4/2)	
						Total Depth = 30 feet bgs	
-35							
-40							

ARCADIS

Remarks: Abbreviations: ft amsl = feet above mean sea level, ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million, HA/AK = hand auger/air knife, NR = no recovery

Longitude and latitude were measured using the North American Datum of 1983 (NAD 83). Top of casing was measured using the North American Vertical Datum of 1988 (NAVD 88).

Date Start/Finish: 7/14/14
Drilling Company: Cascade Drilling
Driller's Name: Greg Schrot
Drilling Method: Sonic
Barrel Size: 6 7/8 in
Rig Type: Geoprobe 8140LS
Sampling Method: Core Barrel
OVA Equipment: PID

Latitude: 37.739622
Longitude: -121.585376
Casing Elevation: 318.20 ft amsl
Surface Elevation:
Borehole Depth: 30 ft bgs
First Water: 17 ft bgs
Stable Water: Greg Schroth
Descriptions By: Rob Moniz

Well/Boring ID: **MW-16**
Client: Chevron 9-7217
Location: Grant Line Rd. at Interstate 580 - Tracy, CA
Reviewed By: **Jacob Henry, P.G.**

DEPTH ft bgs	Analytical Sample	Recovery Interval	PID Measurement (ppm)	Classification Symbol	Geologic Column	Stratigraphic Description	Well/Boring Construction

Remarks: Abbreviations: ft amsl = feet above mean sea level, ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million, HA/AK = hand auger/air knife, NR = no recovery

Longitude and latitude were measured using the North American Datum of 1983 (NAD 83). Top of casing was measured using the North American Vertical Datum of 1988 (NAVD 88).

Appendix B

Chain-of-Custody
Documentation and Laboratory
Reports

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

July 24, 2014

Project: 97127

Submittal Date: 07/17/2014
Group Number: 1489866
PO Number: 0015150110
Release Number: CMACLEOD
State of Sample Origin: CA

Client Sample Description	Lancaster Labs (LL) #
MW-16-S-2-140714 Grab Soil	7537171
MW-16-S-5-140715 Grab Soil	7537172
MW-16-S-10-140715 Grab Soil	7537173
MW-16-S-16-140715 Grab Soil	7537174

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Arcadis	Attn: Loretta Kwong
ELECTRONIC COPY TO	ARCADIS U.S., Inc.	Attn: Cameron McGovern
ELECTRONIC COPY TO	ARCADIS	Attn: Hannah Rollins

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

Sample Description: MW-16-S-2-140714 Grab Soil
Facility# 97127 BBLW
I-580 & Grant Line-Tracy T0600102298 MW-16

LL Sample # SW 7537171
LL Group # 1489866
Account # 11964

Project Name: 97127

Collected: 07/14/2014 12:10 by RM

Submitted: 07/17/2014 18:50
Reported: 07/24/2014 09:36

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

27161

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**mg/kg**	**mg/kg**	
10237	Benzene	71-43-2	N.D.	0.0006	1.03
10237	Ethylbenzene	100-41-4	N.D.	0.001	1.03
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.0006	1.03
10237	Naphthalene	91-20-3	N.D.	0.001	1.03
10237	Toluene	108-88-3	N.D.	0.001	1.03
10237	Xylene (Total)	1330-20-7	N.D.	0.001	1.03
GC Volatiles	**SW-846 8015B modified**		**mg/kg**	**mg/kg**	
01725	TPH-GRO N. CA soil C6-C12	n.a.	N.D.	1.1	23.95
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	
00111	Moisture	n.a.	9.5	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

CA ELAP Lab Certification No. 2792; CA NELAP Lab Certification No. 10276CA

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs 8260 BTEX/MTBE/Naph Soil	SW-846 8260B	1	B141991AA	07/18/2014 22:53	Sara E Johnson	1.03
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201419835122	07/17/2014 23:01	Mitchell R Washel	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201419835122	07/17/2014 23:02	Mitchell R Washel	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201419835122	07/17/2014 22:39	Mitchell R Washel	n.a.
01725	TPH-GRO N. CA soil C6-C12	SW-846 8015B modified	1	14202A16A	07/21/2014 18:35	Laura M Krieger	23.95
01150	GC - Bulk Soil Prep	SW-846 5035A Modified	1	201419835122	07/17/2014 22:40	Mitchell R Washel	n.a.
00111	Moisture	SM 2540 G-1997	1	14204820002A	07/23/2014 21:24	Scott W Freisher	1

