



James P. Kiernan, P.E.
Project Manager

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July 5, 2017

Alameda County Health Care Services Agency
Environmental Health Services
Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

RECEIVED

By Alameda County Environmental Health 1:57 pm, Jul 17, 2017

Re: 76 Station No. 7124 (351638)
Semi-Annual Status Report, Second Quarter 2017
10151 International Blvd, Oakland, California
Fuel Leak Case No.: RO0002444
GeoTracker Global ID #T0600173591

I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the SWRCB's GeoTracker website.

The information in this report is accurate to the best of my knowledge. This report was prepared by Arcadis, upon whose assistance and advice I have relied.

Sincerely,

A handwritten signature in blue ink, appearing to be 'J. Kiernan'.

James P. Kiernan, P.E.
Project Manager

Attachment: Semi-Annual Status Report, Second Quarter 2017 by Arcadis

Arcadis U.S., Inc.
1100 Olive Way
Suite 800
Seattle
WA 98101
Tel 206-726-4720
Fax 206-325-8218
www.arcadis-us.com

Mr. Keith Nowell
Alameda County Health Care Services Agency
Environmental Health Services
Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

ENVIRONMENT

Subject:
Semi-Annual Status Report, Second Quarter 2017

Dear Mr. Nowell,

Date:
July 3, 2017

On behalf of Chevron Environmental Management Company's (CEMC's) affiliate, Union Oil Company of California (Union Oil), Arcadis U.S. (Arcadis), has prepared the attached *Semi-Annual Status Report, Second Quarter 2017* for the following facility:

Contact:
Samuel Miles

<u>76 Station No.</u>	<u>Case No.</u>	<u>Location</u>
7124	RO0002444	10151 International Blvd, Oakland, California

Phone:
206.726.4720

Email:
Samuel.Miles@arcadis.com

If you have any questions, please do not hesitate to contact me.

Our ref:
B0035135.1638

Sincerely,

Arcadis U.S., Inc.



Samuel Miles
Project Manager

Copies:
Geotracker Database
Mr. James Kiernan, CEMC (electronic)
Mr. Ed Ralston, Phillips 66 (electronic)
Ibrahim and Nawal Abbushi (paper copy)

**Semi-Annual Status Report
Second Quarter 2017
July 3, 2017**

Facility No:	<u>Former 76 Station No. 7124</u>	Address:	<u>10151 International Blvd, Oakland, CA</u>
Arcadis Contact Person / Phone No.:	<u>Samuel Miles / (206) 726-4720</u>		
Arcadis Project No.:	<u>B0035135.1638</u>		
Primary Agency/Regulatory ID No.:	<u>Alameda County Department of Environmental Health (ACDEH) / Keith Nowell / Case No. RO0002444</u>		

WORK CONDUCTED THIS PERIOD [Second Quarter 2017]:

1. Conducted semi-annual groundwater monitoring activities on April 6, 2017.
2. Prepared the *Semi-Annual Status Report, Second Quarter 2017*.

WORK PROPOSED NEXT PERIOD [Fourth Quarter 2017]:

1. If required, conduct semi-annual groundwater monitoring activities.
2. Prepare the *Semi-Annual Status Report, Fourth Quarter 2017*.

Current Phase of Project:	<u>Monitoring/closure</u>	
Frequency of Monitoring / Sampling:	<u>Semi-Annual</u>	
Are Phase Separate Hydrocarbons (PSH) Present On-site:	<u>No</u>	
Cumulative PSH Recovered to Date:	<u>None</u>	(gallons)
Approximate Depth to Groundwater:	<u>12.10 to 14.77</u>	(feet below top of casing)
Approximate Groundwater Elevation:	<u>23.59 to 25.27</u>	(feet above mean sea level)
Groundwater Flow Direction	<u>West-Northwest</u>	
Groundwater Gradient	<u>0.017</u>	(foot per foot)
Current Remediation Techniques:	<u>None</u>	

Permits for Discharge:	None
Summary of Unusual Activity:	None
Agency Directive Requirements:	None

DISCUSSION

Gettler-Ryan Inc. (G-R) conducted semi-annual groundwater monitoring activities on April 6, 2017. Field data sheets and general procedures are included as Attachment A. Four (4) monitoring wells (MW-1 through MW-4) were gauged, purged, and sampled by G-R representatives.



Groundwater samples were submitted to BC Laboratories, Inc. of Bakersfield, California under standard chain-of-custody protocols. Gauging and analytical data obtained by G-R for this event are summarized in Table 1 and Table 2. Historical gauging and analytical data for the site are summarized in Table 3 and Table 4. The site location and layout are presented on Figures 1 and 2, respectively; the groundwater elevation contours for the site on April 6, 2017 are presented on Figure 3. Concentration maps for total petroleum hydrocarbons as gasoline (TPH-g), benzene, methyl tert-butyl ether (MTBE) and tert-butyl alcohol (TBA) are presented on Figures 4 through 7, respectively. A copy of the laboratory analytical report and chain-of-custody documentation are included as Attachment B.

The calculated direction of groundwater flow, hydraulic gradient and analytical results were generally consistent with previous monitoring events. TPH-g and MTBE were only detected in MW-3; the detected concentrations were low and consistent with previous events. The concentration of TPH-g in well MW-4 significantly decreased from the previous monitoring event and it was again not detected in this well. Benzene and TBA continue to not be detected in groundwater samples from the four wells.

In accordance with the ACDEH letter dated June 23, 2017, the site is moving towards low-threat closure. As such, no further monitoring is warranted. If further monitoring is required, Arcadis recommends transitioning to an annual frequency.

LIMITATIONS

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



Date: July 3, 2017
Nasrin Erdelyi, P.G.
Staff Geologist



Date: July 3, 2017
Samuel Miles
Project Manager

TABLES

Table 1	Current Groundwater Gauging and Analytical Results
Table 2	Current Groundwater Analytical Results – Monitored Natural Attenuation Parameters
Table 3	Historical Groundwater Gauging and Analytical Results, 2011 to Current
Table 4	Historical Groundwater Analytical Results – Monitored Natural Attenuation Parameters

FIGURES

Figure 1	Site Location Map
Figure 2	Site Plan
Figure 3	Groundwater Elevation Contour Map, April 6, 2017
Figure 4	TPH-g Isoconcentration Map, April 6, 2017
Figure 5	Benzene Concentration Map, April 6, 2017
Figure 6	MTBE Concentration Map, April 6, 2017
Figure 7	TBA Concentration Map, April 6, 2017

ATTACHMENTS

Attachment A	Field Data Sheets and General Procedures
Attachment B	Laboratory Report and Chain-of-Custody Documentation

TABLES



Table 1. Current Groundwater Gauging and Analytical Results

Union Oil Company of California

76 Station No. 7124

10151 International Blvd, Oakland, California

Well ID	Sample Date	TOC (ft amsl)	DTW bTOC	GW Elev (ft amsl)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	EDB (µg/L)	EDC (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)
MW-1	4/6/2017	37.37	12.10	25.27	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-2	4/6/2017	37.87	13.93	23.94	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-3	4/6/2017	37.72	14.06	23.66	130	<0.50	<0.50	<0.50	<1.0	3.0	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-4	4/6/2017	38.36	14.77	23.59	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250

Notes:

MW = Groundwater monitoring well

TOC = Top of casing

ft amsl = Feet above mean sea level

DTW = Depth to groundwater

ft bTOC = Feet below top of casing

Bold = Value exceeds laboratory

ft = Feet

GW Elev = Groundwater elevation

µg/L = Micrograms per liter

TPH-g = Total petroleum hydrocarbons, gasoline range by LUFT GC/MS according to Environmental Protection Agency (EPA) Method 8260

Samples analyzed by EPA Method 8260B:

Benzene, toluene, ethylbenzene and total xylenes (collectively BTEX)

MTBE = Methyl tert-butyl ether

TBA = Tert-butanol or tertiary butyl alcohol

EDB = 1,2-Dibromoethane

EDC = 1,2-Dichloroethane

ETBE = Ethyl tert-butyl ether

TAME = Tert-amyl methyl ether

Ethanol

Data QA/QC by: IC 05/25/2017

Table 2. Current Groundwater Analytical Results - Monitored Natural Attenuation Parameters

Union Oil Company of California
 76 Station No. 7124
 10151 International Blvd, Oakland, California

Well ID	Sample Date	Methane mg/L	Total Alkalinity As CaCO3 mg/L	Nitrate as NO3 mg/L	Sulfate mg/L	Iron (II) Species (µg/L)	Nitrate as NO2 mg/L	Total Sulfide mg/L	Non-Volatile Organic Carbon mg/L	Dissolved Iron (µg/L)	Total Manganese (µg/L)
MW-1	4/6/2017	<0.0010	160	36	33	<100	<0.17	<0.10	<1.0	<50	330
MW-2	4/6/2017	<0.0010	170	3.4	37	<100	<0.17	<0.10	<1.0	<50	1,900
MW-3	4/6/2017	0.0067	230	<0.44	25	2,100	<0.17	<0.10	<1.0	<50	5,300
MW-4	4/6/2017	<0.0010	250	18	44	130	<0.17	<0.50	4.8	<50	2,100

Notes:

MW = Groundwater monitoring well
 mg/L = Miligrams per liter
 µg/L = Micrograms per liter
 Methane analyzed by Method RSK-175M
 Total alkalinity as CaCO3 analyzed by Environmental Protection Agency (EPA) Method 310.1
 Nitrate as NO3 and sulfate analyzed by EPA Method 300.0
 Iron (II) species analyzed by Method SM-3500-FeD
 Nitrate as NO2 analyzed by EPA Method 353.2
 Total sulfide analyzed by Method SM-4500SD
 Non-volatile organic carbon analyzed by EPA Method 415.1
 Dissolved iron and total manganese analyzed by EPA Method 6010B
 Data QA/QC by: IC 05/25/2017

Table 3. Historical Groundwater Gauging and Analytical Results, 2011 to Current

Union Oil Company of California
 76 Station No. 7124
 10151 International Blvd, Oakland, California

