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Ms. Karel Detterman  
Alameda County Environmental Health (ACEH)  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

**RECEIVED**

By Alameda County Environmental Health 10:06 am, Sep 29, 2010

Re: Former Tidewater Service Station 373378  
7600 MacArthur Boulevard  
Oakland, California

I have reviewed the attached Third Quarter Groundwater Monitoring and Sampling Report.

I agree with the conclusions and recommendations presented in the referenced report. The information in this report is accurate to the best of my knowledge and all local Agency/Regional Board guidelines have been followed. This report was prepared by GHD Services, Inc., upon whose assistance and advice I have relied.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Sincerely,

A handwritten signature in black ink that reads "B. Frost".

Brittany Frost  
Project Manager

Attachment: Third Quarter Groundwater Monitoring and Sampling Report



September 28, 2016

Reference No. 062164

Ms. Karel Detterman  
Alameda County Environmental Health  
1131 Harbor Bay Parkway  
Oakland, California 94502

**Re: Third Quarter 2016 Monitoring and Sampling Report  
Former Tidewater Service Station  
Phillip 66 Site 5677/Chevron Site 373378  
7600 MacArthur Boulevard  
Oakland, California  
ACEH Fuel Leak Case No. RO3087**

Dear Ms. Detterman:

GHD Services Inc. (GHD) is submitting this *Third Quarter 2016 Monitoring and Sampling Report* for the site referenced above on behalf of Chevron Environmental Management Company (Chevron) and Phillips 66 Company (Phillips 66). This report was prepared in accordance with the Alameda County Department of Environmental Health's (ACEH) Technical Report Request Letter dated July 19, 2016 (Attachment A). Site background information, current quarter monitoring results, and anticipated future activities are discussed below.

## 1. Site Background

### ***Site Description***

The site is located at 7600 MacArthur Boulevard in Oakland, California (Figure 1), and is currently a vacant lot. Based on information provided by the ACEH, Phillips Petroleum Company owned the property from 1966 through 1973. Since then, the site has had several owners, but has not undergone any major redevelopment. Former site features included at least one 1,000-gallon underground storage tank (UST), one 300-gallon UST, a dispenser island, and a station building with two hydraulic lifts. Approximate locations of the former service station building and USTs are shown on Figure 2. The site is bordered by private residences to the northeast and southeast. Commercial businesses are located southwest beyond MacArthur Boulevard and a vacant lot is located northwest across 76<sup>th</sup> Avenue.

### ***Site Geology and Hydrogeology***

The site is relatively flat lying, slightly sloping to the west southwest toward San Francisco Bay at an approximate elevation of 92 feet above mean sea level. Based on the San Francisco San Jose Quadrangle geologic map from the California Department of Conservation, the site is underlain by

sand and quaternary alluvium, which is further underlain by marine sandstone, greenstone, shale, conglomerate, and chert of the Mesozoic Franciscan Complex.

Soil encountered beneath the site during investigation consists primarily of clay with varying percentages of sand and gravel. Groundwater was encountered at approximately 33 to 34 feet below grade (fbg). The regional groundwater flow in the vicinity of the site is assumed to be towards the west southwest, in the direction of the San Francisco Bay, and generally following the natural topographic relief of the area (Figure 1).

The site is located in the East Bay Plain groundwater basin according to the San Francisco Bay Regional Water Quality Control Board's Basin Plan. Groundwater in this basin is designated beneficial for municipal and domestic water supply and industrial process, service water, and agricultural water supply. The nearest surface water body is Arroyo Viejo Creek, which flows generally southwest to the Oakland Inner Harbor and is located approximately 0.4-mile southwest of the site.

#### ***Previous Environmental Work***

In January 2007, one 1,000-gallon UST located onsite and one 300-gallon UST located beneath the sidewalk adjacent to MacArthur Boulevard were removed. Both tanks had been previously abandoned and filled with concrete during the 1970s. During removal of the USTs, soil samples P1, P2, and ST1 were collected beneath the former USTs. In September 2007, Golden Gate Tank Removal oversaw the advancement of soil borings B-1 through B-4 to depths ranging from 9 to 13 fbg.

Total petroleum hydrocarbons as gasoline (TPHg) was detected in soil only from boring B-4 at concentrations up to 500 milligrams per kilogram (mg/kg) beneath the former 300-gallon UST, but the chromatogram pattern was atypical for TPHg. TPH as diesel (TPHd) was detected in soil samples from P2, B-3, and B-4, but the chromatogram pattern did not resemble TPHd. TPH as motor oil (TPHmo) was detected in B-3 at concentrations up to 4,500 mg/kg, and total oil and grease (TOG) was detected in samples P1, P2, and ST1 collected beneath the USTs at concentrations between 55 to 300 mg/kg. No other hydrocarbon constituents were detected.

Between September 30, 2014 and October 8, 2014, GHD (formerly CRA) installed monitoring wells MW-1 through MW-3 and advanced soil borings BH-1 through BH-7 across the site to evaluate petroleum hydrocarbons in soil and groundwater, and advanced seven hand augered soil borings to evaluate conductive anomalies identified during a geophysical survey conducted in April 2014.

No TPHd, TPHg, VOCs, PAHs, fuel oxygenates, lead scavengers, or metals were detected in soil exceeding State Water Resources Control Board Low-Threat Closure Policy (SWRCB LTCP) levels or San Francisco Bay Regional Water Quality Control Board Environmental Screening levels (RWQCB ESLs) with the exception of the following:

- Benzo(a)pyrene in MW-3 at 5 fbg at a concentration of 0.039 mg/kg slightly exceeding the RWQCB ESL of 0.038 mg/kg, but was below the SWRCB LTCP of 0.063 mg/kg.

- Vanadium detected in BH-5 at 20 fbg at a concentration of 782 mg/kg, which is twice the screening level of 390 mg/kg. Concentrations of vanadium in soil above and below 20 fbg in BH-5 were below the screening level.

No TPHd, TPHg, VOCs, PAHs, fuel oxygenates, lead scavengers, or metals were detected in groundwater exceeding RWQCB ESLs with the exception of the following:

- TPHd in borings BH-4 and MW-1 at 620 and 290 µg/L, respectively.
- TPHg in boring MW-1 at 480 µg/L.
- Carbon Tetrachloride in boring BH-1 at 1 µg/L.

Advancement of seven hand auger borings where magnetic anomalies were noted confirmed no additional USTs are present at the property.

## 2. Results of Third Quarter 2016 Monitoring Event

On July 28, 2016, Gettler-Ryan Inc. (G-R) of Dublin, California, developed the three monitoring wells onsite. On August 5, 2016, G-R monitored and sampled site wells MW-1 through MW-3. Well development and sampling were completed pursuant to the ACEH directive letter dated July 19, 2016.

During the third quarter 2016 event, depth to groundwater in site wells ranged from approximately 22 to 24 feet below the top of the well casings. The groundwater flow direction was west-northwest at a gradient of 0.03 (Figure 2). Current and historical groundwater flow direction and gradient data are presented in Table 1. G-R's *Well Development, and Groundwater Monitoring and Sampling Data Packages* are included as Attachment B. Current and historic groundwater monitoring and sampling data are presented in Tables 1 through 3. Eurofins Lancaster Laboratory Environmental, LLCs' *Analytical Results* report is included as Attachment C.

Groundwater samples were analyzed for the site's constituents of concern (COCs). TPHd, TPHg, benzene, toluene, ethylbenzene, total xylenes (BTEX), and methyl tertiary butyl ether (MTBE) results are summarized below in Table A.

Table A: Groundwater Analytical Data Summary

Well ID	TPHd µg/L	TPHg µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Total Xylenes µg/L	MTBE µg/L
<b>ESLs</b>	<b>100</b>	<b>100</b>	<b>1</b>	<b>40</b>	<b>13</b>	<b>20</b>	<b>5</b>
MW-1	<b>260</b>	<100	<1	<1	<1	<1	<1
MW-2	<100	<100	<1	<1	<1	<1	<1
MW-3	<100	<100	<1	<1	<1	<1	<1

µg/L Micrograms per liter  
 < Indicates constituent was not detected at or above laboratory reporting limit  
 NA Not analyzed  
 J Estimated value  
 Data in **bold** represent concentrations that exceed applicable ESL (Environmental Screening Levels).

Results of the initial groundwater sampling this quarter indicate the following:

- Only TPHd was detected in groundwater above ESLs in well MW-1. No other wells contained detections of petroleum hydrocarbon constituents above the laboratory quantitation limits.

TPHd, TPHg, and BTEX analytical data are presented on Figure 2. Groundwater concentration and elevation graphs are presented in Attachment D.

Initial groundwater analytical results indicate minimal petroleum impact. Continued quarterly monitoring will determine whether a trend is present and if a hydrocarbon plume is present in groundwater.

### 3. Investigation Derived Waste

Purge water generated during well development and sampling activities was stored in a DOT approved tote and then transported by G-R to their facility in Dublin, CA for temporary storage. The purge water will be transported to a Chevron-approved facility for disposal. Documentation of disposal activities will be provided in the fourth quarter groundwater monitoring report.

### 4. Anticipated Future Activities

The following activities are anticipated at the site during fourth quarter 2016:

The ACEH has requested quarterly monitoring for four continuous quarters to determine groundwater conditions at the Site. The next sampling event will occur during the fourth quarter 2016 and includes sampling of wells MW-1 through MW-3.

We appreciate the opportunity to work with you on this project. Should you have any questions on the above, please do not hesitate to contact Matthew Davis at (253) 573-1218.

Sincerely,

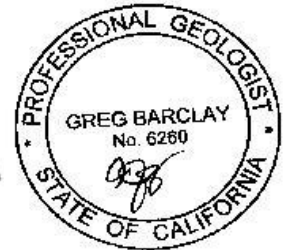
GHD



Matthew Davis



Greg Barclay PG 6260

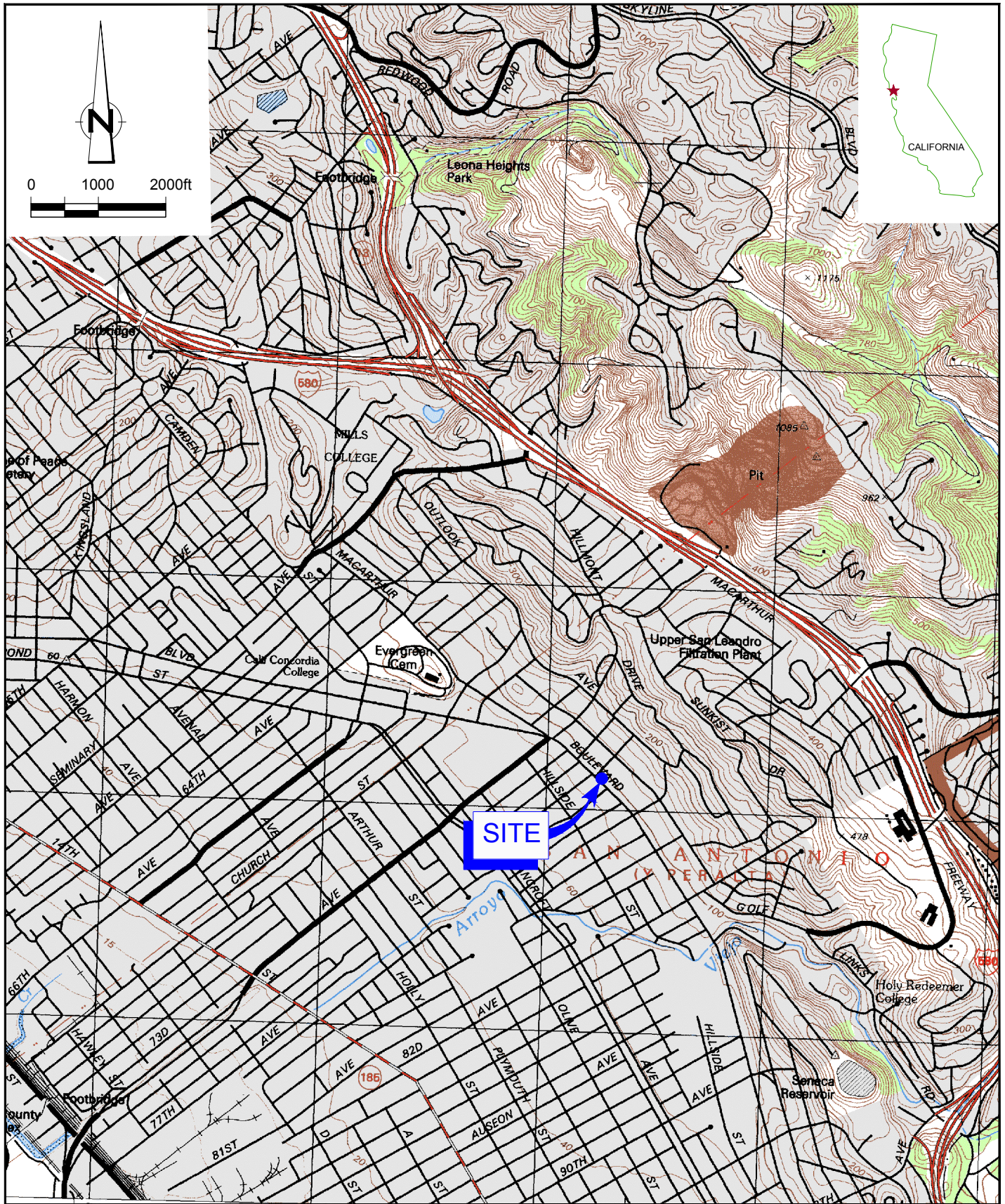


MD/cw/5  
Encl.

Figure 1	Vicinity Map
Figure 2	Groundwater Elevation Contour and Hydrocarbon Map
Table 1	Cumulative Groundwater Elevation and Analytical Data
Table 2	Historical PAH Data
Table 3	Historical Metals Data
Attachment A	Agency Correspondence
Attachment B	G-R Well Development and Monitoring Data Sheets
Attachment C	Lancaster Analytical Reports
Attachment D	Groundwater Elevation and Concentration Graphs

cc: Ms. Brittany Frost, Chevron (*electronic copy*)  
Mr. Ed Ralston, Phillips 66 (*electronic copy*)  
Ms. Hong Gardner, Hong Gardner Trust (*electronic copy*)

# Figures



SOURCE: USGS QUADRANGLE MAP; OAKLAND EAST, CALIFORNIA, 1997.



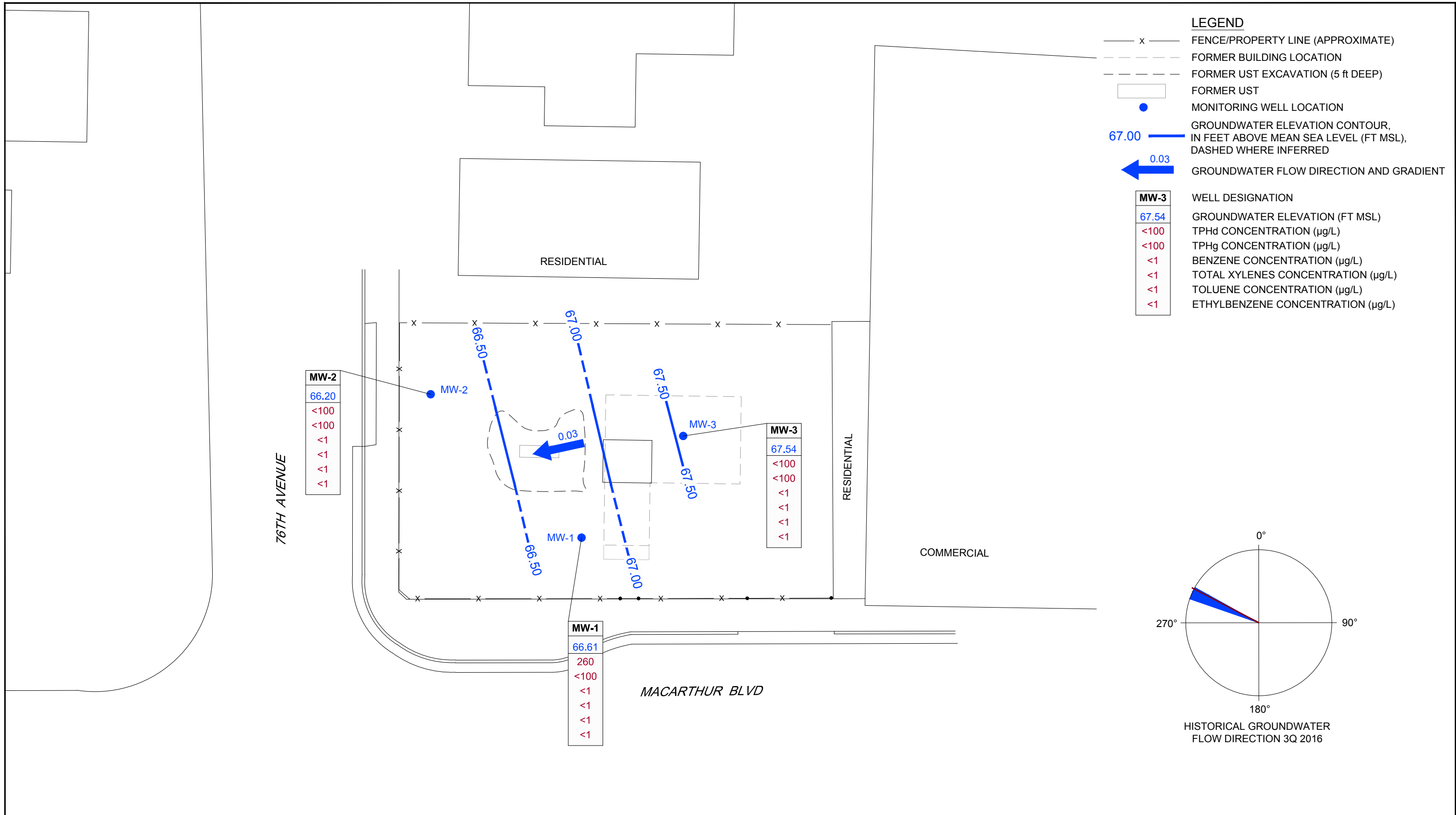
FORMER CHEVRON SERVICE STATION 373378  
 7600 MACARTHUR BLVD  
 OAKLAND, CALIFORNIA

62164-95  
 Sep 6, 2016

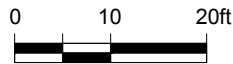
VICINITY MAP

FIGURE 1





SOURCE: MORROW SURVEYING, OCTOBER 8, 2014.