Sample Description: MW-16-S-5-140715 Grab Soil
Facility# 97127 BBLW
I-580 & Grant Line-Tracy T0600102298 MW-16

LL Sample # SW 7537172
LL Group # 1489866
Account # 11964

Project Name: 97127

Collected: 07/15/2014 09:05 by RM

Submitted: 07/17/2014 18:50
Reported: 07/24/2014 09:36

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

27162

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**mg/kg**	**mg/kg**	
10237	Benzene	71-43-2	N.D.	0.0006	1.01
10237	Ethylbenzene	100-41-4	N.D.	0.001	1.01
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.0006	1.01
10237	Naphthalene	91-20-3	N.D.	0.001	1.01
10237	Toluene	108-88-3	N.D.	0.001	1.01
10237	Xylene (Total)	1330-20-7	N.D.	0.001	1.01
GC Volatiles	**SW-846 8015B modified**		**mg/kg**	**mg/kg**	
01725	TPH-GRO N. CA soil C6-C12	n.a.	N.D.	1.1	25.38
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	
00111	Moisture	n.a.	8.3	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

CA ELAP Lab Certification No. 2792; CA NELAP Lab Certification No. 10276CA

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs 8260 BTEX/MTBE/Naph Soil	SW-846 8260B	1	B141991AA	07/18/2014 23:15	Sara E Johnson	1.01
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201419835122	07/17/2014 23:02	Mitchell R Washel	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201419835122	07/17/2014 23:02	Mitchell R Washel	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201419835122	07/17/2014 22:42	Mitchell R Washel	n.a.
01725	TPH-GRO N. CA soil C6-C12	SW-846 8015B modified	1	14202A16A	07/21/2014 19:13	Laura M Krieger	25.38
01150	GC - Bulk Soil Prep	SW-846 5035A Modified	1	201419835122	07/17/2014 22:43	Mitchell R Washel	n.a.
00111	Moisture	SM 2540 G-1997	1	14204820002A	07/23/2014 21:24	Scott W Freisher	1

Sample Description: MW-16-S-10-140715 Grab Soil
Facility# 97127 BBLW
I-580 & Grant Line-Tracy T0600102298 MW-16

LL Sample # SW 7537173
LL Group # 1489866
Account # 11964

Project Name: 97127

Collected: 07/15/2014 09:20 by RM

Submitted: 07/17/2014 18:50
Reported: 07/24/2014 09:36

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

27163

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**mg/kg**	**mg/kg**	
10237	Benzene	71-43-2	N.D.	0.0005	1.02
10237	Ethylbenzene	100-41-4	N.D.	0.001	1.02
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.0005	1.02
10237	Naphthalene	91-20-3	N.D.	0.001	1.02
10237	Toluene	108-88-3	N.D.	0.001	1.02
10237	Xylene (Total)	1330-20-7	N.D.	0.001	1.02
GC Volatiles	**SW-846 8015B modified**		**mg/kg**	**mg/kg**	
01725	TPH-GRO N. CA soil C6-C12	n.a.	N.D.	1	23.9
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	
00111	Moisture	n.a.	4.3	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

CA ELAP Lab Certification No. 2792; CA NELAP Lab Certification No. 10276CA

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs 8260 BTEX/MTBE/Naph Soil	SW-846 8260B	1	B142021AA	07/21/2014 16:21	Chelsea B Stong	1.02
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201419835122	07/17/2014 23:02	Mitchell R Washel	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201419835122	07/17/2014 23:02	Mitchell R Washel	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201419835122	07/17/2014 22:46	Mitchell R Washel	n.a.
01725	TPH-GRO N. CA soil C6-C12	SW-846 8015B modified	1	14202A16A	07/21/2014 19:51	Laura M Krieger	23.9
01150	GC - Bulk Soil Prep	SW-846 5035A Modified	1	201419835122	07/17/2014 22:46	Mitchell R Washel	n.a.
00111	Moisture	SM 2540 G-1997	1	14204820002A	07/23/2014 21:24	Scott W Freisher	1