Well ID	Sample Date	TOC (ft amsl)	DTW (ft bTOC)	GW Elev (ft amsl)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	EDB (µg/L)	EDC (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)
MW-1	11/2/2011	37.37	17.52	19.85	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-1	4/6/2012	37.37	14.20	23.17	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-1	6/12/2013	37.37	16.81	20.56	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-1	10/7/2013	37.37	17.62	19.75	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-1	4/8/2014	37.37	17.52	19.85	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-1	10/15/2014	37.37	18.29	19.08	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-1	6/17/2015	37.37	17.30	20.07	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-1	12/15/2015	37.37	17.98	19.39	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-1	6/15/2016	37.37	16.22	21.15	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-1	11/21/2016	37.37	16.91	20.46	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-1	4/6/2017	37.37	12.10	25.27	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-2	11/2/2011	37.87	17.15	20.72	96	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-2	4/6/2012	37.87	15.63	22.24	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-2	6/12/2013	37.87	18.03	19.84	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-2	10/7/2013	37.87	18.74	19.13	99	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-2	4/8/2014	37.87	17.80	20.07	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-2	10/15/2014	37.87	19.31	18.56	100	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-2	6/17/2015	37.87	18.55	19.32	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-2	12/15/2015	37.87	19.00	18.87	66	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-2	6/15/2016	37.87	17.75	20.12	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-2	11/21/2016	37.87	18.12	19.75	140	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-2	4/6/2017	37.87	13.93	23.94	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-3	11/2/2011	37.72	17.55	20.17	880	<0.50	<0.50	<0.50	<1.0	35	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-3	4/6/2012	37.72	16.40	21.32	1,000	<0.50	<0.50	<0.50	<1.0	210	85	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-3	6/12/2013	37.72	17.95	19.77	<50	<0.50	<0.50	<0.50	<1.0	6.5	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-3	10/7/2013	37.72	18.62	19.10	880	<0.50	<0.50	<0.50	<1.0	12	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-3	4/8/2014	37.72	17.10	20.62	320	<0.50	<0.50	<0.50	<1.0	150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-3	10/15/2014	37.72	19.17	18.55	1,600	<0.50	<0.50	<0.50	<1.0	27	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-3	6/17/2015	37.72	18.34	19.38	250	<0.50	<0.50	<0.50	<1.0	3.2	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-3	12/15/2015	37.72	18.83	18.89	490	<0.50	<0.50	<0.50	<1.0	20	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-3	6/15/2016	37.72	17.57	20.15	<50	<0.50	<0.50	<0.50	<1.0	0.96	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-3	11/21/2016	37.72	17.98	19.74	780	<0.50	<0.50	<0.50	<1.0	21	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-3	4/6/2017	37.72	14.06	23.66	130	<0.50	<0.50	<0.50	<1.0	3.0	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-4	11/2/2011	38.36	18.27	20.09	170	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-4	4/6/2012	38.36	15.68	22.68	200	<0.50	<0.50	<0.50	<1.0	1.7	58	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-4	6/12/2013	38.36	18.65	19.71	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-4	10/7/2013	38.36	19.33	19.03	95	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-4	4/8/2014	38.36	18.04	20.32	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-4	10/15/2014	38.36	19.88	18.48	190	<0.50	<0.50	<0.50	<1.0	0.63	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-4	6/17/2015	38.36	19.04	19.32	78	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-4	12/15/2015	38.36	19.56	18.80	110	<0.50	<0.50	<0.50	<1.0	0.51	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-4	6/15/2016	38.36	18.20	20.16	92	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-4	11/21/2016	38.36	18.72	19.64	1,000	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250
MW-4	4/6/2017	38.36	14.77	23.59	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<250

Notes: MW = Groundwater monitoring well
 TOC = Top of casing
 ft amsl = Feet above mean sea level
 DTW = Depth to groundwater
 ft bTOC = Feet below top of casing
 PSH = Phase separate hydrocarbons

TPH-g = Total petroleum hydrocarbons, gasoline range by LUFT GC/MS according to Environmental Protection Agency (EPA) Method 8260B
 Samples analyzed by EPA Method 8260B:
 Benzene, toluene, ethylbenzene, and total xylenes (collectively BTEX)
 MTBE = Methyl tert-butyl ether
 TBA = Tert-butanol or tertiary butyl alcohol
 EDB = 1,2-Dibromoethane

Table 3. Historical Groundwater Gauging and Analytical Results, 2011 to Current

Union Oil Company of California

76 Station No. 7124

10151 International Blvd, Oakland, California

Well ID	Sample Date	TOC (ft amsl)	DTW (ft bTOC)	GW Elev (ft amsl)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	EDB (µg/L)	EDC (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)
ft = Feet						EDC = 1,2-Dichloroethane											
<0.50 = Not detected at or above the stated limit						DIPE = Di-isopropyl ether											
GW Elev = Groundwater elevation						ETBE = Ethyl tert-butyl ether											
µg/L = Micrograms per liter						TAME = Tert-amyl methyl ether											
Bold = Value exceeds laboratory reporting limits; PSH thicknes Ethanol																	
Data QA/QC by: IC 05/25/2017																	

Table 4. Historical Groundwater Analytical Results - Monitored Natural Attenuation Parameters

Union Oil Company of California

76 Station No. 7124

10151 International Blvd, Oakland, California

Well ID	Sample Date	Methane mg/L	Total Alkalinity As CaCO3 mg/L	Nitrate as NO3 mg/L	Sulfate mg/L	Iron (II) Species (µg/L)	Nitrate as NO2 mg/L	Total Sulfide mg/L	Non-Volatile Organic Carbon mg/L	Dissolved Iron (µg/L)	Total Manganese (µg/L)
MW-1	6/13/2013	<0.0010	17.52	24	23	<100	<0.17	<0.50	1.1	<50	31,000
MW-1	10/7/2013	0.0015	150	0	22	<100	<0.17	<0.10	3.4	<50	13,000
MW-1	4/8/2014	0.0049	170	22	25	<100	<0.17	<0.10	1.3	<50	11,000
MW-1	10/15/2014	<0.001	160	27	26	<100	<0.17	<0.50	<1.0	<50	39,000
MW-1	6/17/2015	<0.001	170	28	28	<100	<0.17	<0.10	<1.0	<50	2,900
MW-1	12/15/2015	<0.0010	170	34	26	<100	<0.17	<0.10	1.0	<50	11,000
MW-1	6/15/2016	0.0016	170	40	29	<100	<0.17	<0.10	<1.0	<50	2,600
MW-1	4/6/2017	<0.0010	160	36	33	<100	<0.17	<0.10	<1.0	<50	330
MW-2	6/13/2013	<0.0010	180	<0.44	20	250	<0.17	<0.10	1.0	120	9,700
MW-2	10/7/2013	0.0049	200	<0.44	9.6	2,700	<0.17	<0.10	3.2	260	5,600
MW-2	4/8/2014	0.007	210	<0.44	33	1,700	<0.17	<0.10	1.4	140	8,400
MW-2	10/15/2014	0.011	210	<0.44	20	19,000	<0.17	<0.50	<1.0	200	6,400
MW-2	6/17/2015	<0.001	210	<0.44	34	2,500	<0.17	<0.10	<1.0	320	5,300
MW-2	12/15/2015	0.027	210	<0.44	23	1,700	<0.17	<0.10	1.3	140	6,300
MW-2	6/15/2016	0.0020	200	<0.44	36	1,000	<0.17	<0.10	<1.0	<50	6,700
MW-2	4/6/2017	<0.0010	170	3.4	37	<100	<0.17	<0.10	<1.0	<50	1,900
MW-3	6/13/2013	0.0075	260	<0.44	<1.0	3,200	<0.17	<0.10	1.4	160	5,700
MW-3	10/7/2013	0.071	260	<0.44	<1.0	9,000	<0.17	<0.10	3.1	710	9,600
MW-3	4/8/2014	0.034	290	<0.44	2.1	1,200	<0.17	<0.10	1.3	220	6,000
MW-3	10/15/2014	0.069	290	<0.44	<1.0	<100	<0.17	<0.50	<1.0	93	6,900
MW-3	6/17/2015	0.11	310	<0.44	<1.0	4,700	<0.17	<0.50	25.0	350	6,300
MW-3	12/15/2015	0.13	280	<0.44	<1.0	5,900	<0.17	<0.10	1.6	140	6,900
MW-3	6/15/2016	0.035	280	<0.44	7.4	1,400	<0.17	<0.10	1.8	<50	6,000
MW-3	4/6/2017	0.0067	230	<0.44	25	2,100	<0.17	<0.10	<1.0	<50	5,300
MW-4	6/13/2013	<0.0010	210	<0.44	15	5,200	<0.17	<0.50	4.7	<50	7,900
MW-4	10/7/2013	<0.0010	190	<0.44	18	13,000	<0.17	<0.10	8.2	220	5,000
MW-4	4/8/2014	<0.0010	130	5	17	280	<0.17	<0.10	12.0	200	1,200

Well ID	Sample Date	Methane mg/L	Total Alkalinity		Sulfate mg/L	Iron (II) Species (µg/L)	Nitrate as NO2 mg/L	Total Sulfide mg/L	Non-Volatile		Total Manganese (µg/L)
			As CaCO3 mg/L	Nitrate as NO3 mg/L					Organic Carbon mg/L	Dissolved Iron (µg/L)	
MW-4	10/15/2014	0.17	210	<0.44	24	5,800	<0.17	<0.50	1.5	<50	8,000
MW-4	6/17/2015	0.0027	210	<0.44	51	2,100	<0.17	<0.10	1.9	<50	2,400
MW-4	12/15/2015	0.057	200	2.5	37	2,900	<0.17	<0.10	17	<50	4,200
MW-4	6/15/2016	0.0016	250	<0.44	26	1,200	<0.17	<0.50	4.8	<50	1,800
MW-4	4/6/2017	<0.0010	250	18	44	130	<0.17	<0.50	4.8	<50	2,100

Notes:

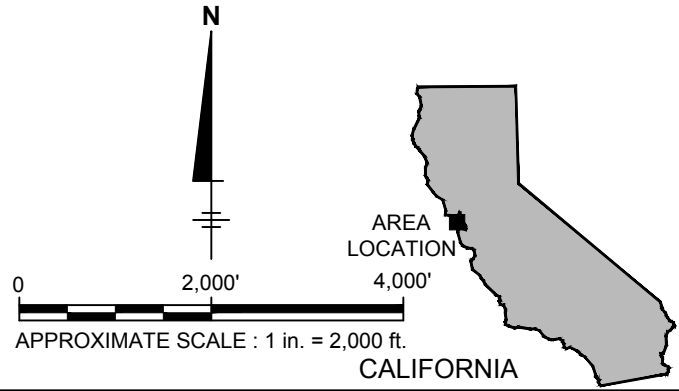
MW = Groundwater monitoring well
mg/L = Miligrams per liter
µg/L = Micrograms per liter
Methane analyzed by Method RSK-175M
Total alkalinity as CaCO3 analyzed by Environmental Protection Agency (EPA) Method 310.1
Nitrate as NO3 and sulfate analyzed by EPA Method 300.0
Iron (II) species analyzed by Method SM-3500-FeD
Nitrate as NO2 analyzed by EPA Method 353.2
Total sulfide analyzed by Method SM-4500SD
Non-volatile organic carbon analyzed by EPA Method 415.1
Dissolved iron and total manganese analyzed by EPA Method 6010B
Data QA/QC by: IC 05/25/2017