FORMER CHEVRON SERVICE STATION 373378  
 7600 MACARTHUR BLVD  
 OAKLAND, CALIFORNIA

62164-95  
 Sep 19, 2016

GROUNDWATER ELEVATION CONTOUR AND HYDROCARBON  
 CONCENTRATION MAP - AUGUST 5, 2016

FIGURE 2

# Tables

Table 1

**Cumulative Groundwater Elevation and Analytical Data  
Former Tidewater Service Station  
Phillips 66 Site 5677  
Chevron Site 373378  
7600 MacArthur Blvd.  
Oakland, California**

Sample ID	Date Sampled	Well Elevation (ft-amsl)	Depth to Water (ft)	Groundwater Elevation (ft-amsl)	Depth to LPH (ft)	Product Thickness (feet)	TPH (µg/L)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MtBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MW-1	7/28/2016 <sup>1</sup>	89.45	22.62	66.83	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	8/5/2016	89.45	22.84	66.61	--	--	<5,000	260	<100	<1	<1	<1	<1	<1	<1	<1	<1	<20
MW-2	7/28/2016 <sup>1</sup>	90.35	23.06	67.29	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	8/5/2016	90.35	24.15	66.20	--	--	<5,000	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<20
MW-3	7/28/2016 <sup>1</sup>	90.45	22.40	68.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	8/5/2016	90.45	22.91	67.54	--	--	1,500 J	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<20
QA-T	8/5/2016	--	--	--	--	--	--	--	<100	<1	<1	<1	<1	<1	--	--	--	--

**Abbreviations and Notes**

amsl = above mean sea level

bgs = below ground surface

DIPE = Diisopropyl alcohol

ETBE = Ethyl tert-butyl ether

ID = Identification

LPH = Liquid phase hydrocarbons

MtBE = Methyl tertiary butyl ether

MRL = Method reporting limit

QA-T = Trip blank

RPD = Relative percent difference

TAME = Tert amylmethyl ether

TBA = Tert-butanol

TPH-DRO = Total Petroleum Hydrocarbons as Diesel Range Organics

TPH-GRO = Total Petroleum Hydrocarbons as Gasoline Range Organics

TPH-MRO = Total Petroleum Hydrocarbons as Motor Oil Range Organics

µg/L = micrograms per liter

&lt; = Less than MRL

'--' = Not applicable

j = Laboratory estimated value

1 = Well development performed

Table 2

**SVOCs and PAH Data  
Former Tidewater Service Station  
Phillips 66 Site 5677  
Chevron Site 373378  
7600 MacArthur Blvd.  
Oakland, California**

Sample ID	Date Sampled	Additional SVOC's			PAH's															
		1,2-Dichlorobenzene (o-Dichlorobenzene) (µg/L)	1,3-Dichlorobenzene (µg/L)	1,4-Dichlorobenzene (µg/L)	Acenaphthene (µg/L)	Acenaphthylene (µg/L)	Anthracene (µg/L)	Benzo(a)anthracene (µg/L)	Benzo(a)pyrene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(g,h,i)perylene (µg/L)	Benzo(k)fluoranthene (µg/L)	Chrysene (µg/L)	Dibenz(a,h)anthracene (µg/L)	Fluoranthene (µg/L)	Fluorene (µg/L)	Indeno(1,2,3-cd)Pyrene (µg/L)	Naphthalene (µg/L)	Phenanthrene (µg/L)	Pyrene (µg/L)
MW-1	7/28/2016 <sup>1</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	8/5/2016	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-2	7/28/2016 <sup>1</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	8/5/2016	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-3	7/28/2016 <sup>1</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	8/5/2016	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QA-T	8/5/2016	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**Abbreviations and Notes**

- ID = Identification
- MRL = Method reporting limit
- PAH = Polycyclic Aromatic Hydrocarbons
- SVOC = Semi-Volatile Organic Compounds
- µg/L = micrograms per liter
- < = Less than MRL
- = Not applicable
- 1 = Well development performed

**Table 3**  
**Metals Data**  
**Former Tidewater Service Station**  
**Phillips 66 Site 5677**  
**Chevron Site 373378**  
**7600 MacArthur Blvd.**  
**Oakland, California**

Sample ID	Date Sampled	Aluminum (µg/L)	Barium (µg/L)	Boron (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Magnesium (µg/L)	Manganese (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Phosphorus (µg/L)	Silicon (µg/L)	Silver (µg/L)	Sodium (µg/L)	Sulfur (µg/L)	Tin (µg/L)	Titanium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
MW-1	08/05/16	133 J	44.5	1,140	<5.0	52,300	2.4 J	<10.0	130 J	<15.0	22,300	151	3.7 J	3.2 J	37.8 J	15,300	<5.0	93,200	11,300	<20.0	8.4 J	22.4	<20.0
MW-2	08/05/16	1,700	53.4	400	<5.0	52,100	7.1 J	11.3	1,740	<15.0	22,400	42	1.7 J	4.0 J	66.2 J	19,400	<5.0	100,000	15,500	<20.0	50.0	39.4	7.1 J
MW-3	8/5/2016	<200	37.9	1,040	<5.0	58,900	2.8 J	<10.0	<200	<15.0	24,400	4.1 J	1.9 J	<10.0	54.0 J	13,900	<5.0	72,200	15,300	<20.0	6.9 J	22.7	<20.0
QA-T	8/5/2016	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**Abbreviations and Notes**  
 ID = Identification  
 MRL = Method reporting limit  
 µg/L = micrograms per liter  
 < = Less than MRL  
 -- = Not applicable

# Attachment A

## Agency Correspondence



ENVIRONMENTAL HEALTH SERVICES  
ENVIRONMENTAL PROTECTION  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-657

July 19, 2016

Ms. Jillian Holloway  
Chevron Environmental Management Company  
6101 Bollinger Canyon Road  
San Ramon, CA 94583  
(Sent via E-mail to: [JillianHolloway@chevron.com](mailto:JillianHolloway@chevron.com))

Ms. Hong Gardner  
632 Via Rialto Road  
Oakland, CA 94619  
(Sent via E-mail to: [honggardner@gmail.com](mailto:honggardner@gmail.com))

Mr. Ed Ralston - Program Manager  
Phillips 66 Company  
76 Broadway  
Sacramento, CA 95818  
Sent via e-mail to: [Ed.C.Ralston@p66.com](mailto:Ed.C.Ralston@p66.com)

Subject: Technical Report Request for Fuel Leak Case RO0003087 and GeoTracker Global ID  
T10000003434, Hong Gardner Property, 7600 MacArthur Boulevard, Oakland, CA 94605-  
2944

Ladies and Gentlemen:

Alameda County Department Environmental Health's (ACDEH) has reviewed the case file in addition to the *Site Investigation Report and Closure Request* (Report) dated December 1, 2014 and the *Geophysical Survey, Sanborn Map Review, and Addendum to Work Plan for Site Investigation* (Work Plan) dated April 29, 2014. The reports were prepared and submitted on your behalf by Conestoga-Rovers & Associates, now renamed GHD, in reference to the State Water Resources Control Board's (SWRCBs) Low Threat Underground Storage Tank Case Closure Policy (LTCP). Based on ACDEH staff review, we have determined that the site does not meet the LTCP General Criteria f (Secondary Source Removal), Media-Specific Criteria for Groundwater, or Media-Specific Criteria for Vapor Intrusion to Indoor Air.

ACDEH requests preparation of a Data Gap Work Plan that is supported by an updated Site Conceptual Model (SCM) to address the following data gaps.

#### **TECHNICAL COMMENTS**

- 1. General Criteria f – Secondary Source Has Been Removed to the Extent Practicable –**  
“Secondary source” is defined as petroleum-impacted soil or groundwater located at or immediately beneath the point of release from the primary source. Unless site attributes prevent secondary source removal (e.g. physical or infrastructural constraints exist whose removal or relocation would be technically or economically infeasible), petroleum-release sites are required to undergo secondary source removal to the extent practicable as described in the policy. “To the extent practicable” means implementing a cost-effective corrective action which removes or destroys-in-place the most readily recoverable fraction of source-area mass. It is expected that most secondary mass removal efforts will be completed in one year or less. Following removal or destruction of the secondary source, additional removal or active remedial actions shall not be required by regulatory agencies unless (1) necessary to abate a demonstrated threat to human health or (2) the groundwater plume does not meet the definition of low threat as described in this policy.

ACDEH's review of the case files indicates that insufficient data and analysis has been presented to assess compliance with General Criteria f. The Geophysical Report included as Attachment C in the Work Plan describes finding six "High Strength Conductive Pulse Anomalies with Magnetic Gradiometer signature response" including "two relatively large projection anomalies along the back or northeast of the former building area that are found end to end in symmetry". One of the Work Plan's goals was to identify the buried conductive anomalies by hand augering borings in the areas of the anomalies to approximately 5-6 feet below ground surface. The Report, however, does not include the boring logs of the seven hand augered soil borings, discuss the findings of the seven hand augered soil borings, or resolve the origin of the buried anomalies. Consequently, it has not been determined if secondary source remains at the site. Please present a strategy in the Updated Site Conceptual Model (SCM) and Data Gap Work Plan (described in Technical Comment 4 below) to address these Technical Comments and in an appendix include the boring logs of the seven hand augered soil borings. Alternatively, please provide justification of why the site satisfies this general criterion in the focused SCM described in Technical Comment 4 below.

2. **LTCP Media Specific Criteria for Groundwater** – To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites listed in the policy.

Our review of the case files indicate that the three groundwater monitoring wells, MW-1 through MW-3, were installed in September and October 2014 and according to the Work Plan, were to be sampled on a quarterly basis for the first year. Grab groundwater samples were obtained from each well during installation, but the wells were not developed or sampled. Therefore, insufficient data and analysis has been presented to support the requisite characteristics of groundwater gradient direction, plume stability, and length. Please present a strategy in the Updated SCM and Data Gap Work Plan discussed in Technical Comment 4 to determine groundwater plume stability and length.

- a. **Monitoring Well Development and Quarterly Sampling and Rose Diagram:** Please develop the three wells and sample for a minimum of four quarters to establish groundwater gradient direction, existence of a plume, plume stability, and length; Please prepare a rose diagram using data from each sampling event to confirm the groundwater gradient consistency and please provide an updated rose diagram with every quarterly sampling event;
- b. **Groundwater Concentration and Elevation Graphs:** Please provide graphs indicating groundwater concentrations and groundwater elevations together with each sampling event;
- c. **Baseline Analytical:** To establish a baseline, on a one-time basis and in the future, on an as needed basis, please analyze all groundwater samples for the full suite of Volatile Organic Compounds (VOCs) and please ensure detection limits are below proposed cleanup levels;
- d. **LTCP Plume Lengths:** To present another line of evidence supporting plume lengths, please prepare a figure indicating the average, 90<sup>th</sup> percentile, and maximum plume lengths for TPHg, benzene, and MTBE by referencing Table 1: *Plume Characteristics*, in the LTCP's *Technical Justification for Groundwater Media-Specific Criteria*. As shown in Attachment 2, *Sample Figures of Adjacent Buildings with Basements, LTCP Plume Lengths, and Well Survey*, please include the locations of the six water production wells identified in the one mile well survey included in the Report.
- e. **Investigation-Derived Waste:** Please submit the disposal documentation for the soil cuttings, rinsate water, and forth-coming well development and quarterly sampling events to ACDEH and to Geotracker, as described below.



- 3. LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air** – The LTCP describes conditions, including bioattenuation (unsaturated) zones, which if met will assure that exposure to petroleum vapors in indoor air will not pose unacceptable health risks to human occupants of existing or future site buildings, and adjacent parcels. Appendices 1 through 4 of the LTCP criteria illustrate four potential exposure scenarios and describe characteristics and criteria associated with each scenario.

Our review of the case files indicates that the risk of vapor intrusion cannot be assessed due to the uncertainty that the secondary source(s) were removed. Therefore, ACDEH requests an evaluation of the media-specific criteria in the updated SCM and Data Gap Work Plan. Please assess potential vapor intrusion to indoor air to the adjacent residences.

If soil vapor wells are proposed, please ensure that your sampling strategy is consistent with the field sampling protocols described in the Department of Toxic Substances Control's Final Vapor Intrusion Guidance (October 2011) and the updated February 22, 2016 San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels Version 3. Consistent with the guidance, ACDEH requires installation of permanent vapor wells to assess temporal and seasonal variations in soil gas concentrations. Please include the soil vapor investigation with the Updated SCM and Data Gap Work Plan requested below.

- 4. Data Gap Investigation Work Plan and Site Conceptual Model** – Please prepare a Data Gap Investigation Work Plan to address the technical comments listed above. Please support the scope of work in the Data Gap Investigation Work Plan with a focused SCM and Data Quality Objectives (DQOs) that relate the data collection to each LTCP criteria.

As a part of updating the SCM, please include a rose diagram and locations of houses and buildings that have basements in the immediate downgradient direction of the site similar to the example provided in Attachment 2, *Sample Figures of Adjacent Buildings with Basements, LTCP Plume Lengths, and Well Survey*.

- 5. Request for information** - The ACDEH case file for the subject site contains only the electronic files listed on our web site at <http://www.acgov.org/ACDEH/lop/ust.htm>. You are requested to submit electronic copies of all other reports including Phase I Reports, data, correspondence, etc. related to environmental investigations for this property not currently contained in our case file by the date specified in the Technical Report Request Section below. ACDEH requests e-mail notification of, and a list of the documents uploaded to Geotracker by the date listed below.
- 6. Electronic Submittal of Information (ESI) Compliance** - Site data and documents are maintained in two separate electronic databases – ACDEH's ftp site and the SWRCB's GeoTracker database. Both databases act as repositories for regulatory directives and reports; however, only GeoTracker has the functionality to store electronic compliance data including analytical laboratory data for soil, vapor and water samples, monitoring well depth-to-water measurements, and surveyed location and elevation data for permanent sampling locations. Although the SWRCB is responsible for the overall operation and maintenance of the GeoTracker System, ACDEH, as lead regulatory agency, is responsible to ensure the GeoTracker database is complete and accurate for sites regulated under ACDEH's Environmental Cleanup Oversight Programs (SWRCB March 2011 document entitled *Electronic Reporting Roles and Responsibilities*).

A review of the case file and the State's GeoTracker database indicates that the site is not in compliance with California Code of Regulations, Title 23, Division 3, Chapter 16, Article 12, Sections 2729 and 2729.1, stating that beginning September 1, 2001, all analytical data, including monitoring well samples, submitted in a report to a regulatory agency as part of the UST or LUST program, must be transmitted electronically to the SWRCB GeoTracker system via the internet. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all

groundwater cleanup programs, including the Site Cleanup Program (SCP) cases. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites was required in GeoTracker. At present missing data and documents include, but may not be limited to, EDF submittals, depth to groundwater data (GEO\_WELL files), well data (GEO\_XY, and GEO\_Z files), work plans, and older reports (GEO\_REPORT files). Please upload requisite documents and data to GeoTracker. See Attachment 1 and the State's GeoTracker website for further details.

### **TECHNICAL REPORT REQUEST**

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

- **September 20, 2016** – 3<sup>rd</sup> Quarterly Groundwater Monitoring and Sampling Report, Well Development, and Waste Disposal  
File to be named: RO3087\_GWM\_R\_yyyy-mm-dd
- **September 20, 2016** – Updated Site Conceptual Model and Data Gap Work Plan  
File to be named: RO3087\_SCM\_WP\_yyyy-mm-dd
- **January 20, 2017** – 4<sup>th</sup> Quarterly Monitoring and Sampling Report and Waste Disposal  
File to be named: RO3087\_GWM\_R\_yyyy-mm-dd
- **May 20, 2017** – 1<sup>st</sup> Quarterly Monitoring and Sampling Report and Waste Disposal  
File to be named: RO3087\_GWM\_R\_yyyy-mm-dd
- **September 20, 2017** – 2<sup>nd</sup> Quarterly Monitoring and Sampling Report and Waste Disposal  
File to be named: RO3087\_GWM\_R\_yyyy-mm-dd

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

Thank you for your cooperation. Should you have any questions or concerns regarding this correspondence or your case, please send me an e-mail message at [karel.detterman@acgov.org](mailto:karel.detterman@acgov.org) or call me at (510) 567-6708.

Sincerely,



Digitally signed by Karel Detterman  
DN: cn=Karel Detterman, o, ou,  
email=karel.detterman@acgov.org, c=US  
Date: 2016.07.19 16:16:17 -07'00'

Karel Detterman, PG  
Hazardous Materials Specialist

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

Attachment 2, *Sample Figures of Adjacent Buildings with Basements, LTCP Plume Lengths, and Well Survey*

Ladies and Gentlemen  
RO0003087  
July 19, 2016, Page 5

cc: Matthew Davis, LG, 732 Broadway Suite 301, Tacoma, WA 98402 (Sent via E-mail to: [matthew.davis@ghd.com](mailto:matthew.davis@ghd.com))

Donald Schwartz, Esq., 7960-B Soquel Drive, No. 291, Aptos, CA 95003 (Sent via E-mail to: [donald@lawofficedonaldschwartz.com](mailto:donald@lawofficedonaldschwartz.com))

Dilan Roe, ACDEH (Sent via E-mail to: [dilan.roe@acgov.org](mailto:dilan.roe@acgov.org))

Karel Detterman, ACDEH (Sent via E-mail to: [karel.detterman@acgov.org](mailto:karel.detterman@acgov.org))

Electronic File, GeoTracker

## Attachment 1

### Responsible Party(ies) Legal Requirements / Obligations

#### REPORT REQUESTS

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

#### ELECTRONIC SUBMITTAL OF REPORTS

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

#### PERJURY STATEMENT

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

#### PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

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

#### UNDERGROUND STORAGE TANK CLEANUP FUND

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

#### AGENCY OVERSIGHT

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

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

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

## REQUIREMENTS

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

RO#\_Report Name\_Year-Month-Date (e.g., RO#5555\_WorkPlan\_2005-06-14)

## Submission Instructions

- 1) Obtain User Name and Password
  - a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
    - i) Send an e-mail to [deh.loptoxic@acgov.org](mailto:deh.loptoxic@acgov.org)
  - b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses, and the Case Numbers (RO# available in Geotracker) you will be posting for.**
- 2) Upload Files to the ftp Site
  - a) Using Internet Explorer (IE4+), go to <ftp://alcoftp1.acgov.org>
    - (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
  - b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
  - c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
  - d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
  - e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- 3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
  - a) Send email to [deh.loptoxic@acgov.org](mailto:deh.loptoxic@acgov.org) notify us that you have placed a report on our ftp site.
  - b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
  - c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
  - d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

# ATTACHMENT 2

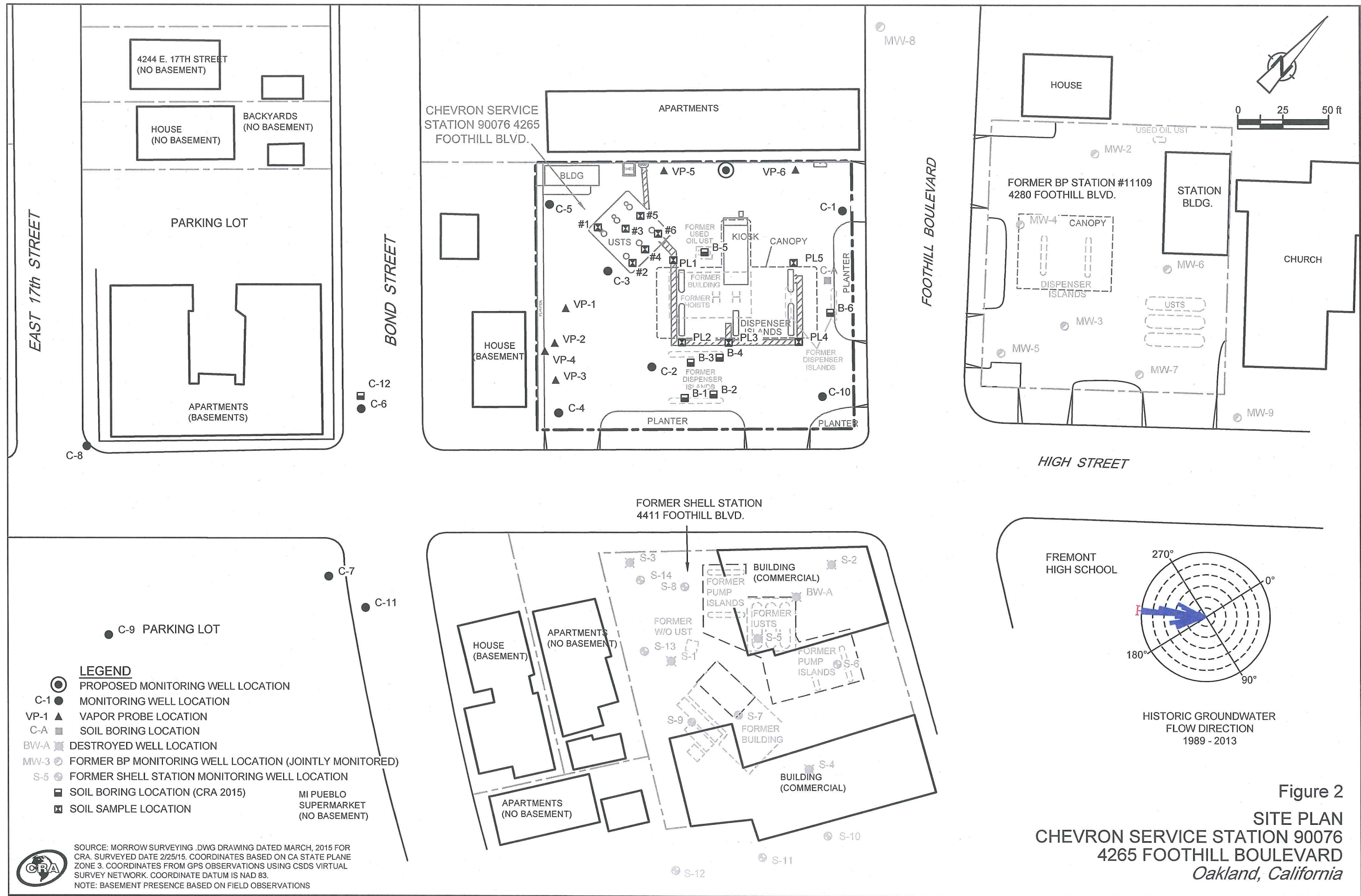


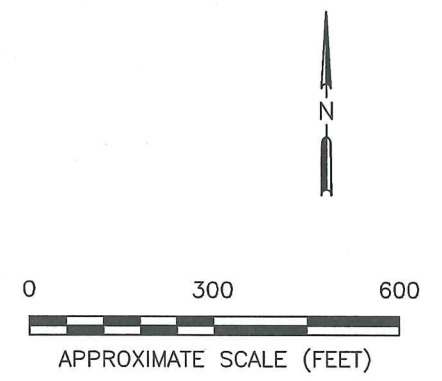
Figure 2  
 SITE PLAN  
 CHEVRON SERVICE STATION 90076  
 4265 FOOTHILL BOULEVARD  
 Oakland, California