Sample Description: MW-16-S-16-140715 Grab Soil
Facility# 97127 BBLW
I-580 & Grant Line-Tracy T0600102298 MW-16

LL Sample # SW 7537174
LL Group # 1489866
Account # 11964

Project Name: 97127

Collected: 07/15/2014 10:20 by RM

Submitted: 07/17/2014 18:50
Reported: 07/24/2014 09:36

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

27164

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**mg/kg**	**mg/kg**	
10237	Benzene	71-43-2	N.D.	0.0006	0.98
10237	Ethylbenzene	100-41-4	N.D.	0.001	0.98
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.0006	0.98
10237	Toluene	108-88-3	N.D.	0.001	0.98
10237	Xylene (Total)	1330-20-7	N.D.	0.001	0.98
GC Volatiles	**SW-846 8015B modified**		**mg/kg**	**mg/kg**	
01725	TPH-GRO N. CA soil C6-C12	n.a.	N.D.	1.1	22.77
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	
00111	Moisture	n.a.	17.9	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

CA ELAP Lab Certification No. 2792; CA NELAP Lab Certification No. 10276CA

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	BTEX/MTBE 8260 Soil	SW-846 8260B	1	B142021AA	07/21/2014 16:43	Chelsea B Stong	0.98
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201419835122	07/17/2014 23:02	Mitchell R Washel	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201419835122	07/17/2014 23:02	Mitchell R Washel	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201419835122	07/17/2014 22:50	Mitchell R Washel	n.a.
01725	TPH-GRO N. CA soil C6-C12	SW-846 8015B modified	1	14202A16A	07/21/2014 20:29	Laura M Krieger	22.77
01150	GC - Bulk Soil Prep	SW-846 5035A Modified	1	201419835122	07/17/2014 22:51	Mitchell R Washel	n.a.
00111	Moisture	SM 2540 G-1997	1	14204820002A	07/23/2014 21:24	Scott W Freisher	1

Quality Control Summary

Client Name: Chevron Group Number: 1489866
Reported: 07/24/14 at 09:36 AM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: B141991AA	Sample number(s): 7537171-7537172							
Benzene	N.D.	0.0005	mg/kg	104	103	80-120	2	30
Ethylbenzene	N.D.	0.001	mg/kg	105	104	80-120	1	30
Methyl Tertiary Butyl Ether	N.D.	0.0005	mg/kg	96	91	69-126	5	30
Naphthalene	N.D.	0.001	mg/kg	97	91	64-120	6	30
Toluene	N.D.	0.001	mg/kg	108	107	80-120	1	30
Xylene (Total)	N.D.	0.001	mg/kg	107	107	80-120	0	30
Batch number: B142021AA	Sample number(s): 7537173-7537174							
Benzene	N.D.	0.0005	mg/kg	105	102	80-120	4	30
Ethylbenzene	N.D.	0.001	mg/kg	106	101	80-120	5	30
Methyl Tertiary Butyl Ether	N.D.	0.0005	mg/kg	98	89	69-126	9	30
Naphthalene	N.D.	0.001	mg/kg	94	93	64-120	1	30
Toluene	N.D.	0.001	mg/kg	109	105	80-120	4	30
Xylene (Total)	N.D.	0.001	mg/kg	109	105	80-120	3	30
Batch number: 14202A16A	Sample number(s): 7537171-7537174							
TPH-GRO N. CA soil C6-C12	N.D.	1.0	mg/kg	104	98	66-126	6	30
Batch number: 14204820002A	Sample number(s): 7537171-7537174							
Moisture				100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 14204820002A	Sample number(s): 7537171-7537174					BKG: P538100			
Moisture						3.4	3.7	9*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 Ext. Soil Master