FIGURES



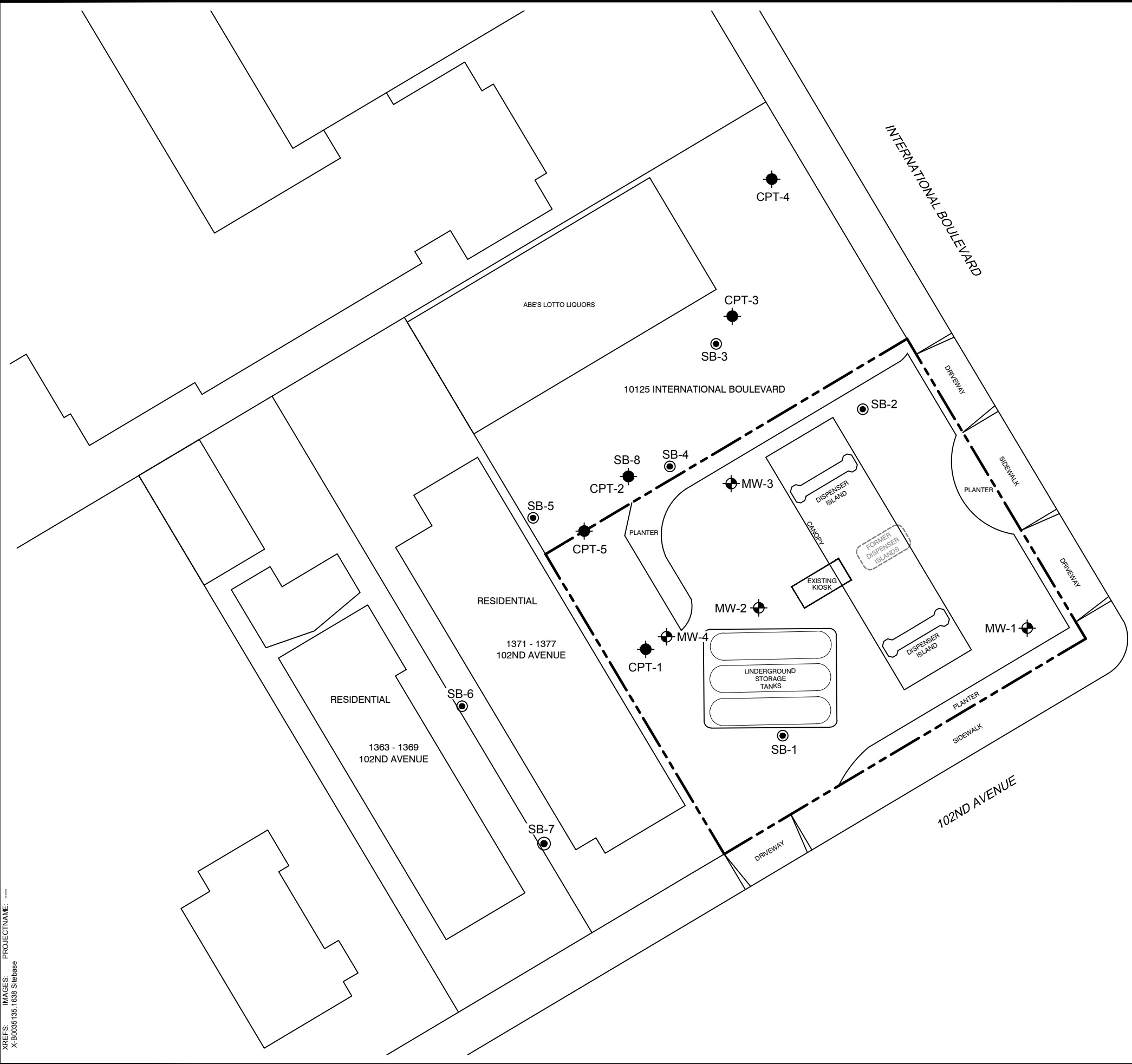


SOURCE: OpenStreetMap (and) contributors, CC-BY-SA







76 STATION No. 7124 (351638) 10151 INTERNATIONAL BOULEVARD OAKLAND CALIFORNIA	
SITE LOCATION MAP	
	Design & Consultancy for natural and built assets
FIGURE	1

CITY:EMERYVILLE,CA DIV:GROUP:ENV:CAD DBA:REYES
 P:\Environment-Arcadis\ARCADIS\USA PROJECTS\13 CHEVRON 76\CHEVRON 76\Cherron 76\PP-102017\NoCal sites\351638\E-Drawing\351638_Figure2.dwg LAYOUT: 2 SAVED: 5/25/2017 12:02 PM ACADVIEW: 19.15 (LMS TECH) PAGES: 2 PLOTSTYLETABLE: PLTFULLCTB PLOTTED: 5/25/2017 3:38 PM
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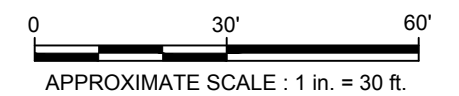




LEGEND

-  APPROXIMATE PROPERTY BOUNDARY
-  GROUNDWATER MONITORING WELL
-  SOIL BORING
-  CPT LOCATION

NOTES:

1. BASE MAP PROVIDED BY TRC, DATED JANUARY 2010, AT A SCALE OF 1"=20'. ADDITIONAL SITE INFORMATION PROVIDED BY STANTEC, DATED SEPTEMBER 23, 2008, AT A SCALE OF 1"=40'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.



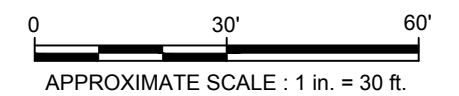
76 STATION No. 7124 (351638) 10151 INTERNATIONAL BOULEVARD OAKLAND CALIFORNIA	
SITE PLAN	
	
FIGURE	2

CITY:EMERYVILLE,CA DIV:GROUP:ENVCAD DBA:REYES
 P:\Environment-Arcadis\ARCADIS\USA PROJECTS\13 CHEVRON 76\CHRON 76\Chevron 76PP-102017\Nocall sites\351638\E-Drawing\351638_Figure3.dwg
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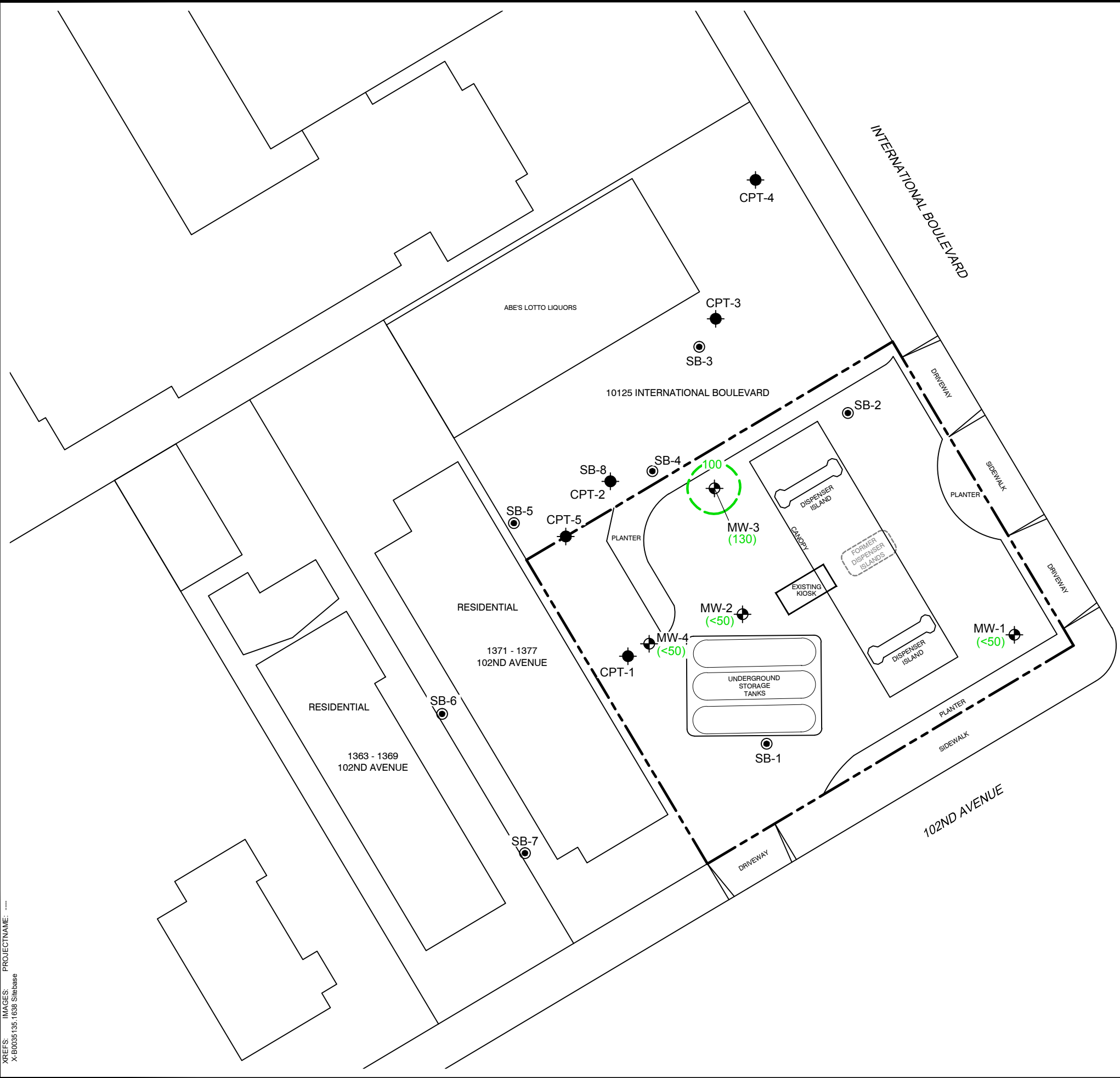
- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
 - GROUNDWATER MONITORING WELL
 - SOIL BORING
 - CPT LOCATION
 - (25.27) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
 - APPROXIMATE DIRECTION OF GROUNDWATER FLOW
 - 25.20 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
 - 0.017 FT/FT APPROXIMATE HYDRAULIC GRADIENT (FOOT/FOOT)

- NOTES:**
1. BASE MAP PROVIDED BY TRC, DATED JANUARY 2010, AT A SCALE OF 1"=20'. ADDITIONAL SITE INFORMATION PROVIDED BY STANTEC, DATED SEPTEMBER 23, 2008, AT A SCALE OF 1"=40'.
 2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.



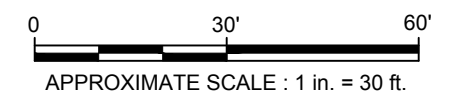
76 STATION No. 7124 (351638) 10151 INTERNATIONAL BOULEVARD OAKLAND CALIFORNIA	
GROUNDWATER ELEVATION CONTOUR MAP APRIL 6, 2017	
ARCADIS <small>Design & Consultancy for natural and built assets</small>	FIGURE 3

CITY:EMERYVILLE,CA_DIV\GROUP\ENVCAD_DBA REYES
 P:\Environment-Arcadis\ARCADIS\USA_PROJECTS\13_CHEVRON 76\Cherron 76PP-102017\NoCal_sites\351638\Drawings\351638_Figures.dwg
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 XREFS: IMAGES: PROJECTNAME: ---
 X-B0035135:1638 Sitebase



- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
 - ⊕ GROUNDWATER MONITORING WELL
 - ⊙ SOIL BORING
 - CPT LOCATION
 - (130) TOTAL PETROLEUM HYDROCARBONS AS GASOLINE (TPH-g) CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
 - 100 --- TPH-g ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED)
 - (<50) NOT DETECTED AT OR ABOVE LABORATORY METHOD DETECTION LIMIT

- NOTES:**
1. BASE MAP PROVIDED BY TRC, DATED JANUARY 2010, AT A SCALE OF 1"=20'. ADDITIONAL SITE INFORMATION PROVIDED BY STANTEC, DATED SEPTEMBER 23, 2008, AT A SCALE OF 1"=40'.
 2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.