SOURCE: MORROW SURVEYING .DWG DRAWING DATED MARCH, 2015 FOR CRA. SURVEYED DATE 2/25/15. COORDINATES BASED ON CA STATE PLANE ZONE 3. COORDINATES FROM GPS OBSERVATIONS USING CSDS VIRTUAL SURVEY NETWORK. COORDINATE DATUM IS NAD 83.  
 NOTE: BASEMENT PRESENCE BASED ON FIELD OBSERVATIONS



- LEGEND:**
- PROPERTIES WITH WELLS WITHIN 1/4-MILE OF SITE
  - MEDICAL OFFICES WITHIN 1/4-MILE OF SITE
  - ◆ SCHOOLS WITHIN 1/4-MILE OF SITE
  - ACTIVE GROUNDWATER MONITORING WELL LOCATION
  - ⊕ DESTROYED GROUNDWATER MONITORING WELL LOCATION
  - AVERAGE PLUME LENGTH (5 ug/L)
  - 90TH PERCENTILE PLUME LENGTH (5 ug/L)
  - MAXIMUM PLUME LENGTH (5 ug/L)

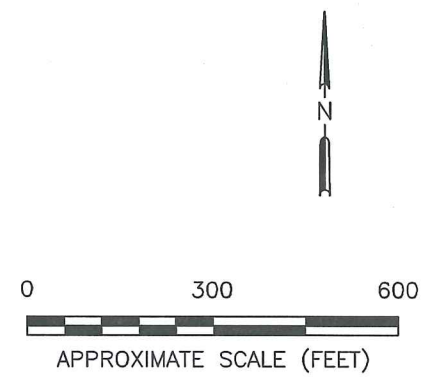



 15575 LOS GATOS BLVD, BUILDING C LOS GATOS, CALIFORNIA 95032 PHONE: (408) 356-6124 FAX: (408) 356-6138	FOR: THE GOODYEAR TIRE AND RUBBER CO.		<b>POTENTIAL BENZENE PLUME LENGTHS          BASED ON LTCP          TECHNICAL JUSTIFICATION          GOODYEAR DEX #9578          3430 CASTRO VALLEY BOULEVARD          CASTRO VALLEY, CALIFORNIA</b>		FIGURE: <b>10</b>
	JOB NUMBER: 185702872	DRAWN BY: KAM	CHECKED BY: KM	APPROVED BY: GM	DATE: 01/08/15





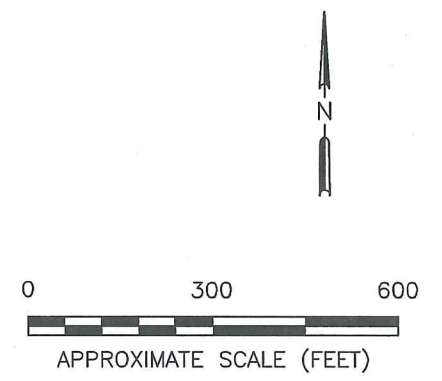
- LEGEND:**
- PROPERTIES WITH WELLS WITHIN 1/4-MILE OF SITE
  - MEDICAL OFFICES WITHIN 1/4-MILE OF SITE
  - ◆ SCHOOLS WITHIN 1/4-MILE OF SITE
  - ACTIVE GROUNDWATER MONITORING WELL LOCATION
  - ⊗ DESTROYED GROUNDWATER MONITORING WELL LOCATION
  - AVERAGE PLUME LENGTH (5 ug/L)
  - 90TH PERCENTILE PLUME LENGTH (5 ug/L)
  - MAXIMUM PLUME LENGTH (5 ug/L)




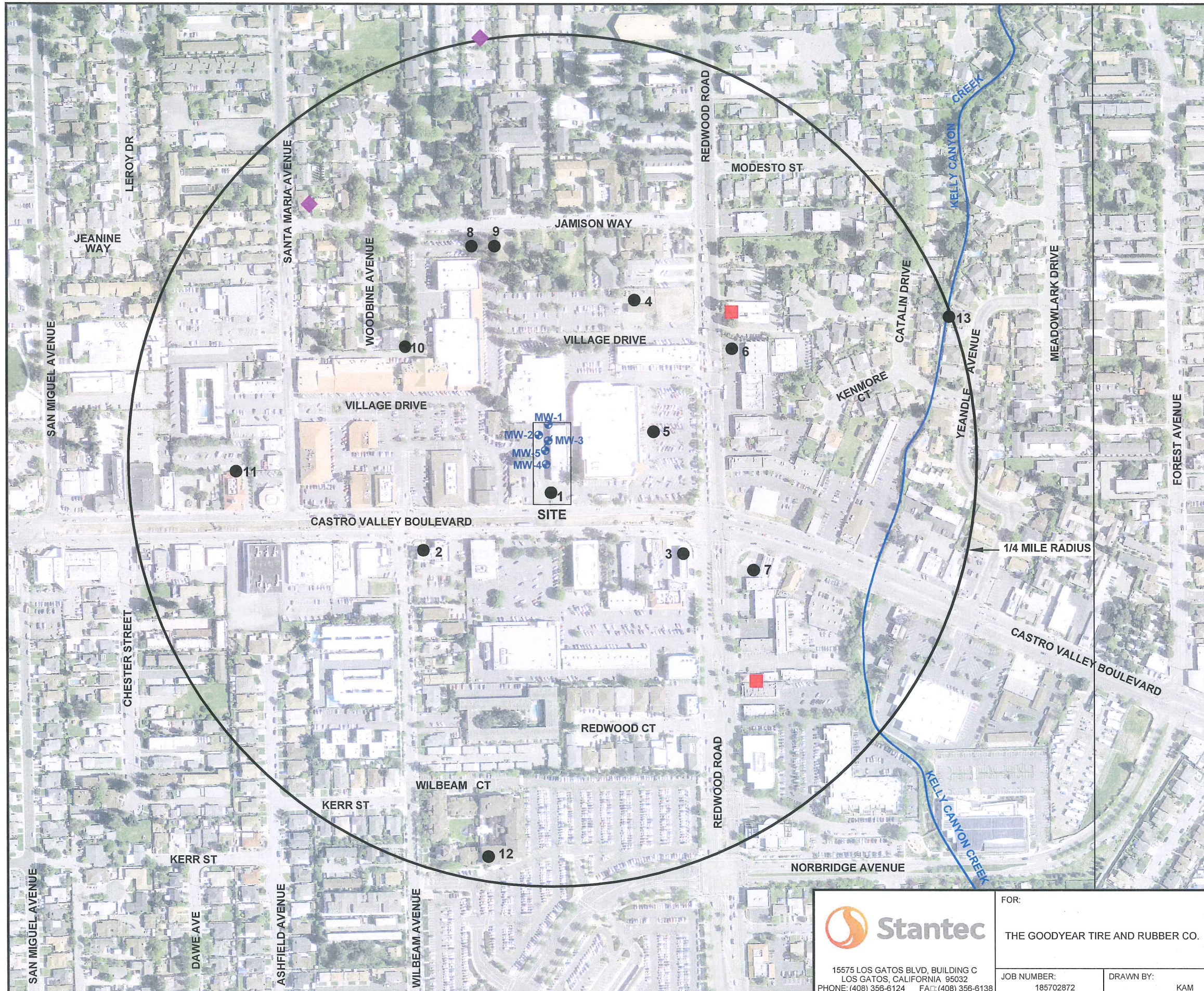
 15575 LOS GATOS BLVD, BUILDING C LOS GATOS, CALIFORNIA 95032 PHONE: (408) 356-6124    FAX: (408) 356-6138	FOR: THE GOODYEAR TIRE AND RUBBER CO.		<b>POTENTIAL MTBE PLUME LENGTHS          BASED ON LTCP          TECHNICAL JUSTIFICATION          GOODYEAR DEX #9578          3430 CASTRO VALLEY BOULEVARD          CASTRO VALLEY, CALIFORNIA</b>		FIGURE: <b>11</b>
	JOB NUMBER: 185702872	DRAWN BY: KAM	CHECKED BY: KM	APPROVED BY: GM	DATE: 01/08/15



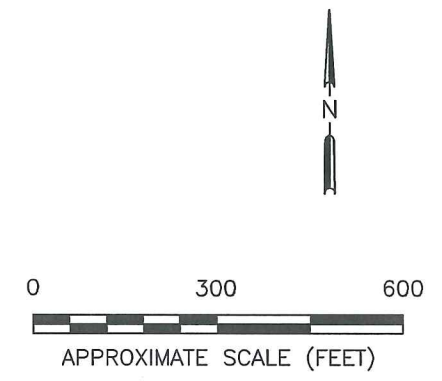
- LEGEND:**
- PROPERTIES WITH WELLS WITHIN 1/4-MILE OF SITE
  - MEDICAL OFFICES WITHIN 1/4-MILE OF SITE
  - ◆ SCHOOLS WITHIN 1/4-MILE OF SITE
  - ⊕ ACTIVE GROUNDWATER MONITORING WELL LOCATION
  - ⊗ DESTROYED GROUNDWATER MONITORING WELL LOCATION
  - AVERAGE PLUME LENGTH (100 ug/L)
  - 90TH PERCENTILE PLUME LENGTH (100 ug/L)
  - MAXIMUM PLUME LENGTH (100 ug/L)




 15575 LOS GATOS BLVD, BUILDING C LOS GATOS, CALIFORNIA 95032 PHONE: (408) 356-6124 FAX: (408) 356-6138	FOR: THE GOODYEAR TIRE AND RUBBER CO.		<b>POTENTIAL TPHg PLUME LENGTHS          BASED ON LTCP          TECHNICAL JUSTIFICATION          GOODYEAR DEX #9578          3430 CASTRO VALLEY BOULEVARD          CASTRO VALLEY, CALIFORNIA</b>		FIGURE: <b>12</b>
	JOB NUMBER: 185702872	DRAWN BY: KAM	CHECKED BY: KM	APPROVED BY: GM	DATE: 01/08/15



- LEGEND:**
- PROPERTIES WITH WELLS WITHIN 1/4-MILE OF SITE
  - MEDICAL OFFICES WITHIN 1/4-MILE OF SITE
  - ◆ SCHOOLS WITHIN 1/4-MILE OF SITE
  - ⊕ ACTIVE GROUNDWATER MONITORING WELL LOCATION
  - ⊗ DESTROYED GROUNDWATER MONITORING WELL LOCATION



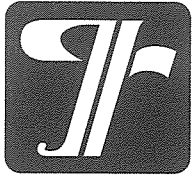
 15575 LOS GATOS BLVD, BUILDING C LOS GATOS, CALIFORNIA 95032 PHONE: (408) 356-6124 FA: (408) 356-6138	FOR: THE GOODYEAR TIRE AND RUBBER CO.		<b>WELL &amp; SENSITIVE RECEPTOR SURVEY</b> <b>GOODYEAR DEX #9578</b> <b>3430 CASTRO VALLEY BOULEVARD</b> <b>CASTRO VALLEY, CALIFORNIA</b>		FIGURE: <b>6</b>
	JOB NUMBER: 185702872	DRAWN BY: KAM	CHECKED BY: KM	APPROVED BY: GM	DATE: 01/08/15

**APPENDIX C**  
**Wells Survey Results**  
**Former Goodyear Tire Store**  
3430 Castro Valley Boulevard  
Castro Valley, CA

	Owner/Site Name	Well Type	Drill Date	Total Depth	Address	Approximate Distance/Direction From Site
1	Merritt Tire Sale	Monitoring Wells	Sept 94, Dec 96, Aug 12	16-20	3430 Castro Valley Blvd.	0
2	CHEVRON #9-4930 / VALLEY CAR WASH	Monitoring Well	Oct-93	20	3369 Castro Valley Blvd.	460 SW
3	Ted Simas (XTRA OIL DBA SHELL STATION)	Monitoring Wells	Feb 90 & Aug 97	18-20	3495 Castro Valley Blvd.	510 SE
4	R. T. Nahas Company (UNOCAL)	Monitoring Wells	Dec 89	25-30	20405 Redwood Rd.	520 NE
5	R. T. Nahas Company	Monitoring Wells	Apr 92	29-37	20629 Redwood Rd	310 E
6	Exxon Oil	Unknown	?	?	20450 Redwood Rd.	650 NE
7	BP #11105 / SHELL 17-1445	Monitoring Well	Sept 92, July 95, Aug 09,	15-30	3519 Castro Valley Blvd.	700 SE
8	R. T. Nahas Company	Domestic/Destroyed	Dec 75	56	3559 JAMISON WAY	700 NNW
9	R. T. Nahas Company	Destroyed	?	20 & 25	3533 JAMISON WAY	725 NNW
10	Horseshoe Drilling	Destroyed	Apr 96	20	20342 Woodbine Ave	600 NW
11	Mitzi Stockel	BOR/MON	Apr-90	8-23	3234 Castro Valley Blvd	1000 W
12	BART	Monitoring Well	Feb 93	16	21000 Wilbeam Ave.	1225 SSW
13	Robert D Rousey	Irrigation	May-77	28	20283 Yeandle Ave.	1325 ENE

# Attachment B

## Monitoring Data Package



# GETTLER-RYAN INC.

## TRANSMITTAL

August 12, 2016

G-R #385905

TO: Mr. Matt Davis  
GHD  
732 Broadway, Suite 301  
Tacoma, WA 98402

FROM: Deanna L. Harding  
Project Coordinator  
Gettler-Ryan Inc.  
6805 Sierra Court, Suite G  
Dublin, California 94568

RE: **Former Tidewater Service Station  
Chevron #373378  
7600 MacArthur Blvd.  
Oakland, California**

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DESCRIPTION
VIA PDF	Groundwater Monitoring and Sampling Report <b>Well Development and Third Quarter Events of July 28 &amp; August 5, 2016</b>

### COMMENTS:

Pursuant to your request, we are providing you with a copy of the above referenced data for your use.

Please provide us the updated historical data prior to the next monitoring and sampling event for our field use.

Please feel free to contact me if you have any comments/questions.

Trans 373378

Chevron#373378

Event of July 28, 2016

# WELL CONDITION STATUS SHEET

Client/  
 Facility #: **Chevron #373378**  
 Site Address: **7600 Macarthur Blvd.**  
 City: **Oakland, CA**

Job #: **385905**  
 Event Date: 7/28/16  
 Sampler: JD

WELL ID	Vault Frame Condition	Gasket/O-Ring <small>(M) Missing (R) Replaced</small>	Bolts <small>(M) Missing (R) Replaced</small>	Bolt Flanges <small>B=Broken S=Stripped R=Retaped</small>	Apron Condition <small>C=Cracked B=Broken G=Gone</small>	Grout Seal <small>(Deficient) Inches from TOC</small>	Casing <small>(Condition prevents tight cap seal)</small>	REPLACE LOCK Y/N	REPLACE CAP Y/N	WELL VAULT <small>Manufacture/Size/ # of Bolts</small>	Pictures Taken Y/N
MW-1	OK	—	—	—	—	—	—	Y	Y 2"	8" Morrison	Y
MW-2	OK	—	—	—	—	—	—	↓	↓	↓	↓
MW-3	OK	—	—	—	—	—	—	↓	↓	↓	↓

Comments \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## STANDARD OPERATING PROCEDURE – WELL DEVELOPMENT GROUNDWATER SAMPLING

Gettler-Ryan Inc. (GR) field personnel adhere to the following procedures for the collection and handling of groundwater samples prior to analysis by the analytical laboratory. All work is performed in accordance with the GR Health & Safety Plan and all client-specific programs. The scope of work and type of analysis to be performed is determined prior to commencing field work.

Prior to well development, each well is monitored for the presence of free-phase hydrocarbons and the depth to water is recorded. Wells are then developed by alternately surging the well with the bailer, then purging the well with a pump to remove accumulated sediments and draw groundwater into the well. Development continues until the groundwater parameters (temperature, pH, and conductivity) have stabilized.

Prior to sampling, the presence or absence of free-phase hydrocarbons is determined using an interface probe. Product thickness, if present, is measured to the nearest 0.01 foot and is noted in the field notes. In addition, all depth to water level measurements are collected with a static water level indicator and are also recorded in the field notes, prior to purging and sampling any wells.

After water levels are collected and prior to sampling, if purging is to occur, each well is purged a minimum of three well casing volumes of water using pre-cleaned pumps (stack, peristaltic or Grundfos), or disposable bailers. Temperature, pH and electrical conductivity are measured a minimum of three times during the purging (additional parameters such as dissolved oxygen, oxidation reduction potential, turbidity may also be measured, depending on specific scope of work.). Purging continues until these parameters stabilize.

Groundwater samples are collected using disposable bailers. The water samples are transferred from the bailer into appropriate containers. Pre-preserved containers, supplied by analytical laboratories, are used. When pre-preserved containers are not available, the laboratory is instructed to preserve the sample as appropriate. Duplicate samples are collected for the laboratory to use in maintaining quality assurance/quality control standards, as directed by the scope of work. The samples are labeled to include the job number, sample identification, collection date and time, analysis, preservation (if any), and the sample collector's initials. The water samples are placed in a cooler, maintained at 4°C for transport to the laboratory. Once collected in the field, all samples are maintained under chain of custody until delivered to the laboratory.

The chain of custody document includes the job number, type of preservation, if any, analysis requested, sample identification, date and time collected, and the sample collector's name. The chain of custody is signed and dated (including time of transfer) by each person who receives or surrenders the samples, beginning with the field personnel and ending with the laboratory personnel.

A laboratory supplied trip blank accompanies each sampling set. The trip blank is analyzed for some or all of the same compounds as the groundwater samples.

As requested by Chevron Environmental Management Company, the purge water and decontamination water generated during sampling activities is transported by Clean Harbors Environmental Services to Seaport Environmental located in Redwood City, California.



