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September 14, 2012

Mr. Mark Detterman
Alameda County Health Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

RE: Site Assessment and Preferential Pathway Survey Report
1400 Powell Street, Emeryville, California
Fuel Leak Case No.: RO0000067

Dear Mr. Detterman,

I declare under penalty of perjury that to the best of my knowledge the information and/or recommendations contained in the attached report is/are true and correct.

If you have any questions or need additional information, please contact me at (925) 790-6270.

Sincerely,

Roya Kambin
Union Oil of California – Project Manager

Attachment
Site Assessment and Preferential Pathway Survey Report

ARCADIS U.S., Inc.
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San Francisco
California 94104
Tel 415 374 2744
Fax 415.374.2745
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ENVIRONMENT

Mr. Mark E. Detterman, PG, CEG
Senior Hazardous Materials Specialist
Alameda County Health Care Services Agency
Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject:
Site Assessment and Preferential Pathway Survey Report
Former 76 Service Station #3737 – Chevron 351780
1400 Powell Street
Emeryville, California

Date:
September 14, 2012

Contact:
Leah Ackerman

Phone:
415.432.6912

Email:
Leah.Ackerman@
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Our ref:
B0047937.0000

Dear Mr. Detterman:

On behalf of Chevron Environmental Management Company (Chevron), ARCADIS U.S., Inc. (ARCADIS) has prepared this Site Assessment and Preferential Pathway Survey Report (report) to present the results of recent site assessment activities associated with Former 76 Service Station 3737, located at 1400 Powell Street in Emeryville, California (site).

On January 12, 2012, after review of the site case file, the Alameda County Environmental Health (ACEH) requested submittal of a work plan to address lateral and downgradient delineation of contamination in the upper water bearing zone. The ACEH additionally requested that the investigation report include a preferential pathway survey identifying utilities, nearby wells, and details of an adjacent building (ACEH 2012a). ARCADIS performed site investigation activities in accordance with Conestoga-Rovers & Associates' (CRA) Work Plan for Additional Delineation (CRA 2012), which was conditionally approved by the ACEH on May 10, 2012 (ACEH 2012c).

Site Description and Features

The site is currently an active Chevron-branded service station located on the north side of Powell Street between Hollis and Peladeau Streets in Emeryville, California (Figure 1). Between 1917 and 1964, Union Oil Company operated a distribution plant that was bound by Powell Street to the south, 59th Street to the north, Peladeau Street to the west, and Hollis Street to the east. This distribution plant contained numerous aboveground storage tanks (ASTs), underground storage tanks (USTs), a

garage along Hollis Street, and an auto repair shop along Peladeau Street (CRA 2012).

The service station was constructed on the southern portion of the former distribution plant, which contained eight ASTs with a combined storage capacity of 624,000 gallons of refined oil and gasoline products on the west portion of the site and an oil warehouse and asphalt staging area on the east portion of the site (Figure 2). On August 11, 1993, Geostrategies oversaw the removal of an oil-water separator on site. On May 7, 1999, Norman and Norman completed the removal of product piping associated with the former fuel dispenser islands. Approximately 6 cubic yards of soil were excavated during piping removal activities. On May 24, 1999, a 550-gallon single-walled steel waste oil UST was removed under the supervision of TRC (Antea Group 2011). The current station facility includes three USTs, four dispenser islands, and a station building. The site is currently surrounded by commercial development, including the Emeryville Industrial Court redevelopment located north of the station, which was excavated to approximately 15 feet below ground surface (bgs) (CRA 2012).

Six on-site groundwater monitoring wells are currently included in the site monitoring and sampling program. Wells MW-1A, MW-2A and MW-3A are screened in a shallow water-bearing zone (between 3.5 and 10 feet bgs); wells MW-1B through MW-3B are screened in a deeper water-bearing zone (between 17 and 25 feet bgs). During the first quarter 2012 event, depth to groundwater in the upper water-bearing zone was measured from approximately 5 to 6 feet bgs with a gradient to the northwest of approximately 0.06 foot/foot (CRA 2012). Since sampling began in the first quarter 2011, the gradient has been measured to the west or northwest.

Site Assessment Activities

Work activities were completed from June 18 through August 14, 2012 and consisted of a utility survey, temporary monitoring well installation (including both soil and groundwater sampling), well destruction, investigation-derived waste disposal, and a preferential pathway survey.

Utility Survey

Subsurface utility surveys were completed on June 18 and July 25, 2012 to clear boring locations and assess potential preferential pathways (e.g., water, electric and gas utility trenches), specifically down and crossgradient of the site on Peladeau

Street. Utilities were identified by a combination of Underground Service Alert and a private utility surveyor (Cruz Brothers Locating, Inc. of Scotts Valley, California [Cruz]). Figure 3 presents locations of identified subsurface utilities. Subsurface utilities in relation to potential preferential pathways are discussed later in this report.

Prior to drilling, all borings were three-point hand cleared with a hand auger to a minimum depth of 8 feet 1 inch bgs.

Temporary Monitoring Well Installation

Between July 25 and 26, 2012, Gregg Drilling & Testing, Inc. of Martinez, California, under the supervision of ARCADIS, advanced four soil borings (MWT-1, MWT-2, MWT-3, and MWT-4) to approximately 10 feet bgs and converted them into temporary monitoring wells (Figure 2). Soil samples from each boring were collected to evaluate the potential off-site extent of petroleum hydrocarbon impacts to soil.

Following utility clearance, four borings (MWT-1 through MWT-4) were advanced using a direct push rig. Total depth of each boring was approximately 10 feet bgs, which was determined in the field when adequate groundwater for sampling was observed in the borehole.

The soil types encountered were predominately silty sand underlain by silty gravel, clayey gravel, silty clay, and sandy silt. Boring logs are included in Attachment 1.

Soil Sampling

Soil samples were collected using a hand auger for the first 8 feet of each borehole. The next 2-foot interval was collected using a macro core sampler with acetate sleeves. The samples were logged for soil characteristics and screened for the presence of volatile organic compounds (VOCs) using a photo ionization detector (PID). One soil sample was collected from each boring location and submitted for chemical analysis. The soil sample was collected from an interval above the groundwater table that displayed the highest levels of VOCs on the PID.

Soil Analytical Data

Following collection, all soil samples were packed on ice, cooled to approximately 4 degrees Celsius (°C) and shipped under chain of custody protocols to BC Laboratories, Incorporated of Bakersfield, California (BC Labs), a California certified

analytical laboratory. Soil samples were analyzed for the presence of the following constituents:

- Total petroleum hydrocarbons as diesel range organics (TPH-DRO [C_{12}-C_{24}]), by United States Environmental Protection Agency (USEPA) Method 8015B

- Total petroleum hydrocarbons as gasoline range organics (TPH-GRO) by Leaking Underground Fuel Tank (LUFT) Method Gas Chromatograph/Mass Spectrometer (GC/MS) analysis

- Benzene, toluene, ethylbenzene, and total xylenes (BTEX); methyl tertiary butyl ether (MTBE); and oxygenates by USEPA Method 8260

- Tert-butyl alcohol (TBA) by USEPA Method 8260B

Soil Analytical Results

Four soil samples were collected for chemical analysis. TPH-DRO and TPH-GRO were detected in all four soil samples analyzed. TPH-DRO soil concentrations ranged from 51 milligrams per kilogram (mg/kg) in MWT-1 at 5 feet bgs to 210 mg/kg in MWT-3 at 5 feet bgs. Concentrations of TPH-GRO ranged from 32 mg/kg in MWT-1 at 5 feet bgs to 1,000 mg/kg in MWT-4 at 6 feet bgs. Benzene was detected in soil samples collected from MWT-2 (5 feet bgs) and MWT-4 (6 feet bgs) at concentrations of 1.2 and 1.3 mg/kg, respectively. Ethylbenzene was detected in soil samples collected from MWT-2 and MWT-4 at concentrations of 3.1 and 13 mg/kg, respectively. Xylenes were detected in soil samples collected from MWT-2 and MWT-4 at concentrations of 4.3 and 4.5 mg/kg, respectively. TBA was detected at a concentration of 1.2 mg/kg in MWT-2. BTEX was not detected above the respective laboratory reporting limits (LRLs) in soil samples collected from MWT-1 and MWT-3. Toluene, MTBE, and other oxygenates (ethyl t-butyl ether, t-amyl methyl ether, and diisopropyl ether) were not detected above their respective LRLs in the soil samples submitted for laboratory analysis.

TPH-DRO, TPH-GRO, benzene, ethylbenzene, and xylenes were detected in soil at concentrations meeting or exceeding their respective Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) for commercial/industrial soil less than or equal to 3 meters. Detected soil concentrations of TPH-DRO exceeded the ESL of 83 mg/kg in MWT-3 and MWT-4. TPH-GRO concentrations in soil exceeded the ESL of 83 mg/kg in MWT-2, MWT-3, and MWT-4. Concentrations

of one or more of the BTEX compounds exceeded their respective ESLs in MWT-2 and MWT-4. The TBA ESL of 0.075 mg/kg was exceeded in MWT-2 (1.2 mg/kg).

Soil analytical results are presented in comparison with the RWQCB ESLs in Table 1 and on Figure 5. The laboratory analytical report with chain of custody records is presented in Attachment 2.

Groundwater Sampling

Once the borings reached total depth, a 2-inch-outer-diameter polyvinyl chloride casing with 5 feet of 0.010-inch slotted screen was lowered in each boring location (MWT-1 through MWT-4) and then finished as a temporary well. Wells were backfilled with No. 2/12 Monterey sand from total depth to 3 feet bgs, followed by hydrated bentonite chips to 1 foot bgs. Each location was secured with an 8-inch-diameter well box and finished with concrete to match the surrounding surface.

Groundwater samples from each temporary well were collected by TRC Solutions (TRC) on July 29, 2012, concurrent with routine on-site groundwater sampling. Prior to beginning sampling, all on-site wells and the newly installed temporary monitoring wells were gauged to determine static groundwater elevations. Measured depth to water and groundwater elevations are presented in Table 2. Groundwater potentiometric surface maps for the upper shallow (A) and the lower (B) zones are depicted on Figures 5 and 6, respectively.

Depth to groundwater has historically ranged from 4.40 (5-20-12/MW-3A) to 7.77 (5-20-12/MW-2A) feet bgs in the shallow screened monitoring wells and from 4.52 (5-20-12/MW-3B) to 8.51 (5-1-11/MW-1B) in the deep screened monitoring wells associated with the site. During the July 29, 2012 event, depth to groundwater ranged from 3.44 (MWT-3) to 7.33 feet bgs (MW-2A) in the shallow screened monitoring wells and 4.36 (MW-3B) to 6.9 feet bgs (MW-1B) in the deep screened monitoring wells. Groundwater was purged using low-flow sampling techniques. Once parameters had stabilized for three consecutive readings, samples were collected by purging directly into the appropriate laboratory-supplied sample containers.

Groundwater Analytical Data

Following collection, the groundwater samples (MWT-1, MWT-2, MWT-3, and MWT-4) were packed on ice, cooled to approximately 4°C, and shipped under chain of

custody protocols to BC Labs. The groundwater samples were analyzed for the presence of the following constituents:

- TPH-DRO both with and without silica gel cleanup, by USEPA Method 8015B
- TPH-GRO LUFT-GC/MS analysis
- BTEX, MTBE, and TBA by USEPA Method 8260

TPH-DRO was analyzed with the silica gel method to differentiate between natural, (polar) compounds and petroleum hydrocarbon (non-polar) compounds. Bulk TPH analyses do not measure specific compounds, but rather the total mass of organic compounds within a given elution range of the gas chromatograph. Non-petroleum compounds, including partially weathered polar biodegradation products and some natural organic matter, may co-elute with hydrocarbon constituents and be reported as bulk TPH-DRO. Studies (Zemo 2003, Zemo and Foote 2006, Lang et al. 2009) suggest that the polar partially weathered non-petroleum hydrocarbon compounds can contribute to TPH-DRO concentrations well above the expected aqueous solubility of diesel (approximately 5 mg/L). Silica gel cleanup (i.e., removal of polar hydrocarbons) applied following sample extraction has been shown to yield a more representative analysis of actual petroleum hydrocarbon concentrations in a groundwater sample.

Groundwater Analytical Results

TPH-DRO, analyzed without the use of silica gel, was detected in all four of the groundwater samples with concentrations ranging from 780 micrograms per liter (µg/L) at MWT-2 to 1,500 µg/L at MWT-4. TPH-DRO concentrations, analyzed with silica gel cleanup, ranged from less than the LRL in MWT-2 to 690 µg/L at MWT-4. Results suggest approximately 29 to 95 percent of detected TPH-DRO concentrations in groundwater consist of petroleum hydrocarbon compounds and the remaining constituents consist of polar, non-toxic degradation byproducts or natural organic matter. TPH-GRO was detected in all four of the groundwater samples analyzed at concentrations ranging from 2,100 µg/L at MWT-3 to 3,000 µg/L at MWT-2. BTEX constituents were detected in all four of the samples analyzed with maximum concentrations of 530 µg/L benzene, 5.8 µg/L toluene, 100 µg/L ethylbenzene, and 61 µg/L total xylenes, all detected in MWT-4. MTBE was detected in all four groundwater samples analyzed with a maximum concentration of 31 µg/L in MWT-1. TBA was detected in all four groundwater samples analyzed with a maximum concentration of 560 µg/L in MWT-4.

TPH-DRO with and without silica gel cleanup, TPH-GRO, benzene, ethylbenzene, xylenes, MTBE, and TBA were detected in groundwater at concentrations meeting or exceeding their respective RWQCB ESLs for a commercial/industrial area where groundwater is a current or potential drinking water source. Detected groundwater concentrations of TPH-DRO exceeded the ESL of 100 µg/L mg/kg in MWT-1, MWT-2, MWT-3, and MWT-4. However, when analyzed with silica gel cleanup the sample collected from MWT-2 did not exceed the ESL. TPH-GRO concentrations in groundwater exceeded the ESL of 100 µg/L in MWT-1, MWT-2, MWT-3, and MWT-4. Concentrations of one or more of the BTEX compounds exceeded their respective ESLs in MWT-1, MWT-2, MWT-3, and MWT-4. The MTBE ESL of 5 µg/L was exceeded in MWT-1 and MWT-2. The TBA ESL of 12 µg/L was exceeded in MWT-1, MWT-2, MWT-3, and MWT-4.

Table 3 summarizes groundwater analytical data for the temporary monitoring wells. As stated previously, the temporary monitoring wells were sampled in conjunction with the quarterly monitoring well sampling event. Table 4 summarizes analytical results for the site monitoring wells. Figure 7 presents a groundwater contaminant concentration distribution map. The laboratory analytical report with chain of custody records is presented in Attachment 2.

Well Destruction

Following completion of groundwater sampling, the temporary monitoring wells were destroyed under the guidance of the Alameda County Public Works by over drilling the top 5 feet and then grouting to ground surface. A concrete patch, dyed to match surface conditions, was used for the surface completion. Well Completion Reports are provided in Attachment 3.

Investigation-Derived Waste

Soil cuttings generated during the assessment activities were stored on site in labeled 55-gallon drums and removed daily by Integrated Wastestream Management of Milpitas, California, due to site access issues. Investigation-derived waste manifests are provided in Attachment 4.

Preferential Pathway Survey

As stated previously, utility surveys were conducted on June 18 and July 25, 2012. Identified utility lines are presented on Figure 3 and described in more detail below. During the utility survey, Cruz determined the depths of the utilities identified.

Water Lines

The actual depth of the water line could not be determined. The water line runs east-west, parallel to the site along the northernmost lane of Powell Street. Because the utility is located off site and does not intersect the site, it is unlikely to intersect groundwater and act as a conduit for hydrocarbon migration.

Communication Utilities

The depth of the communication utilities could not be determined. The communication utilities are located on the west-northwest portion of the site, which is crossgradient and downgradient to historical groundwater flow in the shallow zone. Communication lines are typically installed in a relatively shallow interval (i.e., 12 to 18 inches bgs [Public Utilities Commission of the State of California 2006]) and would not create a preferential pathway for groundwater transport.

Storm Sewer System

The depth of the storm sewer system ranges from 3 feet 8 inches, near the Peladeau Street pullout area, to 7 feet 5 inches at the intersection of Peladeau Street and Powell Street. The sewer line runs along the western boundary of the site and then crosses Peladeau Street near MWT-3.

This utility is located downgradient and crossgradient of groundwater flow in the shallow zone at the site. Groundwater was encountered at 3.44 feet bgs in MWT-3, adjacent to a storm drain with a measured utility depth of 3 feet 8 inches.

Electrical Utilities

The depth of the electrical utilities ranges from 22 to 36 inches bgs. The electrical conduits located on Peladeau Street originate from the lamp posts located in landscaped areas as well as from the building located at 5855 Horton Street, to the west of Peladeau Street. This utility is located above the highest measured

groundwater elevation on site and would not create a preferential pathway for groundwater transport.

Gas Utilities

The depth of the gas utilities range from 25 inches bgs to 4 feet 1 inch bgs. Gas utilities are at their deepest point at the intersection of Powell Street and Peladeau Street. The deeper areas of the gas lines are upgradient of the contaminant source zones and therefore are not expected to aid in contaminant migration. Downgradient and crossgradient of the site, the gas utility line crosses Peladeau Street and is encountered at varying shallower depths. This section of the gas line does not appear to have intersected groundwater because the depth of the utility is shallower than historical groundwater depths.

Reclaimed Water/Irrigation Utilities

Depth of the reclaimed water/irrigation utilities range from 21 inches to 3 feet 6 inches bgs. The irrigation line runs through the landscaping and down the sidewalk/ pullout area on the west side of Peladeau Street, which is located downgradient and crossgradient of the groundwater flow direction in the shallow zone.

Groundwater was encountered at 3.44 feet bgs in MWT-3, which is adjacent to a section of the irrigation line that had a measured utility depth of 3 feet 6 inches.

5858 Horton Street Parking Structure Survey

ARCADIS has made multiple attempts to locate invert depths for the parking structure located at 5858 Horton Street. Upon review of the City of Emeryville's Planning and Building Department's as-built blueprint slides, ARCADIS has concluded the parking structure concrete slab thickness to be 2 feet, uniformly, on the bottom floor. The as-built plans did not contain survey invert data for the top of the slab. ARCADIS contacted Geoff Sears of Wareham Development, the property manager for the building located at 5858 Horton Street. Mr. Sears' response to our inquiry regarding subgrade building and invert details is as follows:

> *Our EmeryStation 1 commercial building whose address is 5858 Horton Street is the property that lies west of the subject gas station across Peladeau Street. That building has parking effectively at grade (say 1 – 2 feet below the level of Peladeau Street) but not anywhere close to a full*

underground level of parking. It is a bit below Peladeau's grade because the site slopes very gently from east down to the west so the parking level is set a bit below Peladeau level and a bit above the Horton Street level, which is its western border.

Based on observations made in the field during temporary well destructions, ARCADIS estimated that, using existing temporary well ground surface elevations supplied by Muir, the approximate surface elevation of the parking garage concrete slab is roughly 15.35 feet above mean sea level. Additionally the ARCADIS field team took photos of the parking structure; the photos are included as Attachment 5 to this report.