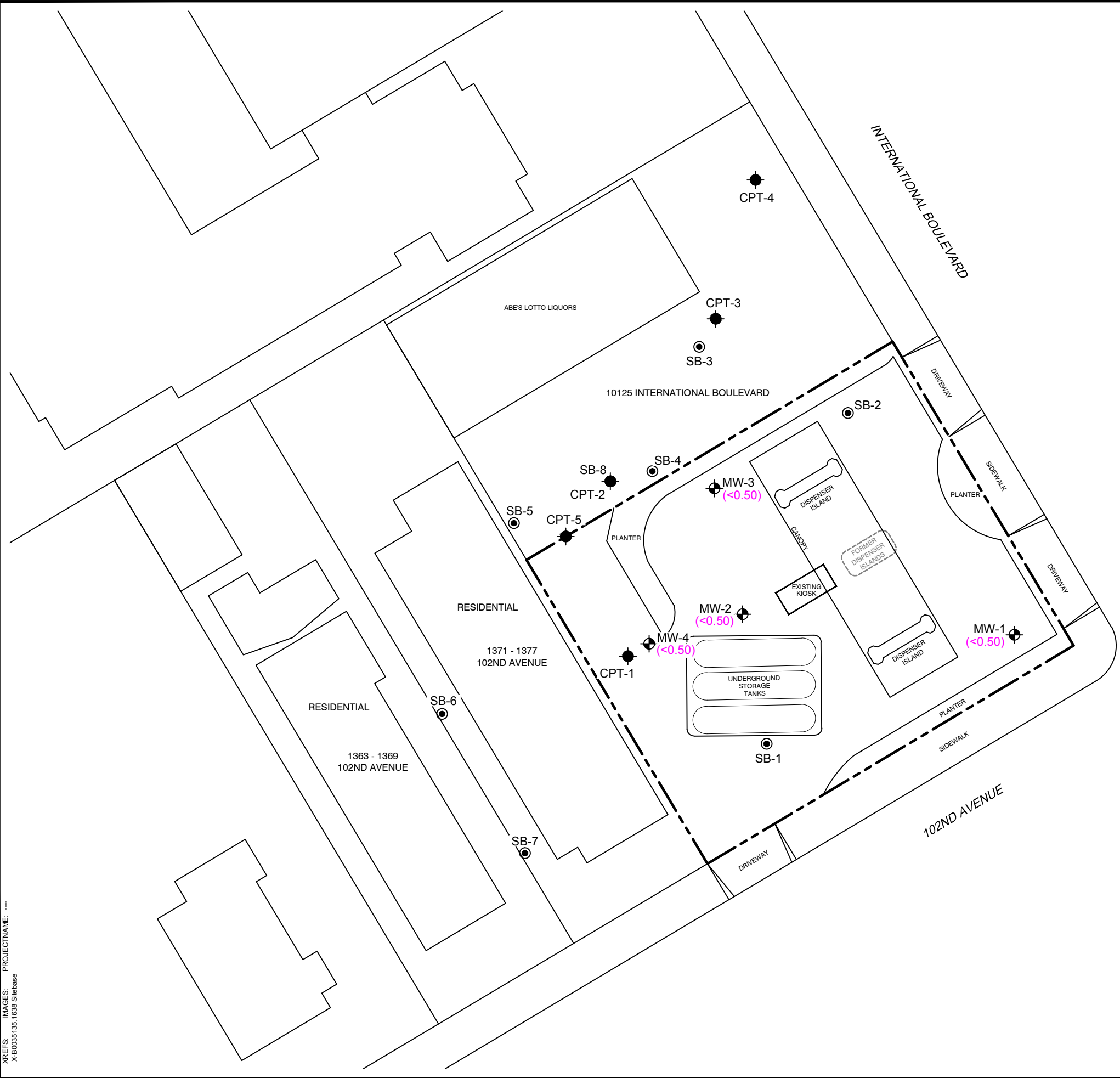
76 STATION No. 7124 (351638)
 10151 INTERNATIONAL BOULEVARD
 OAKLAND CALIFORNIA

TPH-g ISOCONCENTRATION MAP
 APRIL 6, 2017

ARCADIS Design & Consultancy
 for natural and built assets

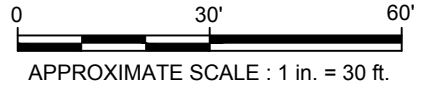
FIGURE
4

CITY:EMERYVILLE,CA DIV:GROUP:ENV:CAD DBA:REYES
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 BY: DEVESH KAMBLE PROJECTNAME: XREFS: IMAGES: X-B0035135:1638 Sitebase



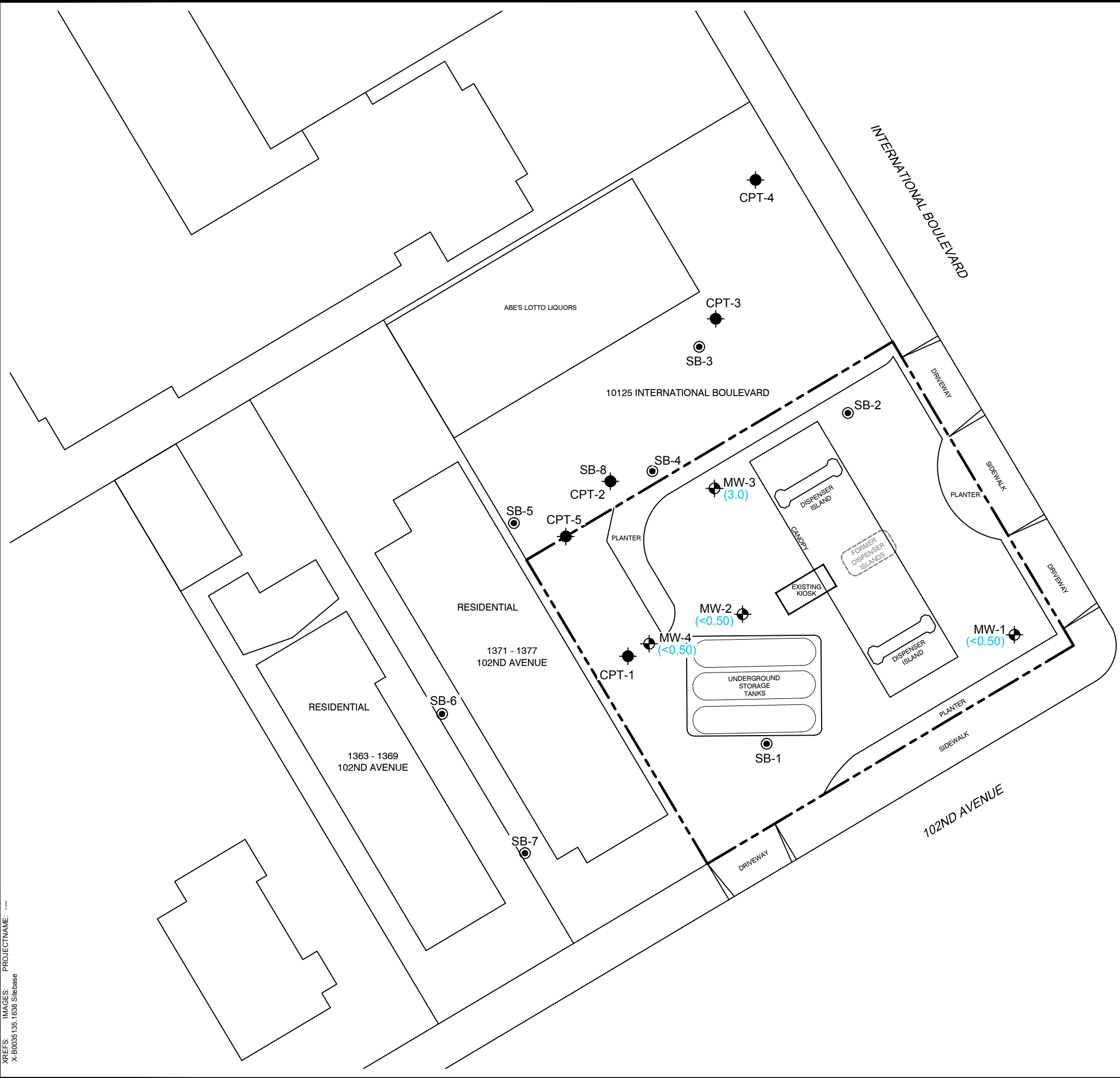
- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
 - ⊕ GROUNDWATER MONITORING WELL
 - ⊙ SOIL BORING
 - CPT LOCATION
 - (<0.50) BENZENE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
 - (<0.50) NOT DETECTED AT OR ABOVE LABORATORY METHOD DETECTION LIMIT

NOTES:
 1. BASE MAP PROVIDED BY TRC, DATED JANUARY 2010, AT A SCALE OF 1"=20'. ADDITIONAL SITE INFORMATION PROVIDED BY STANTEC, DATED SEPTEMBER 23, 2008, AT A SCALE OF 1"=40'.
 2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.



76 STATION No. 7124 (351638) 10151 INTERNATIONAL BOULEVARD OAKLAND CALIFORNIA	
BENZENE CONCENTRATION MAP APRIL 6, 2017	
ARCADIS	
FIGURE	5

CITY:EMERYVILLE,CA DIV:GROUP:ENV:CAD DBA:REYES
 P:\Environment-Arcadis\ARCADIS\USA PROJECTS\13 CHEVRON 76\CHERRON 76PP-102017\Nocall sites\351638\E-Drawing\351638_Figure6.dwg
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 BY: DEVESH KAMBLE PROJECTNAME: X:\B0035135_1638_Sitebase

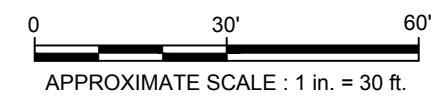


LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- GROUNDWATER MONITORING WELL
- SOIL BORING
- CPT LOCATION
- (3.0) METHYL TERTIARY BUTYL ETHER (MTBE) CONCENTRATION IN MICROGRAMS PER LITER ($\mu\text{g/L}$)
- (<0.50) NOT DETECTED AT OR ABOVE LABORATORY METHOD DETECTION LIMIT

NOTES:

1. BASE MAP PROVIDED BY TRC, DATED JANUARY 2010, AT A SCALE OF 1"=20'. ADDITIONAL SITE INFORMATION PROVIDED BY STANTEC, DATED SEPTEMBER 23, 2008, AT A SCALE OF 1"=40'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.