## WELL MONITORING/DEVELOPMENT FIELD DATA SHEET

Client/Facility#: Chevron #373378  
 Site Address: 7600 Macarthur Blvd.  
 City: Oakland, CA

Job Number: 385905  
 Event Date: 7/28/16 (inclusive)  
 Sampler: JH

Well ID: MW-1  
 Well Diameter: 2 in.  
 Initial Total Depth: 37.31 ft.  
 Final Total Depth: 37.35 ft.  
 Depth to Water: 22.62 ft.  
14.69 xVF .17 = 2.49

Date Monitored: 7/28/16

Volume	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
Factor (VF)	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

Check if water column is less than 0.50 ft.

x10 case volume = Estimated Purge Volume: 24.97 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]:         

### Purge Equipment:

Disposable Bailer \_\_\_\_\_  
 Stainless Steel Bailer X  
 Stack Pump X  
 Peristaltic Pump \_\_\_\_\_  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

### Sampling Equipment:

Disposable Bailer \_\_\_\_\_  
 Pressure Bailer \_\_\_\_\_  
 Metal Filters \_\_\_\_\_  
 Peristaltic Pump \_\_\_\_\_  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started:	_____ (2400 hrs)
Time Completed:	_____ (2400 hrs)
Depth to Product:	_____ ft
Depth to Water:	_____ ft
Hydrocarbon Thickness:	<u>0</u> ft
Visual Confirmation/Description:	_____
Skimmer / Absorbant Sock (circle one)	_____
Amt Removed from Skimmer:	_____ ltr
Amt Removed from Well:	_____ ltr
Water Removed:	_____ ltr

Start Time (purge): 0720  
 Sample Time/Date:      /       
 Approx. Flow Rate: 1 gpm.  
 Did well de-water? Yes If yes, Time: 0727

Weather Conditions: Clean  
 Water Color: Clean Odor: Y / #  
 Sediment Description: None  
 Volume: 5 gal. DTW @ Sampling:     

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µS / mS / cm)	Temperature (° F)	D.O. (mg/L)	ORP (mV)
0725	2.5	7.10	755	19.9	/	/
0727	5.0	7.12	751	20.1	/	/
0730	7.5	7.07	747	20.4	/	/
0733	10.0	7.04	742	20.5	/	/
* 0736	12.5	6.92	740	20.6	/	/
0755	15.0	7.01	733	20.6	/	/
0759	17.5	6.98	730	20.7	/	/
* 0803	20.0	6.95	726	20.6	/	/
0830	22.5	6.91	721	20.5	/	/
0835	25.00	6.88	718	20.5	/	/

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES

COMMENTS: INITIAL CGI READING: 0 ppm Well Dewatered twice more  
DEVELOP ONLY 0736 & 0803

Add/Replaced Gasket: \_\_\_\_\_ Add/Replaced Bolt: \_\_\_\_\_ Add/Replaced Lock: X Add/Replaced Plug: X 24



## WELL MONITORING/DEVELOPMENT FIELD DATA SHEET

Client/Facility#: Chevron #373378  
 Site Address: 7600 Macarthur Blvd.  
 City: Oakland, CA

Job Number: 385905  
 Event Date: 7/28/16 (inclusive)  
 Sampler: JD

Well ID: MW-2  
 Well Diameter: 2 in.  
 Initial Total Depth: 36.06 ft.  
 Final Total Depth: 36.11 ft.  
 Depth to Water: 23.06 ft.  
13.00 xVF .17 = 2.21

Date Monitored: 7/28/16

Volume Factor (VF)	3/4" = 0.02	1" = 0.04	2" = 0.17	3" = 0.38
	4" = 0.66	5" = 1.02	6" = 1.50	12" = 5.80

Check if water column is less than 0.50 ft.

x10 case volume = Estimated Purge Volume: 22.10 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: —

### Purge Equipment:

Disposable Bailer \_\_\_\_\_  
 Stainless Steel Bailer X  
 Stack Pump X  
 Peristaltic Pump \_\_\_\_\_  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

### Sampling Equipment:

Disposable Bailer \_\_\_\_\_  
 Pressure Bailer \_\_\_\_\_  
 Metal Filters \_\_\_\_\_  
 Peristaltic Pump \_\_\_\_\_  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started:	_____ (2400 hrs)
Time Completed:	_____ (2400 hrs)
Depth to Product:	_____ ft
Depth to Water:	_____ ft
Hydrocarbon Thickness:	_____ ft
Visual Confirmation/Description:	_____
Skimmer / Absorbant Sock (circle one)	_____
Amt Removed from Skimmer:	_____ ltr
Amt Removed from Well:	_____ ltr
Water Removed:	_____ ltr

Start Time (purge): 1030  
 Sample Time/Date: 7/28/16  
 Approx. Flow Rate: 1 gpm.  
 Did well de-water? yes If yes, Time: 1050

Weather Conditions: Clean  
 Water Color: Clean Odor: Y / 10  
 Sediment Description: None  
 Volume: 12 gal. DTW @ Sampling: —

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µS / mS µmhos/cm)	Temperature (° / F)	D.O. (mg/L)	ORP (mV)
1035	2	7.57	734	21.4		
1042	4	7.54	729	21.3		
1044	6	7.52	727	21.2		
1046	8	7.50	725	21.4		
1048	10	7.46	722	21.4		
1050	12	7.44	720	21.2		
1110	14	7.51	722	21.1		
1112	16	7.43	725	21.3		
1114	18	7.41	729	21.2		
1116	20	7.37	728	21.4		
1118	22					

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES

COMMENTS: INITIAL CGI READING: ⊕  
 DEVELOP ONLY

Add/Replaced Gasket: \_\_\_\_\_ Add/Replaced Bolt: \_\_\_\_\_ Add/Replaced Lock: X Add/Replaced Plug: X 2"



## WELL MONITORING/DEVELOPMENT FIELD DATA SHEET

Client/Facility#: Chevron #373378  
 Site Address: 7600 Macarthur Blvd.  
 City: Oakland, CA

Job Number: 385905  
 Event Date: 7/28/16 (inclusive)  
 Sampler: JH

Well ID: MW-3  
 Well Diameter: 2 in.  
 Initial Total Depth: 37.47 ft.  
 Final Total Depth: 37.51 ft.  
 Depth to Water: 22.40 ft.  
15.07 xVF .17 = 2.56

Date Monitored: 7/28/16

Volume Factor (VF)	3/4" = 0.02	1" = 0.04	2" = 0.17	3" = 0.38
	4" = 0.66	5" = 1.02	6" = 1.50	12" = 5.80

Check if water column is less than 0.50 ft.

x10 case volume = Estimated Purge Volume: 25.61 gal.  
 Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 25.41

### Purge Equipment:

Disposable Bailer \_\_\_\_\_  
 Stainless Steel Bailer X  
 Stack Pump X  
 Peristaltic Pump \_\_\_\_\_  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

### Sampling Equipment:

Disposable Bailer \_\_\_\_\_  
 Pressure Bailer \_\_\_\_\_  
 Metal Filters \_\_\_\_\_  
 Peristaltic Pump \_\_\_\_\_  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started:	_____ (2400 hrs)
Time Completed:	_____ (2400 hrs)
Depth to Product:	_____ ft
Depth to Water:	_____ ft
Hydrocarbon Thickness:	<u>0</u> ft
Visual Confirmation/Description:	_____
Skimmer / Absorbant Sock (circle one)	_____
Amt Removed from Skimmer:	_____ ltr
Amt Removed from Well:	_____ ltr
Water Removed:	_____ ltr

Start Time (purge): 0916  
 Sample Time/Date: - / -  
 Approx. Flow Rate: 1 gpm.  
 Did well de-water? Yes If yes, Time: 0930

Weather Conditions: Clear  
 Water Color: Clear Odor: Y10  
 Sediment Description: None  
 Volume: 12.5 gal. DTW @ Sampling: \_\_\_\_\_

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µS/mS umhos/cm)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
0920	2.5	7.70	701	21.1		
0924	5.0	7.68	710	21.2		
0928	7.5	7.65	713	21.3		
0928	10	7.61	716	21.3		
0930	12.5	7.60	720	21.2		
0955	15	7.58	725	21.2		
0957	17.5	7.57	731	21.3		
1000	20	7.54	736	21.4		
1003	22.5	7.56	740	21.2		
1006	25.0	7.58	732	21.3		

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES

COMMENTS: INITIAL CGI READING: 0 APM  
 DEVELOP ONLY

Add/Replaced Gasket: \_\_\_\_\_ Add/Replaced Bolt: \_\_\_\_\_ Add/Replaced Lock: X Add/Replaced Plug: X 24

Chevron#373378

Event of August 5, 2016





# GETTLER-RYAN INC.

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Chevron #373378  
 Site Address: 7600 Macarthur Blvd.  
 City: Oakland, CA

Job Number: 385905  
 Event Date: 8/5/16 (inclusive)  
 Sampler: JH

Well ID: MW-1  
 Well Diameter: 2 in.  
 Total Depth: 37.31 ft.  
 Depth to Water: 22.84 ft.  
14.47 xVF = .17 = 2.45

Date Monitored: 8/5/16

Volume	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
Factor (VF)	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

Check if water column is less than 0.50 ft.

x3 case volume = Estimated Purge Volume: 7.37 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: ~~25.75~~ 25.75

### Purge Equipment:

Disposable Bailer: X  
 Stainless Steel Bailer: \_\_\_\_\_  
 Stack Pump: \_\_\_\_\_  
 Peristaltic Pump: \_\_\_\_\_  
 QED Bladder Pump: \_\_\_\_\_  
 Other: \_\_\_\_\_

### Sampling Equipment:

Disposable Bailer: X  
 Pressure Bailer: X  
 Metal Filters: X  
 Peristaltic Pump: \_\_\_\_\_  
 QED Bladder Pump: \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started: \_\_\_\_\_ (2400 hrs)  
 Time Completed: \_\_\_\_\_ (2400 hrs)  
 Depth to Product: \_\_\_\_\_ ft  
 Depth to Water: \_\_\_\_\_ ft  
 Hydrocarbon Thickness: \_\_\_\_\_ ft  
 Visual Confirmation/Description: \_\_\_\_\_  
 Skimmer / Absorbant Sock (circle one)  
 Amt Removed from Skimmer: \_\_\_\_\_ ltr  
 Amt Removed from Well: \_\_\_\_\_ ltr  
 Water Removed: \_\_\_\_\_ ltr

Start Time (purge): 0815  
 Sample Time/Date: 0850 / 8/5/16  
 Approx. Flow Rate: \_\_\_\_\_ gpm.  
 Did well de-water? NO If yes, Time: \_\_\_\_\_

Weather Conditions: Cloudy  
 Water Color: clear Odor: Y10  
 Sediment Description: none  
 Volume: \_\_\_\_\_ gal. DTW @ Sampling: 25.40

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µS / mS µmhos/cm)	Temperature (°C / F)	D.O. (mg/L)	ORP (mV)
<u>0820</u>	<u>2.5</u>	<u>7.61</u>	<u>717</u>	<u>18.8</u>	/	/
<u>0826</u>	<u>5.0</u>	<u>7.50</u>	<u>714</u>	<u>19.1</u>	/	/
<u>0832</u>	<u>7.5</u>	<u>7.38</u>	<u>710</u>	<u>19.4</u>	/	/

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-1	6 x voa vial	YES	HCL	LANCASTER	TPH-GRO(8015)/FULL LIST VOC's(8260)
	2 x 500ml ambers	YES	NP	LANCASTER	TPH-DRO(8015)
	2 x 1 liter WM glass	YES	HCL	LANCASTER	TOG(1664A)
	2 x 250ml ambers	YES	NP	LANCASTER	PAH's(8270)
	2 x 250ml ambers	YES	NP	LANCASTER	NAPHTHALENE(8270)
	1 x 250ml poly	YES	HNO3	LANCASTER	DISSOLVED WEAR METALS(6010)

### COMMENTS:

Add/Replaced Gasket: \_\_\_\_\_ Add/Replaced Bolt: \_\_\_\_\_ Add/Replaced Lock: \_\_\_\_\_ Add/Replaced Plug: \_\_\_\_\_



# GETTLER-RYAN INC.

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Chevron #373378  
 Site Address: 7600 Macarthur Blvd.  
 City: Oakland, CA

Job Number: 385905  
 Event Date: 8/5/16 (inclusive)  
 Sampler: JH

Well ID: MW- 2  
 Well Diameter: 2 in.  
 Total Depth: 36.06 ft.  
 Depth to Water: 24.15 ft.

Date Monitored: 8/5/16

Volume	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
Factor (VF)	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

Check if water column is less than 0.50 ft.  
11.91 xVF .17 = 2.02 x3 case volume = Estimated Purge Volume: 6.07 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 26.53

### Purge Equipment:

Disposable Bailer: X  
 Stainless Steel Bailer: \_\_\_\_\_  
 Stack Pump: \_\_\_\_\_  
 Peristaltic Pump: \_\_\_\_\_  
 QED Bladder Pump: \_\_\_\_\_  
 Other: \_\_\_\_\_

### Sampling Equipment:

Disposable Bailer: X  
 Pressure Bailer: X  
 Metal Filters: X  
 Peristaltic Pump: \_\_\_\_\_  
 QED Bladder Pump: \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started:	_____ (2400 hrs)
Time Completed:	_____ (2400 hrs)
Depth to Product:	_____ ft
Depth to Water:	_____ ft
Hydrocarbon Thickness:	_____ ft
Visual Confirmation/Description:	_____
Skimmer / Absorbant Sock (circle one)	_____
Amt Removed from Skimmer:	_____ ltr
Amt Removed from Well:	_____ ltr
Water Removed:	_____ ltr

Start Time (purge): 0910  
 Sample Time/Date: 0940 / 8/5/16  
 Approx. Flow Rate: — gpm.  
 Did well de-water? NO If yes, Time: \_\_\_\_\_ Volume: \_\_\_\_\_ gal.

Weather Conditions: cloudy  
 Water Color: cloudy Odor: YIB  
 Sediment Description: None  
 DTW @ Sampling: 25.70

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µS / mS µmhos/cm)	Temperature (°C / F)	D.O. (mg/L)	ORP (mV)
<u>0945</u>	<u>2</u>	<u>7.64</u>	<u>707</u>	<u>18.8</u>	/	/
<u>0920</u>	<u>4</u>	<u>7.60</u>	<u>702</u>	<u>19.1</u>	/	/
<u>0925</u>	<u>6</u>	<u>7.58</u>	<u>698</u>	<u>19.0</u>	/	/

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW- 2	<u>6</u> x vov vial	YES	HCL	LANCASTER	TPH-GRO(8015)/FULL LIST VOC's(8260)
	<u>2</u> x 500ml ambers	YES	NP	LANCASTER	TPH-DRO(8015)
	<u>2</u> x 1 liter WM glass	YES	HCL	LANCASTER	TOG(1664A)
	<u>2</u> x 250ml ambers	YES	NP	LANCASTER	PAH's(8270)
	<u>2</u> x 250ml ambers	YES	NP	LANCASTER	NAPHTHALENE(8270)
	<u>1</u> x 250ml poly	YES	HNO3	LANCASTER	DISSOLVED WEAR METALS(6010)

### COMMENTS:

Add/Replaced Gasket: \_\_\_\_\_ Add/Replaced Bolt: \_\_\_\_\_ Add/Replaced Lock: \_\_\_\_\_ Add/Replaced Plug: \_\_\_\_\_





# GETTLER-RYAN INC.

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Chevron #373378  
 Site Address: 7600 Macarthur Blvd.  
 City: Oakland, CA

Job Number: 385905  
 Event Date: 8/5/16 (inclusive)  
 Sampler: JH

Well ID: MW-3  
 Well Diameter: 2 in.  
 Total Depth: 37.47 ft.  
 Depth to Water: 22.91 ft.  
14.56 xVF .17 = 2.47

Date Monitored: 8/5/16

Volume Factor (VF)	3/4" = 0.02	1" = 0.04	2" = 0.17	3" = 0.38
	4" = 0.66	5" = 1.02	6" = 1.50	12" = 5.80

Check if water column is less than 0.50 ft.

x3 case volume = Estimated Purge Volume: 7.42 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 25.82

**Purge Equipment:**  
 Disposable Bailer: X  
 Stainless Steel Bailer: \_\_\_\_\_  
 Stack Pump: \_\_\_\_\_  
 Peristaltic Pump: \_\_\_\_\_  
 QED Bladder Pump: \_\_\_\_\_  
 Other: \_\_\_\_\_

**Sampling Equipment:**  
 Disposable Bailer: X  
 Pressure Bailer: X  
 Metal Filters: X  
 Peristaltic Pump: \_\_\_\_\_  
 QED Bladder Pump: \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started: \_\_\_\_\_ (2400 hrs)  
 Time Completed: \_\_\_\_\_ (2400 hrs)  
 Depth to Product: \_\_\_\_\_ ft  
 Depth to Water: \_\_\_\_\_ ft  
 Hydrocarbon Thickness: \_\_\_\_\_ ft  
 Visual Confirmation/Description: \_\_\_\_\_  
 Skimmer / Absorbant Sock (circle one)  
 Amt Removed from Skimmer: \_\_\_\_\_ ltr  
 Amt Removed from Well: \_\_\_\_\_ ltr  
 Water Removed: \_\_\_\_\_ ltr

Start Time (purge): 0710  
 Sample Time/Date: 0745 / 8/5/16  
 Approx. Flow Rate: - gpm.  
 Did well de-water? NO If yes, Time: \_\_\_\_\_

Weather Conditions: Cloudy  
 Water Color: Clean Odor: Y / 0  
 Sediment Description: None  
 Volume: \_\_\_\_\_ gal. DTW @ Sampling: 25.20

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µS / mS / umhos/cm)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
<u>0716</u>	<u>2.5</u>	<u>7.65</u>	<u>675</u>	<u>18.2</u>	/	/
<u>0722</u>	<u>5.0</u>	<u>7.50</u>	<u>667</u>	<u>18.7</u>	/	/
<u>0729</u>	<u>7.5</u>	<u>7.45</u>	<u>671</u>	<u>18.8</u>	/	/

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-3</u>	<u>6</u> x voa vial	YES	HCL	LANCASTER	TPH-GRO(8015)/FULL LIST VOC's(8260)
	<u>2</u> x 500ml ambers	YES	NP	LANCASTER	TPH-DRO(8015)
	<u>2</u> x 1 liter WM glass	YES	HCL	LANCASTER	TOG(1664A)
	<u>2</u> x 250ml ambers	YES	NP	LANCASTER	PAH's(8270)
	<u>2</u> x 250ml ambers	YES	NP	LANCASTER	NAPHTHALENE(8270)
	<u>1</u> x 250ml poly	YES	HNO3	LANCASTER	DISSOLVED WEAR METALS(6010)

COMMENTS: \_\_\_\_\_

Add/Replaced Gasket: \_\_\_\_\_ Add/Replaced Bolt: \_\_\_\_\_ Add/Replaced Lock: \_\_\_\_\_ Add/Replaced Plug: \_\_\_\_\_

# Chevron California Region Analysis Request/Chain of Custody



ILW/M+548+258  
 086516-02  
**Lancaster Laboratories**

Acct. # \_\_\_\_\_ Group # \_\_\_\_\_ Sample # \_\_\_\_\_  
 For Eurofins Lancaster Laboratories use only  
 Instructions on reverse side correspond with circled numbers.

<b>1 Client Information</b>				<b>4 Matrix</b>				<b>5 Analyses Requested</b>											
Facility # <b>3373378-OML G-R#385905 Global ID#T10000003434</b>				Sediment <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Total Number of Containers _____				BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> TPH-GRO 8015 <input checked="" type="checkbox"/> TPH-DRO 8015 without Silica Gel Cleanup <input checked="" type="checkbox"/> TPH-DRO 8015 with Silica Gel Cleanup <input type="checkbox"/> 8260 Full Scan List VOC's (8260) Oxygenates _____ Total Lead <u>0.18</u> Gross Method <u>1664A</u> Dissolved Lead <u>weat metals 6010</u> PAH's (8270) NAPHTHALENE (8270)											
Site Address <b>7600 MACARTHUR BLVD., OAKLAND, CA</b>																			
Chevron PM <b>NIA</b> GHMD Lead Consultant <b>Davis</b>																			
Consultant/Office <b>Getter-Ryan Inc., 6905 Sierra Court, Suite G, Dublin, CA 94568</b>																			
Consultant Project Mgr <b>Deanna L. Harding, deanna@grinc.com</b>																			
Consultant Phone # <b>(925) 551-7444 x180</b>																			
Sampler <b>Jim Herzog</b>				<b>3</b>															
<b>2 Sample Identification</b>		<b>Soil Depth</b>		<b>Collected Date Time</b>		<b>Grab Composite</b>													
QA				160805		X													
MW-1				0850															
MW-2				0940															
MW-3				0745															

SCR #: \_\_\_\_\_

- Results in Dry Weight
- J value reporting needed
- Must meet lowest detection limits possible for 8260 compounds
- 8021 MTBE Confirmation
- Confirm highest hit by 8260
- Confirm all hits by 8260
- Run \_\_\_\_\_ oxy's on highest hit
- Run \_\_\_\_\_ oxy's on all hits

**6 Remarks**

**WEAR METALS TO REPORT ARE: Al, Ba, B, Cd, Ca, Cr, Cu, Fe, Pb, Mg, Mo, Ni, P, Si, Ag, Na, S, Sn, Ti, V and Zn**

**7 Turnaround Time Requested (TAT) (please circle)**

Standard 5 day 4 day  
 72 hour 48 hour 24 hour **EDF/EDD**

Relinquished by	Date <b>8/5/16</b>	Time <b>1100</b>	Received by	Date <b>8/5/16</b>	Time <b>1100</b>
Relinquished by _____	Date _____	Time _____	Received by _____	Date _____	Time _____

**8 Data Package (circle if required)**

Type I - Full  Type VI (Raw Data)

**EDD (circle if required)**

EDFFLAT (default)  Other: \_\_\_\_\_

Relinquished by Commercial Carrier:

UPS \_\_\_\_\_ FedEx \_\_\_\_\_ Other \_\_\_\_\_

Temperature Upon Receipt \_\_\_\_\_ °C

Custody Seals Intact? Yes  No

# Attachment C Laboratory Analytical Report

## ANALYTICAL RESULTS

Prepared by:

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

Prepared for:

GHD  
10969 Trade Center Drive  
Suite 107  
Rancho Cordova CA 95670

Report Date: August 20, 2016

**Project: 373378 Tidewater Oakland**

Submittal Date: 08/06/2016

Group Number: 1692738

PO Number: 4072862

State of Sample Origin: CA

### Client Sample Description

QA-T-160805 NA Water  
MW-1-W-160805 Grab Groundwater  
MW-2-W-160805 Grab Groundwater  
MW-3-W-160805 Grab Groundwater

Lancaster Labs

(LL) #

8516304

8516305

8516306

8516307

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

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>.