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Group Number: 1489866
Reported: 07/24/14 at 09:36 AM

Surrogate Quality Control

Batch number: B141991AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7537171	103	102	102	92
7537172	104	105	100	94
Blank	101	101	101	95
LCS	102	104	103	99
LCSD	101	98	103	99
Limits:	50-141	54-135	52-141	50-131

Analysis Name: 8260 Ext. Soil Master
Batch number: B142021AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7537173	103	102	100	95
7537174	103	102	100	95
Blank	101	99	101	95
LCS	102	102	103	99
LCSD	102	100	103	98
Limits:	50-141	54-135	52-141	50-131

Analysis Name: TPH-GRO N. CA soil C6-C12
Batch number: 14202A16A

	Trifluorotoluene-F
7537171	103
7537172	103
7537173	94
7537174	87
Blank	101
LCS	106
LCSD	103
Limits:	50-142

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

071614-02 11964/14898666/7537171-74

ARCADIS
Infrastructure · Water · Environment · Buildings

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #

Send Results to:

Contact & Company Name: Loretta Kwong
Telephone:
Address: 101 Creekside Ridge Court Suite 200
Fax:
City: Roseville State: CA Zip: 95678
E-mail Address: Loretta.Kwong@arcadis-us.com
Project Name/Location (City, State): Chevron Site 97127, Tracy
Project #: CA / B0047959.0005
Sampler's Printed Name: R. Moniz + C. McGovern
Sampler's Signature: Cameron McGovern

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	TPH-GRO (8015B)	BTEX+MTBE (8260B)	Naph thalene (8260B)	Preservative	Filtered (✓)	# of Containers	Container Information
MW-16-2S-20140714	7/14/14	1210		X	So	X	X	X	—	—	1	9
MW-16-5-S-20140715	7.15	0905		X	So	X	X	X				
MW-16-10-S-20140715	7/15/14	0920		X	So	X	X	X				
MW-16-16-S-20140715	7/15	1020		X	So	X	X					

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: _____
G. Other: _____
H. Other: _____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: 6" SS sleeves
10. Other: _____

Matrix Key:
SO - Soil
W - Water
T - Tissue
SE - Sediment
SL - Sludge
A - Air
NL - NAPL/Oil
SW - Sample Wipe
Other: _____

REMARKS

Std Tat

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt

Lab Name: Lancaster Labs
☑ Cooler packed with ice (✓)
Specify Turnaround Requirements: Standard TAT
Shipping Tracking #:

Cooler Custody Seal (✓)
☑ Intact ☐ Not Intact
Sample Receipt: intact 0.3°
Condition/Cooler Temp: _____

Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name: Cameron McGovern	Printed Name: Larry Starkey	Printed Name: ARMAND SALAZAR	Printed Name: Wesley Miller
Signature: Cameron McGovern	Signature:	Signature:	Signature:
Firm: ARCADIS	Firm/Courier: ELLE	Firm/Courier: SOUTHWEST	Firm: ELLE
Date/Time: 7-15-14 1500	Date/Time: 7/15/14 1502	Date/Time: 16 JULY 14 1634	Date/Time: 7/17/14 1850

20730826 CofC AR Form 01.12.2007

Distribution: WHITE – Laboratory returns with results YELLOW – Lab copy PINK – Retained by ARCADIS

eurofins | Lancaster Laboratories Environmental

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*****	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	**+**	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

August 06, 2014

Ms. Loretta Kwong
ARCADIS
655 3rd Ave. 12th Floor
New York, NY 10017

RE: Chevron Site 97127
Project No. B004759.0005

Dear Loretta,

Enclosed are analytical results for one aqueous sample ID MW-16-W-20140723 submitted to ZymaX on July 25, 2014. The data were obtained from C3-C10 gasoline range hydrocarbon (PIANO) analysis by 8260M.

The project was performed at ZymaX forensics as Laboratory No.43669.