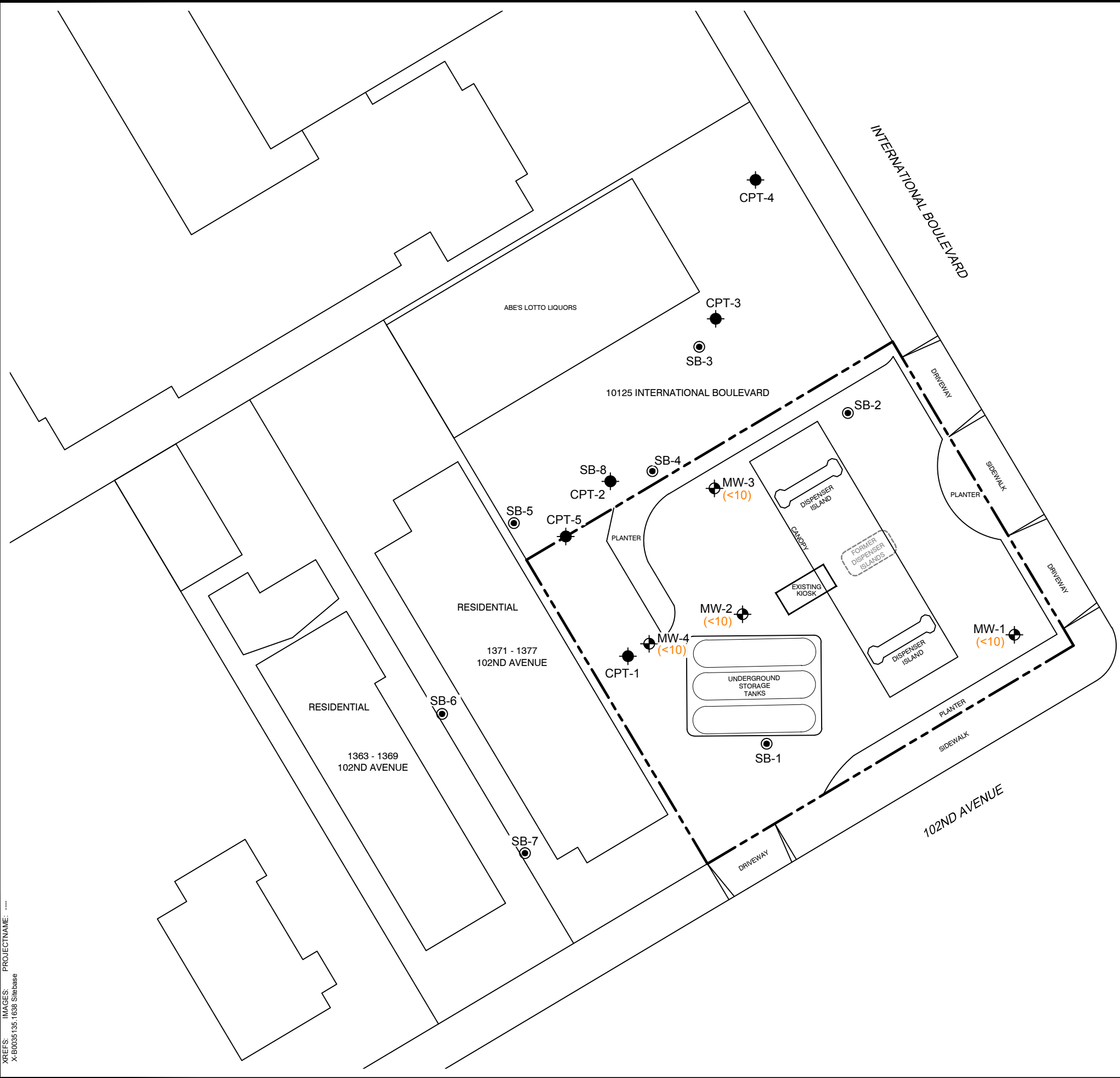
76 STATION No. 7124 (351638)
 10151 INTERNATIONAL BOULEVARD
 OAKLAND CALIFORNIA

MTBE CONCENTRATION MAP
 APRIL 6, 2017

ARCADIS Design & Consultancy for natural and built assets

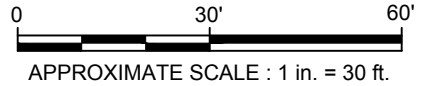
FIGURE
6

CITY:EMERYVILLE,CA DIV:GROUP:ENVCAD DBA REYES
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 XREFS: IMAGES: PROJECTNAME: X-B0035135-1638 Sitebase



- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
 - ⊕ GROUNDWATER MONITORING WELL
 - ⊙ SOIL BORING
 - CPT LOCATION
 - (<10) TERTIARY BUTYL ALCOHOL (TBA) CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
 - (<10) NOT DETECTED AT OR ABOVE LABORATORY METHOD DETECTION LIMIT

NOTES:
 1. BASE MAP PROVIDED BY TRC, DATED JANUARY 2010, AT A SCALE OF 1"=20'. ADDITIONAL SITE INFORMATION PROVIDED BY STANTEC, DATED SEPTEMBER 23, 2008, AT A SCALE OF 1"=40'.
 2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.



76 STATION No. 7124 (351638) 10151 INTERNATIONAL BOULEVARD OAKLAND CALIFORNIA	
TBA CONCENTRATION MAP APRIL 6, 2017	
ARCADIS	<small>Design & Consultancy for natural and built assets</small>
FIGURE	7

ATTACHMENT A

Field Data Sheets and General Procedures





GETTLER-RYAN INC.



TRANSMITTAL

April 13, 2017
G-R #17155639

TO: Mr. Samuel Miles
Arcadis
1100 Olive Way, Suite 800
Seattle, Washington 98101

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

RE: **Chevron Facility**
#351638/7124
10151 International Boulevard
Oakland, California

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DESCRIPTION
VIA PDF	Groundwater Monitoring and Sampling Data Package First Semi Annual Event of April 6, 2017

COMMENTS:

Pursuant to your request, we are providing you with copies 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/351638 7124

STANDARD OPERATING PROCEDURE 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 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. Total well depths are measured annually.

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.



GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Chevron #351638 / 7124 Job Number: 17155639
 Site Address: 10151 International Blvd. Event Date: 4-6-17 (inclusive)
 City: Oakland, CA Sampler: ML

Well ID: MW-1 Date Monitored: 4-6-17
 Well Diameter: 4 in.
 Total Depth: 24.95 ft.
 Depth to Water: 12.10 ft. Check if water column is less than 0.50 ft.
12.85 xVF .666 = 8.4 x3 case volume = Estimated Purge Volume: 25.2 gal.
 Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 14.67

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

Purge Equipment:

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

Sampling Equipment:

Disposable Bailer X
 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): 0505 Weather Conditions: Cloudy
 Sample Time/Date: 0535 4-6-17 Water Color: cloudy Odor: Y/N
 Approx. Flow Rate: 2 gpm. Sediment Description: light
 Did well de-water? No If yes, Time: _____ Volume: _____ gal. DTW @ Sampling: 13.40

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µS/mS µmhos/cm)	Temperature (°C/°F)	D.O. (mg/L)	ORP (mV)
<u>0509</u>	<u>8</u>	<u>7.21</u>	<u>436</u>	<u>17.8</u>	<u>PRE: 1.2</u>	<u>PRE: 33</u>
<u>0513</u>	<u>16</u>	<u>7.30</u>	<u>440</u>	<u>18.1</u>		
<u>0518</u>	<u>26</u>	<u>7.32</u>	<u>439</u>	<u>18.3</u>	<u>POST: 1.1</u>	<u>POST: 46</u>

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-1</u>	<u>6</u> x voa vial	YES	HCL	BC LABS	TPH-GRO(8015)/BTEX+MTBE(8260)/8 OXYS(8260)
	<u>1</u> x 1 liter poly	YES	NP	BC LABS	NITRATE/NITRITE/SULFATE/ALKALINITY/DISSOLVED IRON
	<u>1</u> x 500ml poly	YES	ZnAc	BC LABS	SULFIDE(376.2)
	<u>1</u> x 500ml amber	YES	H2SO4	BC LABS	TOC
	<u>1</u> x 8oz. ambers	YES	HCL	BC LABS	FERROUS IRON
	<u>1</u> x 500ml poly	YES	HNO3	BC LABS	TOTAL MANGANESE
	<u>2</u> x voa vial	YES	NP	BC LABS	METHANE

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 #351638 / 7124
 Site Address: 10151 International Blvd.
 City: Oakland, CA

Job Number: 17155639
 Event Date: 4-6-17 (inclusive)
 Sampler: ML

Well ID: MW-2
 Well Diameter: 4 in.
 Total Depth: 25.18 ft.
 Depth to Water: 13.93 ft.

Date Monitored: 4-6-17

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.

11.25 xVF 66 = 7.4 x3 case volume = Estimated Purge Volume: 22.2 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 16.18

Purge Equipment:

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

Sampling Equipment:

Disposable Bailer X
 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): 0555
 Sample Time/Date: 0625 4-6-17
 Approx. Flow Rate: 2 gpm.
 Did well de-water? no If yes, Time: _____

Weather Conditions: cloudy
 Water Color: clear Odor: Y10
 Sediment Description: none
 Volume: _____ gal. DTW @ Sampling: 14.72

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µS/cm)	Temperature (°F)	D.O. (mg/L)	ORP (mV)
<u>0559</u>	<u>8</u>	<u>6.98</u>	<u>401</u>	<u>18.4</u>	<u>PRE: 0.8</u>	<u>PRE: -11</u>
<u>0603</u>	<u>16</u>	<u>7.06</u>	<u>412</u>	<u>18.7</u>		
<u>0607</u>	<u>24</u>	<u>7.11</u>	<u>417</u>	<u>18.8</u>	<u>POST: 1.0</u>	<u>POST: -27</u>

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-2	6 x vov vial	YES	HCL	BC LABS	TPH-GRO(8015)/BTEX+MTBE(8260)/8 OXYS(8260)
	1 x 1 liter poly	YES	NP	BC LABS	NITRATE/NITRITE/SULFATE/ALKALINITY/DISSOLVED IRON
	1 x 500ml poly	YES	ZnAc	BC LABS	SULFIDE(376.2)
	1 x 500ml amber	YES	H2SO4	BC LABS	TOC
	1 x 8oz. ambers	YES	HCL	BC LABS	FERROUS IRON
	1 x 500ml poly	YES	HNO3	BC LABS	TOTAL MANGANESE
	2 x vov vial	YES	NP	BC LABS	METHANE

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 #351638 / 7124 Job Number: 17155639
 Site Address: 10151 International Blvd. Event Date: 4-6-17 (inclusive)
 City: Oakland, CA Sampler: ML

Well ID: MW-3 Date Monitored: 4-6-17
 Well Diameter: 4 in.
 Total Depth: 25.11 ft.
 Depth to Water: 14.06 ft. Check if water column is less than 0.50 ft.
11.05 xVF 0.66 = 7.2 x3 case volume = Estimated Purge Volume: 21.6 gal.
 Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 16.27

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

Purge Equipment:

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

Sampling Equipment:

Disposable Bailer X
 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): 0645 Weather Conditions: cloudy
 Sample Time/Date: 0715 4-6-17 Water Color: cloudy Odor: YIN
 Approx. Flow Rate: _____ gpm. Sediment Description: light
 Did well de-water? no If yes, Time: _____ Volume: _____ gal. DTW @ Sampling: 15.11

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µS/mS) (µmhos/cm)	Temperature (C/F)	D.O. (mg/L)	ORP (mV)
<u>0649</u>	<u>8</u>	<u>7.12</u>	<u>452</u>	<u>18.1</u>	PRE: <u>1.1</u>	PRE: <u>-26</u>
<u>0653</u>	<u>16</u>	<u>7.20</u>	<u>464</u>	<u>18.4</u>		
<u>0656</u>	<u>22</u>	<u>7.24</u>	<u>469</u>	<u>18.7</u>	POST: <u>1.3</u>	POST: <u>-21</u>

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-3	6 x voa vial	YES	HCL	BC LABS	TPH-GRO(8015)/BTEX+MTBE(8260)/8 OXYS(8260)
	1 x 1 liter poly	YES	NP	BC LABS	NITRATE/NITRITE/SULFATE/ALKALINITY/DISSOLVED IRON
	1 x 500ml poly	YES	ZnAc	BC LABS	SULFIDE(376.2)
	1 x 500ml amber	YES	H2SO4	BC LABS	TOC
	1 x 8oz. ambers	YES	HCL	BC LABS	FERROUS IRON
	1 x 500ml poly	YES	HNO3	BC LABS	TOTAL MANGANESE
	2 x voa vial	YES	NP	BC LABS	METHANE

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 #351638 / 7124 Job Number: 17155639
 Site Address: 10151 International Blvd. Event Date: 4-6-17 (inclusive)
 City: Oakland, CA Sampler: ML

Well ID: MW-4 Date Monitored: 4-6-17
 Well Diameter: 4 in.
 Total Depth: 24.97 ft.
 Depth to Water: 14.77 ft. Check if water column is less than 0.50 ft.
10.20 xVF .666 = 6.7 x3 case volume = Estimated Purge Volume: 20.1 gal.
 Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 16.81