Electronic Copy To    Gettler-Ryan, Inc.  
Electronic Copy To    GHD  
Electronic Copy To    Chevron  
Electronic Copy To    GHD

Attn: Gettler Ryan  
Attn: Matt Davis  
Attn: Report Contact  
Attn: Miriam Smith

Respectfully Submitted,



Amek Carter  
Specialist

(717) 556-7252

Sample Description: QA-T-160805 NA Water  
Facility# 373378 CRAW  
7600 MacArthur Blv-Oakland T10000003434

LL Sample # WW 8516304  
LL Group # 1692738  
Account # 13534

Project Name: 373378 Tidewater Oakland

Collected: 08/05/2016

GHD

10969 Trade Center Drive

Submitted: 08/06/2016 09:45

Suite 107

Reported: 08/20/2016 16:47

Rancho Cordova CA 95670

MBOQA

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>GC/MS Volatiles SW-846 8260B</b>						
10945	Benzene	71-43-2	N.D.	ug/l 0.5	ug/l 1	1
10945	Ethylbenzene	100-41-4	N.D.	0.5	1	1
10945	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	1	1
10945	Toluene	108-88-3	N.D.	0.5	1	1
10945	Xylene (Total)	1330-20-7	N.D.	0.5	1	1
<b>GC Volatiles SW-846 8015B</b>						
01728	TPH-GRO N. CA water C6-C12	n.a.	N.D.	ug/l 50	ug/l 100	1

### Sample Comments

CA ELAP Lab Certification No. 2792

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

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10945	BTEX/MTBE	SW-846 8260B	1	Z162243AA	08/11/2016 20:05	Hu Yang	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z162243AA	08/11/2016 20:05	Hu Yang	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	16224A53A	08/12/2016 21:01	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	16224A53A	08/12/2016 21:01	Marie D Beamenderfer	1

\*=This limit was used in the evaluation of the final result

Sample Description: MW-1-W-160805 Grab Groundwater  
Facility# 373378 CRAW  
7600 MacArthur Blv-Oakland T10000003434

LL Sample # WW 8516305  
LL Group # 1692738  
Account # 13534

Project Name: 373378 Tidewater Oakland

Collected: 08/05/2016 08:50 by JH GHD  
10969 Trade Center Drive  
Submitted: 08/06/2016 09:45 Suite 107  
Reported: 08/20/2016 16:47 Rancho Cordova CA 95670

MBO01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/l</b>	<b>ug/l</b>	<b>ug/l</b>	
10335	Acetone	67-64-1	N.D.	6	20	1
10335	t-Amyl methyl ether	994-05-8	N.D.	0.5	1	1
10335	Benzene	71-43-2	N.D.	0.5	1	1
10335	Bromobenzene	108-86-1	N.D.	1	5	1
10335	Bromochloromethane	74-97-5	N.D.	1	5	1
10335	Bromodichloromethane	75-27-4	N.D.	0.5	1	1
10335	Bromoform	75-25-2	N.D.	0.5	4	1
10335	Bromomethane	74-83-9	N.D.	0.5	1	1
10335	2-Butanone	78-93-3	N.D.	3	10	1
10335	t-Butyl alcohol	75-65-0	N.D.	5	20	1
10335	n-Butylbenzene	104-51-8	N.D.	1	5	1
10335	sec-Butylbenzene	135-98-8	N.D.	1	5	1
10335	tert-Butylbenzene	98-06-6	N.D.	1	5	1
10335	Carbon Disulfide	75-15-0	N.D.	1	5	1
10335	Carbon Tetrachloride	56-23-5	N.D.	0.5	1	1
10335	Chlorobenzene	108-90-7	N.D.	0.5	1	1
10335	Chloroethane	75-00-3	N.D.	0.5	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	N.D.	2	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10335	Chloroform	67-66-3	N.D.	0.5	1	1
10335	Chloromethane	74-87-3	N.D.	0.5	1	1
10335	2-Chlorotoluene	95-49-8	N.D.	1	5	1
10335	4-Chlorotoluene	106-43-4	N.D.	1	5	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	2	5	1
10335	Dibromochloromethane	124-48-1	N.D.	0.5	1	1
10335	1,2-Dibromoethane	106-93-4	N.D.	0.5	1	1
10335	Dibromomethane	74-95-3	N.D.	0.5	1	1
10335	1,2-Dichlorobenzene	95-50-1	N.D.	1	5	1
10335	1,3-Dichlorobenzene	541-73-1	N.D.	1	5	1
10335	1,4-Dichlorobenzene	106-46-7	N.D.	1	5	1
10335	Dichlorodifluoromethane	75-71-8	N.D.	0.5	1	1
10335	1,1-Dichloroethane	75-34-3	N.D.	0.5	1	1
10335	1,2-Dichloroethane	107-06-2	N.D.	0.5	1	1
10335	1,1-Dichloroethene	75-35-4	N.D.	0.5	1	1
10335	cis-1,2-Dichloroethene	156-59-2	N.D.	0.5	1	1
10335	trans-1,2-Dichloroethene	156-60-5	N.D.	0.5	1	1
10335	1,2-Dichloropropane	78-87-5	N.D.	0.5	1	1
10335	1,3-Dichloropropane	142-28-9	N.D.	0.5	1	1
10335	2,2-Dichloropropane	594-20-7	N.D.	0.5	1	1
10335	1,1-Dichloropropene	563-58-6	N.D.	1	5	1
10335	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.5	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.5	1	1
10335	Ethanol	64-17-5	N.D.	50	250	1
10335	Ethyl t-butyl ether	637-92-3	N.D.	0.5	1	1
10335	Ethylbenzene	100-41-4	N.D.	0.5	1	1
10335	Freon 113	76-13-1	N.D.	2	10	1
10335	Hexachlorobutadiene	87-68-3	N.D.	2	5	1
10335	2-Hexanone	591-78-6	N.D.	3	10	1
10335	di-Isopropyl ether	108-20-3	N.D.	0.5	1	1

\*=This limit was used in the evaluation of the final result

Sample Description: MW-1-W-160805 Grab Groundwater  
Facility# 373378 CRAW  
7600 MacArthur Blv-Oakland T10000003434

LL Sample # WW 8516305  
LL Group # 1692738  
Account # 13534

Project Name: 373378 Tidewater Oakland

Collected: 08/05/2016 08:50 by JH

GHD

10969 Trade Center Drive

Submitted: 08/06/2016 09:45

Suite 107

Reported: 08/20/2016 16:47

Rancho Cordova CA 95670

MBO01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/l</b>	<b>ug/l</b>	<b>ug/l</b>	
10335	Isopropylbenzene	98-82-8	N.D.	1	5	1
10335	p-Isopropyltoluene	99-87-6	N.D.	1	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	1	1
10335	4-Methyl-2-pentanone	108-10-1	N.D.	3	10	1
10335	Methylene Chloride	75-09-2	N.D.	2	4	1
10335	Naphthalene	91-20-3	N.D.	1	5	1
10335	n-Propylbenzene	103-65-1	N.D.	1	5	1
10335	Styrene	100-42-5	N.D.	1	5	1
10335	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.5	1	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.5	1	1
10335	Tetrachloroethene	127-18-4	N.D.	0.5	1	1
10335	Toluene	108-88-3	N.D.	0.5	1	1
10335	1,2,3-Trichlorobenzene	87-61-6	N.D.	1	5	1
10335	1,2,4-Trichlorobenzene	120-82-1	N.D.	1	5	1
10335	1,1,1-Trichloroethane	71-55-6	N.D.	0.5	1	1
10335	1,1,2-Trichloroethane	79-00-5	N.D.	0.5	1	1
10335	Trichloroethene	79-01-6	N.D.	0.5	1	1
10335	Trichlorofluoromethane	75-69-4	N.D.	0.5	1	1
10335	1,2,3-Trichloropropane	96-18-4	N.D.	1	5	1
10335	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	5	1
10335	Vinyl Chloride	75-01-4	N.D.	0.5	1	1
10335	m+p-Xylene	179601-23-1	N.D.	0.5	1	1
10335	o-Xylene	95-47-6	N.D.	0.5	1	1
<b>GC/MS</b>	<b>Semivolatiles</b>	<b>SW-846 8270C</b>	<b>ug/l</b>	<b>ug/l</b>	<b>ug/l</b>	
07805	Acenaphthene	83-32-9	N.D.	0.1	0.5	1
07805	Acenaphthylene	208-96-8	N.D.	0.1	0.5	1
07805	Anthracene	120-12-7	N.D.	0.1	0.5	1
07805	Benzo(a)anthracene	56-55-3	N.D.	0.1	0.5	1
07805	Benzo(a)pyrene	50-32-8	N.D.	0.1	0.5	1
07805	Benzo(b)fluoranthene	205-99-2	N.D.	0.1	0.5	1
07805	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	0.5	1
07805	Benzo(k)fluoranthene	207-08-9	N.D.	0.1	0.5	1
07805	Chrysene	218-01-9	N.D.	0.1	0.5	1
07805	Dibenz(a,h)anthracene	53-70-3	N.D.	0.1	0.5	1
07805	Fluoranthene	206-44-0	N.D.	0.1	0.5	1
07805	Fluorene	86-73-7	N.D.	0.1	0.5	1
07805	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.1	0.5	1
07805	Naphthalene	91-20-3	N.D.	0.1	0.5	1
07805	Phenanthrene	85-01-8	N.D.	0.1	0.5	1
07805	Pyrene	129-00-0	N.D.	0.1	0.5	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:  
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.

\*=This limit was used in the evaluation of the final result



2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: MW-1-W-160805 Grab Groundwater  
Facility# 373378 CRAW  
7600 MacArthur Blv-Oakland T10000003434

LL Sample # WW 8516305  
LL Group # 1692738  
Account # 13534

Project Name: 373378 Tidewater Oakland

Collected: 08/05/2016 08:50 by JH GHD  
10969 Trade Center Drive  
Submitted: 08/06/2016 09:45 Suite 107  
Reported: 08/20/2016 16:47 Rancho Cordova CA 95670

MBO01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>GC Volatiles</b>						
01728	TPH-GRO N. CA water	SW-846 8015B C6-C12 n.a.	ug/l N.D.	ug/l 50	ug/l 100	1
<b>GC Petroleum Hydrocarbons</b>						
06609	TPH-DRO CA C10-C28	SW-846 8015B n.a.	ug/l 260	ug/l 50	ug/l 100	1
<b>Metals</b>						
07058	Manganese	SW-846 6010B 7439-96-5	mg/l 0.151	mg/l 0.0018	mg/l 0.0050	1
01743	Aluminum	SW-846 6010B 7429-90-5	ug/l 133 J	ug/l 86.8	ug/l 200	1
07046	Barium	7440-39-3	44.5	1.1	5.0	1
08014	Boron	7440-42-8	1,140	8.3	50.0	1
07049	Cadmium	7440-43-9	N.D.	0.49	5.0	1
01750	Calcium	7440-70-2	52,300	38.2	200	1
07051	Chromium	7440-47-3	2.4 J	1.8	15.0	1
07053	Copper	7440-50-8	N.D.	4.1	10.0	1
01754	Iron	7439-89-6	130 J	74.7	200	1
07055	Lead	7439-92-1	N.D.	6.2	15.0	1
01757	Magnesium	7439-95-4	22,300	19.0	100	1
07060	Molybdenum	7439-98-7	3.7 J	1.7	10.0	1
07061	Nickel	7440-02-0	3.2 J	2.8	10.0	1
10143	Phosphorus	7723-14-0	37.8 J	10.0	100	1
01765	Silicon	7440-21-3	15,300	19.2	50.0	1
07066	Silver	7440-22-4	N.D.	1.9	5.0	1
01767	Sodium	7440-23-5	93,200	173	1,000	1
12004	Sulfur	7704-34-9	11,300	83.3	500	1
07069	Tin	7440-31-5	N.D.	7.1	20.0	1
07070	Titanium	7440-32-6	8.4 J	1.3	10.0	1
07071	Vanadium	7440-62-2	22.4	1.6	5.0	1
07072	Zinc	7440-66-6	N.D.	5.4	20.0	1
<b>Wet Chemistry</b>						
00612	SGT-HEM (TPH)	EPA 1664A n.a.	mg/l N.D.	mg/l 1.4	mg/l 5.0	1

### Sample Comments

CA ELAP Lab Certification No. 2792

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

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial# Batch#	Analysis Date and Time	Analyst	Dilution Factor
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\*=This limit was used in the evaluation of the final result



Sample Description: MW-1-W-160805 Grab Groundwater  
Facility# 373378 CRAW  
7600 MacArthur Blv-Oakland T10000003434

LL Sample # WW 8516305  
LL Group # 1692738  
Account # 13534

Project Name: 373378 Tidewater Oakland

Collected: 08/05/2016 08:50 by JH GHD  
10969 Trade Center Drive  
Submitted: 08/06/2016 09:45 Suite 107  
Reported: 08/20/2016 16:47 Rancho Cordova CA 95670

MBO01

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	8260 Full List w/ Sep. Xylenes	SW-846 8260B	1	Y162251AA	08/12/2016 17:49	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Y162251AA	08/12/2016 17:49	Brett W Kenyon	1
07805	PAHs 8270C Water	SW-846 8270C	1	16223WAM026	08/12/2016 05:08	Anthony P Bauer	1
07807	BNA Water Extraction	SW-846 3510C	1	16223WAM026	08/11/2016 08:30	Kayla Yuditsky	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	16224A53A	08/13/2016 01:37	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	16224A53A	08/13/2016 01:37	Marie D Beamenderfer	1
06609	TPH-DRO CA C10-C28	SW-846 8015B	1	162230010A	08/11/2016 17:16	Amy Lehr	1
02376	Extraction - Fuel/TPH (Waters)	SW-846 3510C	1	162230010A	08/10/2016 17:00	Ryan J Dowdy	1
01743	Aluminum	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
07046	Barium	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
08014	Boron	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
07049	Cadmium	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
01750	Calcium	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
07051	Chromium	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
07053	Copper	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
01754	Iron	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
07055	Lead	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
01757	Magnesium	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
07058	Manganese	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
07060	Molybdenum	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
07061	Nickel	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
10143	Phosphorus	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
01765	Silicon	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
07066	Silver	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
01767	Sodium	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
12004	Sulfur	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
07069	Tin	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
07070	Titanium	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
07071	Vanadium	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
07072	Zinc	SW-846 6010B	1	162241848003	08/12/2016 21:52	Suzanne M Will	1
01848	ICP-WW, 3005A (tot rec) - U3	SW-846 3005A	1	162241848003	08/12/2016 07:15	Lisa J Cooke	1
00612	SGT-HEM (TPH)	EPA 1664A	1	16231807801A	08/18/2016 17:07	Michelle L Lalli	1

\*=This limit was used in the evaluation of the final result

Sample Description: MW-2-W-160805 Grab Groundwater  
Facility# 373378 CRAW  
7600 MacArthur Blv-Oakland T10000003434

LL Sample # WW 8516306  
LL Group # 1692738  
Account # 13534

Project Name: 373378 Tidewater Oakland

Collected: 08/05/2016 09:40 by JH GHD  
10969 Trade Center Drive  
Submitted: 08/06/2016 09:45 Suite 107  
Reported: 08/20/2016 16:47 Rancho Cordova CA 95670

MBO02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/l</b>	<b>ug/l</b>	<b>ug/l</b>	
10335	Acetone	67-64-1	N.D.	6	20	1
10335	t-Amyl methyl ether	994-05-8	N.D.	0.5	1	1
10335	Benzene	71-43-2	N.D.	0.5	1	1
10335	Bromobenzene	108-86-1	N.D.	1	5	1
10335	Bromochloromethane	74-97-5	N.D.	1	5	1
10335	Bromodichloromethane	75-27-4	N.D.	0.5	1	1
10335	Bromoform	75-25-2	N.D.	0.5	4	1
10335	Bromomethane	74-83-9	N.D.	0.5	1	1
10335	2-Butanone	78-93-3	N.D.	3	10	1
10335	t-Butyl alcohol	75-65-0	N.D.	5	20	1
10335	n-Butylbenzene	104-51-8	N.D.	1	5	1
10335	sec-Butylbenzene	135-98-8	N.D.	1	5	1
10335	tert-Butylbenzene	98-06-6	N.D.	1	5	1
10335	Carbon Disulfide	75-15-0	N.D.	1	5	1
10335	Carbon Tetrachloride	56-23-5	2	0.5	1	1
10335	Chlorobenzene	108-90-7	N.D.	0.5	1	1
10335	Chloroethane	75-00-3	N.D.	0.5	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	N.D.	2	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10335	Chloroform	67-66-3	N.D.	0.5	1	1
10335	Chloromethane	74-87-3	N.D.	0.5	1	1
10335	2-Chlorotoluene	95-49-8	N.D.	1	5	1
10335	4-Chlorotoluene	106-43-4	N.D.	1	5	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	2	5	1
10335	Dibromochloromethane	124-48-1	N.D.	0.5	1	1
10335	1,2-Dibromoethane	106-93-4	N.D.	0.5	1	1
10335	Dibromomethane	74-95-3	N.D.	0.5	1	1
10335	1,2-Dichlorobenzene	95-50-1	N.D.	1	5	1
10335	1,3-Dichlorobenzene	541-73-1	N.D.	1	5	1
10335	1,4-Dichlorobenzene	106-46-7	N.D.	1	5	1
10335	Dichlorodifluoromethane	75-71-8	N.D.	0.5	1	1
10335	1,1-Dichloroethane	75-34-3	N.D.	0.5	1	1
10335	1,2-Dichloroethane	107-06-2	N.D.	0.5	1	1
10335	1,1-Dichloroethene	75-35-4	N.D.	0.5	1	1
10335	cis-1,2-Dichloroethene	156-59-2	N.D.	0.5	1	1
10335	trans-1,2-Dichloroethene	156-60-5	N.D.	0.5	1	1
10335	1,2-Dichloropropane	78-87-5	N.D.	0.5	1	1
10335	1,3-Dichloropropane	142-28-9	N.D.	0.5	1	1
10335	2,2-Dichloropropane	594-20-7	N.D.	0.5	1	1
10335	1,1-Dichloropropene	563-58-6	N.D.	1	5	1
10335	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.5	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.5	1	1
10335	Ethanol	64-17-5	N.D.	50	250	1
10335	Ethyl t-butyl ether	637-92-3	N.D.	0.5	1	1
10335	Ethylbenzene	100-41-4	N.D.	0.5	1	1
10335	Freon 113	76-13-1	N.D.	2	10	1
10335	Hexachlorobutadiene	87-68-3	N.D.	2	5	1
10335	2-Hexanone	591-78-6	N.D.	3	10	1
10335	di-Isopropyl ether	108-20-3	N.D.	0.5	1	1

\*=This limit was used in the evaluation of the final result

Sample Description: MW-2-W-160805 Grab Groundwater  
Facility# 373378 CRAW  
7600 MacArthur Blv-Oakland T10000003434

LL Sample # WW 8516306  
LL Group # 1692738  
Account # 13534

Project Name: 373378 Tidewater Oakland

Collected: 08/05/2016 09:40 by JH GHD  
10969 Trade Center Drive  
Submitted: 08/06/2016 09:45 Suite 107  
Reported: 08/20/2016 16:47 Rancho Cordova CA 95670

MBO02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/l</b>	<b>ug/l</b>	<b>ug/l</b>	
10335	Isopropylbenzene	98-82-8	N.D.	1	5	1
10335	p-Isopropyltoluene	99-87-6	N.D.	1	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	1	1
10335	4-Methyl-2-pentanone	108-10-1	N.D.	3	10	1
10335	Methylene Chloride	75-09-2	N.D.	2	4	1
10335	Naphthalene	91-20-3	N.D.	1	5	1
10335	n-Propylbenzene	103-65-1	N.D.	1	5	1
10335	Styrene	100-42-5	N.D.	1	5	1
10335	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.5	1	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.5	1	1
10335	Tetrachloroethene	127-18-4	N.D.	0.5	1	1
10335	Toluene	108-88-3	N.D.	0.5	1	1
10335	1,2,3-Trichlorobenzene	87-61-6	N.D.	1	5	1
10335	1,2,4-Trichlorobenzene	120-82-1	N.D.	1	5	1
10335	1,1,1-Trichloroethane	71-55-6	N.D.	0.5	1	1
10335	1,1,2-Trichloroethane	79-00-5	N.D.	0.5	1	1
10335	Trichloroethene	79-01-6	N.D.	0.5	1	1
10335	Trichlorofluoromethane	75-69-4	N.D.	0.5	1	1
10335	1,2,3-Trichloropropane	96-18-4	N.D.	1	5	1
10335	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	5	1
10335	Vinyl Chloride	75-01-4	N.D.	0.5	1	1
10335	m+p-Xylene	179601-23-1	N.D.	0.5	1	1
10335	o-Xylene	95-47-6	N.D.	0.5	1	1
<b>GC/MS</b>	<b>Semivolatiles</b>	<b>SW-846 8270C</b>	<b>ug/l</b>	<b>ug/l</b>	<b>ug/l</b>	
07805	Acenaphthene	83-32-9	N.D.	0.1	0.5	1
07805	Acenaphthylene	208-96-8	N.D.	0.1	0.5	1
07805	Anthracene	120-12-7	N.D.	0.1	0.5	1
07805	Benzo(a)anthracene	56-55-3	N.D.	0.1	0.5	1
07805	Benzo(a)pyrene	50-32-8	N.D.	0.1	0.5	1
07805	Benzo(b)fluoranthene	205-99-2	N.D.	0.1	0.5	1
07805	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	0.5	1
07805	Benzo(k)fluoranthene	207-08-9	N.D.	0.1	0.5	1
07805	Chrysene	218-01-9	N.D.	0.1	0.5	1
07805	Dibenz(a,h)anthracene	53-70-3	N.D.	0.1	0.5	1
07805	Fluoranthene	206-44-0	N.D.	0.1	0.5	1
07805	Fluorene	86-73-7	N.D.	0.1	0.5	1
07805	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.1	0.5	1
07805	Naphthalene	91-20-3	N.D.	0.1	0.5	1
07805	Phenanthrene	85-01-8	N.D.	0.1	0.5	1
07805	Pyrene	129-00-0	N.D.	0.1	0.5	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:  
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.