Conclusions

The distribution of petroleum hydrocarbons in soil and groundwater indicate that there are residual TPH-DRO and TPH-GRO near the former fuel oil, refined oil, and barrel gasoline ASTs. The distribution indicates that residual concentrations of petroleum hydrocarbons have migrated from the vicinity of the former distribution plant and are not horizontally delineated. TPH-GRO, TPH-DRO, BTEX, MTBE, and TBA were detected in all four groundwater samples collected. TPH-DRO and TPH-GRO were detected in all four soil samples collected. MWT-4 contained the highest impacts of constituents of concern. Subsurface utilities are likely to be shallower or at the approximate depth of historical and current groundwater measurements: therefore, may intersect groundwater and act as a potential conduit for hydrocarbon migration. However, ARCADIS does not recommend additional delineation at this time for the following reasons:

- Impacts associated with MWT-4 are likely due to residual impacts in soil north of the site, on the southern portion of the Emeryville Industrial Court Property, at 5885 Hollis Street (Spills, Leaks, Investigations, and Cleanup Case RO0002621). This property received approval for conditional closure from the ACEH on April 30, 2012. The closure document stated that residual petroleum hydrocarbon impacts remain along the delivery alleyway (i.e., TR-25) at locations up to 2,100 mg/kg TPH-GRO and 259 mg/kg TPH-DRO and may in part be related to former bulk oil storage activities at the site (ACEH 2012b). Various businesses existed at the site following operation of the bulk storage facility in 1964. Reports indicate that numerous hazardous materials were associated with these businesses, including one 10,000-gallon gasoline UST, which was removed in 1990.

- As shown on Figure 3, numerous utilities are located along the sidewalk and loading zone of Peladeau Street between the underground parking garage and recently installed temporary monitoring points MWT-2, MWT-3, and MWT-4, precluding the ability to install additional monitoring points downgradient.

- Additional delineation south of the site is not recommended due to high traffic conditions along Powell Street and the presence of an overpass at the intersection of Powell and Peladeau streets.

In lieu of additional delineation, ARCADIS recommends preparation of a site conceptual model to evaluate the potential for additional migration of contaminants and potential impacts to public health and the environment.

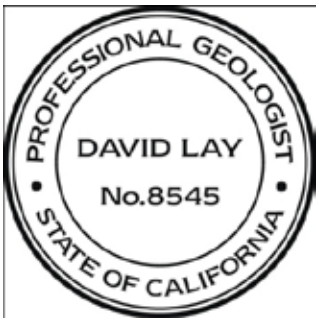
If you have any questions or comments regarding this report, please contact Leah Ackerman by telephone at 415.432.6912 or by e-mail at Leah.Ackerman@arcadis-us.com or Dave Lay by telephone at 916.985.2079 extension 22 or by e-mail at Dave.Lay@arcadis-us.com.

Sincerely,

ARCADIS

Leah Ackerman, P.E.
Project Manager

Dave Lay
Vice President, P.G.



Enclosures:

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Figure 4	Soil Analytical Results, July 25-26, 2012
Figure 5	Groundwater Elevation Contour Map (Shallow Zone)
Figure 6	Groundwater Elevation Contour Map (Deep Zone)
Figure 7	Groundwater Analytical Results, July 29, 2012

Attachments

Attachment 1	Boring Logs
Attachment 2	Soil and Groundwater Laboratory Analytical Reports with Chain-of-Custody Record
Attachment 3	Well Completion Reports
Attachment 4	Investigation-Derived Waste Manifest
Attachment 5	5858 Horton Street Parking Garage Photos

Copies:
Ms. Roya Kambin, Chevron Environmental Management Company
Mr. Najmeddin Ravan, Property Owner

References

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ARCADIS

Tables

Table 1
Subsurface Soil Analytical Results

Former 76 Service Station No. 3737
1400 Powell Street, Emeryville, California

Sample Name	Sample Date	Sample Depth (feet bgs)	USEPA 8015B	LUFT-GC/MS	USEPA 8260								
			TPH-DRO (mg/kg)	TPH-GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	DIPE (mg/kg)
MWT-1	07/25/12	5.0	51	32	<0.12	<0.12	<0.12	<0.25	<0.12	<1.2	<0.12	<0.12	<0.12
MWT-2	07/26/12	5.0	70	**340**	**1.2**	<0.12	3.1	**4.3**	<0.12	**1.2**	<0.12	<0.12	<0.12
MWT-3	07/26/12	5.0	**210**	**930**	<0.25	<0.25	<0.25	<0.50	<0.25	<2.5	<0.25	<0.25	<0.25
MWT-4	07/25/12	6.0	**160**	**1,000**	**1.3**	<0.12	**13**	**4.5**	<0.12	<1.2	<0.12	<0.12	<0.12
ESLs for Commercial/Industrial Soils			**83**	**83**	**0.044**	**2.9**	**3.3**	**2.3**	**0.023**	**0.075**	--	--	--

Notes:
bgs = below ground surface
Bold = detection exceeds ESL
DIPE = diisopropyl ether
ESL = Table A. Environmental Screening Levels, Shallow Soils (≤ 3 meters below ground surface), Commercial/Industrial Land Use Only, Groundwater is a Current or Potential Source of Drinking Water, CRWQCB-SFBR, Table A, November 2007
ETBE = ethyl t-butyl ether
LUFT-GC/MS = Leaking Underground Fuel Tank - Gas Chromatograph/Mass Spectrometer
mg/kg = milligrams per kilogram
MTBE = methyl tertiary butyl ether
TAME = t-amyl methyl ether
TBA = t-butyl alcohol
TPH-DRO = total petroleum hydrocarbons as diesel range organics
TPH-GRO = total petroleum hydrocarbons as gasoline range organics
USEPA = United States Environmental Protection Agency
<0.12 = not detected at concentration threshold as shown
-- = unavailable

Table 2
Groundwater Elevation and Well Surveying Data

Former 76 Service Station No. 3737
1400 Powell Street, Emeryville, California

Well ID	Coordinates (NAD83)		Elevations (NAVD88)		Date Surveyed	Total Depth (feet btoc)	Total Depth (feet btoc)*	Depth to Water (feet btoc)	Groundwater Elevation
	Latitude	Longitude	Top of Casing Elevation (feet)	Ground Surface Elevation (feet)					
MWT-1	37.8395031	-122.2899741	19.11	19.40	07/29/2012	10.00	9.66	6.03	13.08
MWT-2	37.8396071	-122.2901664	17.47	17.94	07/292012	10.00	9.60	4.95	12.52
MWT-3	37.8396071	-122.2902129	16.45	17.15	07/29/2012	10.00	9.80	3.44	13.01
MWT-4	37.8398300	-122.2902403	17.09	17.53	07/29/2012	10.00	9.34	3.93	13.16
MW-1A	37.8395532	-122.2899524	18.74	--	01/21/2011	10.00	9.70	5.57	13.17
MW-1B	37.8395438	-122.2899486	18.88	--	01/21/2011	22.00	21.70	6.90	11.98
MW-2A	37.8396913	-122.2898610	18.93	--	01/21/2011	10.00	10.15	7.33	11.60
MW-2B	37.8396936	-122.2898487	19.10	--	01/21/2011	25.00	23.58	5.28	13.82
MW-3A	37.8397524	-122.2895522	18.62	--	01/21/2011	9.50	9.22	4.50	14.12
MW-3B	37.8397560	-122.2895422	18.57	--	01/21/2011	24.00	23.80	4.36	14.21

Notes:
btoc = below top of casing
msl = mean sea level
NAD83 = North American Datum of 1983
NAVD88 = North American Vertical Datum of 1988
Groundwater elevation measurements were collected on 7/29/2012.
* Measured in the field
-- = not available

Table 3
Temporary Monitoring Well Analytical Results

Former 76 Service Station No. 3737
1400 Powell Street, Emeryville, California

Sample Name	Sample Date	USEPA 8015B		LUFT-GC/MS	USEPA 8260					
		TPH-DRO (µg/L)	TPH-DRO* (µg/L)	TPH-GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
MWT-1	07/29/12	**1100**	**450**	**2,500**	**7.7**	2.3	3.5	6.3	**31**	**71**
MWT-2	07/29/12	**780**	<40	**3,000**	**70**	1.6	**62**	8.8	**11**	**89**
MWT-3	07/29/12	**900**	**640**	**2,100**	**1.3**	0.65	0.63	2.4	1.9	**17**
MWT-4	07/29/12	**1500**	**690**	**2,800**	**530**	5.8	**100**	**61**	0.78	**560**
ESLs for Groundwater		**100**	**100**	**100**	**1.0**	**40**	**30**	**20**	**5**	**12**

Notes:

Bold =	detection exceeds ESL
ESL =	Table A. Environmental Screening Levels (ESLs), Shallow Soils (< 3 meters below ground surface), Commercial/Industrial Land Use Only, Groundwater is a Current or Potential Source of Drinking Water, CRWQCB-SFBR, Table A, November 2007
LUFT-GC/MS =	Leaking Underground Fuel Tank - Gas Chromatograph/Mass Spectrometer
MTBE =	methyl tertiary butyl ether
TBA =	t-butyl alcohol
TPH-DRO =	total petroleum hydrocarbons as diesel range organics
TPH-DRO* =	total petroleum hydrocarbons as diesel range organics with silica gel cleanup
TPH-GRO =	total petroleum hydrocarbons as gasoline range organics
USEPA =	United States Environmental Protection Agency
µg/L =	micrograms per liter
<40 =	not detected at concentration threshold as shown

Table 4
Monitoring Well Analytical Results

Former 76 Service Station No. 3737
1400 Powell Street, Emeryville, California

Sample Name	Sample Date	USEPA 8015B/FFP		LUFT-GC/MS	USEPA 8260											
		TPH-DRO* (µg/L)	TPH-MO* (µg/L)	TPH-GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	EDB (µg/L)	EDC (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)
MW-1A	07/29/12	**220**	<100	**1,400**	**10**	<0.50	0.80	1.9	**35**	**80**	<0.50	<0.50	<0.50	<0.50	1.2	<250
MW-1B	07/29/12	<40	<100	<50	<0.50	<0.50	<0.50	<1.0	0.72	<10	<0.50	**27**	<0.50	<0.50	<0.50	<250
MW-2A	07/29/12	**310**	<100	**1,900**	**120**	1.9	12	1.4	**280**	**2,300**	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-2B	07/29/12	<40	<100	<50	<0.50	<0.50	<0.50	<1.0	2.1	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-3A	07/29/12	**160**	<100	**1,900**	**77**	2.1	14	2.2	<0.50	<10	<0.50	**0.94**	<0.50	<0.50	<0.50	<250
MW-3B	07/29/12	<40	<100	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
ESLs for Groundwater		**100**	**100**	**100**	**1**	**40**	**30**	**20**	**5.0**	**12**	**0.05**	**0.5**	--	--	--	--

Notes:
Bold = detection exceeds ESL
DIPE = diisopropyl ether
EDB = 1,2-dibromoethane
EDC = 1,2-dichloroethane
ESL = Table A. Environmental Screening Levels (ESLs), Shallow Soils (< 3 meters below ground surface), Commercial/Industrial Land Use Only, Groundwater is a Current or Potential Source of Drinking Water, CRWQCB-SFBR, Table A, November 2007
ETBE = ethyl tertiary butyl ether
MTBE = methyl tertiary butyl ether
TAME = tertiary amyl methyl ether
TBA = t-butyl alcohol
TPH-DRO* = total petroleum hydrocarbons as diesel range organics with silica gel cleanup
TPH-GRO = total petroleum hydrocarbons as gasoline range organics
TPH-MO* = total petroleum hydrocarbons as motor oil with silica gel cleanup
USEPA = United States Environmental Protection Agency
µg/L = micrograms per liter
<0.50 = not detected at concentration threshold as shown
-- = unavailable

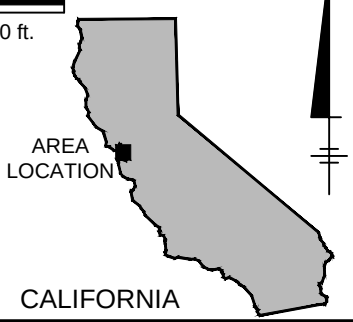
ARCADIS

Figures

REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., OAKLAND WEST, CALIFORNIA, 1993.

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.



UNION OIL
FORMER 76 SERVICE STATION 3737
1400 POWELL STREET
EMERYVILLE, CALIFORNIA

SITE LOCATION MAP

ARCADIS

FIGURE
1

CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS
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XREFS: IMAGES: PROJECTNAME: ---
47397X02.jpg

LEGEND

- PROPERTY BOUNDARY
- LOT LINE
- MW-1A — MONITORING WELL LOCATION (SHALLOW ZONE)
- MW-1B — MONITORING WELL LOCATION (DEEP ZONE)
- TCW-1 — TANK CAVITY WELL
- OW-11 — DEWATERING WELL (OFFSITE)
- TR-12/TRCPT-8 — APPROXIMATE BORING LOCATION BY TREADWELL AND ROLLO (OFFSITE), 2000-2010
- D-1 — HISTORICAL BORING LOCATION (ONSITE)
- CPT-1 — CPT BORING LOCATION, 2009
- MWT-1 — TEMPORARY MONITORING WELL LOCATION, 2012
- APPROXIMATE LOCATION OF SITE FEATURES ON 1951 SANBORN MAP

NOTE:

1. TEMPORARY MONITORING WELL LOCATIONS, BUILDING, CURB, PLANTER, AND PARKING AREAS SURVEYED BY MUIR CONSULTING, INC. 8/1/12. HORIZONTAL DATUM NAD83, VERTICAL DATUM NAVD88. ALL OTHER FEATURES AND LOCATIONS ARE APPROXIMATE AND WERE PROVIDED BY CRA, DATED 1/27/2011, AT A SCALE OF 1"=20'.

0 25' 50'
GRAPHIC SCALE

UNION OIL
FORMER 76 SERVICE STATION 3737
1400 POWELL STREET
EMERYVILLE, CALIFORNIA

SITE PLAN WITH TEMPORARY MONITORING WELL LOCATIONS

ARCADIS

FIGURE 2

CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS
C:\Users\jharris\Desktop\ENVCAD\B0047937\0000\0000041\DWG\47937B01.dwg LAYOUT: 2 SAVED: 8/14/2012 12:31 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: SETUP1 PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 8/22/2012 10:02 AM BY: HARRIS, JESSICA
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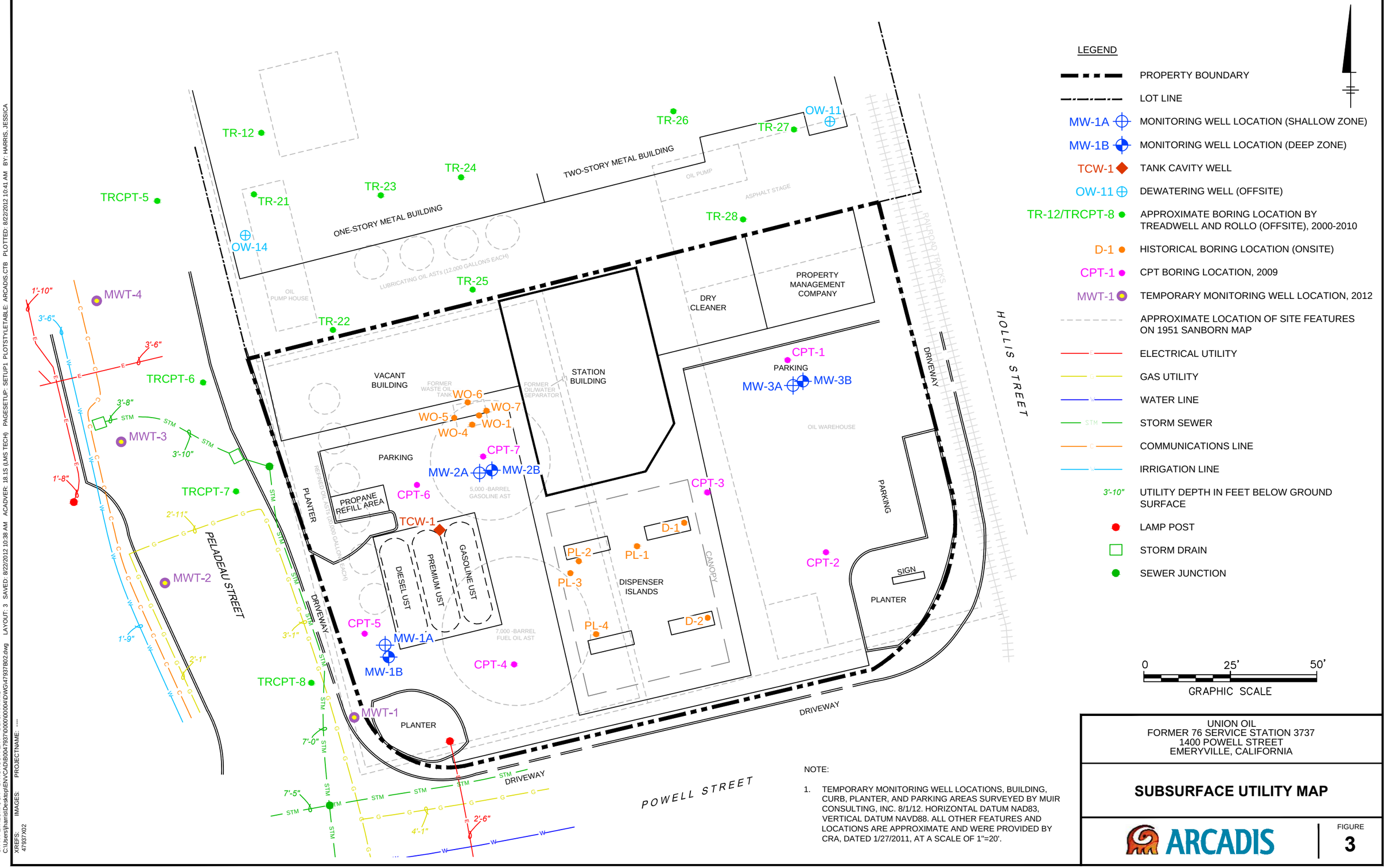


LEGEND

- PROPERTY BOUNDARY
- LOT LINE
- MW-1A — MONITORING WELL LOCATION (SHALLOW ZONE)
- MW-1B — MONITORING WELL LOCATION (DEEP ZONE)
- TCW-1 — TANK CAVITY WELL
- OW-11 — DEWATERING WELL (OFFSITE)
- TR-12/TRCPT-8 — APPROXIMATE BORING LOCATION BY TREADWELL AND ROLLO (OFFSITE), 2000-2010
- D-1 — HISTORICAL BORING LOCATION (ONSITE)
- CPT-1 — CPT BORING LOCATION, 2009
- MWT-1 — TEMPORARY MONITORING WELL LOCATION, 2012
- APPROXIMATE LOCATION OF SITE FEATURES ON 1951 SANBORN MAP
- ELECTRICAL UTILITY
- GAS UTILITY
- WATER LINE
- STORM SEWER
- COMMUNICATIONS LINE
- IRRIGATION LINE
- 3'-10" — UTILITY DEPTH IN FEET BELOW GROUND SURFACE
- LAMP POST
- STORM DRAIN
- SEWER JUNCTION

0 25' 50'
GRAPHIC SCALE

NOTE:

1. TEMPORARY MONITORING WELL LOCATIONS, BUILDING, CURB, PLANTER, AND PARKING AREAS SURVEYED BY MUIR CONSULTING, INC. 8/1/12. HORIZONTAL DATUM NAD83, VERTICAL DATUM NAVD88. ALL OTHER FEATURES AND LOCATIONS ARE APPROXIMATE AND WERE PROVIDED BY CRA, DATED 1/27/2011, AT A SCALE OF 1"=20'.