Please call us at 760-781-3338 ext 201 or email me at Shantan.lu@zymaxusa.com if you have any questions regarding the analytical results.

Respectfully,
ZymaX Forensics/Pace Analytical

Shan-Tan Lu, Ph.D.
Director of Forensic Geochemistry

Zymax

600 S Andreasen Dr. Ste. B
Escondido, California 92029

tel 760.781.3338
fax 760.781.3339

*Samples will be disposed of after 30 days unless requested otherwise

CHAIN of CUSTODY

report to Loretta Kwong	tel (415) 744-4906	fax
company ARCADIS	proj Chevron Site 97127	
address 655 3rd Ave, 12th Floor NYC 10017	proj # B0047959.0005	
	sampler C. McGovern	

ANALYSIS REQUESTED: PIANO Compounds (USEPA 8260)

Turnaround Time: ASAP ☐ 48hr ☐ 12hr ☐ 72hr ☐ 24hr ☐ std ☒

ZymaX use only	SAMPLE DESCRIPTION	Date Sampled	Time	Matrix	Preserve	PIANO (USEPA 8260)	# of containers	Remarks
43669-1	MW-16-W-20140723	7/23/14	1435	W	HCL	X	2	

Bill To: Same as Above ☒ OR
Company:
Address:

Sample integrity upon receipt:
- Samples received intact ☒
- Samples received cold ☒
- Custody seals ☒
- Correct container types ☒

PO#: _____
Quote yes ☐ no ☐

Relinquished by:
Signature Cameron McGovern
Print Cameron McGovern
Company ARCADIS
Date 7-24-14 Time 0800

Received by:
Signature
Print
Company
Date Time

Relinquished by:
Signature
Print
Company
Date Time

Received by ZymaX:
Signature
Print Che-Ying Hsu
Company Zymax Forensics
Date 7/25/14 Time 9:30

C4-C10 Gasoline Range Hydrocarbons (PIANO) analysis

ZymaX FORENSICS

Client: Loretta Kwong ARCADIS 655 3rd Ave 12th Floor New York, NY 10017	Lab Number: 43669-1 Collected: 7/23/2014 Received: 7/25/2014 Matrix: Aqueous
Project: Chevron Site 97127 Project Number: B0047959.0005 Collected by: C. McGrovern	Sample Description: MW-16-W-20140723 Analyzed: 7/26/2014 Method: GC/MS

CONSTITUENT	PQL* ug/L	RESULT** ug/L
C3-C10 GASOLINE RANGE COMPOUNDS		
Isobutane	1.00	ND
Isobutene	1.00	ND
Butane	1.00	ND
3-Methyl-1-butene	1.00	ND
Isopentane	1.00	ND
1-Pentene	1.00	ND
2-Methyl-1-butene	1.00	ND
Pentane	1.00	ND
trans-2-Pentene	1.00	ND
cis-2-Pentene	1.00	ND
2-Methyl-2-butene	1.00	ND
2,2-Dimethylbutane	1.00	ND
Cyclopentene	1.00	ND
4-Methyl-1-pentene	1.00	ND
Cyclopentane	1.00	ND
2,3-Dimethylbutane	1.00	ND
2-Methylpentane	1.00	ND
3-Methylpentane	1.00	ND
Hexane	1.00	ND
trans-2-Hexene	1.00	ND
2-Methyl-2-pentene	1.00	ND
3-Methylcyclopentene	1.00	ND
3-Methyl-2-pentene	1.00	ND
cis-2-Hexene	1.00	ND
2,2-Dimethylpentane	1.00	ND
1,2-Dichloroethane (EDC)	1.00	8.03
Methylcyclopentane	1.00	ND

***PQL - Practical Quantitation Limit**
****Results listed as ND would have been reported if present at or above the listed PQL.**

Note: Extracted by EPA 5030 (Purge and Trap).