\*=This limit was used in the evaluation of the final result

Sample Description: MW-2-W-160805 Grab Groundwater  
Facility# 373378 CRAW  
7600 MacArthur Blv-Oakland T10000003434

LL Sample # WW 8516306  
LL Group # 1692738  
Account # 13534

Project Name: 373378 Tidewater Oakland

Collected: 08/05/2016 09:40 by JH GHD  
10969 Trade Center Drive  
Submitted: 08/06/2016 09:45 Suite 107  
Reported: 08/20/2016 16:47 Rancho Cordova CA 95670

MBO02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>GC Volatiles</b>						
01728	TPH-GRO N. CA water	SW-846 8015B C6-C12 n.a.	ug/l N.D.	ug/l 50	ug/l 100	1
<b>GC Petroleum Hydrocarbons</b>						
06609	TPH-DRO CA C10-C28	SW-846 8015B n.a.	ug/l N.D.	ug/l 50	ug/l 100	1
<b>Metals</b>						
07058	Manganese	SW-846 6010B 7439-96-5	mg/l 0.0420	mg/l 0.0018	mg/l 0.0050	1
01743	Aluminum	SW-846 6010B 7429-90-5	ug/l 1,700	ug/l 86.8	ug/l 200	1
07046	Barium	7440-39-3	53.4	1.1	5.0	1
08014	Boron	7440-42-8	400	8.3	50.0	1
07049	Cadmium	7440-43-9	N.D.	0.49	5.0	1
01750	Calcium	7440-70-2	52,100	38.2	200	1
07051	Chromium	7440-47-3	7.1 J	1.8	15.0	1
07053	Copper	7440-50-8	11.3	4.1	10.0	1
01754	Iron	7439-89-6	1,740	74.7	200	1
07055	Lead	7439-92-1	N.D.	6.2	15.0	1
01757	Magnesium	7439-95-4	22,400	19.0	100	1
07060	Molybdenum	7439-98-7	1.7 J	1.7	10.0	1
07061	Nickel	7440-02-0	4.0 J	2.8	10.0	1
10143	Phosphorus	7723-14-0	66.2 J	10.0	100	1
01765	Silicon	7440-21-3	19,400	19.2	50.0	1
07066	Silver	7440-22-4	N.D.	1.9	5.0	1
01767	Sodium	7440-23-5	100,000	173	1,000	1
12004	Sulfur	7704-34-9	15,500	83.3	500	1
07069	Tin	7440-31-5	N.D.	7.1	20.0	1
07070	Titanium	7440-32-6	50.0	1.3	10.0	1
07071	Vanadium	7440-62-2	39.4	1.6	5.0	1
07072	Zinc	7440-66-6	7.1 J	5.4	20.0	1
<b>Wet Chemistry</b>						
00612	SGT-HEM (TPH)	EPA 1664A n.a.	mg/l N.D.	mg/l 1.4	mg/l 5.0	1

### Sample Comments

CA ELAP Lab Certification No. 2792

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

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial# Batch#	Analysis Date and Time	Analyst	Dilution Factor
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\*=This limit was used in the evaluation of the final result

Sample Description: MW-2-W-160805 Grab Groundwater  
Facility# 373378 CRAW  
7600 MacArthur Blv-Oakland T10000003434

LL Sample # WW 8516306  
LL Group # 1692738  
Account # 13534

Project Name: 373378 Tidewater Oakland

Collected: 08/05/2016 09:40 by JH GHD  
10969 Trade Center Drive  
Submitted: 08/06/2016 09:45 Suite 107  
Reported: 08/20/2016 16:47 Rancho Cordova CA 95670

MBO02

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	8260 Full List w/ Sep. Xylenes	SW-846 8260B	1	Y162251AA	08/12/2016 18:11	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Y162251AA	08/12/2016 18:11	Brett W Kenyon	1
07805	PAHs 8270C Water	SW-846 8270C	1	16223WAM026	08/12/2016 05:37	Anthony P Bauer	1
07807	BNA Water Extraction	SW-846 3510C	1	16223WAM026	08/11/2016 08:30	Kayla Yuditsky	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	16224A53A	08/13/2016 02:04	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	16224A53A	08/13/2016 02:04	Marie D Beamenderfer	1
06609	TPH-DRO CA C10-C28	SW-846 8015B	1	162230010A	08/11/2016 16:54	Amy Lehr	1
02376	Extraction - Fuel/TPH (Waters)	SW-846 3510C	1	162230010A	08/10/2016 17:00	Ryan J Dowdy	1
01743	Aluminum	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
07046	Barium	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
08014	Boron	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
07049	Cadmium	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
01750	Calcium	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
07051	Chromium	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
07053	Copper	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
01754	Iron	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
07055	Lead	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
01757	Magnesium	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
07058	Manganese	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
07060	Molybdenum	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
07061	Nickel	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
10143	Phosphorus	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
01765	Silicon	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
07066	Silver	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
01767	Sodium	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
12004	Sulfur	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
07069	Tin	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
07070	Titanium	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
07071	Vanadium	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
07072	Zinc	SW-846 6010B	1	162241848003	08/12/2016 22:15	Suzanne M Will	1
01848	ICP-WW, 3005A (tot rec) - U3	SW-846 3005A	1	162241848003	08/12/2016 07:15	Lisa J Cooke	1
00612	SGT-HEM (TPH)	EPA 1664A	1	16231807801A	08/18/2016 17:07	Michelle L Lalli	1

\*=This limit was used in the evaluation of the final result

Sample Description: MW-3-W-160805 Grab Groundwater  
Facility# 373378 CRAW  
7600 MacArthur Blv-Oakland T10000003434

LL Sample # WW 8516307  
LL Group # 1692738  
Account # 13534

Project Name: 373378 Tidewater Oakland

Collected: 08/05/2016 07:45 by JH

GHD

10969 Trade Center Drive

Submitted: 08/06/2016 09:45

Suite 107

Reported: 08/20/2016 16:47

Rancho Cordova CA 95670

MBO03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/l</b>	<b>ug/l</b>	<b>ug/l</b>	
10335	Acetone	67-64-1	N.D.	6	20	1
10335	t-Amyl methyl ether	994-05-8	N.D.	0.5	1	1
10335	Benzene	71-43-2	N.D.	0.5	1	1
10335	Bromobenzene	108-86-1	N.D.	1	5	1
10335	Bromochloromethane	74-97-5	N.D.	1	5	1
10335	Bromodichloromethane	75-27-4	N.D.	0.5	1	1
10335	Bromoform	75-25-2	N.D.	0.5	4	1
10335	Bromomethane	74-83-9	N.D.	0.5	1	1
10335	2-Butanone	78-93-3	N.D.	3	10	1
10335	t-Butyl alcohol	75-65-0	N.D.	5	20	1
10335	n-Butylbenzene	104-51-8	N.D.	1	5	1
10335	sec-Butylbenzene	135-98-8	N.D.	1	5	1
10335	tert-Butylbenzene	98-06-6	N.D.	1	5	1
10335	Carbon Disulfide	75-15-0	N.D.	1	5	1
10335	Carbon Tetrachloride	56-23-5	4	0.5	1	1
10335	Chlorobenzene	108-90-7	N.D.	0.5	1	1
10335	Chloroethane	75-00-3	N.D.	0.5	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	N.D.	2	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10335	Chloroform	67-66-3	0.7 J	0.5	1	1
10335	Chloromethane	74-87-3	N.D.	0.5	1	1
10335	2-Chlorotoluene	95-49-8	N.D.	1	5	1
10335	4-Chlorotoluene	106-43-4	N.D.	1	5	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	2	5	1
10335	Dibromochloromethane	124-48-1	N.D.	0.5	1	1
10335	1,2-Dibromoethane	106-93-4	N.D.	0.5	1	1
10335	Dibromomethane	74-95-3	N.D.	0.5	1	1
10335	1,2-Dichlorobenzene	95-50-1	N.D.	1	5	1
10335	1,3-Dichlorobenzene	541-73-1	N.D.	1	5	1
10335	1,4-Dichlorobenzene	106-46-7	N.D.	1	5	1
10335	Dichlorodifluoromethane	75-71-8	N.D.	0.5	1	1
10335	1,1-Dichloroethane	75-34-3	N.D.	0.5	1	1
10335	1,2-Dichloroethane	107-06-2	N.D.	0.5	1	1
10335	1,1-Dichloroethene	75-35-4	N.D.	0.5	1	1
10335	cis-1,2-Dichloroethene	156-59-2	N.D.	0.5	1	1
10335	trans-1,2-Dichloroethene	156-60-5	N.D.	0.5	1	1
10335	1,2-Dichloropropane	78-87-5	N.D.	0.5	1	1
10335	1,3-Dichloropropane	142-28-9	N.D.	0.5	1	1
10335	2,2-Dichloropropane	594-20-7	N.D.	0.5	1	1
10335	1,1-Dichloropropene	563-58-6	N.D.	1	5	1
10335	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.5	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.5	1	1
10335	Ethanol	64-17-5	N.D.	50	250	1
10335	Ethyl t-butyl ether	637-92-3	N.D.	0.5	1	1
10335	Ethylbenzene	100-41-4	N.D.	0.5	1	1
10335	Freon 113	76-13-1	N.D.	2	10	1
10335	Hexachlorobutadiene	87-68-3	N.D.	2	5	1
10335	2-Hexanone	591-78-6	N.D.	3	10	1
10335	di-Isopropyl ether	108-20-3	N.D.	0.5	1	1

\*=This limit was used in the evaluation of the final result

Sample Description: MW-3-W-160805 Grab Groundwater  
Facility# 373378 CRAW  
7600 MacArthur Blv-Oakland T10000003434

LL Sample # WW 8516307  
LL Group # 1692738  
Account # 13534

Project Name: 373378 Tidewater Oakland

Collected: 08/05/2016 07:45 by JH

GHD

10969 Trade Center Drive

Submitted: 08/06/2016 09:45

Suite 107

Reported: 08/20/2016 16:47

Rancho Cordova CA 95670

MBO03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/l</b>	<b>ug/l</b>	<b>ug/l</b>	
10335	Isopropylbenzene	98-82-8	N.D.	1	5	1
10335	p-Isopropyltoluene	99-87-6	N.D.	1	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	1	1
10335	4-Methyl-2-pentanone	108-10-1	N.D.	3	10	1
10335	Methylene Chloride	75-09-2	N.D.	2	4	1
10335	Naphthalene	91-20-3	N.D.	1	5	1
10335	n-Propylbenzene	103-65-1	N.D.	1	5	1
10335	Styrene	100-42-5	N.D.	1	5	1
10335	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.5	1	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.5	1	1
10335	Tetrachloroethene	127-18-4	N.D.	0.5	1	1
10335	Toluene	108-88-3	N.D.	0.5	1	1
10335	1,2,3-Trichlorobenzene	87-61-6	N.D.	1	5	1
10335	1,2,4-Trichlorobenzene	120-82-1	N.D.	1	5	1
10335	1,1,1-Trichloroethane	71-55-6	N.D.	0.5	1	1
10335	1,1,2-Trichloroethane	79-00-5	N.D.	0.5	1	1
10335	Trichloroethene	79-01-6	N.D.	0.5	1	1
10335	Trichlorofluoromethane	75-69-4	N.D.	0.5	1	1
10335	1,2,3-Trichloropropane	96-18-4	N.D.	1	5	1
10335	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	5	1
10335	Vinyl Chloride	75-01-4	N.D.	0.5	1	1
10335	m+p-Xylene	179601-23-1	N.D.	0.5	1	1
10335	o-Xylene	95-47-6	N.D.	0.5	1	1
<b>GC/MS</b>	<b>Semivolatiles</b>	<b>SW-846 8270C</b>	<b>ug/l</b>	<b>ug/l</b>	<b>ug/l</b>	
07805	Acenaphthene	83-32-9	N.D.	0.1	0.5	1
07805	Acenaphthylene	208-96-8	N.D.	0.1	0.5	1
07805	Anthracene	120-12-7	N.D.	0.1	0.5	1
07805	Benzo(a)anthracene	56-55-3	N.D.	0.1	0.5	1
07805	Benzo(a)pyrene	50-32-8	N.D.	0.1	0.5	1
07805	Benzo(b)fluoranthene	205-99-2	N.D.	0.1	0.5	1
07805	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	0.5	1
07805	Benzo(k)fluoranthene	207-08-9	N.D.	0.1	0.5	1
07805	Chrysene	218-01-9	N.D.	0.1	0.5	1
07805	Dibenz(a,h)anthracene	53-70-3	N.D.	0.1	0.5	1
07805	Fluoranthene	206-44-0	N.D.	0.1	0.5	1
07805	Fluorene	86-73-7	N.D.	0.1	0.5	1
07805	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.1	0.5	1
07805	Naphthalene	91-20-3	N.D.	0.1	0.5	1
07805	Phenanthrene	85-01-8	N.D.	0.1	0.5	1
07805	Pyrene	129-00-0	N.D.	0.1	0.5	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:  
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.

\*=This limit was used in the evaluation of the final result

Sample Description: MW-3-W-160805 Grab Groundwater  
Facility# 373378 CRAW  
7600 MacArthur Blv-Oakland T10000003434

LL Sample # WW 8516307  
LL Group # 1692738  
Account # 13534

Project Name: 373378 Tidewater Oakland

Collected: 08/05/2016 07:45 by JH GHD  
10969 Trade Center Drive  
Submitted: 08/06/2016 09:45 Suite 107  
Reported: 08/20/2016 16:47 Rancho Cordova CA 95670

MBO03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>GC Volatiles</b>						
01728	TPH-GRO N. CA water	SW-846 8015B C6-C12 n.a.	ug/l N.D.	ug/l 50	ug/l 100	1
<b>GC Petroleum Hydrocarbons</b>						
06609	TPH-DRO CA C10-C28	SW-846 8015B n.a.	ug/l N.D.	ug/l 50	ug/l 100	1
<b>Metals</b>						
07058	Manganese	SW-846 6010B 7439-96-5	mg/l 0.0041 J	mg/l 0.0018	mg/l 0.0050	1
01743	Aluminum	SW-846 6010B 7429-90-5	ug/l N.D.	ug/l 86.8	ug/l 200	1
07046	Barium	7440-39-3	37.9	1.1	5.0	1
08014	Boron	7440-42-8	1,040	8.3	50.0	1
07049	Cadmium	7440-43-9	N.D.	0.49	5.0	1
01750	Calcium	7440-70-2	58,900	38.2	200	1
07051	Chromium	7440-47-3	2.8 J	1.8	15.0	1
07053	Copper	7440-50-8	N.D.	4.1	10.0	1
01754	Iron	7439-89-6	N.D.	74.7	200	1
07055	Lead	7439-92-1	N.D.	6.2	15.0	1
01757	Magnesium	7439-95-4	24,400	19.0	100	1
07060	Molybdenum	7439-98-7	1.9 J	1.7	10.0	1
07061	Nickel	7440-02-0	N.D.	2.8	10.0	1
10143	Phosphorus	7723-14-0	54.0 J	10.0	100	1
01765	Silicon	7440-21-3	13,900	19.2	50.0	1
07066	Silver	7440-22-4	N.D.	1.9	5.0	1
01767	Sodium	7440-23-5	72,200	173	1,000	1
12004	Sulfur	7704-34-9	15,300	83.3	500	1
07069	Tin	7440-31-5	N.D.	7.1	20.0	1
07070	Titanium	7440-32-6	6.9 J	1.3	10.0	1
07071	Vanadium	7440-62-2	22.7	1.6	5.0	1
07072	Zinc	7440-66-6	N.D.	5.4	20.0	1
<b>Wet Chemistry</b>						
00612	SGT-HEM (TPH)	EPA 1664A n.a.	mg/l 1.5 J	mg/l 1.4	mg/l 5.0	1

### Sample Comments

CA ELAP Lab Certification No. 2792

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

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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\*=This limit was used in the evaluation of the final result



Sample Description: MW-3-W-160805 Grab Groundwater  
Facility# 373378 CRAW  
7600 MacArthur Blv-Oakland T10000003434

LL Sample # WW 8516307  
LL Group # 1692738  
Account # 13534

Project Name: 373378 Tidewater Oakland

Collected: 08/05/2016 07:45 by JH GHD  
10969 Trade Center Drive  
Submitted: 08/06/2016 09:45 Suite 107  
Reported: 08/20/2016 16:47 Rancho Cordova CA 95670

MBO03

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	8260 Full List w/ Sep. Xylenes	SW-846 8260B	1	Y162251AA	08/12/2016 18:33	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Y162251AA	08/12/2016 18:33	Brett W Kenyon	1
07805	PAHs 8270C Water	SW-846 8270C	1	16223WAM026	08/12/2016 06:06	Anthony P Bauer	1
07807	BNA Water Extraction	SW-846 3510C	1	16223WAM026	08/11/2016 08:30	Kayla Yuditsky	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	16224A53A	08/13/2016 02:32	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	16224A53A	08/13/2016 02:32	Marie D Beamenderfer	1
06609	TPH-DRO CA C10-C28	SW-846 8015B	1	162230010A	08/11/2016 15:48	Amy Lehr	1
02376	Extraction - Fuel/TPH (Waters)	SW-846 3510C	1	162230010A	08/10/2016 17:00	Ryan J Dowdy	1
01743	Aluminum	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
07046	Barium	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
08014	Boron	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
07049	Cadmium	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
01750	Calcium	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
07051	Chromium	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
07053	Copper	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
01754	Iron	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
07055	Lead	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
01757	Magnesium	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
07058	Manganese	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
07060	Molybdenum	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
07061	Nickel	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
10143	Phosphorus	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
01765	Silicon	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
07066	Silver	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
01767	Sodium	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
12004	Sulfur	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
07069	Tin	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
07070	Titanium	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
07071	Vanadium	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
07072	Zinc	SW-846 6010B	1	162241848003	08/12/2016 22:24	Suzanne M Will	1
01848	ICP-WW, 3005A (tot rec) - U3	SW-846 3005A	1	162241848003	08/12/2016 07:15	Lisa J Cooke	1
00612	SGT-HEM (TPH)	EPA 1664A	1	16231807801A	08/18/2016 17:07	Michelle L Lalli	1