UNION OIL
FORMER 76 SERVICE STATION 3737
1400 POWELL STREET
EMERYVILLE, CALIFORNIA

SUBSURFACE UTILITY MAP

ARCADIS

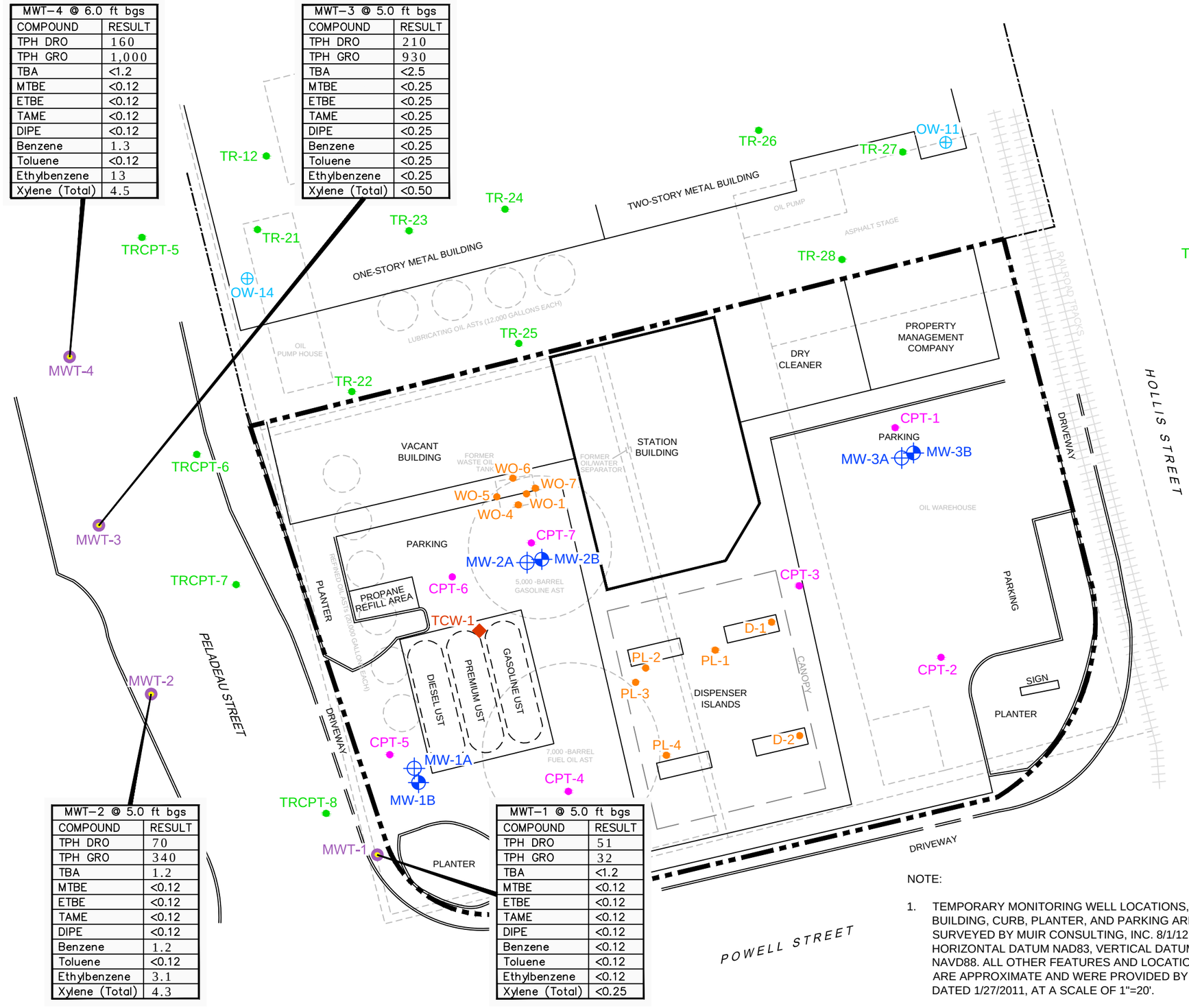
FIGURE 3

MWT–4 @ 6.0 ft bgs	
COMPOUND	RESULT
TPH DRO	160
TPH GRO	1,000
TBA	<1.2
MTBE	<0.12
ETBE	<0.12
TAME	<0.12
DIPE	<0.12
Benzene	1.3
Toluene	<0.12
Ethylbenzene	13
Xylene (Total)	4.5

MWT–3 @ 5.0 ft bgs	
COMPOUND	RESULT
TPH DRO	210
TPH GRO	930
TBA	<2.5
MTBE	<0.25
ETBE	<0.25
TAME	<0.25
DIPE	<0.25
Benzene	<0.25
Toluene	<0.25
Ethylbenzene	<0.25
Xylene (Total)	<0.50

MWT–2 @ 5.0 ft bgs	
COMPOUND	RESULT
TPH DRO	70
TPH GRO	340
TBA	1.2
MTBE	<0.12
ETBE	<0.12
TAME	<0.12
DIPE	<0.12
Benzene	1.2
Toluene	<0.12
Ethylbenzene	3.1
Xylene (Total)	4.3

MWT–1 @ 5.0 ft bgs	
COMPOUND	RESULT
TPH DRO	51
TPH GRO	32
TBA	<1.2
MTBE	<0.12
ETBE	<0.12
TAME	<0.12
DIPE	<0.12
Benzene	<0.12
Toluene	<0.12
Ethylbenzene	<0.12
Xylene (Total)	<0.25



LEGEND

- PROPERTY BOUNDARY
- LOT LINE
- MW-1A — MONITORING WELL LOCATION (SHALLOW ZONE)
- MW-1B — MONITORING WELL LOCATION (DEEP ZONE)
- TCW-1 — TANK CAVITY WELL
- OW-11 — DEWATERING WELL (OFFSITE)
- TR-12/TRCPT-8 — APPROXIMATE BORING LOCATION BY TREADWELL AND ROLLO (OFFSITE), 2000-2010
- D-1 — HISTORICAL BORING LOCATION (ONSITE)
- CPT-1 — CPT BORING LOCATION, 2009
- MWT-1 — TEMPORARY MONITORING WELL LOCATION, 2012
- APPROXIMATE LOCATION OF SITE FEATURES ON 1951 SANBORN MAP

ft bgs	FEET BELOW GROUND SURFACE
TPH DRO	TOTAL PETROLEUM HYDROCARBONS AS DIESEL RANGE ORGANICS
TPH GRO	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE RANGE ORGANICS
TBA	TERTIARY BUTYL ALCOHOL
MTBE	METHYL TERTIARY BUTYL ETHER
ETBE	ETHYL TERTIARY BUTYL ETHER
TAME	TERTIARY-AMYL METHYL ETHER
DIPE	DIISOPROPYL ETHER
<	LESS THAN LABORATORY REPORTING LIMIT

DETECTIONS ARE IN **BOLD**

ALL ANALYTICAL RESULTS ARE IN MILLIGRAMS PER KILOGRAM (mg/kg)

0 25' 50'
GRAPHIC SCALE

NOTE:

1. TEMPORARY MONITORING WELL LOCATIONS, BUILDING, CURB, PLANTER, AND PARKING AREAS SURVEYED BY MUIR CONSULTING, INC. 8/1/12. HORIZONTAL DATUM NAD83, VERTICAL DATUM NAVD88. ALL OTHER FEATURES AND LOCATIONS ARE APPROXIMATE AND WERE PROVIDED BY CRA, DATED 1/27/2011, AT A SCALE OF 1"=20'.

UNION OIL
FORMER 76 SERVICE STATION 3737
1400 POWELL STREET
EMERYVILLE, CALIFORNIA

SOIL ANALYTICAL RESULTS, JULY 25-26, 2012

ARCADIS

FIGURE 4

CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS
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47937X02

LEGEND

- PROPERTY BOUNDARY
- LOT LINE
- MW-1A — MONITORING WELL LOCATION (SHALLOW ZONE)
- MW-1B — MONITORING WELL LOCATION (DEEP ZONE)
- TCW-1 — TANK CAVITY WELL
- OW-11 — DEWATERING WELL (OFFSITE)
- TR-12/TRCPT-8 — APPROXIMATE BORING LOCATION BY TREADWELL AND ROLLO (OFFSITE), 2000-2010
- D-1 — HISTORICAL BORING LOCATION (ONSITE)
- CPT-1 — CPT BORING LOCATION, 2009
- MWT-1 — TEMPORARY MONITORING WELL LOCATION, 2012
- APPROXIMATE LOCATION OF SITE FEATURES ON 1951 SANBORN MAP
- GROUNDWATER ELEVATION CONTOUR (FT MSL; DASHED WHERE INFERRED)
- (13.17) — GROUNDWATER ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL (MSL)
- 0.055 FT/FT — APPROXIMATE GROUNDWATER FLOW DIRECTION AND GRADIENT MEASURED IN FOOT PER FOOT (FT/FT)

NOTES:

1. TEMPORARY MONITORING WELL LOCATIONS, BUILDING, CURB, PLANTER, AND PARKING AREAS SURVEYED BY MUIR CONSULTING, INC. 8/1/12. HORIZONTAL DATUM NAD83, VERTICAL DATUM NAVD88. ALL OTHER FEATURES AND LOCATIONS ARE APPROXIMATE AND WERE PROVIDED BY CRA, DATED 1/27/2011, AT A SCALE OF 1"=20'.

2. UNDERGROUND PARKING GARAGES ARE LOCATED TO THE NORTH AND WEST OF THE SITE. THE PARKING GARAGE TO THE NORTH IS CONSTRUCTED TO APPROXIMATELY 15 FEET BELOW GROUND SURFACE (BGS). TOTAL CONSTRUCTION DEPTH FOR THE PARKING GARAGE TO THE WEST IS UNKNOWN BUT THE TOP OF THE SLAB IS LOCATED APPROXIMATELY TWO FEET BGS.

0 25' 50'

GRAPHIC SCALE

UNION OIL
FORMER 76 SERVICE STATION 3737
1400 POWELL STREET
EMERYVILLE, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP (SHALLOW ZONE)

ARCADIS

FIGURE 5

CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS
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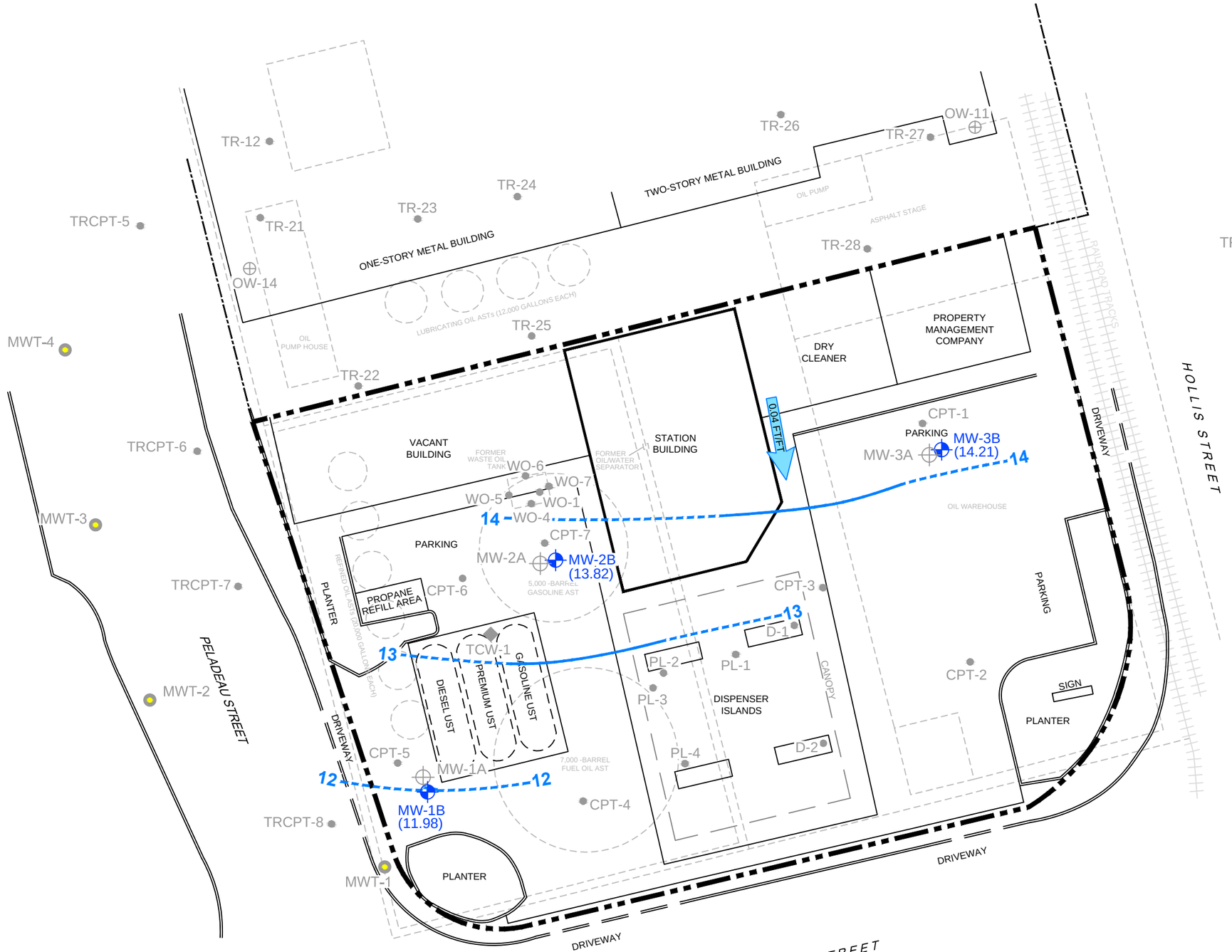

LEGEND

- PROPERTY BOUNDARY
- LOT LINE
- MW-1A — MONITORING WELL LOCATION (SHALLOW ZONE)
- MW-1B — MONITORING WELL LOCATION (DEEP ZONE)
- TCW-1 — TANK CAVITY WELL
- OW-11 — DEWATERING WELL (OFFSITE)
- TR-12/TRCPT-8 — APPROXIMATE BORING LOCATION BY TREADWELL AND ROLLO (OFFSITE), 2000-2010
- D-1 — HISTORICAL BORING LOCATION (ONSITE)
- CPT-1 — CPT BORING LOCATION, 2009
- MWT-1 — TEMPORARY MONITORING WELL LOCATION, 2012
- APPROXIMATE LOCATION OF SITE FEATURES ON 1951 SANBORN MAP
- GROUNDWATER ELEVATION CONTOUR (FT MSL; DASHED WHERE INFERRED)
- (13.82) — GROUNDWATER ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL (MSL)
- 0.04 FT/FT — APPROXIMATE GROUNDWATER FLOW DIRECTION AND GRADIENT MEASURED IN FOOT PER FOOT (FT/FT)

NOTE:

1. TEMPORARY MONITORING WELL LOCATIONS, BUILDING, CURB, PLANTER, AND PARKING AREAS SURVEYED BY MUIR CONSULTING, INC. 8/1/12. HORIZONTAL DATUM NAD83, VERTICAL DATUM NAVD88. ALL OTHER FEATURES AND LOCATIONS ARE APPROXIMATE AND WERE PROVIDED BY CRA, DATED 1/27/2011, AT A SCALE OF 1"=20'.

0 25' 50'
GRAPHIC SCALE

UNION OIL
FORMER 76 SERVICE STATION 3737
1400 POWELL STREET
EMERYVILLE, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP (DEEP ZONE)

ARCADIS

FIGURE 6

CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS
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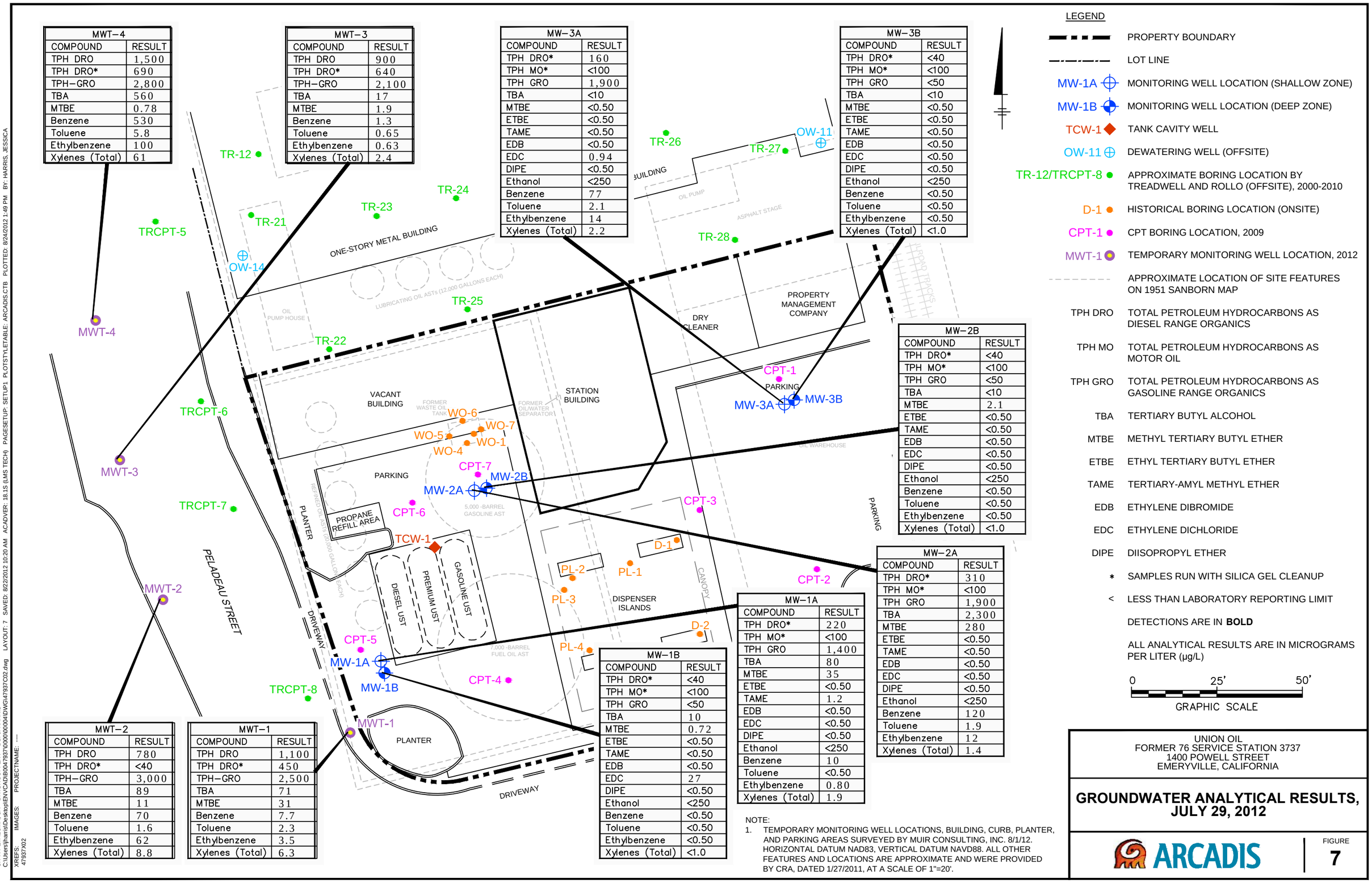

MWT–4	
COMPOUND	RESULT
TPH DRO	1,500
TPH DRO*	690
TPH–GRO	2,800
TBA	560
MTBE	0.78
Benzene	530
Toluene	5.8
Ethylbenzene	100
Xylenes (Total)	61