MSD #
43669-1 C3-C10.xls
STL

ZymaX FORENSICS

Client: Loretta Kwong ARCADIS 655 3rd Ave 12th Floor New York, NY 10017	Lab Number: 43669-1 Collected: 7/23/2014 Received: 7/25/2014 Matrix: Aqueous
Project: Chevron Site 97127 Project Number: B0047959.0005 Collected by: C. McGrovern	Sample Description: MW-16-W-20140723 Analyzed: 7/26/2014 Method: GC/MS

CONSTITUENT	PQL* ug/L	RESULT** ug/L
C3-C10 GASOLINE RANGE COMPOUNDS		
2,4-Dimethylpentane	1.00	ND
1-Methylcyclopentene	1.00	ND
Benzene	1.00	ND
5-Methyl-1-hexene	1.00	ND
4,4-Dimethyl-2-pentene	1.00	ND
3,3-Dimethylpentane	1.00	ND
Thiophene	1.00	ND
Cyclohexane	1.00	ND
2-Methylhexane	1.00	ND
2,3-Dimethylpentane	1.00	ND
3-Methylhexane	1.00	ND
trans-1,3-Dimethylcyclopentane	1.00	ND
cis-1,3-Dimethylcyclopentane	1.00	ND
2,2,3-Trimethylpentane	1.00	ND
1,2-Dimethylcyclopentane	1.00	ND
2,2,4-Trimethylpentane	1.00	ND
Heptane	1.00	ND
trans-2-Heptene	1.00	ND
Methylcyclohexane	1.00	ND
2,5-Dimethylhexane	1.00	ND
2,4-Dimethylhexane	1.00	ND
2,3,4-Trimethylpentane	1.00	ND
2,3-Dimethylhexane	1.00	ND
1,2-Dibromoethane (EDB)	1.00	ND
2-Methylheptane	1.00	ND
4-Methylheptane	1.00	ND
Toluene	1.00	ND

***PQL - Practical Quantitation Limit**
****Results listed as ND would have been reported if present at or above the listed PQL.**

Note: Extracted by EPA 5030 (Purge and Trap).

MSD #
43669-1 C3-C10.xls
STL

ZymaX FORENSICS

Client: Loretta Kwong ARCADIS 655 3rd Ave 12th Floor New York, NY 10017	Lab Number: 43669-1 Collected: 7/23/2014 Received: 7/25/2014 Matrix: Aqueous
Project: Chevron Site 97127 Project Number: B0047959.0005 Collected by: C. McGrovern	Sample Description: MW-16-W-20140723 Analyzed: 7/26/2014 Method: GC/MS

CONSTITUENT	PQL* ug/L	RESULT** ug/L
C3-C10 GASOLINE RANGE COMPOUNDS		
2,3,3-Trimethylpentane	1.00	ND
3,4-Dimethylhexane	1.00	ND
2-Methylthiophene	1.00	ND
3-Ethyl-3-methylpentane	1.00	ND
3-Methylthiophene	1.00	ND
3-Methylheptane	1.00	ND
trans-1,4-Dimethylcyclohexane	1.00	ND
2-Methyl-1-heptene	1.00	ND
trans-1,2-Dimethylcyclohexane	1.00	ND
1-Octene	1.00	ND
Octane	1.00	ND
2,2-Dimethylheptane	1.00	ND
2,4,4-Trimethylhexane	1.00	ND
2,4-Dimethylheptane	1.00	ND
2,6-Dimethylheptane	1.00	ND
Ethylcyclohexane	1.00	ND
2,5-Dimethylheptane	1.00	ND
Ethylbenzene	1.00	ND
2-Ethylthiophene	1.00	ND
m,p-Xylenes	1.00	ND
3-Ethylheptane	1.00	ND
3-Methyloctane	1.00	ND
2,3-Dimethylheptane	1.00	ND
4-Methyloctane	1.00	ND
1,2,4-Trimethylcyclohexane	1.00	ND
Styrene	1.00	ND
2-Methyloctane	1.00	ND

***PQL - Practical Quantitation Limit**
****Results listed as ND would have been reported if present at or above the listed PQL.**

Note: Extracted by EPA 5030 (Purge and Trap).