\*=This limit was used in the evaluation of the final result

## Quality Control Summary

Client Name: GHD  
Reported: 08/20/2016 16:47

Group Number: 1692738

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

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

### Method Blank

Analysis Name	Result	MDL** ug/l	LOQ ug/l
Batch number: Y162251AA	Sample number(s): 8516305-8516307		
Acetone	N.D.	6	20
t-Amyl methyl ether	N.D.	0.5	1
Benzene	N.D.	0.5	1
Bromobenzene	N.D.	1	5
Bromochloromethane	N.D.	1	5
Bromodichloromethane	N.D.	0.5	1
Bromoform	N.D.	0.5	4
Bromomethane	N.D.	0.5	1
2-Butanone	N.D.	3	10
t-Butyl alcohol	N.D.	5	20
n-Butylbenzene	N.D.	1	5
sec-Butylbenzene	N.D.	1	5
tert-Butylbenzene	N.D.	1	5
Carbon Disulfide	N.D.	1	5
Carbon Tetrachloride	N.D.	0.5	1
Chlorobenzene	N.D.	0.5	1
Chloroethane	N.D.	0.5	1
2-Chloroethyl Vinyl Ether	N.D.	2	10
Chloroform	N.D.	0.5	1
Chloromethane	N.D.	0.5	1
2-Chlorotoluene	N.D.	1	5
4-Chlorotoluene	N.D.	1	5
1,2-Dibromo-3-chloropropane	N.D.	2	5
Dibromochloromethane	N.D.	0.5	1
1,2-Dibromoethane	N.D.	0.5	1
Dibromomethane	N.D.	0.5	1
1,2-Dichlorobenzene	N.D.	1	5
1,3-Dichlorobenzene	N.D.	1	5
1,4-Dichlorobenzene	N.D.	1	5
Dichlorodifluoromethane	N.D.	0.5	1
1,1-Dichloroethane	N.D.	0.5	1
1,2-Dichloroethane	N.D.	0.5	1
1,1-Dichloroethene	N.D.	0.5	1
cis-1,2-Dichloroethene	N.D.	0.5	1
trans-1,2-Dichloroethene	N.D.	0.5	1
1,2-Dichloropropane	N.D.	0.5	1
1,3-Dichloropropane	N.D.	0.5	1
2,2-Dichloropropane	N.D.	0.5	1
1,1-Dichloropropene	N.D.	1	5
cis-1,3-Dichloropropene	N.D.	0.5	1
trans-1,3-Dichloropropene	N.D.	0.5	1
Ethanol	N.D.	50	250
Ethyl t-butyl ether	N.D.	0.5	1

\*- Outside of specification

\*\* - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

## Quality Control Summary

Client Name: GHD  
Reported: 08/20/2016 16:47

Group Number: 1692738

### Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Ethylbenzene	N.D.	0.5	1
Freon 113	N.D.	2	10
Hexachlorobutadiene	N.D.	2	5
2-Hexanone	N.D.	3	10
di-Isopropyl ether	N.D.	0.5	1
Isopropylbenzene	N.D.	1	5
p-Isopropyltoluene	N.D.	1	5
Methyl Tertiary Butyl Ether	N.D.	0.5	1
4-Methyl-2-pentanone	N.D.	3	10
Methylene Chloride	N.D.	2	4
Naphthalene	N.D.	1	5
n-Propylbenzene	N.D.	1	5
Styrene	N.D.	1	5
1,1,1,2-Tetrachloroethane	N.D.	0.5	1
1,1,2,2-Tetrachloroethane	N.D.	0.5	1
Tetrachloroethene	N.D.	0.5	1
Toluene	N.D.	0.5	1
1,2,3-Trichlorobenzene	N.D.	1	5
1,2,4-Trichlorobenzene	N.D.	1	5
1,1,1-Trichloroethane	N.D.	0.5	1
1,1,2-Trichloroethane	N.D.	0.5	1
Trichloroethene	N.D.	0.5	1
Trichlorofluoromethane	N.D.	0.5	1
1,2,3-Trichloropropane	N.D.	1	5
1,2,4-Trimethylbenzene	N.D.	1	5
1,3,5-Trimethylbenzene	N.D.	1	5
Vinyl Chloride	N.D.	0.5	1
m+p-Xylene	N.D.	0.5	1
o-Xylene	N.D.	0.5	1
Batch number: Z162243AA	Sample number(s):	8516304	
Benzene	N.D.	0.5	1
Ethylbenzene	N.D.	0.5	1
Methyl Tertiary Butyl Ether	N.D.	0.5	1
Toluene	N.D.	0.5	1
Xylene (Total)	N.D.	0.5	1
Batch number: 16223WAM026	Sample number(s):	8516305-8516307	
Acenaphthene	N.D.	0.1	0.5
Acenaphthylene	N.D.	0.1	0.5
Anthracene	N.D.	0.1	0.5
Benzo (a) anthracene	N.D.	0.1	0.5
Benzo (a) pyrene	N.D.	0.1	0.5
Benzo (b) fluoranthene	N.D.	0.1	0.5
Benzo (g, h, i) perylene	N.D.	0.1	0.5
Benzo (k) fluoranthene	N.D.	0.1	0.5
Chrysene	N.D.	0.1	0.5
Dibenz (a, h) anthracene	N.D.	0.1	0.5
Fluoranthene	N.D.	0.1	0.5
Fluorene	N.D.	0.1	0.5
Indeno (1, 2, 3-cd) pyrene	N.D.	0.1	0.5
Naphthalene	N.D.	0.1	0.5

\*- Outside of specification

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## Quality Control Summary

Client Name: GHD  
Reported: 08/20/2016 16:47

Group Number: 1692738

### Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Phenanthrene	N.D.	0.1	0.5
Pyrene	N.D.	0.1	0.5
Batch number: 16224A53A	Sample number(s): 8516304-8516307		
TPH-GRO N. CA water C6-C12	N.D.	50	100
Batch number: 162230010A	Sample number(s): 8516305-8516307		
TPH-DRO CA C10-C28	N.D.	50	100
	mg/l	mg/l	mg/l
Batch number: 162241848003	Sample number(s): 8516305-8516307		
Manganese	N.D.	0.0018	0.0050
	ug/l	ug/l	ug/l
Aluminum	N.D.	86.8	200
Barium	N.D.	1.1	5.0
Boron	9.0 J	8.3	50.0
Cadmium	N.D.	0.49	5.0
Calcium	89.0 J	38.2	200
Chromium	N.D.	1.8	15.0
Copper	N.D.	4.1	10.0
Iron	N.D.	74.7	200
Lead	N.D.	6.2	15.0
Magnesium	N.D.	19.0	100
Molybdenum	N.D.	1.7	10.0
Nickel	N.D.	2.8	10.0
Phosphorus	N.D.	10.0	100
Silicon	N.D.	19.2	50.0
Silver	N.D.	1.9	5.0
Sodium	N.D.	173	1,000
Sulfur	N.D.	83.3	500
Tin	N.D.	7.1	20.0
Titanium	N.D.	1.3	10.0
Vanadium	N.D.	1.6	5.0
Zinc	N.D.	5.4	20.0
	mg/l	mg/l	mg/l
Batch number: 16231807801A	Sample number(s): 8516305-8516307		
SGT-HEM (TPH)	N.D.	1.4	5.0

### LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: Y162251AA	Sample number(s): 8516305-8516307								
Acetone	150	151.12	150	145.48	101	97	58-138	4	30
t-Amyl methyl ether	20	18.17	20	18.59	91	93	75-120	2	30
Benzene	20	19.26	20	19.82	96	99	78-120	3	30

\*- Outside of specification

\*\* - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

## Quality Control Summary

Client Name: GHD  
Reported: 08/20/2016 16:47

Group Number: 1692738

### LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Bromobenzene	20	19.34	20	19.94	97	100	80-120	3	30
Bromochloromethane	20	21.14	20	21.3	106	106	80-125	1	30
Bromodichloromethane	20	19.34	20	19.29	97	96	80-120	0	30
Bromoform	20	17.59	20	17.31	88	87	67-120	2	30
Bromomethane	20	17.58	20	17.77	88	89	53-130	1	30
2-Butanone	150	143.24	150	143.4	95	96	62-131	0	30
t-Butyl alcohol	200	200.79	200	199.31	100	100	78-121	1	30
n-Butylbenzene	20	19.24	20	19.83	96	99	68-120	3	30
sec-Butylbenzene	20	19.42	20	19.79	97	99	68-124	2	30
tert-Butylbenzene	20	19.39	20	20.55	97	103	74-121	6	30
Carbon Disulfide	20	16.18	20	16.31	81	82	58-120	1	30
Carbon Tetrachloride	20	21.06	20	21.42	105	107	74-130	2	30
Chlorobenzene	20	20.54	20	20.73	103	104	80-120	1	30
Chloroethane	20	18.22	20	18.41	91	92	56-120	1	30
2-Chloroethyl Vinyl Ether	20	17.18	20	17.41	86	87	65-120	1	30
Chloroform	20	19.89	20	20.27	99	101	80-120	2	30
Chloromethane	20	19.72	20	20.11	99	101	65-129	2	30
2-Chlorotoluene	20	19.4	20	19.9	97	99	80-120	3	30
4-Chlorotoluene	20	19.63	20	19.9	98	100	78-120	1	30
1,2-Dibromo-3-chloropropane	20	17.03	20	17.39	85	87	59-120	2	30
Dibromochloromethane	20	18.39	20	18.41	92	92	78-120	0	30
1,2-Dibromoethane	20	19.88	20	19.66	99	98	80-120	1	30
Dibromomethane	20	20.82	20	20.53	104	103	80-120	1	30
1,2-Dichlorobenzene	20	19.66	20	19.86	98	99	80-120	1	30
1,3-Dichlorobenzene	20	19.42	20	19.7	97	99	80-120	1	30
1,4-Dichlorobenzene	20	19.67	20	19.83	98	99	80-120	1	30
Dichlorodifluoromethane	20	20.95	20	21.48	105	107	49-127	2	30
1,1-Dichloroethane	20	20.18	20	20.51	101	103	80-120	2	30
1,2-Dichloroethane	20	21.76	20	21.94	109	110	72-127	1	30
1,1-Dichloroethene	20	19.14	20	19.47	96	97	76-124	2	30
cis-1,2-Dichloroethene	20	20.06	20	20.26	100	101	80-120	1	30
trans-1,2-Dichloroethene	20	20.11	20	20.54	101	103	80-120	2	30
1,2-Dichloropropane	20	20.72	20	21.14	104	106	80-120	2	30
1,3-Dichloropropane	20	19.74	20	19.84	99	99	80-120	1	30
2,2-Dichloropropane	20	21.01	20	21.4	105	107	48-159	2	30
1,1-Dichloropropene	20	19.42	20	19.8	97	99	80-126	2	30
cis-1,3-Dichloropropene	20	19.45	20	19.92	97	100	80-120	2	30
trans-1,3-Dichloropropene	20	19.54	20	19.85	98	99	76-120	2	30
Ethanol	500	530.96	500	483.35	106	97	47-155	9	30
Ethyl t-butyl ether	20	17.92	20	18.37	90	92	69-120	2	30
Ethylbenzene	20	19.26	20	19.49	96	97	78-120	1	30
Freon 113	20	19.68	20	20.13	98	101	64-136	2	30
Hexachlorobutadiene	20	20.97	20	21.65	105	108	61-127	3	30
2-Hexanone	100	85.96	100	86.95	86	87	35-138	1	30
di-Isopropyl ether	20	18.62	20	19.13	93	96	70-124	3	30
Isopropylbenzene	20	19.72	20	20.03	99	100	80-120	2	30
p-Isopropyltoluene	20	19.49	20	19.95	97	100	76-120	2	30
Methyl Tertiary Butyl Ether	20	19.32	20	19.51	97	98	75-120	1	30
4-Methyl-2-pentanone	100	97.26	100	97.26	97	97	47-133	0	30
Methylene Chloride	20	20.27	20	20.02	101	100	77-121	1	30

\*- Outside of specification

\*\* - This limit was used in the evaluation of the final result for the blank

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## Quality Control Summary

Client Name: GHD  
Reported: 08/20/2016 16:47

Group Number: 1692738

### LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Naphthalene	20	18.57	20	19.01	93	95	59-120	2	30
n-Propylbenzene	20	19.13	20	19.64	96	98	75-130	3	30
Styrene	20	19.41	20	19.88	97	99	80-120	2	30
1,1,1,2-Tetrachloroethane	20	20.12	20	20.1	101	101	80-120	0	30
1,1,2,2-Tetrachloroethane	20	17.72	20	17.78	89	89	72-120	0	30
Tetrachloroethene	20	21.18	20	22.78	106	114	80-129	7	30
Toluene	20	19.34	20	19.59	97	98	80-120	1	30
1,2,3-Trichlorobenzene	20	19.7	20	20.01	98	100	69-120	2	30
1,2,4-Trichlorobenzene	20	19.17	20	19.57	96	98	66-120	2	30
1,1,1-Trichloroethane	20	17.75	20	18.26	89	91	66-126	3	30
1,1,2-Trichloroethane	20	18.97	20	19.69	95	98	80-120	4	30
Trichloroethene	20	19.99	20	20.62	100	103	80-120	3	30
Trichlorofluoromethane	20	22.92	20	23.54	115	118	67-129	3	30
1,2,3-Trichloropropane	20	18.82	20	18.83	94	94	76-120	0	30
1,2,4-Trimethylbenzene	20	19.08	20	19.43	95	97	75-120	2	30
1,3,5-Trimethylbenzene	20	18.93	20	19.57	95	98	75-120	3	30
Vinyl Chloride	20	20.5	20	20.87	103	104	69-120	2	30
m+p-Xylene	40	40.07	40	40.9	100	102	80-120	2	30
o-Xylene	20	19.09	20	19.45	95	97	80-120	2	30
Batch number: Z162243AA      Sample number(s): 8516304									
Benzene	20	18.55			93		78-120		
Ethylbenzene	20	18.6			93		78-120		
Methyl Tertiary Butyl Ether	20	22.03			110		75-120		
Toluene	20	18.91			95		80-120		
Xylene (Total)	60	56.78			95		80-120		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16223WAM026      Sample number(s): 8516305-8516307									
Acenaphthene	50	47.22	50	46.8	94	94	74-120	1	30
Acenaphthylene	50	46.01	50	49.53	92	99	73-125	7	30
Anthracene	50	45.06	50	46.77	90	94	75-121	4	30
Benzo (a) anthracene	50	54.11	50	50.78	108	102	77-125	6	30
Benzo (a) pyrene	50	79.48	50	47.09	159*	94	74-119	51*	30
Benzo (b) fluoranthene	50	130.99	50	50.74	262*	101	74-122	88*	30
Benzo (g, h, i) perylene	50	99.68	50	46.99	199*	94	70-130	72*	30
Benzo (k) fluoranthene	50	128.09	50	49.74	256*	99	75-121	88*	30
Chrysene	50	56.22	50	52.38	112	105	79-126	7	30
Dibenz (a, h) anthracene	50	118.13	50	48.3	236*	97	72-132	84*	30
Fluoranthene	50	48.48	50	48.91	97	98	78-121	1	30
Fluorene	50	47.94	50	46.6	96	93	74-119	3	30
Indeno (1, 2, 3-cd) pyrene	50	103.44	50	46.49	207*	93	69-126	76*	30
Naphthalene	50	46.42	50	45.22	93	90	68-116	3	30
Phenanthrene	50	45.73	50	45.73	91	91	73-117	0	30
Pyrene	50	29.09	50	46.08	58*	92	68-118	45*	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16224A53A      Sample number(s): 8516304-8516307									
TPH-GRO N. CA water C6-C12	1100	1125.06	1100	1130.16	102	103	77-120	0	30

\*- Outside of specification

\*\* - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

## Quality Control Summary

Client Name: GHD  
Reported: 08/20/2016 16:47

Group Number: 1692738

### LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 162230010A TPH-DRO CA C10-C28	Sample number(s): 8516305-8516307								
	1600	1041.12	1600	1108.04	65	69	53-115	6	20
	mg/l	mg/l	mg/l	mg/l					
Batch number: 162241848003 Manganese	Sample number(s): 8516305-8516307								
	0.500	0.476			95		80-120		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 162241848003	Sample number(s): 8516305-8516307								
Aluminum	2000	1938.89			97		80-120		
Barium	2000	1879.68			94		80-120		
Boron	2000	1726.47			86		80-120		
Cadmium	50	47.75			96		80-120		
Calcium	4000	3791.56			95		80-120		
Chromium	200	182.55			91		80-120		
Copper	250	241.38			97		80-120		
Iron	1000	939.39			94		80-120		
Lead	150	136.8			91		80-120		
Magnesium	2000	1879.03			94		80-120		
Molybdenum	2000	1853.89			93		80-120		
Nickel	500	476.79			95		80-120		
Phosphorus	1000	921.73			92		80-120		
Silicon	1000	1015.77			102		80-120		
Silver	50	46.96			94		80-120		
Sodium	10000	9163.01			92		80-120		
Sulfur	1000	914.35			91		80-120		
Tin	4000	3634.5			91		80-120		
Titanium	1000	959.83			96		80-120		
Vanadium	500	473.38			95		80-120		
Zinc	500	460.51			92		80-120		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16231807801A SGT-HEM (TPH)	Sample number(s): 8516305-8516307								
	20	16.6	20	15.7	83	79	64-132	6	18

### MS/MSD

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

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: Z162243AA	Sample number(s): 8516304 UNSPK: P513561									
Benzene	0.757	20	20.73	20	23.33	100	113	78-120	12	30
Ethylbenzene	N.D.	20	19.61	20	21.08	98	105	78-120	7	30
Methyl Tertiary Butyl Ether	9.37	20	28.35	20	32.04	95	113	75-120	12	30

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(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

## Quality Control Summary

Client Name: GHD  
Reported: 08/20/2016 16:47

Group Number: 1692738

### MS/MSD (continued)

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

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Toluene	N.D.	20	19.92	20	20.83	100	104	80-120	4	30
Xylene (Total)	N.D.	60	60.28	60	63.4	100	106	80-120	5	30
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 162241848003	Sample number(s): 8516305-8516307 UNSPK: 8516305									
Manganese	0.151	0.500	0.617	0.500	0.579	93	86	75-125	6	20
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 162241848003	Sample number(s): 8516305-8516307 UNSPK: 8516305									
Aluminum	133.09	2000	2052.98	2000	1938.94	96	90	75-125	6	20
Barium	44.48	2000	1825.91	2000	1712.97	89	83	75-125	6	20
Boron	1143.54	2000	2911.24	2000	2763.38	88	81	75-125	5	20
Cadmium	N.D.	50	46.84	50	42.74	94	85	75-125	9	20
Calcium	52310.46	4000	58109.52	4000	57231.61	145 (2)	123 (2)	75-125	2	20
Chromium	2.43	200	180.45	200	167.8	89	83	75-125	7	20
Copper	N.D.	250	237.22	250	218.21	95	87	75-125	8	20
Iron	130	1000	1068.36	1000	1017.7	94	89	75-125	5	20
Lead	N.D.	150	131.39	150	121.76	88	81	75-125	8	20
Magnesium	22306.1	2000	25110.18	2000	24661.87	140 (2)	118 (2)	75-125	2	20
Molybdenum	3.74	2000	1760.04	2000	1780.23	88	89	75-125	1	20
Nickel	3.15	500	460.56	500	424.32	91	84	75-125	8	20
Phosphorus	37.77	1000	986.74	1000	909.28	95	87	75-125	8	20
Silicon	15286.95	1000	16921.78	1000	16828.65	163 (2)	154 (2)	75-125	1	20
Silver	N.D.	50	43.88	50	43.96	88	88	75-125	0	20
Sodium	93177.31	10000	105895.77	10000	104180.13	127 (2)	110 (2)	75-125	2	20
Sulfur	11274.91	1000	12417.05	1000	12088.92	114 (2)	81 (2)	75-125	3	20
Tin	N.D.	4000	3406.77	4000	3447.11	85	86	75-125	1	20
Titanium	8.40	1000	902.22	1000	921.86	89	91	75-125	2	20
Vanadium	22.38	500	501.09	500	464.46	96	88	75-125	8	20
Zinc	N.D.	500	463.33	500	430.09	93	86	75-125	7	20
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 16231807801A	Sample number(s): 8516305-8516307 UNSPK: 8516307									
SGT-HEM (TPH)	1.46	20.8	11.88			50*		64-132		

### Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 162241848003	Sample number(s): 8516305-8516307 BKG: 8516305			
Manganese	0.151	0.154	2	20

\*- Outside of specification

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## Quality Control Summary

Client Name: GHD  
Reported: 08/20/2016 16:47

Group Number: 1692738

### Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
	ug/l	ug/l		
Batch number: 162241848003	Sample number(s): 8516305-8516307 BKG: 8516305			
Aluminum	133.09	117.57	12 (1)	20
Barium	44.48	45.05	1	20
Boron	1143.54	1160.25	1	20
Cadmium	N.D.	N.D.	0 (1)	20
Calcium	52310.46	53318.49	2	20
Chromium	2.43	N.D.	200* (1)	20
Copper	N.D.	N.D.	0 (1)	20
Iron	130	94.21	32* (1)	20
Lead	N.D.	N.D.	0 (1)	20
Magnesium	22306.1	22810.29	2	20
Molybdenum	3.74	N.D.	200* (1)	20
Nickel	3.15	3.35	6 (1)	20
Phosphorus	37.77	35.94	5 (1)	20
Silicon	15286.95	15465.05	1	20
Silver	N.D.	N.D.	0 (1)	20
Sodium	93177.31	94875.88	2	20
Sulfur	11274.91	11186.92	1	20
Tin	N.D.	N.D.	0 (1)	20
Titanium	8.40	7.03	18 (1)	20
Vanadium	22.38	23.12	3 (1)	20
Zinc	N.D.	N.D.	0 (1)	20

### Surrogate Quality Control

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

Analysis Name: 8260 Full List w/ Sep. Xylenes  
Batch number: Y162251AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8516305	111	108	99	91
8516306	113	108	98	90
8516307	113	109	99	91
Blank	108	106	100	92
LCS	103	104	102	99
LCSD	103	102	102	100
Limits:	80-116	77-113	80-113	78-113

Analysis Name: BTEX/MTBE  
Batch number: Z162243AA

\*- Outside of specification

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## Quality Control Summary

Client Name: GHD  
Reported: 08/20/2016 16:47

Group Number: 1692738

### Surrogate Quality Control (continued)

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

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8516304	98	97	97	95
Blank	97	98	100	96
LCS	104	110	98	99
MS	96	96	98	99
MSD	104	109	98	99
Limits:	80-116	77-113	80-113	78-113

Analysis Name: PAHs 8270C Water  
Batch number: 16223WAM026

	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
8516305	71	72	74
8516306	67	66	63
8516307	76	75	81
Blank	79	78	84
LCS	85	85	70
LCSD	84	84	89
Limits:	46-128	61-112	41-125

Analysis Name: TPH-GRO N. CA water C6-C12  
Batch number: 16224A53A

	Trifluorotoluene-F
8516304	110
8516305	108
8516306	96
8516307	101
Blank	106
LCS	112
LCSD	111
Limits:	63-135

Analysis Name: TPH-DRO CA C10-C28  
Batch number: 162230010A

	Orthoterphenyl
8516305	92
8516306	98
8516307	95
Blank	98
LCS	98
LCSD	96
Limits:	50-124

\*- Outside of specification

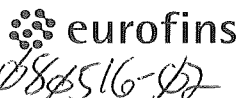
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# Chevron California Region Analysis Request/Chain of Custody



ILW/M + 546 + 256  
**Lancaster Laboratories**

Acct. # 13534

For Eurofins Lancaster Laboratories use only  
 Group # 1692738 Sample # 8516304-01  
Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks								
Facility # <u>35373378-OML G-R#385905 Global ID#T10000003434</u> Site Address <u>7600 MACARTHUR BLVD., OAKLAND, CA</u> Chevron PM <u>W/A</u> Lead Consultant <u>Davis</u> Consultant/Office <u>Center-Ryan Inc., 6805 Sierra Court, Suite G, Dublin, CA 94568</u> Consultant Project Mgr <u>Deanna L. Harding, deanna@grinc.com</u> Consultant Phone # <u>(925) 551-7444 x180</u> Sampler <u>Jim Herzon</u>				<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Oil <input type="checkbox"/> Composite				Total Number of Containers BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> TPH-GRO 8015 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> TPH-DRO 8015 without Silica Gel Cleanup <input checked="" type="checkbox"/> TPH-DRO 8015 with Silica Gel Cleanup <input type="checkbox"/> Full <input checked="" type="checkbox"/> <u>List Voc's (8260)</u> Oxygenates Total <input checked="" type="checkbox"/> <u>0.1 g/soil</u> Method <u>1664A</u> Dissolved <input checked="" type="checkbox"/> <u>Water</u> Method <u>6010</u> <u>PAH's (8270)</u> <u>NAPHTHALENE (8270)</u>										SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input checked="" type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits								
2 Sample Identification		Soil Depth	3 Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE 8021	8260	TPH-GRO 8015	8260	TPH-DRO 8015 without Silica Gel Cleanup	TPH-DRO 8015 with Silica Gel Cleanup	Full	Oxygenates	Total 0.1 g/soil Method 1664A	Dissolved Water Method 6010	PAH's (8270)	NAPHTHALENE (8270)	9			
			Date	Time																						
<u>QA</u>			<u>160805</u>	<u>—</u>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>WEAR METALS TO REPORT ARE: Al, Ba, B, Cd, Ca, Cr, Cu, Fe, Pb, Mg, Mo, Ni, P, Si, Ag, Na, S, Sn, Ti, V and Zn</b>			
<u>MW-1</u>			<u>↓</u>	<u>0850</u>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<u>MW-2</u>			<u>↓</u>	<u>0940</u>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<u>MW-3</u>			<u>↓</u>	<u>0745</u>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<b>7 Turnaround Time Requested (TAT) (please circle)</b> <input checked="" type="radio"/> Standard 5 day      4 day 72 hour      48 hour      24 hour <b>EDF/EDD</b>						Relinquished by <u>[Signature]</u> Date <u>8/5/16</u> Time <u>1100</u>			Received by <u>A. Salazar</u> Date <u>8/5/16</u> Time <u>1100</u>			Relinquished by <u>A. Salazar</u> Date <u>8/5/16</u> Time <u>1630</u>			Received by <u>FX</u> Date _____ Time _____											
<b>8 Data Package (circle if required)</b> Type I - Full <b>EDD</b> (circle if required) Type VI (Raw Data)      EDFFLAT (default)						Relinquished by Commercial Carrier: UPS _____ FedEx <input checked="" type="checkbox"/> Other _____			Received by <u>[Signature]</u> Date <u>8/6/16</u> Time <u>0945</u>			Temperature Upon Receipt <u>0.4</u> °C Custody Seals Intact? <input checked="" type="checkbox"/> Yes      No														

Client: CA

**373378**

**Delivery and Receipt Information**

Delivery Method:	<u>BASC</u>	Arrival Timestamp:	<u>08/06/2016 9:45</u>
Number of Packages:	<u>4</u>	Number of Projects:	<u>3</u>
State/Province of Origin:	<u>CA</u>		

**Arrival Condition Summary**

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace $\geq$ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:01 on 08/06/2016

**Samples Chilled Details: 373378**

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.8	DT	Wet	Y	Bagged	N
2	DT146	0.4	DT	Wet	Y	Bagged	N
3	DT146	0.7	DT	Wet	Y	Bagged	N
4	DT146	1.1	DT	Wet	Y	Bagged	N

# Explanation of Symbols and Abbreviations

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

<b>RL</b>	Reporting Limit	<b>BMQL</b>	Below Minimum Quantitation Level
<b>N.D.</b>	none detected	<b>MPN</b>	Most Probable Number
<b>TNTC</b>	Too Numerous To Count	<b>CP Units</b>	cobalt-chloroplatinate units
<b>IU</b>	International Units	<b>NTU</b>	nephelometric turbidity units
<b>umhos/cm</b>	micromhos/cm	<b>ng</b>	nanogram(s)
<b>C</b>	degrees Celsius	<b>F</b>	degrees Fahrenheit
<b>meq</b>	milliequivalents	<b>lb.</b>	pound(s)
<b>g</b>	gram(s)	<b>kg</b>	kilogram(s)
<b>µg</b>	microgram(s)	<b>mg</b>	milligram(s)
<b>mL</b>	milliliter(s)	<b>L</b>	liter(s)
<b>m<sup>3</sup></b>	cubic meter(s)	<b>µL</b>	microliter(s)
		<b>pg/L</b>	picogram/liter
<b>&lt;</b>	less than		
<b>&gt;</b>	greater than		
<b>ppm</b>	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
<b>ppb</b>	parts per billion		
<b>Dry weight basis</b>	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

## Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value  $\geq$  the Method Detection Limit (MDL or DL) and  $<$  the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column  $>40\%$ . The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column  $>100\%$ . The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

## Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

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

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

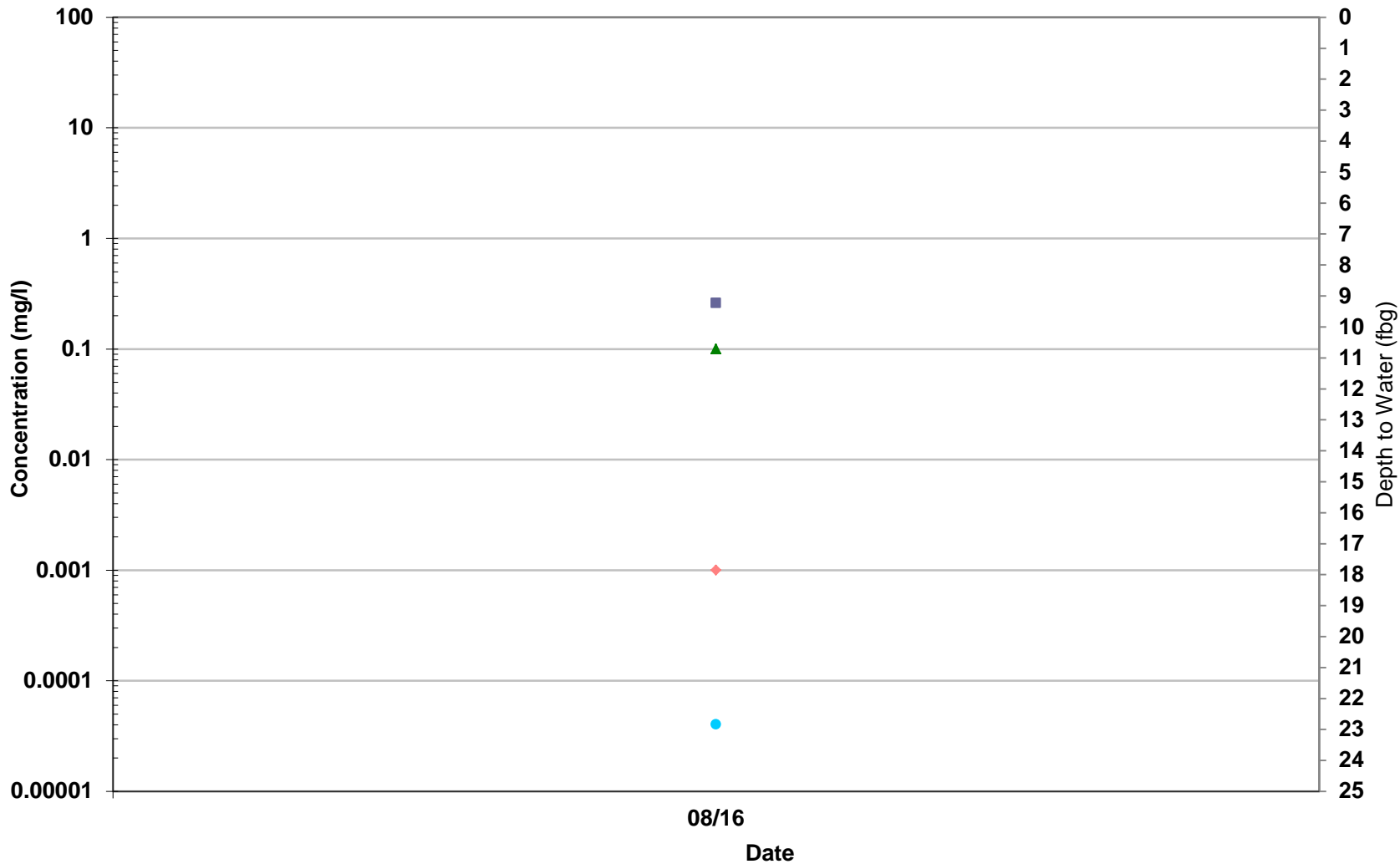
This report shall not be reproduced except in full, without the written approval of the laboratory.

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

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# Attachment D Groundwater Elevation and Concentration Graphs

# MW-1

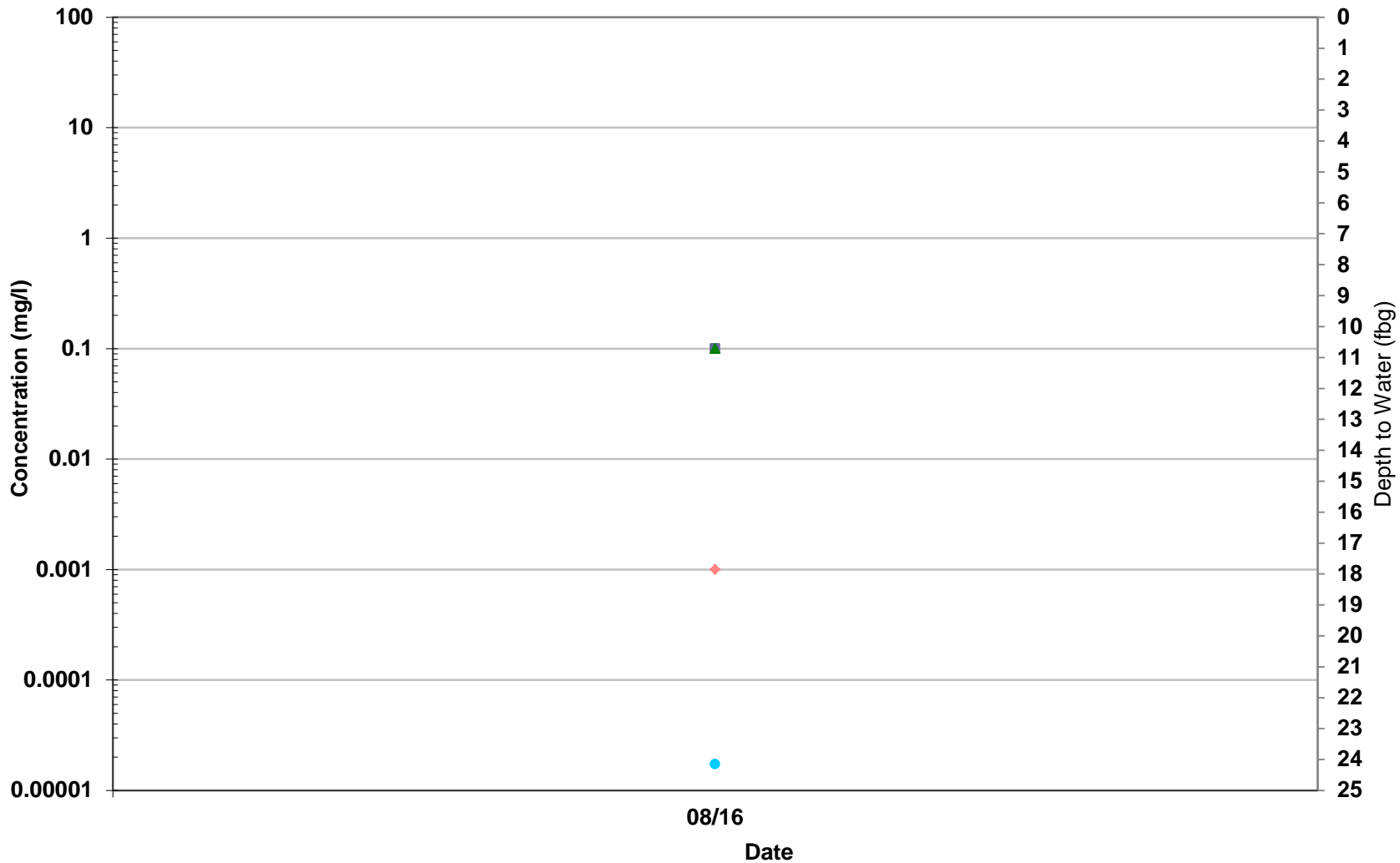


Legend: Benzene (red diamond), DRO (blue square), GRO (green triangle), DTW (cyan circle)



Former Tidewater Service Station  
Chevron Site 373378  
7600 MacArthur Blvd  
Oakland, California

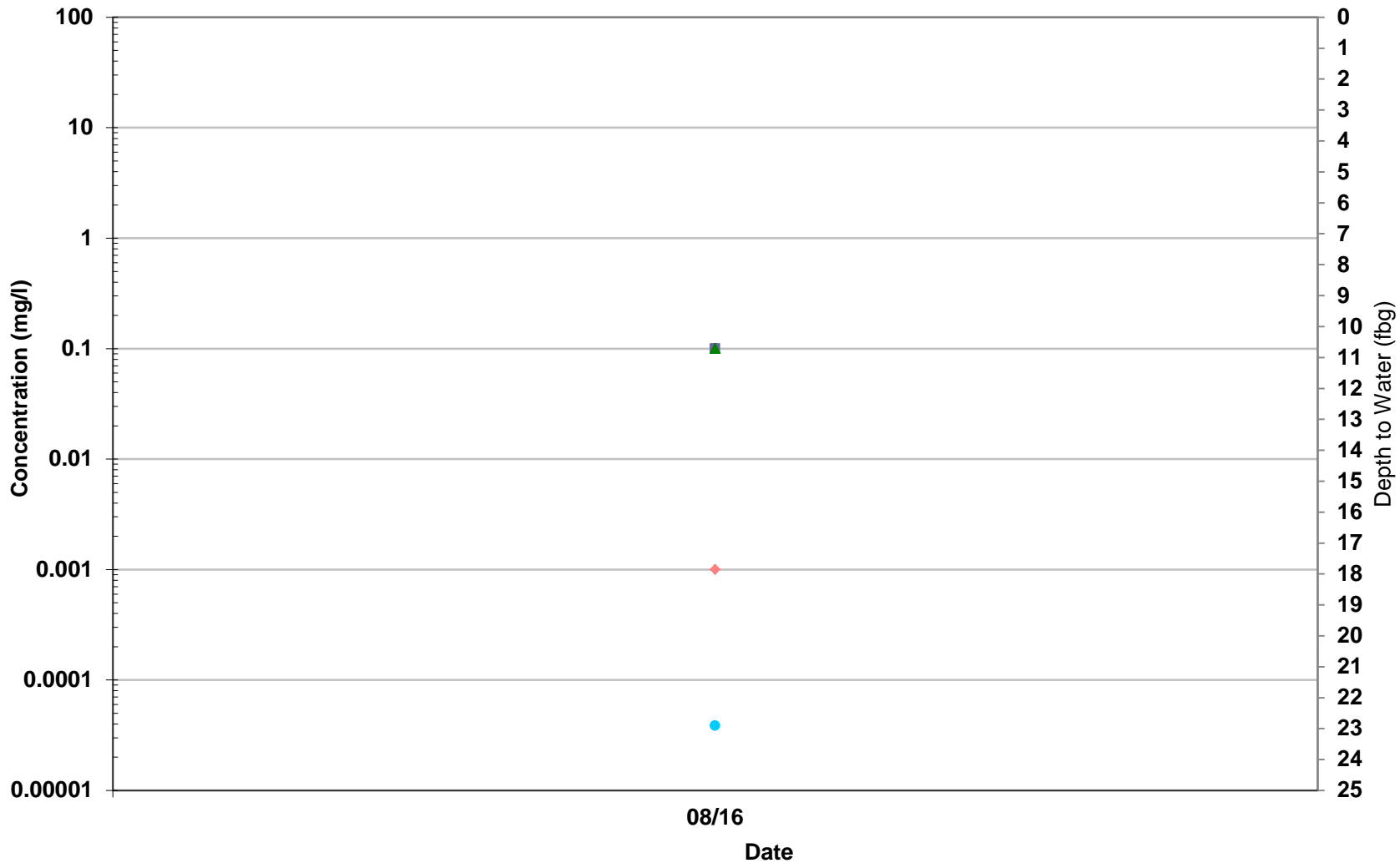
# MW-2



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# MW-3



08/16

Date

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