MWT–3	
COMPOUND	RESULT
TPH DRO	900
TPH DRO*	640
TPH–GRO	2,100
TBA	17
MTBE	1.9
Benzene	1.3
Toluene	0.65
Ethylbenzene	0.63
Xylenes (Total)	2.4

MW–3A	
COMPOUND	RESULT
TPH DRO*	160
TPH MO*	<100
TPH GRO	1,900
TBA	<10
MTBE	<0.50
ETBE	<0.50
TAME	<0.50
EDB	<0.50
EDC	0.94
DIPE	<0.50
Ethanol	<250
Benzene	77
Toluene	2.1
Ethylbenzene	14
Xylenes (Total)	2.2

MW–3B	
COMPOUND	RESULT
TPH DRO*	<40
TPH MO*	<100
TPH GRO	<50
TBA	<10
MTBE	<0.50
ETBE	<0.50
TAME	<0.50
EDB	<0.50
EDC	<0.50
DIPE	<0.50
Ethanol	<250
Benzene	<0.50
Toluene	<0.50
Ethylbenzene	<0.50
Xylenes (Total)	<1.0

MW–2B	
COMPOUND	RESULT
TPH DRO*	<40
TPH MO*	<100
TPH GRO	<50
TBA	<10
MTBE	2.1
ETBE	<0.50
TAME	<0.50
EDB	<0.50
EDC	<0.50
DIPE	<0.50
Ethanol	<250
Benzene	<0.50
Toluene	<0.50
Ethylbenzene	<0.50
Xylenes (Total)	<1.0

MW–2A	
COMPOUND	RESULT
TPH DRO*	310
TPH MO*	<100
TPH GRO	1,900
TBA	2,300
MTBE	280
ETBE	<0.50
TAME	<0.50
EDB	<0.50
EDC	<0.50
DIPE	<0.50
Ethanol	<250
Benzene	120
Toluene	1.9
Ethylbenzene	12
Xylenes (Total)	1.4

MW–1A	
COMPOUND	RESULT
TPH DRO*	220
TPH MO*	<100
TPH GRO	1,400
TBA	80
MTBE	35
ETBE	<0.50
TAME	1.2
EDB	<0.50
EDC	<0.50
DIPE	<0.50
Ethanol	<250
Benzene	10
Toluene	<0.50
Ethylbenzene	0.80
Xylenes (Total)	1.9

MW–1B	
COMPOUND	RESULT
TPH DRO*	<40
TPH MO*	<100
TPH GRO	<50
TBA	10
MTBE	0.72
ETBE	<0.50
TAME	<0.50
EDB	<0.50
EDC	27
DIPE	<0.50
Ethanol	<250
Benzene	<0.50
Toluene	<0.50
Ethylbenzene	<0.50
Xylenes (Total)	<1.0

MWT–2	
COMPOUND	RESULT
TPH DRO	780
TPH DRO*	<40
TPH–GRO	3,000
TBA	89
MTBE	11
Benzene	70
Toluene	1.6
Ethylbenzene	62
Xylenes (Total)	8.8

MWT–1	
COMPOUND	RESULT
TPH DRO	1,100
TPH DRO*	450
TPH–GRO	2,500
TBA	71
MTBE	31
Benzene	7.7
Toluene	2.3
Ethylbenzene	3.5
Xylenes (Total)	6.3

LEGEND

- PROPERTY BOUNDARY
- LOT LINE
- MW-1A — MONITORING WELL LOCATION (SHALLOW ZONE)
- MW-1B — MONITORING WELL LOCATION (DEEP ZONE)
- TCW-1 — TANK CAVITY WELL
- OW-11 — DEWATERING WELL (OFFSITE)
- TR-12/TRCPT-8 — APPROXIMATE BORING LOCATION BY TREADWELL AND ROLLO (OFFSITE), 2000-2010
- D-1 — HISTORICAL BORING LOCATION (ONSITE)
- CPT-1 — CPT BORING LOCATION, 2009
- MWT-1 — TEMPORARY MONITORING WELL LOCATION, 2012
- APPROXIMATE LOCATION OF SITE FEATURES ON 1951 SANBORN MAP

TPH DRO	TOTAL PETROLEUM HYDROCARBONS AS DIESEL RANGE ORGANICS
TPH MO	TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL
TPH GRO	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE RANGE ORGANICS
TBA	TERTIARY BUTYL ALCOHOL
MTBE	METHYL TERTIARY BUTYL ETHER
ETBE	ETHYL TERTIARY BUTYL ETHER
TAME	TERTIARY-AMYL METHYL ETHER
EDB	ETHYLENE DIBROMIDE
EDC	ETHYLENE DICHLORIDE
DIPE	DIISOPROPYL ETHER
*	SAMPLES RUN WITH SILICA GEL CLEANUP
<	LESS THAN LABORATORY REPORTING LIMIT

DETECTIONS ARE IN **BOLD**

ALL ANALYTICAL RESULTS ARE IN MICROGRAMS PER LITER (µg/L)

0 25' 50'

GRAPHIC SCALE

NOTE:
1. TEMPORARY MONITORING WELL LOCATIONS, BUILDING, CURB, PLANTER, AND PARKING AREAS SURVEYED BY MUIR CONSULTING, INC. 8/1/12. HORIZONTAL DATUM NAD83, VERTICAL DATUM NAVD88. ALL OTHER FEATURES AND LOCATIONS ARE APPROXIMATE AND WERE PROVIDED BY CRA, DATED 1/27/2011, AT A SCALE OF 1"=20'.

UNION OIL
FORMER 76 SERVICE STATION 3737
1400 POWELL STREET
EMERYVILLE, CALIFORNIA

GROUNDWATER ANALYTICAL RESULTS, JULY 29, 2012

ARCADIS

FIGURE 7

CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS
C:\Users\jharris\Desktop\ENV\CAD\B0047937\0000\0000041\DWG\47937C02.dwg LAYOUT: 7 SAVED: 8/22/2012 10:20 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: SETUP1 PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 8/24/2012 1:49 PM BY: HARRIS, JESSICA
XREFS:
47937X02
IMAGES: PROJECTNAME: ---

Attachment 1

Boring Logs

Date Start/Finish:	07/25/2012	**Latitude:**	37.8395031	**Well ID:**	MWT-1
Drilling Company:	Greg Drilling & Testing, Inc.	**Longitude:**	-122.2899741	**Client:**	Chevron Environmental Management Company
Drilling Method:	Hand Auger, Direct Push	**Casing Elevation:**	19.11 ft amsl		
Sample Method:	Acetate Sleeve	**Total Depth:**	10 ft bgs	**Location:**	CVX 35-1780 1400 Powell Street, Emeryville, CA
Rig Type:	Hollow Stem Auger	**Boring Diameter:**	8-inch OD		
		Logged By:	Loretta Kwong		
		Reviewed By:	David Lay, P. G.	**Project Number:**	B0047937.0000

DEPTH (feet bgs)	Sample Run Number	Lab Sample	Recovery (feet)	Groundwater	Blow Counts	PID Headspace (ppm)	USCS Code	Geologic Column	Lithologic Description	Well Construction
0	1	MWT-1-S-5' @10:50	HA	▽		3.2 3.9 514 1163 580 2250 380 520 26.4 12.7	Concrete Silt SM GM ML GM ML		Concrete Fill, SILT (ML), with sand, trace gravel, moist, loose, no odor, fine-grained sand, sub-angular gravel (<1" diameter), dark grayish brown (10YR 4/2), (15, 30, 55, 0) Silty SAND (SM), with gravel, moist, loose, no odor, fine-grained sand, sub-angular gravel, dark olive gray (5Y 3/2), (5, 70, 25, 0) GRAVEL with silty sand (GM), moist, loose, odor, matrix, sub-angular gravel, fine-grained sand, dark olive gray (5Y 3/2), (75, 15, 10, 0) Sandy SILT (ML), with gravel, moist, slight plasticity, odor, fine-grained sand, sub-angular gravel (<1" diameter), dark greenish gray (GLEY1 4/5GY), (15, 35, 50, 0) Silty GRAVEL (GM), with sand, moist, loose, odor, matrix, angular to sub-angular gravel (<1" diameter), dark greenishgray (GLEY1 4/10Y), (80, 10, 10, 0) At 7.5' bgs Wet, sheen observed Sandy SILT (ML), wet, low plasticity, soft, no odor, fine-grained sand, olive brown (2.5Y 4/3) and dark grayish brown (GLEY1 4/10Y), (0, 25, 75, 0) At 9' bgs Yellowish brown (10YR 5/4) End of boring at 10 ft bgs.	Flushmount box Well Cap 1' to 3' bgs Bentonite 1' to 5' bgs 2-inch schedule 40 PVC riser 3' to 10' bgs #2/12 Monterey Sand 5' to 10' bgs 2-inch schedule 40 PVC 0.010" Slotted Screen
5			DP							
10										
15										
20										

PROFESSIONAL GEOLOGIST
DAVID LAY
No.8545
STATE OF CALIFORNIA

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Remarks: amsl = above mean sea level; bgs = below ground surface; DP = Direct Push; ft = feet; HA = Hand Auger
NA = not applicable; OD= outer diameter; PID = photoionization detector; ppm = parts per million
PVC = Polyvinyl Chloride
Hand Auger to 8 ft 1 in bgs; Hollow Stem Auger to 10 ft bgs
Horizontal Datum = North American Datum of 1983 (NAD 83)
Vertical Datum = North American Vertical Datum of 1988 (NAVD 88)

Date Start/Finish:	07/26/2012	**Latitude:**	37.8396071	**Well ID:**	MWT-2
Drilling Company:	Greg Drilling & Testing, Inc.	**Longitude:**	-122.2901664	**Client:**	Chevron Environmental Management Company
Drilling Method:	Hand Auger, Direct Push	**Casing Elevation:**	17.47 ft amsl		
Sample Method:	Acetate Sleeve	**Total Depth:**	10 ft bgs	**Location:**	CVX 35-1780 1400 Powell Street, Emeryville, CA
Rig Type:	Hollow Stem Auger	**Boring Diameter:**	8-inch OD		
		Logged By:	Loretta Kwong		
		Reviewed By:	David Lay, P. G.	**Project Number:**	B0047937.0000

DEPTH (feet bgs)	Sample Run Number	Lab Sample	Recovery (feet)	Groundwater	Blow Counts	PID Headspace (ppm)	USCS Code	Geologic Column	Lithologic Description	Well Construction
0							Asphalt		Asphalt	Flushmount box
						5.9	ML		Fill, SILT (ML), with sand, trace gravel, moist, loose, no odor, fine-grained sand, sub-angular gravel (<1.5" diameter), dark yellowish brown (10YR 3/4), (25, 35, 40, 0)	Well Cap
						18.5			At 2' bgs SILT (ML), little sand, trace gravel, dry, soft, slight odor, fine-grained sand, angular to sub-angular gravel (<1" diameter), black (5Y 2.5/1), (5, 15, 80, 0)	1' to 3' bgs Bentonite
						238	CL		CLAY (CL), some silt, trace sand, moist, medium plasticity, medium-stiff, odor, dark gray (5Y 4/1), (0, 5, 20, 75) At 4' bgs Stiff, light olive brown (2.5Y 5/3)	1' to 5' bgs 2-inch schedule 40 PVC riser
5	1	MWT-2-S-5' @09:05	HA	▽		680				
						1571	ML		SILT (ML), some clay, trace sand, moist, low plasticity, stiff, odor, fine-grained sand, mottling, olive gray (5Y 5/2) and greenish gray (GLEY1 5/5 GY), (0, 5, 65, 30) At 6' bgs Strong mottling	
						1484				
						1511			At 7' bgs Dark greenish gray (GLEY1 4/10Y), (0, 25, 75, 0)	3' to 10' bgs #2/12 Monterey Sand
						1252	GM		At 7.5' bgs Wet	5' to 10' bgs 2-inch schedule 40 PVC 0.010" Slotted Screen
			DP			12.2	ML		GRAVEL (GM), silt, sand, wet, medium-dense, matrix, gravel <2.5" diameter, fine-grained sand, dark greenish gray (GLEY 1 4/10Y), (70, 15, 15, 0)	
10						5.4			Sandy SILT (ML), wet, low plasticity, soft, odor, fine-grained sand, yellowish brown (10YR 5/4), (0, 20, 80, 0)	
									End of boring at 10 ft bgs.	
15										
20										

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NA = not applicable; OD= outer diameter; PID = photoionization detector; ppm = parts per million
PVC = Polyvinyl Chloride
Hand Auger to 8 ft 1 in bgs; Hollow Stem Auger to 10 ft bgs
Horizontal Datum = North American Datum of 1983 (NAD 83)
Vertical Datum = North American Vertical Datum of 1988 (NAVD 88)

Date Start/Finish:	07/26/2012	**Latitude:**	37.8396071	**Well ID:**	MWT-3
Drilling Company:	Greg Drilling & Testing, Inc.	**Longitude:**	-122.2902129	**Client:**	Chevron Environmental Management Company
Drilling Method:	Hand Auger, Direct Push	**Casing Elevation:**	16.45 ft amsl		
Sample Method:	Acetate Sleeve	**Total Depth:**	10 ft bgs	**Location:**	CVX 35-1780 1400 Powell Street, Emeryville, CA
Rig Type:	Hollow Stem Auger	**Boring Diameter:**	8-inch OD		
		Logged By:	Loretta Kwong	**Project Number:**	B0047937.0000
		Reviewed By:	David Lay, P. G.		

DEPTH (feet bgs)	Sample Run Number	Lab Sample	Recovery (feet)	Groundwater	Blow Counts	PID Headspace (ppm)	USCS Code	Geologic Column	Lithologic Description	Well Construction
0							Asphalt		Asphalt	Flushmount box
						20.1	ML		Sandy SILT (ML), trace gravel, dry, nonplastic, soft, no odor, fine-grained sand, sub-angular gravel (<2.5" diameter), black (10YR 2/1), (5, 15, 80, 0)	Well Cap
						4.8			At 2' bgs Moist, slight plasticity, gravel<1" diameter, olive brown (2.5Y 4/3), (5, 30, 65, 0)	1' to 3' bgs Bentonite
						3.7				1' to 5' bgs 2-inch schedule 40 PVC riser
			HA			130	GM		GRAVEL (GM), with silt, moist, loose, odor, gravel<1" diameter, fine-grained sand, dark greenish gray (GLEY1 4/10Y), (60, 20, 20, 0)	
5	1	MWT-3-S-5' @11:00		▽		2015				
						1336	ML		SILT (ML), some clay, trace sand, wet, low plasticity, odor, dark greenish gray (GLEY1 4/10Y), (0, 5, 65, 30)	
						438	GM		GRAVEL (GM), with silt and sand, wet, odor, andular to sub-angular gravel (<2" diameter), fine-grained sand, dark greenish gray (GLEY1 4/10Y), (70, 15, 15, 0) At 8.5' bgs Gravel <2.5" diameter	3' to 10' bgs #2/12 Monterey Sand
						215	ML		SILT (ML), some clay, wet, low plasticity, soft, slight odor, dark greenish gray (GLEY1 4/5GY) At 9.5' bgs Dark yellowish brown (10YR 5/4)	5' to 10' bgs 2-inch schedule 40 PVC 0.010" Slotted Screen
			DP			33.1				
10						21.4			End of boring at 10 ft bgs.	
15										
20										

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NA = not applicable; OD= outer diameter; PID = photoionization detector; ppm = parts per million
PVC = Polyvinyl Chloride
Hand Auger to 8 ft 1 in bgs; Hollow Stem Auger to 10 ft bgs
Horizontal Datum = North American Datum of 1983 (NAD 83)
Vertical Datum = North American Vertical Datum of 1988 (NAVD 88)

Date Start/Finish:	07/25/2012	**Latitude:**	37.8398300	**Well ID:**	MWT-4
Drilling Company:	Greg Drilling & Testing, Inc.	**Longitude:**	-122.2902403	**Client:**	Chevron Environmental Management Company
Drilling Method:	Hand Auger, Direct Push	**Casing Elevation:**	17.09 ft amsl		
Sample Method:	Acetate Sleeve	**Total Depth:**	10 ft bgs	**Location:**	CVX 35-1780 1400 Powell Street, Emeryville, CA
Rig Type:	Hollow Stem Auger	**Boring Diameter:**	8-inch OD		
		Logged By:	Loretta Kwong		
		Reviewed By:	David Lay, P. G.	**Project Number:**	B0047937.0000

DEPTH (feet bgs)	Sample Run Number	Lab Sample	Recovery (feet)	Groundwater	Blow Counts	PID Headspace (ppm)	USCS Code	Geologic Column	Lithologic Description	Well Construction
0							Asphalt		Asphalt, base-rock	Flushmount box
						110	CL		CLAY (CL), little silt, moist, medium plasticity, medium-stiff, odor, dark greenish gray (GLEY1 3/10Y), (0, 0, 15, 85)	Well Cap
						307				1' to 3' bgs Bentonite
						998			At 3' bgs Trace fine-grained sand, grayish brown (2.5Y 5/2), (0, 5, 15, 80)	1' to 5' bgs 2-inch schedule 40 PVC riser
			HA			1123			At 4' bgs Some silt, trace black mottling, (0, 5, 25, 70)	
5	1	MWT-4-S-5' @14:30		▽		1336			At 5' bgs With mud, mottling, olive (5Y 5/3), greenish gray (GLEY1 5/10GY)	
						1486	ML		Sandy SILT (ML), little clay, moist, low plasticity, soft, odor, fine-grained sand, dark greenish gray (GLEY1 4/10Y), (0, 25, 65, 10)	3' to 10' bgs #2/12 Monterey Sand
						1523			At 7' bgs Olive gray (5Y 4/2) At 7.5' bgs Wet	5' to 10' bgs 2-inch schedule 40 PVC 0.010" Slotted Screen
						1284	GM		GRAVEL (GM), silt, sand, wet, medium-dense, odor, fine-grained sand, angular to sub-angular gravel (<1" diameter), dark greenish gray (GLEY1 4/10GY), (65, 20, 15, 0)	
			DP			61.5	ML		Sandy SILT (ML), wet, low plasticity, soft, fine-grained sand, light olive brown (2.5Y 5/4)	
10						41.9			End of boring at 10 ft bgs.	
15										
20										

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NA = not applicable; OD= outer diameter; PID = photoionization detector; ppm = parts per million
PVC = Polyvinyl Chloride
Hand Auger to 8 ft 1 in bgs; Hollow Stem Auger to 10 ft bgs
Horizontal Datum = North American Datum of 1983 (NAD 83)
Vertical Datum = North American Vertical Datum of 1988 (NAVD 88)

Attachment 2

Soil and Groundwater Laboratory Analytical Reports with Chain-of-Custody Record

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Date of Report: 08/02/2012

Leah Ackerman

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Project:	3737
BC Work Order:	1213868
Invoice ID:	B127034

Enclosed are the results of analyses for samples received by the laboratory on 7/27/2012. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Molly Meyers

Contact Person: Molly Meyers
Client Service Rep

Authorized Signature

Table of Contents

RUSH!