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

Purge Equipment:
 Disposable Bailer _____
 Stainless Steel Bailer _____
 Stack Pump X
 Peristaltic Pump _____
 QED Bladder Pump _____
 Other: _____

Sampling Equipment:
 Disposable Bailer X
 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): 0740 Weather Conditions: Cloudy
 Sample Time/Date: 0810 4-6-17 Water Color: cloudy Odor: light
 Approx. Flow Rate: 2 gpm. Sediment Description: light
 Did well de-water? no If yes, Time: _____ Volume: _____ gal. DTW @ Sampling: 15.36

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µS mS / µmhos/cm)	Temperature (°F)	D.O. (mg/L)	ORP (mV)
<u>0744</u>	<u>8</u>	<u>7.21</u>	<u>428</u>	<u>17.7</u>	<u>PRE: 1.2</u>	<u>PRE: -29</u>
<u>0748</u>	<u>10</u>	<u>7.32</u>	<u>434</u>	<u>18.0</u>		
<u>0751</u>	<u>22</u>	<u>7.30</u>	<u>438</u>	<u>18.2</u>	<u>POST: 1.0</u>	<u>POST: -34</u>

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-4</u>	<u>4</u> x voa vial	YES	HCL	BC LABS	TPH-GRO(8015)/BTEX+MTBE(8260)/8 OXYS(8260)
	<u>1</u> x 1 liter poly	YES	NP	BC LABS	NITRATE/NITRITE/SULFATE/ALKALINITY/DISSOLVED IRON
	<u>1</u> x 500ml poly	YES	ZnAc	BC LABS	SULFIDE(376.2)
	<u>1</u> x 500ml amber	YES	H2SO4	BC LABS	TOC
	<u>1</u> x 8oz. ambers	YES	HCL	BC LABS	FERROUS IRON
	<u>1</u> x 500ml poly	YES	HNO3	BC LABS	TOTAL MANGANESE
	<u>2</u> x voa vial	YES	NP	BC LABS	METHANE


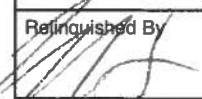

COMMENTS: _____

Add/Replaced Gasket: _____ Add/Replaced Bolt: _____ Add/Replaced Lock: _____ Add/Replaced Plug: _____

CHAIN OF CUSTODY FORM

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

COC 1 of 1

Union Oil Site ID: <u>7124</u>				Union Oil Consultant: <u>ARCADIS</u>				ANALYSES REQUIRED Turnaround Time (TAT): Standard <input checked="" type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 72 Hours <input type="checkbox"/> Special Instructions										
Site Global ID: <u>TC600173591</u>				Consultant Contact: <u>JAMES P. KIERNAN</u>														
Site Address: <u>WISI INTERNATIONAL SLUD,</u> <u>CKLAND, CA</u>				Consultant Phone No.: <u>925-842-3720</u>				TPH - Diesel by EPA 8015	TPH - G by 8015 <u>(C6-C12)(8015)</u>	BTX/MTBE/ 8015 by EPA 8260B	8015	EPA 8260B Full List with OXYS	8 OXYS (8260B)	Nitrate/Nitrite/Nitrate/Nitrite/Ammonia/P-SEMI	SULFIDE	TOC	FERROUS IRON	TOTAL MANGANESE
Union Oil PM: <u>JAMES P. KIERNAN</u>				Sampling Company: <u>Gettler Ryan</u>														
Union Oil PM Phone No.: <u>925-842-3720</u>				Sampled By (PRINT): <u>MIKE LOMBARD</u>				BC Laboratories, Inc. Project Manager: Molly Meyers 4100 Atlas Court, Bakersfield, CA 93308 Phone No. 661-327-4911										
Charge Code: <u>NWRB-0 351638 -0-LAB</u>				Sampler Signature: 														
This is a LEGAL document. ALL fields must be filled out CORRECTLY and COMPLETELY.																		
SAMPLE ID				Sample Time		# of Containers		Notes / Comments										
Field Point Name	Matrix	Depth	Date (yymmdd)															
<u>QA</u>	<u>W-S-A</u>		<u>170406</u>			<u>2</u>												
<u>MW-1</u>	<u>W-S-A</u>		<u>↓</u>	<u>0535</u>		<u>13</u>		<u>- add methane to all samples</u>										
<u>MW-2</u>	<u>W-S-A</u>		<u>↓</u>	<u>0625</u>		<u>13</u>												
<u>MW-3</u>	<u>W-S-A</u>		<u>↓</u>	<u>0715</u>		<u>13</u>												
<u>MW-4</u>	<u>W-S-A</u>		<u>↓</u>	<u>0810</u>		<u>13</u>												
	<u>W-S-A</u>																	
	<u>W-S-A</u>																	
	<u>W-S-A</u>																	
	<u>W-S-A</u>																	
	<u>W-S-A</u>																	
	<u>W-S-A</u>																	
Relinquished By:  Company: <u>Gettler Ryan</u> Date / Time: <u>170406 1415</u>				Relinquished By:  Company: <u>ARCADIS</u> Date / Time: <u>1-17-17</u>				Relinquished By: _____ Company: _____ Date / Time: _____										
Received By: <u>Mike Lombard</u> Company: <u>ARCADIS</u> Date / Time: <u>1-17-17</u>				Received By: <u>James Beggs</u> Company: <u>ARCADIS</u> Date / Time: <u>1-17-17 1:10</u>				Received By: _____ Company: _____ Date / Time: _____										

ATTACHMENT B

Laboratory Report and Chain-of-Custody Documentation





Date of Report: 04/13/2017

Samuel Miles

Arcadis

1100 Olive Way, Suite 800
Seattle, WA 98102

Client Project: 351638
BCL Project: 7124
BCL Work Order: 1709216
Invoice ID: B264617

Enclosed are the results of analyses for samples received by the laboratory on 4/6/2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Molly Meyers
Client Service Rep

Authorized Signature

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101

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BC LABORATORIES INC. COOLER RECEIPT FORM Page 1 Of 1

Submission #: 17-09216

SHIPPING INFORMATION
 Fed Ex UPS Ontrac Hand Delivery
 BC Lab Field Service Other (Specify) _____

SHIPPING CONTAINER
 Ice Chest None Box
 Other (Specify) _____

FREE LIQUID
 YES NO W/S

Refrigerant: Ice Blue Ice None Other Comments: _____

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

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

COC Received YES NO
 Emissivity: 0.97 Container: PE Thermometer ID: 207 Date/Time: 9/6/2016
 Temperature: (A) 0.8 °C / (C) 1.1 °C Analyst Init: GSP

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES		J	J	J	J					
4oz / 8oz / 16oz PE UNPRES										
2oz Cr ⁶										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz		J	J	J	J					
PT CYANIDE										
PT NITROGEN FORMS		K	K	K	K					
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PIA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK	AB									
40ml VOA VIAL		A-E	A-F	A-F	A-F					
QT EPA 1664										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL - 504 RSC		GH	GH	GH	GH					
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548										
QT EPA 549										
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER										
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON		M	M	M	M					
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments: _____ Date/Time: 9/6/2016
 Sample Numbering Completed By: M Date/Time: 4/6/2016
 A = Actual / C = Corrected

Rev 21 05/23/2016
 [S:\WPDoc\WordPerfect\LAB_DOC\FORMS\SAMRECrev 20]

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Arcadis
1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information
------------	---------------------------

1709216-01	COC Number: --- Project Number: 7124 Sampling Location: --- Sampling Point: QA-W-170406 Sampled By: GRD	Receive Date: 04/06/2017 22:30 Sampling Date: 04/06/2017 00:00 Sample Depth: --- Lab Matrix: Water Sample Type: Water Delivery Work Order: Global ID: T0600173591 Location ID (FieldPoint): QA Matrix: W Sample QC Type (SACode): CS Cooler ID:
-------------------	--	--

1709216-02	COC Number: --- Project Number: 7124 Sampling Location: --- Sampling Point: MW-1-W-170406 Sampled By: GRD	Receive Date: 04/06/2017 22:30 Sampling Date: 04/06/2017 05:35 Sample Depth: --- Lab Matrix: Water Sample Type: Water Delivery Work Order: Global ID: T0600173591 Location ID (FieldPoint): MW-1 Matrix: W Sample QC Type (SACode): CS Cooler ID:
-------------------	--	--

1709216-03	COC Number: --- Project Number: 7124 Sampling Location: --- Sampling Point: MW-2-W-170406 Sampled By: GRD	Receive Date: 04/06/2017 22:30 Sampling Date: 04/06/2017 06:25 Sample Depth: --- Lab Matrix: Water Sample Type: Water Delivery Work Order: Global ID: T0600173591 Location ID (FieldPoint): MW-2 Matrix: W Sample QC Type (SACode): CS Cooler ID:
-------------------	--	--

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Arcadis
1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information
------------	---------------------------

1709216-04	COC Number: --- Project Number: 7124 Sampling Location: --- Sampling Point: MW-3-W-170406 Sampled By: GRD	Receive Date: 04/06/2017 22:30 Sampling Date: 04/06/2017 07:15 Sample Depth: --- Lab Matrix: Water Sample Type: Water Delivery Work Order: Global ID: T0600173591 Location ID (FieldPoint): MW-3 Matrix: W Sample QC Type (SACode): CS Cooler ID:
-------------------	--	--

1709216-05	COC Number: --- Project Number: 7124 Sampling Location: --- Sampling Point: MW-4-W-170406 Sampled By: GRD	Receive Date: 04/06/2017 22:30 Sampling Date: 04/06/2017 08:10 Sample Depth: --- Lab Matrix: Water Sample Type: Water Delivery Work Order: Global ID: T0600173591 Location ID (FieldPoint): MW-4 Matrix: W Sample QC Type (SACode): CS Cooler ID:
-------------------	--	--

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Arcadis
1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 1709216-01	Client Sample Name: 7124, QA-W-170406, 4/6/2017 12:00:00AM
----------------------------------	---

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50		EPA-8260B	ND		1
1,2-Dibromoethane	ND	ug/L	0.50		EPA-8260B	ND		1
1,2-Dichloroethane	ND	ug/L	0.50		EPA-8260B	ND		1
Ethylbenzene	ND	ug/L	0.50		EPA-8260B	ND		1
Methyl t-butyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
Toluene	ND	ug/L	0.50		EPA-8260B	ND		1
Total Xylenes	ND	ug/L	1.0		EPA-8260B	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
t-Butyl alcohol	ND	ug/L	10		EPA-8260B	ND		1
Diisopropyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
Ethanol	ND	ug/L	250		EPA-8260B	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	94.0	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	95.5	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	99.2	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260B	04/07/17	04/07/17 13:00	IO1	MS-V10	1	B[D0611

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Arcadis
1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1709216-01	Client Sample Name: 7124, QA-W-170406, 4/6/2017 12:00:00AM
----------------------------------	---

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Gasoline Range Organics (C6 - C12)	ND	ug/L	50		EPA-8015B	ND		1
a,a,a-Trifluorotoluene (FID Surrogate)	85.4	%	70 - 130 (LCL - UCL)		EPA-8015B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B	04/12/17	04/13/17 02:14	AKM	GC-V9	1	B[D0912