MSD #
43669-1 C3-C10.xls
STL

ZymaX FORENSICS

Client: Loretta Kwong ARCADIS 655 3rd Ave 12th Floor New York, NY 10017	Lab Number: 43669-1 Collected: 7/23/2014 Received: 7/25/2014 Matrix: Aqueous
Project: Chevron Site 97127 Project Number: B0047959.0005 Collected by: C. McGrovern	Sample Description: MW-16-W-20140723 Analyzed: 7/26/2014 Method: GC/MS

CONSTITUENT	PQL* ug/L	RESULT** ug/L
C3-C10 GASOLINE RANGE COMPOUNDS		
1,1,2-Trimethylcyclohexane	1.00	ND
o-Xylene	1.00	ND
1-Nonene	1.00	ND
Nonane	1.00	ND
3,3,5-Trimethylheptane	1.00	ND
Isopropylbenzene	1.00	ND
Isopropylcyclohexane	1.00	ND
2,2-Dimethyloctane	1.00	ND
3-Methylnonane	1.00	ND
3,3-Dimethyloctane	1.00	ND
n-Propylbenzene	1.00	ND
1-Methyl-3-ethylbenzene	1.00	ND
1-Methyl-4-ethylbenzene	1.00	ND
1,3,5-Trimethylbenzene	1.00	ND
3,3,4-Trimethylheptane	1.00	ND
1-Methyl-2-ethylbenzene	1.00	ND
1,2,4-Trimethylbenzene	1.00	ND
1-Decene	1.00	ND
1-Methyl-3-isopropylbenzene	1.00	ND
Decane	1.00	ND
sec-Butylbenzene	1.00	ND
1,2,3-Trimethylbenzene	1.00	ND
Indane	1.00	ND
Indene	1.00	ND
1,3-Diethylbenzene	1.00	ND
n-Butylbenzene	1.00	ND
1,3-Dimethyl-5-ethylbenzene	1.00	ND

***PQL - Practical Quantitation Limit**
****Results listed as ND would have been reported if present at or above the listed PQL.**

Note: Extracted by EPA 5030 (Purge and Trap).

MSD #
43669-1 C3-C10.xls
STL

Client: Loretta Kwong ARCADIS 655 3rd Ave 12th Floor New York, NY 10017	Lab Number: 43669-1 Collected: 7/23/2014 Received: 7/25/2014 Matrix: Aqueous
Project: Chevron Site 97127 Project Number: B0047959.0005 Collected by: C. McGrovern	Sample Description: MW-16-W-20140723 Analyzed: 7/26/2014 Method: GC/MS

CONSTITUENT	PQL* ug/L	RESULT** ug/L
C3-C10 GASOLINE RANGE COMPOUNDS		
1,4-Diethylbenzene	1.00	ND
1-Methyl-2-propylbenzene	1.00	ND
1,4-Dimethyl-2-ethylbenzene	1.00	ND
1,3-Dimethyl-4-ethylbenzene	1.00	ND
1,2-Dimethyl-4-ethylbenzene	1.00	ND
1,3-Dimethyl-2-ethylbenzene	1.00	ND
Undecane	1.00	ND
1,2,4,5-Tetramethylbenzene	1.00	ND
1,2,3,5-Tetramethylbenzene	1.00	ND
1,2,3,4-Tetramethylbenzene	1.00	ND
Naphthalene	1.00	ND
2-Methylnaphthalene	1.00	ND
1-Methylnaphthalene	1.00	ND
Benzothiophene	1.00	ND
n-Pentylbenzene	1.00	ND
Percent Surrogate Recovery (1,2-Dichloroethane-d4)		92
Percent Surrogate Recovery (Toluene-d8)		103
Percent Surrogate Recovery (4-Bromofluorobenzene)		98

***PQL - Practical Quantitation Limit**
****Results listed as ND would have been reported if present at or above the listed PQL.**

Note: Extracted by EPA 5030 (Purge and Trap).

Submitted by,
Zymax Forensics, A Pace Company

Shan-Tan Lu, Ph.D.
Director, Forensic Geochemistry

MSD #
43669-1 C3-C10.xls
STL