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Chain of Custody and Cooler Receipt Form for 1213868 Page 1 of 2

CHAIN OF CUSTODY FORM

12-138168 Union Oil Company of California ■ 6101 Bollinger Canyon Road ■ San Ramon, CA 94583 COC 1 of 1

Union Oil Site ID: 351780	Union Oil Consultant: ARCADIS U.S., Inc.
Site Global ID:	Consultant Contact: Leah Ackerman
Site Address: 1400 W. Powell St., Emeryville, CA	Consultant Phone No.: 415.432.0912
Union Oil PM: Roya Kambin	Sampling Company: ~~TRC~~ ARCADIS U.S., Inc.
Union Oil PM Phone No.:	Sampled By (PRINT): L. Kwong / S. Rice
Charge Code: NWRTB- 0 _____ -0- LAB	Sampler Signature:
This is a LEGAL document. ALL fields must be filled out CORRECTLY and COMPLETELY.	BC Laboratories, Inc. **Project Manager: Molly Meyers** 4100 Atlas Court, Bakersfield, CA 93308 Phone No. 661-327-4911

ANALYSES REQUIRED

Turnaround Time (TAT): Standard ☒ 24 Hours ☐ 48 Hours ☐ 72 Hours ☒

Special Instructions

	SAMPLE ID																	Notes / Comments
	Field Point Name	Matrix	DTW	Date (yymmdd)	Sample Time	# of Containers	TPH - Diesel by EPA 8015	TPH - G by GC/MS	BTEX/MTBE/OXYS by EPA 8260B	Ethanol by EPA 8260B	EPA 8260B Full List with OXYS	TPH as DRO by EPA 8260B						
1	MW-1-S-5'	W-S-A	—	120725	1050	1	X	X	X			X						
2	MW-4-S-6'	W-S-A	—	120725	1430	1	X	X	X			X						
3	MW-2-S-5'	W-S-A	—	120726	0905	1	X	X	X			X						
4	MW-3-S-5'	W-S-A		120726	1100	1	X	X	X			X						
		W-S-A																
		W-S-A																
		W-S-A																
		W-S-A																
		W-S-A																
		W-S-A																
		W-S-A																
		W-S-A																

Relinquished By	Company	Date / Time:
	ARCADIS	7/26/12 1445
Received By	Company	Date / Time:
BClabs		7/27/12 8:05

Relinquished By	Company	Date / Time :
Received By	Company	Date / Time :

Relinquished By	Company	Date / Time:
Received By	Company	Date / Time:

CHK BY

DISTRIBUTION

SUB-OUT ☐

4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com

Chain of Custody and Cooler Receipt Form for 1213868 Page 2 of 2

BC LABORATORIES INC. **COOLER RECEIPT FORM** Rev. No. 12 12/30/10 Page 1 Of 1

Submission #: 12 - 13868

SHIPPING INFORMATION
Federal Express ☐ UPS ☐ Hand Delivery ☐
BC Lab Field Service ☑ Other ☐ (Specify)_____

SHIPPING CONTAINER
Ice Chest ☑ None ☐
Box ☐ Other ☐ (Specify)_____

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☑ Intact? Yes ☑ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☐ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.98 Container: Temp Blank PE Thermometer ID: 177

Temperature: (A) 1.9 °C / (C) 2.0 °C

Date/Time 7/27/12 8:05

Analyst Init

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL PHYSICAL										
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS										
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
100ml EPA 547										
100ml EPA 531.1										
QT EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M										
QT AMBER										
8 OZ. JAR	A	A	A	A						
32 OZ. JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										

Comments:
Sample Numbering Completed By: _____ Date/Time: 7/27/12 0941
A = Actual / C = Corrected

[C:\MyDOCS\WordPerfect\LAB_DOCS\FORMS\SAMREC2]

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1213868-01	**COC Number:**	---	**Receive Date:**	07/27/2012 08:05
	Project Number:	3737	**Sampling Date:**	07/25/2012 10:50
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MWT-1-S-5'-120725	**Lab Matrix:**	Solids
	Sampled By:	ARLA	**Sample Type:**	Soil
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	MWT-1
			Matrix:	SO
			Sample QC Type (SACode):	CS
			Cooler ID:	
1213868-02	**COC Number:**	---	**Receive Date:**	07/27/2012 08:05
	Project Number:	3737	**Sampling Date:**	07/25/2012 14:30
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MWT-4-S-6'-120725	**Lab Matrix:**	Solids
	Sampled By:	ARLA	**Sample Type:**	Soil
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	MWT-4
			Matrix:	SO
			Sample QC Type (SACode):	CS
			Cooler ID:	
1213868-03	**COC Number:**	---	**Receive Date:**	07/27/2012 08:05
	Project Number:	3737	**Sampling Date:**	07/26/2012 09:05
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MWT-2-S-5'-120726	**Lab Matrix:**	Solids
	Sampled By:	ARLA	**Sample Type:**	Soil
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	MWT-2
			Matrix:	SO
			Sample QC Type (SACode):	CS
			Cooler ID:	

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information

1213868-04

COC Number: ---
Project Number: 3737
Sampling Location: ---
Sampling Point: MWT-3-S-5'-120726
Sampled By: ARLA

Receive Date: 07/27/2012 08:05
Sampling Date: 07/26/2012 11:00
Sample Depth: ---
Lab Matrix: Solids
Sample Type: Soil
Delivery Work Order:
Global ID:
Location ID (FieldPoint): MWT-3
Matrix: SO
Sample QC Type (SACode): CS
Cooler ID:

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1213868-01 | **Client Sample Name:** 3737, MWT-1-S-5'-120725, 7/25/2012 10:50:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	mg/kg	0.12	EPA-8260	ND	A01	1
Ethylbenzene	ND	mg/kg	0.12	EPA-8260	ND	A01	1
Methyl t-butyl ether	ND	mg/kg	0.12	EPA-8260	ND	A01	1
Toluene	ND	mg/kg	0.12	EPA-8260	ND	A01	1
Total Xylenes	ND	mg/kg	0.25	EPA-8260	ND	A01	1
t-Amyl Methyl ether	ND	mg/kg	0.12	EPA-8260	ND	A01	1
t-Butyl alcohol	ND	mg/kg	1.2	EPA-8260	ND	A01	1
Diisopropyl ether	ND	mg/kg	0.12	EPA-8260	ND	A01	1
Ethyl t-butyl ether	ND	mg/kg	0.12	EPA-8260	ND	A01	1
Total Purgeable Petroleum Hydrocarbons	**32**	**mg/kg**	**5.0**	**Luft-GC/MS**	ND	**A01**	1
1,2-Dichloroethane-d4 (Surrogate)	94.7	%	70 - 121 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	97.2	%	81 - 117 (LCL - UCL)	EPA-8260			1
4-Bromofluorobenzene (Surrogate)	109	%	74 - 121 (LCL - UCL)	EPA-8260			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	07/31/12	07/31/12 22:51	ADC	MS-V2	25	BVG1962

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons

BCL Sample ID: 1213868-01 | **Client Sample Name:** 3737, MWT-1-S-5'-120725, 7/25/2012 10:50:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Diesel Range Organics (C12 - C24)	**51**	**mg/kg**	**4.0**	**EPA-8015B/TPHd**	ND	**A01,A52**	1
Tetracosane (Surrogate)	81.0	%	40 - 130 (LCL - UCL)	EPA-8015B/TPHd		A01	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/TPHd	07/27/12	08/01/12 03:16	MK1	GC-5	1.967	BVG2190

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1213868-02 | **Client Sample Name:** 3737, MWT-4-S-6'-120725, 7/25/2012 2:30:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	**1.3**	**mg/kg**	**0.12**	**EPA-8260**	ND	**A01**	1
Ethylbenzene	**13**	**mg/kg**	**2.5**	**EPA-8260**	ND	**A01**	2
Methyl t-butyl ether	ND	mg/kg	0.12	EPA-8260	ND	A01	1
Toluene	ND	mg/kg	0.12	EPA-8260	ND	A01	1
Total Xylenes	**4.5**	**mg/kg**	**0.25**	**EPA-8260**	ND	**A01**	1
t-Amyl Methyl ether	ND	mg/kg	0.12	EPA-8260	ND	A01	1
t-Butyl alcohol	ND	mg/kg	1.2	EPA-8260	ND	A01	1
Diisopropyl ether	ND	mg/kg	0.12	EPA-8260	ND	A01	1
Ethyl t-butyl ether	ND	mg/kg	0.12	EPA-8260	ND	A01	1
Total Purgeable Petroleum Hydrocarbons	**1000**	**mg/kg**	**100**	**Luft-GC/MS**	ND	**A01**	2
1,2-Dichloroethane-d4 (Surrogate)	93.6	%	70 - 121 (LCL - UCL)	EPA-8260			1
1,2-Dichloroethane-d4 (Surrogate)	92.2	%	70 - 121 (LCL - UCL)	EPA-8260			2
Toluene-d8 (Surrogate)	145	%	81 - 117 (LCL - UCL)	EPA-8260		A19,S09	1
Toluene-d8 (Surrogate)	100	%	81 - 117 (LCL - UCL)	EPA-8260			2
4-Bromofluorobenzene (Surrogate)	187	%	74 - 121 (LCL - UCL)	EPA-8260		A19,S09	1
4-Bromofluorobenzene (Surrogate)	102	%	74 - 121 (LCL - UCL)	EPA-8260			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	07/31/12	08/01/12 00:12	ADC	MS-V2	25	BVG1962
2	EPA-8260	07/31/12	07/31/12 23:17	ADC	MS-V2	500	BVG1962

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons

BCL Sample ID: 1213868-02 | **Client Sample Name:** 3737, MWT-4-S-6'-120725, 7/25/2012 2:30:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Diesel Range Organics (C12 - C24)	**160**	**mg/kg**	**20**	**EPA-8015B/TPHd**	ND	**A01,A52**	1
Tetracosane (Surrogate)	120	%	40 - 130 (LCL - UCL)	EPA-8015B/TPHd		A01	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/TPHd	07/27/12	08/01/12 03:30	MK1	GC-5	9.868	BVG2190

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1213868-03 | **Client Sample Name:** 3737, MWT-2-S-5'-120726, 7/26/2012 9:05:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	**1.2**	**mg/kg**	**0.12**	**EPA-8260**	ND	**A01**	1
Ethylbenzene	**3.1**	**mg/kg**	**0.25**	**EPA-8260**	ND	**A01**	2
Methyl t-butyl ether	ND	mg/kg	0.12	EPA-8260	ND	A01	1
Toluene	ND	mg/kg	0.12	EPA-8260	ND	A01	1
Total Xylenes	**4.3**	**mg/kg**	**0.25**	**EPA-8260**	ND	**A01**	1
t-Amyl Methyl ether	ND	mg/kg	0.12	EPA-8260	ND	A01	1
t-Butyl alcohol	ND	mg/kg	1.2	EPA-8260	ND	A01	1
Diisopropyl ether	ND	mg/kg	0.12	EPA-8260	ND	A01	1
Ethyl t-butyl ether	ND	mg/kg	0.12	EPA-8260	ND	A01	1
Total Purgeable Petroleum Hydrocarbons	**340**	**mg/kg**	**100**	**Luft-GC/MS**	ND	**A01**	3
1,2-Dichloroethane-d4 (Surrogate)	90.9	%	70 - 121 (LCL - UCL)	EPA-8260			1
1,2-Dichloroethane-d4 (Surrogate)	90.3	%	70 - 121 (LCL - UCL)	EPA-8260			2
1,2-Dichloroethane-d4 (Surrogate)	93.0	%	70 - 121 (LCL - UCL)	EPA-8260			3
Toluene-d8 (Surrogate)	150	%	81 - 117 (LCL - UCL)	EPA-8260		A19,S09	1
Toluene-d8 (Surrogate)	106	%	81 - 117 (LCL - UCL)	EPA-8260			2
Toluene-d8 (Surrogate)	97.3	%	81 - 117 (LCL - UCL)	EPA-8260			3
4-Bromofluorobenzene (Surrogate)	209	%	74 - 121 (LCL - UCL)	EPA-8260		A19,S09	1
4-Bromofluorobenzene (Surrogate)	120	%	74 - 121 (LCL - UCL)	EPA-8260			2
4-Bromofluorobenzene (Surrogate)	101	%	74 - 121 (LCL - UCL)	EPA-8260			3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	07/31/12	08/01/12 00:38	ADC	MS-V2	25	BVG1962
2	EPA-8260	07/31/12	08/01/12 16:16	ADC	MS-V2	50	BVG1962
3	EPA-8260	07/31/12	08/01/12 16:42	ADC	MS-V2	500	BVG1962

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons

BCL Sample ID: 1213868-03 | **Client Sample Name:** 3737, MWT-2-S-5'-120726, 7/26/2012 9:05:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Diesel Range Organics (C12 - C24)	**70**	**mg/kg**	**10**	**EPA-8015B/TPHd**	ND	**A01,A52**	1
Tetracosane (Surrogate)	133	%	40 - 130 (LCL - UCL)	EPA-8015B/TPHd		A01,A17	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/TPHd	07/27/12	08/01/12 03:44	MK1	GC-5	5	BVG2190

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1213868-04 | **Client Sample Name:** 3737, MWT-3-S-5'-120726, 7/26/2012 11:00:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	mg/kg	0.25	EPA-8260	ND	A01	1
Ethylbenzene	ND	mg/kg	0.25	EPA-8260	ND	A01	1
Methyl t-butyl ether	ND	mg/kg	0.25	EPA-8260	ND	A01	1
Toluene	ND	mg/kg	0.25	EPA-8260	ND	A01	1
Total Xylenes	ND	mg/kg	0.50	EPA-8260	ND	A01	1
t-Amyl Methyl ether	ND	mg/kg	0.25	EPA-8260	ND	A01	1
t-Butyl alcohol	ND	mg/kg	2.5	EPA-8260	ND	A01	1
Diisopropyl ether	ND	mg/kg	0.25	EPA-8260	ND	A01	1
Ethyl t-butyl ether	ND	mg/kg	0.25	EPA-8260	ND	A01	1
Total Purgeable Petroleum Hydrocarbons	**930**	**mg/kg**	**100**	**Luft-GC/MS**	ND	**A01**	2
1,2-Dichloroethane-d4 (Surrogate)	90.2	%	70 - 121 (LCL - UCL)	EPA-8260			1
1,2-Dichloroethane-d4 (Surrogate)	90.6	%	70 - 121 (LCL - UCL)	EPA-8260			2
Toluene-d8 (Surrogate)	101	%	81 - 117 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	97.6	%	81 - 117 (LCL - UCL)	EPA-8260			2
4-Bromofluorobenzene (Surrogate)	116	%	74 - 121 (LCL - UCL)	EPA-8260			1
4-Bromofluorobenzene (Surrogate)	109	%	74 - 121 (LCL - UCL)	EPA-8260			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	07/31/12	08/01/12 17:08	ADC	MS-V2	50	BVG1962
2	EPA-8260	07/31/12	08/01/12 19:18	ADC	MS-V2	500	BVG1962

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons

BCL Sample ID: 1213868-04 | **Client Sample Name:** 3737, MWT-3-S-5'-120726, 7/26/2012 11:00:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Diesel Range Organics (C12 - C24)	**210**	**mg/kg**	**20**	**EPA-8015B/TPHd**	ND	**A01,A52**	1
Tetracosane (Surrogate)	106	%	40 - 130 (LCL - UCL)	EPA-8015B/TPHd		A01	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/TPHd	07/27/12	08/01/12 03:58	MK1	GC-5	10	BVG2190

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BVG1962						
Benzene	BVG1962-BLK1	ND	mg/kg	0.0050		
Ethylbenzene	BVG1962-BLK1	ND	mg/kg	0.0050		
Methyl t-butyl ether	BVG1962-BLK1	ND	mg/kg	0.0050		
Toluene	BVG1962-BLK1	ND	mg/kg	0.0050		
Total Xylenes	BVG1962-BLK1	ND	mg/kg	0.010		
t-Amyl Methyl ether	BVG1962-BLK1	ND	mg/kg	0.0050		
t-Butyl alcohol	BVG1962-BLK1	ND	mg/kg	0.050		
Diisopropyl ether	BVG1962-BLK1	ND	mg/kg	0.0050		
Ethyl t-butyl ether	BVG1962-BLK1	ND	mg/kg	0.0050		
Total Purgeable Petroleum Hydrocarbons	BVG1962-BLK1	ND	mg/kg	0.20		
1,2-Dichloroethane-d4 (Surrogate)	BVG1962-BLK1	87.8	%	70 - 121 (LCL - UCL)		
Toluene-d8 (Surrogate)	BVG1962-BLK1	96.8	%	81 - 117 (LCL - UCL)		
4-Bromofluorobenzene (Surrogate)	BVG1962-BLK1	94.3	%	74 - 121 (LCL - UCL)		

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Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BVG1962										
Benzene	BVG1962-BS1	LCS	0.12278	0.12500	mg/kg	98.2		70 - 130		
Toluene	BVG1962-BS1	LCS	0.12886	0.12500	mg/kg	103		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	BVG1962-BS1	LCS	0.044574	0.050000	mg/kg	89.1		70 - 121		
Toluene-d8 (Surrogate)	BVG1962-BS1	LCS	0.048769	0.050000	mg/kg	97.5		81 - 117		
4-Bromofluorobenzene (Surrogate)	BVG1962-BS1	LCS	0.046550	0.050000	mg/kg	93.1		74 - 121		

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Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BVG1962	Used client sample: N										
Benzene	MS	1213312-19	ND	0.13231	0.12500	mg/kg		106		70 - 130	
	MSD	1213312-19	ND	0.12438	0.12500	mg/kg	6.2	99.5	20	70 - 130	
Toluene	MS	1213312-19	ND	0.13493	0.12500	mg/kg		108		70 - 130	
	MSD	1213312-19	ND	0.13082	0.12500	mg/kg	3.1	105	20	70 - 130	
1,2-Dichloroethane-d4 (Surrogate)	MS	1213312-19	ND	0.046839	0.050000	mg/kg		93.7		70 - 121	
	MSD	1213312-19	ND	0.044054	0.050000	mg/kg	6.1	88.1		70 - 121	
Toluene-d8 (Surrogate)	MS	1213312-19	ND	0.049472	0.050000	mg/kg		98.9		81 - 117	
	MSD	1213312-19	ND	0.048852	0.050000	mg/kg	1.3	97.7		81 - 117	
4-Bromofluorobenzene (Surrogate)	MS	1213312-19	ND	0.047863	0.050000	mg/kg		95.7		74 - 121	
	MSD	1213312-19	ND	0.047414	0.050000	mg/kg	0.9	94.8		74 - 121	

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Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BVG2190						
Diesel Range Organics (C12 - C24)	BVG2190-BLK1	ND	mg/kg	2.0		
Tetracosane (Surrogate)	BVG2190-BLK1	83.9	%	40 - 130 (LCL - UCL)		

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BVG2190										
Diesel Range Organics (C12 - C24)	BVG2190-BS1	LCS	13.544	16.447	mg/kg	82.3		50 - 130		
Tetracosane (Surrogate)	BVG2190-BS1	LCS	0.56188	0.65789	mg/kg	85.4		40 - 130		

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BVG2190	Used client sample: Y - Description: MWT-4-S-6'-120725, 07/25/2012 14:30										
Diesel Range Organics (C12 - C24)	MS	1213868-02	157.34	136.53	16.502	mg/kg		-126		40 - 150	Q03
	MSD	1213868-02	157.34	161.86	16.393	mg/kg	17.0	27.6	30	40 - 150	Q03
Tetracosane (Surrogate)	MS	1213868-02	ND	0.56568	0.66007	mg/kg		85.7		40 - 130	
	MSD	1213868-02	ND	0.65964	0.65574	mg/kg	15.3	101		40 - 130	

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Walnut Creek, CA 94597

Reported: 08/02/2012 9:36
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Notes And Definitions

MDL	Method Detection Limit
ND	Analyte Not Detected at or above the reporting limit
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
A01	PQL's and MDL's are raised due to sample dilution.
A17	Surrogate not reportable due to sample dilution.
A19	Surrogate is high due to matrix interference. Interferences verified through second extraction/analysis.
A52	Chromatogram not typical of diesel.
Q03	Matrix spike recovery(s) is(are) not within the control limits.
S09	The surrogate recovery on the sample for this compound was not within the control limits.