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Arcadis
1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 1709216-02	Client Sample Name: 7124, MW-1-W-170406, 4/6/2017 5:35:00AM
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50		EPA-8260B	ND		1
1,2-Dibromoethane	ND	ug/L	0.50		EPA-8260B	ND		1
1,2-Dichloroethane	ND	ug/L	0.50		EPA-8260B	ND		1
Ethylbenzene	ND	ug/L	0.50		EPA-8260B	ND		1
Methyl t-butyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
Toluene	ND	ug/L	0.50		EPA-8260B	ND		1
Total Xylenes	ND	ug/L	1.0		EPA-8260B	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
t-Butyl alcohol	ND	ug/L	10		EPA-8260B	ND		1
Diisopropyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
Ethanol	ND	ug/L	250		EPA-8260B	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	99.4	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	100	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	98.1	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260B	04/07/17	04/07/17 14:47	IO1	MS-V10	1	B[D0611

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Arcadis
1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1709216-02	Client Sample Name: 7124, MW-1-W-170406, 4/6/2017 5:35:00AM
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Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Gasoline Range Organics (C6 - C12)	ND	ug/L	50		EPA-8015B	ND		1
a,a,a-Trifluorotoluene (FID Surrogate)	85.9	%	70 - 130 (LCL - UCL)		EPA-8015B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B	04/12/17	04/13/17 02:34	AKM	GC-V9	1	B[D0912

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Gas Testing in Water

BCL Sample ID: 1709216-02	Client Sample Name: 7124, MW-1-W-170406, 4/6/2017 5:35:00AM
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Methane	ND	mg/L	0.0010		RSK-175M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	RSK-175M	04/11/17	04/12/17 08:41	JH2	GC-V1	1	B[D0884

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Arcadis
1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Water Analysis (General Chemistry)

BCL Sample ID: 1709216-02	Client Sample Name: 7124, MW-1-W-170406, 4/6/2017 5:35:00AM
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Alkalinity as CaCO3	160	mg/L	4.1		EPA-310.1	ND		1
Nitrate as NO3	36	mg/L	0.44		EPA-300.0	ND		2
Sulfate	33	mg/L	1.0		EPA-300.0	ND		2
Iron (II) Species	ND	ug/L	100		SM-3500-FeD	ND		3
Nitrite as NO2	ND	mg/L	0.17		EPA-353.2	ND		4
Total Sulfide	ND	mg/L	0.10		SM-4500SD	ND		5
Non-Volatile Organic Carbon	ND	mg/L	1.0		EPA-415.1	ND		6

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-310.1	04/11/17	04/11/17 12:31	RML	MET-1	1	B[D0937
2	EPA-300.0	04/07/17	04/07/17 19:11	JSW	IC1	1	B[D0649
3	SM-3500-FeD	04/10/17	04/10/17 12:01	RCC	KONE-1	1	B[D0865
4	EPA-353.2	04/07/17	04/07/17 08:25	RCC	KONE-1	1	B[D0780
5	SM-4500SD	04/11/17	04/11/17 13:00	DIW	SPEC06	1	B[D0946
6	EPA-415.1	04/07/17	04/07/17 21:02	ALW	TOC2	1	B[D0647

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Arcadis
1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Metals Analysis

BCL Sample ID: 1709216-02	Client Sample Name: 7124, MW-1-W-170406, 4/6/2017 5:35:00AM
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Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dissolved Iron	ND	ug/L	50		EPA-6010B	ND		1
Total Manganese	330	ug/L	10		EPA-6010B	ND		2

Run #	Method	Prep Date	Run		Instrument	Dilution	QC
			Date/Time	Analyst			Batch ID
1	EPA-6010B	04/10/17	04/13/17 09:49	JCC	PE-OP3	1	B[D0844
2	EPA-6010B	04/10/17	04/10/17 17:21	JCC	PE-OP3	1	B[D0765

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 1709216-03	Client Sample Name: 7124, MW-2-W-170406, 4/6/2017 6:25:00AM
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Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50		EPA-8260B	ND		1
1,2-Dibromoethane	ND	ug/L	0.50		EPA-8260B	ND		1
1,2-Dichloroethane	ND	ug/L	0.50		EPA-8260B	ND		1
Ethylbenzene	ND	ug/L	0.50		EPA-8260B	ND		1
Methyl t-butyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
Toluene	ND	ug/L	0.50		EPA-8260B	ND		1
Total Xylenes	ND	ug/L	1.0		EPA-8260B	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
t-Butyl alcohol	ND	ug/L	10		EPA-8260B	ND		1
Diisopropyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
Ethanol	ND	ug/L	250		EPA-8260B	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	95.9	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	102	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	98.1	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260B	04/07/17	04/07/17 15:05	IO1	MS-V10	1	B[D0611

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Arcadis
1100 Olive Way, Suite 800
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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1709216-03	Client Sample Name: 7124, MW-2-W-170406, 4/6/2017 6:25:00AM
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Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Gasoline Range Organics (C6 - C12)	ND	ug/L	50		EPA-8015B	ND		1
a,a,a-Trifluorotoluene (FID Surrogate)	83.5	%	70 - 130 (LCL - UCL)		EPA-8015B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B	04/12/17	04/13/17 02:55	AKM	GC-V9	1	B[D0912

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Gas Testing in Water

BCL Sample ID: 1709216-03	Client Sample Name: 7124, MW-2-W-170406, 4/6/2017 6:25:00AM
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Methane	ND	mg/L	0.0010		RSK-175M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	RSK-175M	04/11/17	04/12/17 08:46	JH2	GC-V1	1	B[D0884

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Arcadis
1100 Olive Way, Suite 800
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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Water Analysis (General Chemistry)

BCL Sample ID: 1709216-03	Client Sample Name: 7124, MW-2-W-170406, 4/6/2017 6:25:00AM
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Alkalinity as CaCO3	170	mg/L	4.1		EPA-310.1	ND		1
Nitrate as NO3	3.4	mg/L	0.44		EPA-300.0	ND		2
Sulfate	37	mg/L	1.0		EPA-300.0	ND		2
Iron (II) Species	ND	ug/L	100		SM-3500-FeD	ND		3
Nitrite as NO2	ND	mg/L	0.17		EPA-353.2	ND		4
Total Sulfide	ND	mg/L	0.10		SM-4500SD	ND		5
Non-Volatile Organic Carbon	ND	mg/L	1.0		EPA-415.1	ND		6

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-310.1	04/11/17	04/11/17 12:53	RML	MET-1	1	B[D0938
2	EPA-300.0	04/07/17	04/07/17 15:45	JSW	IC1	1	B[D0649
3	SM-3500-FeD	04/10/17	04/10/17 10:54	RCC	KONE-1	1	B[D0865
4	EPA-353.2	04/07/17	04/07/17 08:25	RCC	KONE-1	1	B[D0780
5	SM-4500SD	04/11/17	04/11/17 13:00	DIW	SPEC06	1	B[D0946
6	EPA-415.1	04/07/17	04/07/17 22:43	ALW	TOC2	1	B[D0647

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Metals Analysis

BCL Sample ID: 1709216-03	Client Sample Name: 7124, MW-2-W-170406, 4/6/2017 6:25:00AM
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dissolved Iron	ND	ug/L	50		EPA-6010B	ND		1
Total Manganese	1900	ug/L	10		EPA-6010B	ND		2

Run #	Method	Prep Date	Run		Instrument	Dilution	QC
			Date/Time	Analyst			Batch ID
1	EPA-6010B	04/10/17	04/13/17 09:51	JCC	PE-OP3	1	B[D0844
2	EPA-6010B	04/10/17	04/10/17 17:23	JCC	PE-OP3	1	B[D0765

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 1709216-04	Client Sample Name: 7124, MW-3-W-170406, 4/6/2017 7:15:00AM
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50		EPA-8260B	ND		1
1,2-Dibromoethane	ND	ug/L	0.50		EPA-8260B	ND		1
1,2-Dichloroethane	ND	ug/L	0.50		EPA-8260B	ND		1
Ethylbenzene	ND	ug/L	0.50		EPA-8260B	ND		1
Methyl t-butyl ether	3.0	ug/L	0.50		EPA-8260B	ND		1
Toluene	ND	ug/L	0.50		EPA-8260B	ND		1
Total Xylenes	ND	ug/L	1.0		EPA-8260B	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
t-Butyl alcohol	ND	ug/L	10		EPA-8260B	ND		1
Diisopropyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
Ethanol	ND	ug/L	250		EPA-8260B	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	97.8	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	102	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	92.2	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260B	04/07/17	04/07/17 15:41	IO1	MS-V10	1	B[D0611

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1100 Olive Way, Suite 800
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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1709216-04	Client Sample Name: 7124, MW-3-W-170406, 4/6/2017 7:15:00AM
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Gasoline Range Organics (C6 - C12)	130	ug/L	50		EPA-8015B	ND		1
a,a,a-Trifluorotoluene (FID Surrogate)	85.9	%	70 - 130 (LCL - UCL)		EPA-8015B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B	04/12/17	04/13/17 03:16	AKM	GC-V9	1	B[D0912

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Gas Testing in Water

BCL Sample ID: 1709216-04	Client Sample Name: 7124, MW-3-W-170406, 4/6/2017 7:15:00AM
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Methane	0.0067	mg/L	0.0010		RSK-175M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	RSK-175M	04/11/17	04/12/17 08:50	JH2	GC-V1	1	B[D0884

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Arcadis
1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Water Analysis (General Chemistry)

BCL Sample ID: 1709216-04	Client Sample Name: 7124, MW-3-W-170406, 4/6/2017 7:15:00AM
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Alkalinity as CaCO3	230	mg/L	4.1		EPA-310.1	ND		1
Nitrate as NO3	ND	mg/L	0.44		EPA-300.0	ND		2
Sulfate	25	mg/L	1.0		EPA-300.0	ND		2
Iron (II) Species	2100	ug/L	100		SM-3500-FeD	ND		3
Nitrite as NO2	ND	mg/L	0.17		EPA-353.2	ND		4
Total Sulfide	ND	mg/L	0.10		SM-4500SD	ND		5
Non-Volatile Organic Carbon	ND	mg/L	1.0		EPA-415.1	ND		6

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-310.1	04/11/17	04/11/17 13:07	RML	MET-1	1	B[D0938
2	EPA-300.0	04/07/17	04/07/17 16:01	JSW	IC1	1	B[D0649
3	SM-3500-FeD	04/10/17	04/10/17 10:54	RCC	KONE-1	1	B[D0865
4	EPA-353.2	04/07/17	04/07/17 08:25	RCC	KONE-1	1	B[D0780
5	SM-4500SD	04/11/17	04/11/17 13:00	DIW	SPEC06	1	B[D0946
6	EPA-415.1	04/07/17	04/07/17 22:57	ALW	TOC2	1	B[D0647

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1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Metals Analysis

BCL Sample ID: 1709216-04	Client Sample Name: 7124, MW-3-W-170406, 4/6/2017 7:15:00AM
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dissolved Iron	ND	ug/L	50		EPA-6010B	ND		1
Total Manganese	5300	ug/L	10		EPA-6010B	ND		2

Run #	Method	Prep Date	Run		Instrument	Dilution	QC
			Date/Time	Analyst			Batch ID
1	EPA-6010B	04/10/17	04/13/17 09:53	JCC	PE-OP3	1	B[D0844
2	EPA-6010B	04/10/17	04/10/17 17:24	JCC	PE-OP3	1	B[D0765