Date of Report: 08/10/2012

Leah Ackerman

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Project: 3737
BC Work Order: 1214106
Invoice ID: B127493

Enclosed are the results of analyses for samples received by the laboratory on 7/31/2012. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Molly Meyers

Contact Person: Molly Meyers
Client Service Rep

Authorized Signature

Table of Contents

Table of Contents

12-14106

CHK BY: MM | DISTRIBUTION | SUB-OUT ☐

CHAIN OF CUSTODY FORM

Union Oil Company of California ■ 6101 Bollinger Canyon Road ■ San Ramon, CA 94583

COC 1 of 1

Union Oil Site ID: 3737	Union Oil Consultant: Arcadis
Site Global ID: T0600197457360	Consultant Contact: Leah Ackerman
Site Address: 1400 Powell St. Emeryville	Consultant Phone No.: 925-296-7828
	Sampling Company: TRC
Union Oil PM: Roya Kambin	Sampled By (PRINT): Baulio
Union Oil PM Phone No.:	
Charge Code: NWRTB- 0 351780 -0- LAB	Sampler Signature: [signature]
This is a LEGAL document. ALL fields must be filled out CORRECTLY and COMPLETELY.	**BC Laboratories, Inc.** **Project Manager: Molly Meyers** 4100 Atlas Court, Bakersfield, CA 93308 Phone No. 661-327-4911

ANALYSES REQUIRED

Turnaround Time (TAT): Standard ☑ 24 Hours ☐ 48 Hours ☐ 72 Hours ☐

Special Instructions

SAMPLE ID

	Field Point Name	Matrix	DTW	Date (yymmdd)	Sample Time	# of Containers	TPH - Diesel by EPA 8015	TPH - G by ~~GC/MS~~ 8260B	BTEX/MTBE/OXYS by EPA 8260B	Ethanol by EPA 8260B, EDB/EDC by 8260B	EPA 8260B Full List with OXYS	BTEX/MTBE by 8260B	TPH-Diesel by 8015 w/silica gel clean-up	TPH-Motor Oil by 8015 w/silica gel clean-up				Notes / Comments
1	MWT-1	(W)-S-A		12-07-29	1120	5	X	X				X	X					
2	MWT-2	W-S-A		↓	1024	6	X	↓				X	↓					
3	MWT-3	W-S-A		↓	0944	6	X	↓				X	↓					
4	MWT-4	W-S-A		↓	0842	6	X	↓				X	↓					
5	MW-1a	W-S-A		↓	1220	5		↓	X	X			↓	X				
6	MW-1B	W-S-A		↓	1420	5		↓	X	X			↓	X				
7	MW-2a	W-S-A		↓	1254	5		↓	X	X			↓	X				
8	MW-2B	W-S-A		↓	1436	5		↓	X	X			↓	X				
9	MW-3A	W-S-A		↓	1203	5		↓	X	X			↓	X				
10	MW-3B	W-S-A		↓	1410	5		↓	X	X			↓	X				
		W-S-A																
		W-S-A																

Relinquished By	Company	Date / Time	Relinquished By	Company	Date / Time	Relinquished By	Company	Date / Time
[signature]	TRC	7/29/12 Placed samples refrigerator 1600	Gary Bogan	BcLab	7-31-12 1830	R C Ruy	BCL	7.31.12 2130
Received By	**Company**	**Date / Time**	**Received By**	**Company**	**Date / Time**	**Received By**	**Company**	**Date / Time**
Gary Bogan	BcLab	7-31-12 1420	R C Ruy	BCL	7.31.12 1830	KOM	BCL	7-31-12 2130

BC Laboratories, Inc. Environmental Testing Laboratory Since 1949

Chain of Custody and Cooler Receipt Form for 1214106 Page 1 of 3

4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com

Chain of Custody and Cooler Receipt Form for 1214106 Page 2 of 3

BC LABORATORIES INC. COOLER RECEIPT FORM Rev. No. 12 12/30/10 Page 1 Of 2

Submission #: 12-14106

SHIPPING INFORMATION
Federal Express ☐ UPS ☐ Hand Delivery ☐
BC Lab Field Service ☑ Other ☐ (Specify)_____

SHIPPING CONTAINER
Ice Chest ☑ None ☐
Box ☐ Other ☐ (Specify)_____

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.95 Container: QtA Thermometer ID: 177

Temperature: (A) 0.4 °C / (C) 0.2 °C

Date/Time 7-31-12

Analyst Init JDW 2130

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL PHYSICAL										
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS										
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	A 3	A 3	A 3	A 3	A 3	A 3	A 3	A 3	A 3	A 3
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
100ml EPA 547										
100ml EPA 531.1										
QT EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M										
QT AMBER	B,C	BCD	B A	B						
8 OZ. JAR										
32 OZ. JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										

Comments:_____

Sample Numbering Completed By:_____ Date/Time: 8/1/12 0530

A = Actual / C = Corrected

I:\MyDOCS\WordPerfect\LAB_DOCS\FORMS\SAMREC2I

Chain of Custody and Cooler Receipt Form for 1214106 Page 3 of 3

BC LABORATORIES INC. COOLER RECEIPT FORM Rev. No. 12 12/30/10 Page 2 of 2

Submission #: 12-14106

SHIPPING INFORMATION
Federal Express ☐ UPS ☐ Hand Delivery ☐
BC Lab Field Service ☑ Other ☐ (Specify)_____

SHIPPING CONTAINER
Ice Chest ☑ None ☐
Box ☐ Other ☐ (Specify)_____

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.95 Container: QtA Thermometer ID: 177

Temperature: [A] 2.5 °C / [C] 2.3 °C

Date/Time 7-31-12 2130

Analyst Init JDW

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL PHYSICAL										
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS										
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
100ml EPA 547										
100ml EPA 531.1										
QT EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M										
QT AMBER			D	CD	BC	BC	BC	BC	BC	BC
8 OZ. JAR										
32 OZ. JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										

Comments:_____

Sample Numbering Completed By: _____ Date/Time: 8/1/12 0530

A = Actual / C = Corrected

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Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1214106-01	**COC Number:**	---	**Receive Date:**	07/31/2012 21:30
	Project Number:	3737	**Sampling Date:**	07/29/2012 11:20
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MWT-1-W-120729	**Lab Matrix:**	Water
	Sampled By:	TRCI	**Sample Type:**	Water
	Delivery Work Order:			
	Global ID: T06019745736			
	Location ID (FieldPoint): MWT-1			
	Matrix: W			
	Sample QC Type (SACode): CS			
	Cooler ID:			
1214106-02	**COC Number:**	---	**Receive Date:**	07/31/2012 21:30
	Project Number:	3737	**Sampling Date:**	07/29/2012 10:24
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MWT-2-W-120729	**Lab Matrix:**	Water
	Sampled By:	TRCI	**Sample Type:**	Water
	Delivery Work Order:			
	Global ID: T06019745736			
	Location ID (FieldPoint): MWT-2			
	Matrix: W			
	Sample QC Type (SACode): CS			
	Cooler ID:			
1214106-03	**COC Number:**	---	**Receive Date:**	07/31/2012 21:30
	Project Number:	3737	**Sampling Date:**	07/29/2012 09:44
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MWT-3-W-120729	**Lab Matrix:**	Water
	Sampled By:	TRCI	**Sample Type:**	Water
	Delivery Work Order:			
	Global ID: T06019745736			
	Location ID (FieldPoint): MWT-3			
	Matrix: W			
	Sample QC Type (SACode): CS			
	Cooler ID:			

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Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information		
1214106-04	**COC Number:**	---	**Receive Date:** 07/31/2012 21:30
	Project Number:	3737	**Sampling Date:** 07/29/2012 08:42
	Sampling Location:	---	**Sample Depth:** ---
	Sampling Point:	MWT-4-W-120729	**Lab Matrix:** Water
	Sampled By:	TRCI	**Sample Type:** Water
			Delivery Work Order:
			Global ID: T06019745736
			Location ID (FieldPoint): MWT-4
			Matrix: W
			Sample QC Type (SACode): CS
			Cooler ID:
1214106-05	**COC Number:**	---	**Receive Date:** 07/31/2012 21:30
	Project Number:	3737	**Sampling Date:** 07/29/2012 12:20
	Sampling Location:	---	**Sample Depth:** ---
	Sampling Point:	MW-1A-W-120729	**Lab Matrix:** Water
	Sampled By:	TRCI	**Sample Type:** Water
			Delivery Work Order:
			Global ID: T06019745736
			Location ID (FieldPoint): MW-1A
			Matrix: W
			Sample QC Type (SACode): CS
			Cooler ID:
1214106-06	**COC Number:**	---	**Receive Date:** 07/31/2012 21:30
	Project Number:	3737	**Sampling Date:** 07/29/2012 14:20
	Sampling Location:	---	**Sample Depth:** ---
	Sampling Point:	MW-1B-W-120729	**Lab Matrix:** Water
	Sampled By:	TRCI	**Sample Type:** Water
			Delivery Work Order:
			Global ID: T06019745736
			Location ID (FieldPoint): MW-1B
			Matrix: W
			Sample QC Type (SACode): CS
			Cooler ID:

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Project Number: 351780
Project Manager: Leah Ackerman

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1214106-07	**COC Number:**	---	**Receive Date:**	07/31/2012 21:30
	Project Number:	3737	**Sampling Date:**	07/29/2012 12:54
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MW-2A-W-120729	**Lab Matrix:**	Water
	Sampled By:	TRCI	**Sample Type:**	Water
			Delivery Work Order:	
			Global ID: T06019745736	
			Location ID (FieldPoint): MW-2A	
			Matrix: W	
			Sample QC Type (SACode): CS	
			Cooler ID:	
1214106-08	**COC Number:**	---	**Receive Date:**	07/31/2012 21:30
	Project Number:	3737	**Sampling Date:**	07/29/2012 14:36
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MW-2B-W-120729	**Lab Matrix:**	Water
	Sampled By:	TRCI	**Sample Type:**	Water
			Delivery Work Order:	
			Global ID: T06019745736	
			Location ID (FieldPoint): MW-2B	
			Matrix: W	
			Sample QC Type (SACode): CS	
			Cooler ID:	
1214106-09	**COC Number:**	---	**Receive Date:**	07/31/2012 21:30
	Project Number:	3737	**Sampling Date:**	07/29/2012 12:03
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MW-3A-W-120729	**Lab Matrix:**	Water
	Sampled By:	TRCI	**Sample Type:**	Water
			Delivery Work Order:	
			Global ID: T06019745736	
			Location ID (FieldPoint): MW-3A	
			Matrix: W	
			Sample QC Type (SACode): CS	
			Cooler ID:	

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Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information

1214106-10

COC Number: ---
Project Number: 3737
Sampling Location: ---
Sampling Point: MW-3B-W-120729
Sampled By: TRCI

Receive Date: 07/31/2012 21:30
Sampling Date: 07/29/2012 14:10
Sample Depth: ---
Lab Matrix: Water
Sample Type: Water
Delivery Work Order:
Global ID: T06019745736
Location ID (FieldPoint): MW-3B
Matrix: W
Sample QC Type (SACode): CS
Cooler ID:

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Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1214106-01 | **Client Sample Name:** 3737, MWT-1-W-120729, 7/29/2012 11:20:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	**7.7**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Ethylbenzene	**3.5**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Methyl t-butyl ether	**31**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Toluene	**2.3**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Total Xylenes	**6.3**	**ug/L**	**1.0**	**EPA-8260**	ND		1
t-Butyl alcohol	**71**	**ug/L**	**10**	**EPA-8260**	ND		1
Total Purgeable Petroleum Hydrocarbons (C6-C12)	**2500**	**ug/L**	**250**	**Luft-GC/MS**	ND	**A01**	2
1,2-Dichloroethane-d4 (Surrogate)	107	%	75 - 125 (LCL - UCL)	EPA-8260			1
1,2-Dichloroethane-d4 (Surrogate)	99.6	%	75 - 125 (LCL - UCL)	EPA-8260			2
Toluene-d8 (Surrogate)	109	%	80 - 120 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	99.6	%	80 - 120 (LCL - UCL)	EPA-8260			2
4-Bromofluorobenzene (Surrogate)	126	%	80 - 120 (LCL - UCL)	EPA-8260		S09	1
4-Bromofluorobenzene (Surrogate)	105	%	80 - 120 (LCL - UCL)	EPA-8260			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	08/01/12	08/01/12 14:41	JMC	MS-V12	1	BVH0130
2	EPA-8260	08/01/12	08/01/12 18:29	JMC	MS-V12	5	BVH0130

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Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons

BCL Sample ID: 1214106-01 | **Client Sample Name:** 3737, MWT-1-W-120729, 7/29/2012 11:20:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Diesel Range Organics (C12 - C24)	**1100**	**ug/L**	**200**	**EPA-8015B/TPHd**	ND	**A01,A52**	1
Tetracosane (Surrogate)	97.4	%	30 - 150 (LCL - UCL)	EPA-8015B/TPHd		A01	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/TPHd	08/02/12	08/09/12 00:00	MK1	GC-5	4.950	BVH0592

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Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons (Silica Gel Treated)

BCL Sample ID: 1214106-01 | **Client Sample Name:** 3737, MWT-1-W-120729, 7/29/2012 11:20:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Diesel Range Organics (C12 - C24)	**450**	**ug/L**	**40**	**EPA-8015B/TPHd**	ND	**A52**	1
Tetracosane (Surrogate)	88.3	%	28 - 139 (LCL - UCL)	EPA-8015B/TPHd			1
Capric acid (Reverse Surrogate)	0	%	0 - 2 (LCL - UCL)	EPA-8015B/TPHd			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/TPHd	08/03/12	08/08/12 22:42	MK1	GC-5	1	BVH0608

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Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1214106-02 | **Client Sample Name:** 3737, MWT-2-W-120729, 7/29/2012 10:24:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	**70**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Ethylbenzene	**62**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Methyl t-butyl ether	**11**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Toluene	**1.6**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Total Xylenes	**8.8**	**ug/L**	**1.0**	**EPA-8260**	ND		1
t-Butyl alcohol	**89**	**ug/L**	**10**	**EPA-8260**	ND		1
Total Purgeable Petroleum Hydrocarbons (C6-C12)	**3000**	**ug/L**	**250**	**Luft-GC/MS**	ND	**A01**	2
1,2-Dichloroethane-d4 (Surrogate)	106	%	75 - 125 (LCL - UCL)	EPA-8260			1
1,2-Dichloroethane-d4 (Surrogate)	102	%	75 - 125 (LCL - UCL)	EPA-8260			2
Toluene-d8 (Surrogate)	99.3	%	80 - 120 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	104	%	80 - 120 (LCL - UCL)	EPA-8260			2
4-Bromofluorobenzene (Surrogate)	127	%	80 - 120 (LCL - UCL)	EPA-8260		S09	1
4-Bromofluorobenzene (Surrogate)	112	%	80 - 120 (LCL - UCL)	EPA-8260			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	08/01/12	08/01/12 14:24	JMC	MS-V12	1	BVG2132
2	EPA-8260	08/01/12	08/01/12 18:11	JMC	MS-V12	5	BVG2132

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Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons

BCL Sample ID: 1214106-02 | **Client Sample Name:** 3737, MWT-2-W-120729, 7/29/2012 10:24:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Diesel Range Organics (C12 - C24)	**780**	**ug/L**	**40**	**EPA-8015B/TPHd**	ND	**A52**	1
Tetracosane (Surrogate)	85.7	%	30 - 150 (LCL - UCL)	EPA-8015B/TPHd			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/TPHd	08/02/12	08/08/12 19:59	MK1	GC-5	1	BVH0592

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Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons (Silica Gel Treated)

BCL Sample ID: 1214106-02 | **Client Sample Name:** 3737, MWT-2-W-120729, 7/29/2012 10:24:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Diesel Range Organics (C12 - C24)	ND	ug/L	40	EPA-8015B/TPHd	ND	A52	1
Tetracosane (Surrogate)	7.2	%	28 - 139 (LCL - UCL)	EPA-8015B/TPHd		S09	1
Capric acid (Reverse Surrogate)	0	%	0 - 2 (LCL - UCL)	EPA-8015B/TPHd			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/TPHd	08/03/12	08/09/12 00:43	MK1	GC-5	1	BVH0608

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Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1214106-03 | **Client Sample Name:** 3737, MWT-3-W-120729, 7/29/2012 9:44:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	**1.3**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Ethylbenzene	**0.63**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Methyl t-butyl ether	**1.9**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Toluene	**0.65**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Total Xylenes	**2.4**	**ug/L**	**1.0**	**EPA-8260**	ND		1
t-Butyl alcohol	**17**	**ug/L**	**10**	**EPA-8260**	ND		1
Total Purgeable Petroleum Hydrocarbons (C6-C12)	**2100**	**ug/L**	**250**	**Luft-GC/MS**	ND	**A01**	2
1,2-Dichloroethane-d4 (Surrogate)	106	%	75 - 125 (LCL - UCL)	EPA-8260			1
1,2-Dichloroethane-d4 (Surrogate)	106	%	75 - 125 (LCL - UCL)	EPA-8260			2
Toluene-d8 (Surrogate)	105	%	80 - 120 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	102	%	80 - 120 (LCL - UCL)	EPA-8260			2
4-Bromofluorobenzene (Surrogate)	116	%	80 - 120 (LCL - UCL)	EPA-8260			1
4-Bromofluorobenzene (Surrogate)	110	%	80 - 120 (LCL - UCL)	EPA-8260			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	08/01/12	08/01/12 14:06	JMC	MS-V12	1	BVG2132
2	EPA-8260	08/01/12	08/01/12 17:54	JMC	MS-V12	5	BVG2132

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Project Number: 351780
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Total Petroleum Hydrocarbons

BCL Sample ID: 1214106-03 | **Client Sample Name:** 3737, MWT-3-W-120729, 7/29/2012 9:44:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Diesel Range Organics (C12 - C24)	**900**	**ug/L**	**200**	**EPA-8015B/TPHd**	ND	**A01,A52**	1
Tetracosane (Surrogate)	100	%	30 - 150 (LCL - UCL)	EPA-8015B/TPHd		A01	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/TPHd	08/02/12	08/09/12 00:14	MK1	GC-5	5	BVH0592

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Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons (Silica Gel Treated)

BCL Sample ID: 1214106-03 | **Client Sample Name:** 3737, MWT-3-W-120729, 7/29/2012 9:44:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Diesel Range Organics (C12 - C24)	**640**	**ug/L**	**40**	**EPA-8015B/TPHd**	ND	**A52**	1
Tetracosane (Surrogate)	122	%	28 - 139 (LCL - UCL)	EPA-8015B/TPHd			1
Capric acid (Reverse Surrogate)	0	%	0 - 2 (LCL - UCL)	EPA-8015B/TPHd			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/TPHd	08/03/12	08/08/12 23:08	MK1	GC-5	1	BVH0608

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Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1214106-04 | **Client Sample Name:** 3737, MWT-4-W-120729, 7/29/2012 8:42:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	**530**	**ug/L**	**6.2**	**EPA-8260**	ND	**A01**	1
Ethylbenzene	**100**	**ug/L**	**6.2**	**EPA-8260**	ND	**A01**	1
Methyl t-butyl ether	**0.78**	**ug/L**	**0.50**	**EPA-8260**	ND		2
Toluene	**5.8**	**ug/L**	**0.50**	**EPA-8260**	ND		2
Total Xylenes	**61**	**ug/L**	**1.0**	**EPA-8260**	ND		2
t-Butyl alcohol	**560**	**ug/L**	**10**	**EPA-8260**	ND		2
Total Purgeable Petroleum Hydrocarbons (C6-C12)	**2800**	**ug/L**	**620**	**Luft-GC/MS**	ND	**A01**	1
1,2-Dichloroethane-d4 (Surrogate)	103	%	75 - 125 (LCL - UCL)	EPA-8260			1
1,2-Dichloroethane-d4 (Surrogate)	102	%	75 - 125 (LCL - UCL)	EPA-8260			2
Toluene-d8 (Surrogate)	96.8	%	80 - 120 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	97.6	%	80 - 120 (LCL - UCL)	EPA-8260			2
4-Bromofluorobenzene (Surrogate)	107	%	80 - 120 (LCL - UCL)	EPA-8260			1
4-Bromofluorobenzene (Surrogate)	128	%	80 - 120 (LCL - UCL)	EPA-8260		S09	2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	08/01/12	08/01/12 17:36	JMC	MS-V12	12.500	BVG2132
2	EPA-8260	08/01/12	08/01/12 13:49	JMC	MS-V12	1	BVG2132

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Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons

BCL Sample ID: 1214106-04 | **Client Sample Name:** 3737, MWT-4-W-120729, 7/29/2012 8:42:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Diesel Range Organics (C12 - C24)	**1500**	**ug/L**	**200**	**EPA-8015B/TPHd**	ND	**A01,A52**	1
Tetracosane (Surrogate)	109	%	30 - 150 (LCL - UCL)	EPA-8015B/TPHd		A01	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/TPHd	08/02/12	08/09/12 00:28	MK1	GC-5	4.800	BVH0592

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Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons (Silica Gel Treated)

BCL Sample ID: 1214106-04 | **Client Sample Name:** 3737, MWT-4-W-120729, 7/29/2012 8:42:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Diesel Range Organics (C12 - C24)	**690**	**ug/L**	**40**	**EPA-8015B/TPHd**	ND	**A52**	1
Tetracosane (Surrogate)	88.5	%	28 - 139 (LCL - UCL)	EPA-8015B/TPHd			1
Capric acid (Reverse Surrogate)	0	%	0 - 2 (LCL - UCL)	EPA-8015B/TPHd			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/TPHd	08/03/12	08/08/12 23:20	MK1	GC-5	1	BVH0608

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Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1214106-05 | **Client Sample Name:** 3737, MW-1A-W-120729, 7/29/2012 12:20:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	**10**	**ug/L**	**0.50**	**EPA-8260**	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	EPA-8260	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	EPA-8260	ND		1
Ethylbenzene	**0.80**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Methyl t-butyl ether	**35**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Toluene	ND	ug/L	0.50	EPA-8260	ND		1
Total Xylenes	**1.9**	**ug/L**	**1.0**	**EPA-8260**	ND		1
t-Amyl Methyl ether	**1.2**	**ug/L**	**0.50**	**EPA-8260**	ND		1
t-Butyl alcohol	**80**	**ug/L**	**10**	**EPA-8260**	ND		1
Diisopropyl ether	ND	ug/L	0.50	EPA-8260	ND		1
Ethanol	ND	ug/L	250	EPA-8260	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	EPA-8260	ND		1
Total Purgeable Petroleum Hydrocarbons (C6-C12)	**1400**	**ug/L**	**50**	**Luft-GC/MS**	ND		1
1,2-Dichloroethane-d4 (Surrogate)	105	%	75 - 125 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	103	%	80 - 120 (LCL - UCL)	EPA-8260			1
4-Bromofluorobenzene (Surrogate)	108	%	80 - 120 (LCL - UCL)	EPA-8260			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	08/01/12	08/01/12 13:31	JMC	MS-V12	1	BVG2132

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Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Purgeable Aromatics and Total Petroleum Hydrocarbons (Silica Gel Treated)

BCL Sample ID: 1214106-05 | **Client Sample Name:** 3737, MW-1A-W-120729, 7/29/2012 12:20:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
TPH - Diesel (FFP)	**220**	**ug/L**	**40**	**EPA-8015B/FFP**	ND	**A52**	1
TPH - Motor Oil	ND	ug/L	100	EPA-8015B/FFP	ND	A57	1
Tetracosane (Surrogate)	83.5	%	37 - 134 (LCL - UCL)	EPA-8015B/FFP			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/FFP	08/03/12	08/09/12 00:06	MWB	GC-13	1	BVH0624

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Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1214106-06 | **Client Sample Name:** 3737, MW-1B-W-120729, 7/29/2012 2:20:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	EPA-8260	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	EPA-8260	ND		1
1,2-Dichloroethane	**27**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Ethylbenzene	ND	ug/L	0.50	EPA-8260	ND		1
Methyl t-butyl ether	**0.72**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Toluene	ND	ug/L	0.50	EPA-8260	ND		1
Total Xylenes	ND	ug/L	1.0	EPA-8260	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	EPA-8260	ND		1
t-Butyl alcohol	ND	ug/L	10	EPA-8260	ND		1
Diisopropyl ether	ND	ug/L	0.50	EPA-8260	ND		1
Ethanol	ND	ug/L	250	EPA-8260	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	EPA-8260	ND		1
Total Purgeable Petroleum Hydrocarbons (C6-C12)	ND	ug/L	50	Luft-GC/MS	ND		1
1,2-Dichloroethane-d4 (Surrogate)	103	%	75 - 125 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	99.3	%	80 - 120 (LCL - UCL)	EPA-8260			1
4-Bromofluorobenzene (Surrogate)	97.1	%	80 - 120 (LCL - UCL)	EPA-8260			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	08/01/12	08/01/12 13:14	JMC	MS-V12	1	BVG2132

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Purgeable Aromatics and Total Petroleum Hydrocarbons (Silica Gel Treated)

BCL Sample ID: 1214106-06 | **Client Sample Name:** 3737, MW-1B-W-120729, 7/29/2012 2:20:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
TPH - Diesel (FFP)	ND	ug/L	40	EPA-8015B/FFP	ND		1
TPH - Motor Oil	ND	ug/L	100	EPA-8015B/FFP	ND		1
Tetracosane (Surrogate)	91.7	%	37 - 134 (LCL - UCL)	EPA-8015B/FFP			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/FFP	08/03/12	08/09/12 00:28	MWB	GC-13	1	BVH0624

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Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1214106-07 | **Client Sample Name:** 3737, MW-2A-W-120729, 7/29/2012 12:54:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	**120**	**ug/L**	**2.5**	**EPA-8260**	ND	**A01**	1
1,2-Dibromoethane	ND	ug/L	0.50	EPA-8260	ND		2
1,2-Dichloroethane	ND	ug/L	0.50	EPA-8260	ND		2
Ethylbenzene	**12**	**ug/L**	**0.50**	**EPA-8260**	ND		2
Methyl t-butyl ether	**280**	**ug/L**	**2.5**	**EPA-8260**	ND	**A01**	1
Toluene	**1.9**	**ug/L**	**0.50**	**EPA-8260**	ND		2
Total Xylenes	**1.4**	**ug/L**	**1.0**	**EPA-8260**	ND		2
t-Amyl Methyl ether	ND	ug/L	0.50	EPA-8260	ND		2
t-Butyl alcohol	**2300**	**ug/L**	**10**	**EPA-8260**	ND		2
Diisopropyl ether	ND	ug/L	0.50	EPA-8260	ND		2
Ethanol	ND	ug/L	250	EPA-8260	ND		2
Ethyl t-butyl ether	ND	ug/L	0.50	EPA-8260	ND		2
Total Purgeable Petroleum Hydrocarbons (C6-C12)	**1900**	**ug/L**	**50**	**Luft-GC/MS**	ND		2
1,2-Dichloroethane-d4 (Surrogate)	104	%	75 - 125 (LCL - UCL)	EPA-8260			1
1,2-Dichloroethane-d4 (Surrogate)	106	%	75 - 125 (LCL - UCL)	EPA-8260			2
Toluene-d8 (Surrogate)	99.1	%	80 - 120 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	103	%	80 - 120 (LCL - UCL)	EPA-8260			2
4-Bromofluorobenzene (Surrogate)	98.7	%	80 - 120 (LCL - UCL)	EPA-8260			1
4-Bromofluorobenzene (Surrogate)	105	%	80 - 120 (LCL - UCL)	EPA-8260			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	08/01/12	08/01/12 17:19	JMC	MS-V12	5	BVG2132
2	EPA-8260	08/01/12	08/01/12 12:57	JMC	MS-V12	1	BVG2132

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Purgeable Aromatics and Total Petroleum Hydrocarbons (Silica Gel Treated)

BCL Sample ID: 1214106-07 | **Client Sample Name:** 3737, MW-2A-W-120729, 7/29/2012 12:54:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
TPH - Diesel (FFP)	**310**	**ug/L**	**40**	**EPA-8015B/FFP**	ND	**A52**	1
TPH - Motor Oil	ND	ug/L	100	EPA-8015B/FFP	ND	A57	1
Tetracosane (Surrogate)	92.3	%	37 - 134 (LCL - UCL)	EPA-8015B/FFP			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/FFP	08/03/12	08/09/12 00:50	MWB	GC-13	1	BVH0624

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Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1214106-08 | **Client Sample Name:** 3737, MW-2B-W-120729, 7/29/2012 2:36:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	EPA-8260	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	EPA-8260	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	EPA-8260	ND		1
Ethylbenzene	ND	ug/L	0.50	EPA-8260	ND		1
Methyl t-butyl ether	**2.1**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Toluene	ND	ug/L	0.50	EPA-8260	ND		1
Total Xylenes	ND	ug/L	1.0	EPA-8260	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	EPA-8260	ND		1
t-Butyl alcohol	ND	ug/L	10	EPA-8260	ND		1
Diisopropyl ether	ND	ug/L	0.50	EPA-8260	ND		1
Ethanol	ND	ug/L	250	EPA-8260	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	EPA-8260	ND		1
Total Purgeable Petroleum Hydrocarbons (C6-C12)	ND	ug/L	50	Luft-GC/MS	ND		1
1,2-Dichloroethane-d4 (Surrogate)	100	%	75 - 125 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	97.7	%	80 - 120 (LCL - UCL)	EPA-8260			1
4-Bromofluorobenzene (Surrogate)	98.2	%	80 - 120 (LCL - UCL)	EPA-8260			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	08/01/12	08/01/12 12:39	JMC	MS-V12	1	BVG2132

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Project: 3737
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Project Manager: Leah Ackerman

Purgeable Aromatics and Total Petroleum Hydrocarbons (Silica Gel Treated)

BCL Sample ID: 1214106-08 | **Client Sample Name:** 3737, MW-2B-W-120729, 7/29/2012 2:36:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
TPH - Diesel (FFP)	ND	ug/L	40	EPA-8015B/FFP	ND		1
TPH - Motor Oil	ND	ug/L	100	EPA-8015B/FFP	ND		1
Tetracosane (Surrogate)	87.2	%	37 - 134 (LCL - UCL)	EPA-8015B/FFP			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/FFP	08/03/12	08/09/12 01:13	MWB	GC-13	1	BVH0624

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Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1214106-09 | **Client Sample Name:** 3737, MW-3A-W-120729, 7/29/2012 12:03:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	**77**	**ug/L**	**0.50**	**EPA-8260**	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	EPA-8260	ND		1
1,2-Dichloroethane	**0.94**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Ethylbenzene	**14**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Methyl t-butyl ether	ND	ug/L	0.50	EPA-8260	ND		1
Toluene	**2.1**	**ug/L**	**0.50**	**EPA-8260**	ND		1
Total Xylenes	**2.2**	**ug/L**	**1.0**	**EPA-8260**	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	EPA-8260	ND		1
t-Butyl alcohol	ND	ug/L	10	EPA-8260	ND		1
Diisopropyl ether	ND	ug/L	0.50	EPA-8260	ND		1
Ethanol	ND	ug/L	250	EPA-8260	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	EPA-8260	ND		1
Total Purgeable Petroleum Hydrocarbons (C6-C12)	**1900**	**ug/L**	**250**	**Luft-GC/MS**	ND	**A01**	2
1,2-Dichloroethane-d4 (Surrogate)	112	%	75 - 125 (LCL - UCL)	EPA-8260			1
1,2-Dichloroethane-d4 (Surrogate)	99.6	%	75 - 125 (LCL - UCL)	EPA-8260			2
Toluene-d8 (Surrogate)	110	%	80 - 120 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	102	%	80 - 120 (LCL - UCL)	EPA-8260			2
4-Bromofluorobenzene (Surrogate)	118	%	80 - 120 (LCL - UCL)	EPA-8260			1
4-Bromofluorobenzene (Surrogate)	108	%	80 - 120 (LCL - UCL)	EPA-8260			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	08/01/12	08/01/12 12:22	JMC	MS-V12	1	BVG2132
2	EPA-8260	08/01/12	08/01/12 17:01	JMC	MS-V12	5	BVG2132

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Purgeable Aromatics and Total Petroleum Hydrocarbons (Silica Gel Treated)

BCL Sample ID: 1214106-09 | **Client Sample Name:** 3737, MW-3A-W-120729, 7/29/2012 12:03:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
TPH - Diesel (FFP)	**160**	**ug/L**	**40**	**EPA-8015B/FFP**	ND	**A52**	1
TPH - Motor Oil	ND	ug/L	100	EPA-8015B/FFP	ND	A57	1
Tetracosane (Surrogate)	81.8	%	37 - 134 (LCL - UCL)	EPA-8015B/FFP			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/FFP	08/03/12	08/09/12 01:35	MWB	GC-13	1	BVH0624

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Reported: 08/10/2012 10:07
Project: 3737
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Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1214106-10 | **Client Sample Name:** 3737, MW-3B-W-120729, 7/29/2012 2:10:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	EPA-8260	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	EPA-8260	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	EPA-8260	ND		1
Ethylbenzene	ND	ug/L	0.50	EPA-8260	ND		1
Methyl t-butyl ether	ND	ug/L	0.50	EPA-8260	ND		1
Toluene	ND	ug/L	0.50	EPA-8260	ND		1
Total Xylenes	ND	ug/L	1.0	EPA-8260	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	EPA-8260	ND		1
t-Butyl alcohol	ND	ug/L	10	EPA-8260	ND		1
Diisopropyl ether	ND	ug/L	0.50	EPA-8260	ND		1
Ethanol	ND	ug/L	250	EPA-8260	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	EPA-8260	ND		1
Total Purgeable Petroleum Hydrocarbons (C6-C12)	ND	ug/L	50	Luft-GC/MS	ND		1
1,2-Dichloroethane-d4 (Surrogate)	103	%	75 - 125 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	103	%	80 - 120 (LCL - UCL)	EPA-8260			1
4-Bromofluorobenzene (Surrogate)	99.7	%	80 - 120 (LCL - UCL)	EPA-8260			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	08/01/12	08/01/12 12:04	JMC	MS-V12	1	BVG2132

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Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Purgeable Aromatics and Total Petroleum Hydrocarbons (Silica Gel Treated)

BCL Sample ID: 1214106-10 | **Client Sample Name:** 3737, MW-3B-W-120729, 7/29/2012 2:10:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
TPH - Diesel (FFP)	ND	ug/L	40	EPA-8015B/FFP	ND		1
TPH - Motor Oil	ND	ug/L	100	EPA-8015B/FFP	ND		1
Tetracosane (Surrogate)	54.8	%	37 - 134 (LCL - UCL)	EPA-8015B/FFP			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/FFP	08/03/12	08/09/12 01:58	MWB	GC-13	1	BVH0624

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Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BVG2132						
Benzene	BVG2132-BLK1	ND	ug/L	0.50		
1,2-Dibromoethane	BVG2132-BLK1	ND	ug/L	0.50		
1,2-Dichloroethane	BVG2132-BLK1	ND	ug/L	0.50		
Ethylbenzene	BVG2132-BLK1	ND	ug/L	0.50		
Methyl t-butyl ether	BVG2132-BLK1	ND	ug/L	0.50		
Toluene	BVG2132-BLK1	ND	ug/L	0.50		
Total Xylenes	BVG2132-BLK1	ND	ug/L	1.0		
t-Amyl Methyl ether	BVG2132-BLK1	ND	ug/L	0.50		
t-Butyl alcohol	BVG2132-BLK1	ND	ug/L	10		
Diisopropyl ether	BVG2132-BLK1	ND	ug/L	0.50		
Ethanol	BVG2132-BLK1	ND	ug/L	250		
Ethyl t-butyl ether	BVG2132-BLK1	ND	ug/L	0.50		
Total Purgeable Petroleum Hydrocarbons (C6-(	BVG2132-BLK1	ND	ug/L	50		
1,2-Dichloroethane-d4 (Surrogate)	BVG2132-BLK1	102	%	75 - 125 (LCL - UCL)		
Toluene-d8 (Surrogate)	BVG2132-BLK1	102	%	80 - 120 (LCL - UCL)		
4-Bromofluorobenzene (Surrogate)	BVG2132-BLK1	95.5	%	80 - 120 (LCL - UCL)		
QC Batch ID: BVH0130						
Benzene	BVH0130-BLK1	ND	ug/L	0.50		
Ethylbenzene	BVH0130-BLK1	ND	ug/L	0.50		
Methyl t-butyl ether	BVH0130-BLK1	ND	ug/L	0.50		
Toluene	BVH0130-BLK1	ND	ug/L	0.50		
Total Xylenes	BVH0130-BLK1	ND	ug/L	1.0		
t-Butyl alcohol	BVH0130-BLK1	ND	ug/L	10		
Total Purgeable Petroleum Hydrocarbons (C6-(	BVH0130-BLK1	ND	ug/L	50		
1,2-Dichloroethane-d4 (Surrogate)	BVH0130-BLK1	106	%	75 - 125 (LCL - UCL)		
Toluene-d8 (Surrogate)	BVH0130-BLK1	99.3	%	80 - 120 (LCL - UCL)		
4-Bromofluorobenzene (Surrogate)	BVH0130-BLK1	97.6	%	80 - 120 (LCL - UCL)		

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Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BVG2132										
Benzene	BVG2132-BS1	LCS	24.620	25.000	ug/L	98.5		70 - 130		
Toluene	BVG2132-BS1	LCS	22.810	25.000	ug/L	91.2		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	BVG2132-BS1	LCS	10.100	10.000	ug/L	101		75 - 125		
Toluene-d8 (Surrogate)	BVG2132-BS1	LCS	10.040	10.000	ug/L	100		80 - 120		
4-Bromofluorobenzene (Surrogate)	BVG2132-BS1	LCS	10.660	10.000	ug/L	107		80 - 120		
QC Batch ID: BVH0130										
Benzene	BVH0130-BS1	LCS	27.780	25.000	ug/L	111		70 - 130		
Toluene	BVH0130-BS1	LCS	27.250	25.000	ug/L	109		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	BVH0130-BS1	LCS	9.9700	10.000	ug/L	99.7		75 - 125		
Toluene-d8 (Surrogate)	BVH0130-BS1	LCS	9.7800	10.000	ug/L	97.8		80 - 120		
4-Bromofluorobenzene (Surrogate)	BVH0130-BS1	LCS	10.740	10.000	ug/L	107		80 - 120		

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2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Volatile Organic Analysis (EPA Method 8260)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BVG2132	Used client sample: N										
Benzene	MS	1213312-26	ND	26.700	25.000	ug/L		107		70 - 130	
	MSD	1213312-26	ND	25.540	25.000	ug/L	4.4	102	20	70 - 130	
Toluene	MS	1213312-26	ND	25.010	25.000	ug/L		100		70 - 130	
	MSD	1213312-26	ND	24.780	25.000	ug/L	0.9	99.1	20	70 - 130	
1,2-Dichloroethane-d4 (Surrogate)	MS	1213312-26	ND	10.000	10.000	ug/L		100		75 - 125	
	MSD	1213312-26	ND	9.5800	10.000	ug/L	4.3	95.8		75 - 125	
Toluene-d8 (Surrogate)	MS	1213312-26	ND	9.9300	10.000	ug/L		99.3		80 - 120	
	MSD	1213312-26	ND	10.040	10.000	ug/L	1.1	100		80 - 120	
4-Bromofluorobenzene (Surrogate)	MS	1213312-26	ND	10.440	10.000	ug/L		104		80 - 120	
	MSD	1213312-26	ND	10.850	10.000	ug/L	3.9	108		80 - 120	
QC Batch ID: BVH0130	Used client sample: N										
Benzene	MS	1214103-01	ND	30.900	25.000	ug/L		124		70 - 130	
	MSD	1214103-01	ND	30.200	25.000	ug/L	2.3	121	20	70 - 130	
Toluene	MS	1214103-01	ND	29.360	25.000	ug/L		117		70 - 130	
	MSD	1214103-01	ND	28.740	25.000	ug/L	2.1	115	20	70 - 130	
1,2-Dichloroethane-d4 (Surrogate)	MS	1214103-01	ND	9.9300	10.000	ug/L		99.3		75 - 125	
	MSD	1214103-01	ND	9.8100	10.000	ug/L	1.2	98.1		75 - 125	
Toluene-d8 (Surrogate)	MS	1214103-01	ND	10.280	10.000	ug/L		103		80 - 120	
	MSD	1214103-01	ND	9.9500	10.000	ug/L	3.3	99.5		80 - 120	
4-Bromofluorobenzene (Surrogate)	MS	1214103-01	ND	11.000	10.000	ug/L		110		80 - 120	
	MSD	1214103-01	ND	10.460	10.000	ug/L	5.0	105		80 - 120	

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Purgeable Aromatics and Total Petroleum Hydrocarbons (Silica Gel Treated)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BVH0624						
TPH - Diesel (FFP)	BVH0624-BLK1	ND	ug/L	40		
TPH - Motor Oil	BVH0624-BLK1	ND	ug/L	100		
Tetracosane (Surrogate)	BVH0624-BLK1	88.6	%	37 - 134 (LCL - UCL)		

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Purgeable Aromatics and Total Petroleum Hydrocarbons (Silica Gel Treated)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BVH0624										
TPH - Diesel (FFP)	BVH0624-BS1	LCS	337.12	500.00	ug/L	67.4		52 - 128		
Tetracosane (Surrogate)	BVH0624-BS1	LCS	22.809	20.000	ug/L	114		37 - 134		

Arcadis
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Walnut Creek, CA 94597

Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Purgeable Aromatics and Total Petroleum Hydrocarbons (Silica Gel Treated)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BVH0624	Used client sample: N										
TPH - Diesel (FFP)	MS	1213312-46	ND	300.48	500.00	ug/L		60.1		50 - 127	
	MSD	1213312-46	ND	313.07	500.00	ug/L	4.1	62.6	24	50 - 127	
Tetracosane (Surrogate)	MS	1213312-46	ND	19.343	20.000	ug/L		96.7		37 - 134	
	MSD	1213312-46	ND	20.324	20.000	ug/L	4.9	102		37 - 134	

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BVH0592						
Diesel Range Organics (C12 - C24)	BVH0592-BLK1	ND	ug/L	40		
Tetracosane (Surrogate)	BVH0592-BLK1	121	%	30 - 150 (LCL - UCL)		

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BVH0592										
Diesel Range Organics (C12 - C24)	BVH0592-BS1	LCS	423.42	500.00	ug/L	84.7		50 - 140		
Tetracosane (Surrogate)	BVH0592-BS1	LCS	21.255	20.000	ug/L	106		30 - 150		

Arcadis
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Walnut Creek, CA 94597

Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BVH0592	Used client sample: N										
Diesel Range Organics (C12 - C24)	MS	1210608-96	ND	489.97	500.00	ug/L		98.0		50 - 140	
	MSD	1210608-96	ND	350.42	500.00	ug/L	33.2	70.1	30	50 - 140	Q02
Tetracosane (Surrogate)	MS	1210608-96	ND	23.775	20.000	ug/L		119		30 - 150	
	MSD	1210608-96	ND	18.466	20.000	ug/L	25.1	92.3		30 - 150	

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons (Silica Gel Treated)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BVH0608						
Diesel Range Organics (C12 - C24)	BVH0608-BLK1	ND	ug/L	40		
Tetracosane (Surrogate)	BVH0608-BLK1	93.6	%	28 - 139 (LCL - UCL)		
Capric acid (Reverse Surrogate)	BVH0608-BLK1		%	0 - 2 (LCL - UCL)		

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons (Silica Gel Treated)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BVH0608										
Diesel Range Organics (C12 - C24)	BVH0608-BS1	LCS	253.11	500.00	ug/L	50.6		48 - 125		
Tetracosane (Surrogate)	BVH0608-BS1	LCS	16.751	20.000	ug/L	83.8		28 - 139		
Capric acid (Reverse Surrogate)	BVH0608-BS1	LCS	ND	100.00	ug/L			0 - 2		

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Total Petroleum Hydrocarbons (Silica Gel Treated)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BVH0608	Used client sample: N										
Diesel Range Organics (C12 - C24)	MS	1213312-47	ND	221.87	500.00	ug/L		44.4		36 - 130	
	MSD	1213312-47	ND	296.41	500.00	ug/L	28.8	59.3	30	36 - 130	
Tetracosane (Surrogate)	MS	1213312-47	ND	14.174	20.000	ug/L		70.9		28 - 139	
	MSD	1213312-47	ND	22.030	20.000	ug/L	43.4	110		28 - 139	
Capric acid (Reverse Surrogate)	MS	1213312-47	ND	ND	100.00	ug/L				0 - 2	
	MSD	1213312-47	ND	ND	100.00	ug/L				0 - 2	

Arcadis
2999 Oak Rd, Suite 300
Walnut Creek, CA 94597

Reported: 08/10/2012 10:07
Project: 3737
Project Number: 351780
Project Manager: Leah Ackerman

Notes And Definitions

MDL	Method Detection Limit
ND	Analyte Not Detected at or above the reporting limit
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
A01	PQL's and MDL's are raised due to sample dilution.
A52	Chromatogram not typical of diesel.
A57	Chromatogram not typical of motor oil.
Q02	Matrix spike precision is not within the control limits.
S09	The surrogate recovery on the sample for this compound was not within the control limits.

Attachment 3

Well Completion Reports

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

Attachment 4

Investigation-Derived Waste Manifest

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number: N/A

2. Page 1 of 2

3. Emergency Response Phone: 1-800-424-9300

4. Waste Tracking Number: WR 996-001

5. Generator's Name and Mailing Address

Former Unocal 351780
PO Box 6004 - Chevron EMC Waste Desk
San Ramon, CA 94583

Generator's Phone: ~~877 386-6044~~

Generator's Site Address (if different than mailing address)

1400 POWELL ST
EMERYVILLE, CA 94608

6. Transporter 1 Company Name: INTEGRATED WASTE MANAGEMENT — U.S. EPA ID Number: CAD 983653627

7. Transporter 2 Company Name: Clean Harbors Env. Svc — U.S. EPA ID Number: MAD039322250

8. Designated Facility Name and Site Address

Clean Harbors - San Jose, California
1021 Berryessa Road
San Jose, CA 95133

Facility's Phone: 408-441-0962

U.S. EPA ID Number: CAD059494310

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1. NON DOT REGULATED MATERIAL (SOIL CONTAMINATED WITH PETROLEUM PRODUCTS, NON HAZARDOUS)	002	DM ~~DRUM~~ VM 7/25/12	1,150	P
2. ~~NON DOT REGULATED MATERIAL (PETROLEUM CONTACT WATER, NON HAZARDOUS)~~ VM 07/25/12				
3.				
4.				

13. Special Handling Instructions and Additional Information

9b1CH572693 SOIL, NON HAZ
~~9b2CH572690 PCW, NON HAZ~~

ERG: N/A | WR-996
Wear Level D PPE/gloves, goggles, splash protection

CHES # DJ4416309

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: VANESSA MARIN AS AGENT FOR CEMC — Signature: [signature] AS AGENT FOR CEMC — Month 07 Day 25 Year 12

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: JOSEPH CLATTERBUCK — Signature: [signature] — Month 07 Day 25 Year 12

Transporter 2 Printed/Typed Name: [handwritten name] — Signature: [signature] — 7/27/12

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Santa C. Huerez — Signature: Santa C. Huerez — Month 7 Day 31 Year 12

NON HAZ

[redacted] Continuation Sheet Page 2 of 2

Document No. UR 996-001

Shipper FORMER UNOCAL 351780

Shipper EPA ID # N/A

Transporter # 3

Transporter Company Name: CLEAN HARBORS ENV. SVC

Transporter EPA ID # MAD039322250

Driver: Print ARMANDO LAGOS Sign Armando Lagos

Date: 7-31-12

Transporter #

Transporter Company Name:

Transporter EPA ID #

Driver: Print Sign

Date:

Transporter #

Transporter Company Name:

Transporter EPA ID #

Driver: Print Sign

Date

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number: ~~CAL~~ N/A | 2. Page 1 of 2 | 3. Emergency Response Phone: 1-800-424-9300 ~~1-800-424-9300~~ | 4. Waste Tracking Number: WR996-002

5. Generator's Name and Mailing Address: MR 6-29-12

Former Unocal 351780
PO Box 6004 - Chevron EMC Waste Desk
San Ramon, CA 94583

Generator's Site Address (if different than mailing address): MR 6-29-12

1400 POWELL ST
EMERYVILLE, CA 94608

Generator's Phone: 877 386-6044

6. Transporter 1 Company Name: IWM INTEGRATED WASTESTREAM MANAGEMENT | U.S. EPA ID Number: CAD 983653627

7. Transporter 2 Company Name: Clean Harbors Env. Svc. | U.S. EPA ID Number: [illegible]

8. Designated Facility Name and Site Address | U.S. EPA ID Number

Clean Harbors - San Jose, California
1021 Berryessa Road
San Jose, CA 95133

CAD059494310

Facility's Phone: 408-441-0962

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	NON DOT REGULATED MATERIAL (SOIL CONTAMINATED WITH PETROLEUM PRODUCTS, NON HAZARDOUS)	002	DM	1,150	P	
2.	~~NON DOT REGULATED MATERIAL (PETROLEUM CONTACT WATER, NON HAZARDOUS)~~ MW 07/26/12					
3.						
4.						

13. Special Handling Instructions and Additional Information

9b1CH572693 SOIL, NON HAZ
~~9b2CH572690 PCW, NON HAZ~~ MW 07/26/12

ERG: N/A | WR-996
Wear Level D PPE/gloves, goggles, splash protection

CHES# DJ4465182

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: MARGARETA WOCE as agent for Chevron EMC | Signature: AS AGENT FOR CHEVRON EMC | Month: 07 | Day: 26 | Year: 12

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: JOSEPH CLATTERBUCK | Signature: | Month: 07 | Day: 26 | Year: 12

Transporter 2 Printed/Typed Name: Ronald D. Nichols | Signature: | Month: 7 | Day: 27 | Year: 12

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) | U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) | Month | Day | Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in item 17a

Printed/Typed Name: Santa C. Hubert | Signature: Santa Hubert | Month: 7 | Day: 31 | Year: 12

GENERATOR — INT'L — TRANSPORTER — DESIGNATED FACILITY

NON HAZ

[redacted] Continuation Sheet Page 2 of 2

Document No. WR996-002

Shipper FORMER UNOCAL 351780

Shipper EPA ID # N/A

Transporter # 3

Transporter Company Name: CLEAN HARBORS ENV. SVC

Transporter EPA ID # MAD039322259

Driver: Print ARMANDO LAGOS Sign Armando Lagos

Date: 7-31-12

Transporter # _____

Transporter Company Name: _____

Transporter EPA ID # _____

Driver: Print _____ Sign _____

Date: _____

Transporter # _____

Transporter Company Name: _____

Transporter EPA ID # _____

Driver: Print _____ Sign _____

Date _____

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number: N/A

2. Page 1 of 2

3. Emergency Response Phone: 1·800·424·9300

4. Waste Tracking Number: WR996-003

GENERATOR

5. Generator's Name and Mailing Address

Former Unocal 351780
PO Box 6004 - Chevron EMC Waste Desk
San Ramon, CA 94583
Generator's Phone: 877 386-6044

Generator's Site Address (if different than mailing address)

1400 POWELL ST
EMERYVILLE, CA 94608

6. Transporter 1 Company Name: INTEGRATED WASTESTREAM MANAGEMENT, INC

U.S. EPA ID Number: CAD983653627

7. Transporter 2 Company Name: Clean Harbors Env. Svc

U.S. EPA ID Number: MAD039337350

8. Designated Facility Name and Site Address

Clean Harbors - San Jose, California
1021 Berryessa Road
San Jose, CA 95133
Facility's Phone: 408-441-0962

U.S. EPA ID Number: CAD059494310

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non DOT Regulated Material (Soil contaminated with petroleum products, non hazardous)	001	DM	700	P	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

9b1CH572693 Soil, non haz

WR-996| ERG: N/A
WEAR LEVEL D PPE/GLOVES, GOGGLES, SPLASH PROTECTION IF NECESSARY
DJ4465196

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: SEQUOIA PATTERSON As Agent for CHEVRON EMC

Signature: Sequoia Patterson As agent for CHEVRON EMC

Month: 08 Day: 14 Year: 12

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: SCOTT DUNDON

Signature: Scott Dundon

Month: 08 Day: 14 Year: 12

Transporter 2 Printed/Typed Name: Rogelio B. Dalida

Signature:

Month: 8 Day: 15 Year: 12

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Santa C. Hubner

Signature: Santa C. Hubner

Month: 8 Day: 20 Year: 12

NON HAZ

[redacted] Continuation Sheet Page 2 of 3

Document No. WR996-003

Shipper Former UNOCAL

Shipper EPA ID # N/A

Transporter # 3

Transporter Company Name: CLEAN HARBORS ENV. SVC

Transporter EPA ID # MAD039322250

Driver: Print ARMANDO LAGOS Sign Armando-Lagos

Date: 8-20-12

Transporter # _____

Transporter Company Name: _____

Transporter EPA ID # _____

Driver: Print _____ Sign _____

Date: _____

Transporter # _____

Transporter Company Name: _____

Transporter EPA ID # _____

Driver: Print _____ Sign _____

Date: _____

Attachment 5

5858 Horton Street Parking Garage Photos

5858 Horton Street Parking Garage Photo Log
Former 76 Service Station #3737
Emeryville, California


Photos 1 and 2. Photos taken from Peladeau Street pullout area facing west into garage (near MWT-3 and MWT-4).


Photos 3 and 4. Photos display floor drains in parking structure. Pictures taken facing West from Peladeau Street pullout area (Photo 3 taken near MWT-3; Photo 4 taken near MWT-4).

Photos 5 and 6. Photos display potential sump pump located near south end of garage. Photos taken facing north from southern end of site.

5858 Horton Street Parking Garage Photo Log
Former 76 Service Station #3737
Emeryville, California

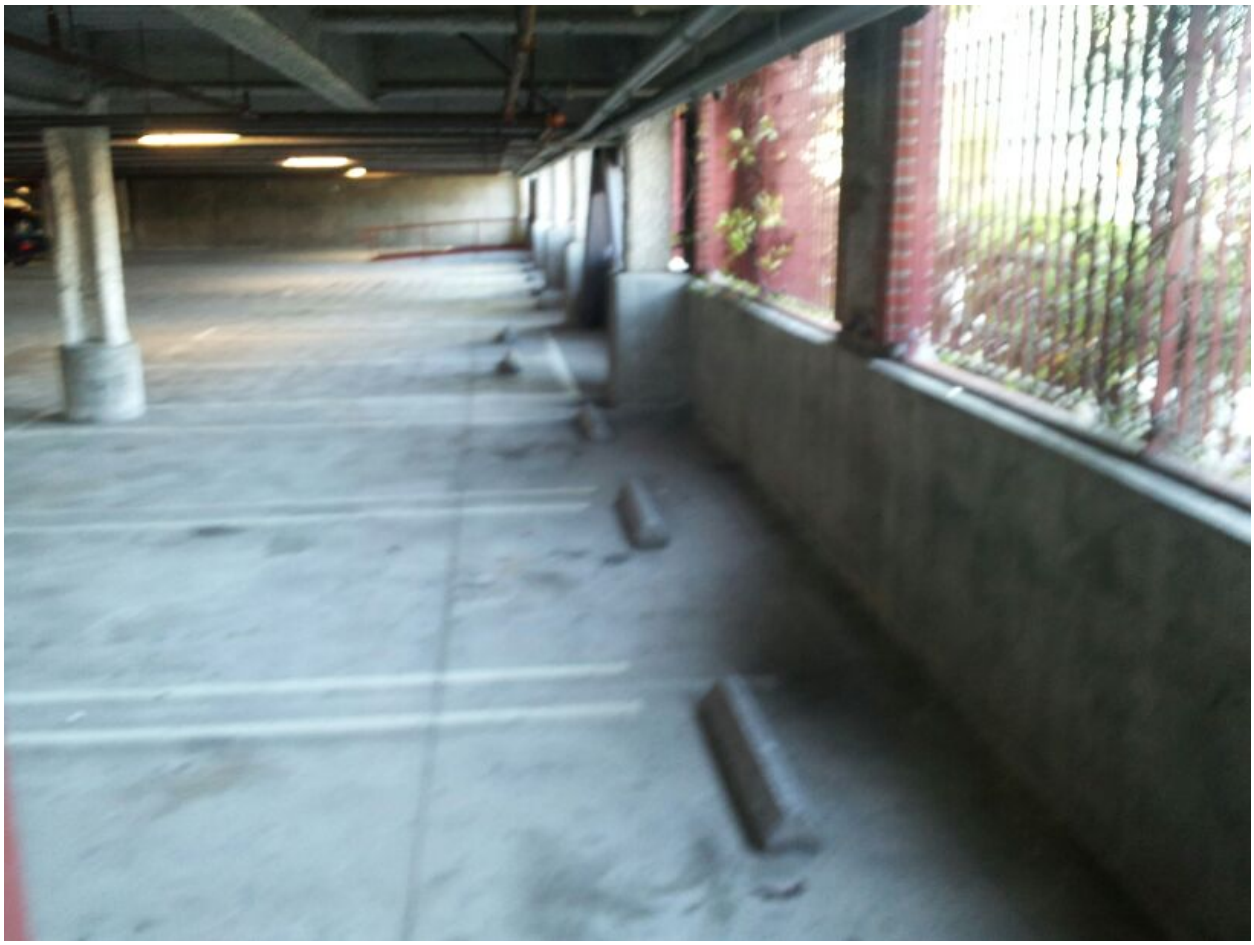

Photo 7. Full garage level view; photo taken facing north from southern boundary of site. Peladeau Street is located on the right of the picture adjacent to the visible landscaping.