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Arcadis
1100 Olive Way, Suite 800
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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 1709216-05	Client Sample Name: 7124, MW-4-W-170406, 4/6/2017 8:10:00AM
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50		EPA-8260B	ND		1
1,2-Dibromoethane	ND	ug/L	0.50		EPA-8260B	ND		1
1,2-Dichloroethane	ND	ug/L	0.50		EPA-8260B	ND		1
Ethylbenzene	ND	ug/L	0.50		EPA-8260B	ND		1
Methyl t-butyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
Toluene	ND	ug/L	0.50		EPA-8260B	ND		1
Total Xylenes	ND	ug/L	1.0		EPA-8260B	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
t-Butyl alcohol	ND	ug/L	10		EPA-8260B	ND		1
Diisopropyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
Ethanol	ND	ug/L	250		EPA-8260B	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50		EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	101	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	95.0	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	97.4	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260B	04/07/17	04/07/17 15:23	IO1	MS-V10	1	B[D0611

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Arcadis
1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1709216-05	Client Sample Name: 7124, MW-4-W-170406, 4/6/2017 8:10:00AM
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Gasoline Range Organics (C6 - C12)	ND	ug/L	50		EPA-8015B	ND		1
a,a,a-Trifluorotoluene (FID Surrogate)	80.0	%	70 - 130 (LCL - UCL)		EPA-8015B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B	04/12/17	04/13/17 03:36	AKM	GC-V9	1	B[D0912

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Gas Testing in Water

BCL Sample ID: 1709216-05	Client Sample Name: 7124, MW-4-W-170406, 4/6/2017 8:10:00AM
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Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Methane	ND	mg/L	0.0010		RSK-175M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	RSK-175M	04/11/17	04/12/17 10:16	JH2	GC-V1	1	B[D0884

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Arcadis
1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Water Analysis (General Chemistry)

BCL Sample ID: 1709216-05	Client Sample Name: 7124, MW-4-W-170406, 4/6/2017 8:10:00AM
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Alkalinity as CaCO3	250	mg/L	4.1		EPA-310.1	ND		1
Nitrate as NO3	18	mg/L	0.44		EPA-300.0	ND		2
Sulfate	44	mg/L	1.0		EPA-300.0	ND		2
Iron (II) Species	130	ug/L	100		SM-3500-FeD	ND		3
Nitrite as NO2	ND	mg/L	0.17		EPA-353.2	ND		4
Total Sulfide	ND	mg/L	0.50		SM-4500SD	ND	A07	5
Non-Volatile Organic Carbon	4.8	mg/L	1.0		EPA-415.1	ND		6

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-310.1	04/11/17	04/11/17 13:15	RML	MET-1	1	B[D0938
2	EPA-300.0	04/07/17	04/07/17 16:18	JSW	IC1	1	B[D0649
3	SM-3500-FeD	04/10/17	04/10/17 10:54	RCC	KONE-1	1	B[D0865
4	EPA-353.2	04/07/17	04/07/17 08:25	RCC	KONE-1	1	B[D0780
5	SM-4500SD	04/11/17	04/11/17 13:00	DIW	SPEC06	5	B[D0946
6	EPA-415.1	04/07/17	04/07/17 23:11	ALW	TOC2	1	B[D0647

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Metals Analysis

BCL Sample ID: 1709216-05	Client Sample Name: 7124, MW-4-W-170406, 4/6/2017 8:10:00AM
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dissolved Iron	ND	ug/L	50		EPA-6010B	ND		1
Total Manganese	2100	ug/L	10		EPA-6010B	ND		2

Run #	Method	Prep Date	Run		Instrument	Dilution	QC
			Date/Time	Analyst			Batch ID
1	EPA-6010B	04/10/17	04/13/17 09:54	JCC	PE-OP3	1	B[D0844
2	EPA-6010B	04/10/17	04/10/17 17:26	JCC	PE-OP3	1	B[D0765

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B[D0611]						
Benzene	B[D0611-BLK1	ND	ug/L	0.50		
1,2-Dibromoethane	B[D0611-BLK1	ND	ug/L	0.50		
1,2-Dichloroethane	B[D0611-BLK1	ND	ug/L	0.50		
Ethylbenzene	B[D0611-BLK1	ND	ug/L	0.50		
Methyl t-butyl ether	B[D0611-BLK1	ND	ug/L	0.50		
Toluene	B[D0611-BLK1	ND	ug/L	0.50		
Total Xylenes	B[D0611-BLK1	ND	ug/L	1.0		
t-Amyl Methyl ether	B[D0611-BLK1	ND	ug/L	0.50		
t-Butyl alcohol	B[D0611-BLK1	ND	ug/L	10		
Diisopropyl ether	B[D0611-BLK1	ND	ug/L	0.50		
Ethanol	B[D0611-BLK1	ND	ug/L	250		
Ethyl t-butyl ether	B[D0611-BLK1	ND	ug/L	0.50		
1,2-Dichloroethane-d4 (Surrogate)	B[D0611-BLK1	94.3	%	75 - 125 (LCL - UCL)		
Toluene-d8 (Surrogate)	B[D0611-BLK1	99.1	%	80 - 120 (LCL - UCL)		
4-Bromofluorobenzene (Surrogate)	B[D0611-BLK1	96.6	%	80 - 120 (LCL - UCL)		

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab
								Percent Recovery	RPD	
QC Batch ID: B[D0611										
Benzene	B[D0611-BS1	LCS	26.650	25.000	ug/L	107		70 - 130		
Toluene	B[D0611-BS1	LCS	25.940	25.000	ug/L	104		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	B[D0611-BS1	LCS	9.5100	10.000	ug/L	95.1		75 - 125		
Toluene-d8 (Surrogate)	B[D0611-BS1	LCS	9.9600	10.000	ug/L	99.6		80 - 120		
4-Bromofluorobenzene (Surrogate)	B[D0611-BS1	LCS	9.9300	10.000	ug/L	99.3		80 - 120		

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent		Lab Quals
								Recovery	Control Limits RPD	
QC Batch ID: B[D0611]		Used client sample: N								
Benzene	MS	1705207-52	ND	26.940	25.000	ug/L		108		70 - 130
	MSD	1705207-52	ND	27.440	25.000	ug/L	1.8	110	20	70 - 130
Toluene	MS	1705207-52	ND	26.840	25.000	ug/L		107		70 - 130
	MSD	1705207-52	ND	28.510	25.000	ug/L	6.0	114	20	70 - 130
1,2-Dichloroethane-d4 (Surrogate)	MS	1705207-52	ND	9.1200	10.000	ug/L		91.2		75 - 125
	MSD	1705207-52	ND	9.2500	10.000	ug/L	1.4	92.5		75 - 125
Toluene-d8 (Surrogate)	MS	1705207-52	ND	10.210	10.000	ug/L		102		80 - 120
	MSD	1705207-52	ND	9.9800	10.000	ug/L	2.3	99.8		80 - 120
4-Bromofluorobenzene (Surrogate)	MS	1705207-52	ND	9.8400	10.000	ug/L		98.4		80 - 120
	MSD	1705207-52	ND	9.9000	10.000	ug/L	0.6	99.0		80 - 120

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Arcadis
1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B[D0912]						
Gasoline Range Organics (C6 - C12)	B[D0912-BLK1]	ND	ug/L	50		
a,a,a-Trifluorotoluene (FID Surrogate)	B[D0912-BLK1]	107	%	70 - 130 (LCL - UCL)		

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab
								Percent Recovery	RPD	
QC Batch ID: B[D0912										
Gasoline Range Organics (C6 - C12)	B[D0912-BS1	LCS	1146.9	1000.0	ug/L	115		85 - 115		
a,a,a-Trifluorotoluene (FID Surrogate)	B[D0912-BS1	LCS	44.095	40.000	ug/L	110		70 - 130		

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Control Limits		Lab Quals
								Percent Recovery	Percent Recovery	
QC Batch ID: B[D0912		Used client sample: N								
Gasoline Range Organics (C6 - C12)	MS	1705207-64	ND	962.36	1000.0	ug/L		96.2		70 - 130
	MSD	1705207-64	ND	1027.0	1000.0	ug/L	6.5	103	20	70 - 130
a,a,a-Trifluorotoluene (FID Surrogate)	MS	1705207-64	ND	45.442	40.000	ug/L		114		70 - 130
	MSD	1705207-64	ND	43.491	40.000	ug/L	4.4	109		70 - 130

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1100 Olive Way, Suite 800
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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Gas Testing in Water

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B[D0884]						
Methane	B[D0884-BLK1	ND	mg/L	0.0010		

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Gas Testing in Water

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab
								Percent Recovery	RPD	
QC Batch ID: B[D0884										
Methane	B[D0884-BS1	LCS	0.010740	0.010843	mg/L	99.1		80 - 120		
	B[D0884-BSD1	LCSD	0.011360	0.010843	mg/L	105	5.6	80 - 120	20	

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Arcadis
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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B[D0647]						
Non-Volatile Organic Carbon	B[D0647-BLK1	ND	mg/L	1.0		
QC Batch ID: B[D0649]						
Nitrate as NO3	B[D0649-BLK1	ND	mg/L	0.44		
Sulfate	B[D0649-BLK1	ND	mg/L	1.0		
QC Batch ID: B[D0780]						
Nitrite as NO2	B[D0780-BLK1	ND	mg/L	0.17		
QC Batch ID: B[D0865]						
Iron (II) Species	B[D0865-BLK1	ND	ug/L	100		
QC Batch ID: B[D0937]						
Total Alkalinity as CaCO3	B[D0937-BLK1	ND	mg/L	4.1		
QC Batch ID: B[D0938]						
Total Alkalinity as CaCO3	B[D0938-BLK1	ND	mg/L	4.1		
QC Batch ID: B[D0946]						
Total Sulfide	B[D0946-BLK1	ND	mg/L	0.10		

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab Quals
								Percent Recovery	RPD	
QC Batch ID: B[D0647]										
Non-Volatile Organic Carbon	B[D0647-BS1]	LCS	5.2690	5.0000	mg/L	105		85 - 115		
QC Batch ID: B[D0649]										
Nitrate as NO3	B[D0649-BS1]	LCS	21.497	22.134	mg/L	97.1		90 - 110		
Sulfate	B[D0649-BS1]	LCS	96.577	100.00	mg/L	96.6		90 - 110		
QC Batch ID: B[D0780]										
Nitrite as NO2	B[D0780-BS1]	LCS	1.6525	1.6425	mg/L	101		90 - 110		
QC Batch ID: B[D0865]										
Iron (II) Species	B[D0865-BS1]	LCS	2424.8	2500.0	ug/L	97.0		90 - 110		
QC Batch ID: B[D0937]										
Total Alkalinity as CaCO3	B[D0937-BS3]	LCS	102.99	100.00	mg/L	103		90 - 110		
QC Batch ID: B[D0938]										
Total Alkalinity as CaCO3	B[D0938-BS3]	LCS	99.650	100.00	mg/L	99.6		90 - 110		
QC Batch ID: B[D0946]										
Total Sulfide	B[D0946-BS1]	LCS	0.49445	0.50000	mg/L	98.9		90 - 110		

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Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Control Limits		Lab Quals
								Percent Recovery	Percent Recovery	
QC Batch ID: B[D0647]		Used client sample: Y - Description: MW-1-W-170406, 04/06/2017 05:35								
Non-Volatile Organic Carbon	DUP	1709216-02	0.80100	ND		mg/L			10	
	MS	1709216-02	0.80100	6.4774	5.0251	mg/L		113		80 - 120
	MSD	1709216-02	0.80100	6.4714	5.0251	mg/L	0.1	113	10	80 - 120
QC Batch ID: B[D0649]		Used client sample: N								
Nitrate as NO3	DUP	1709211-01	12.997	12.869		mg/L	1.0		10	
	MS	1709211-01	12.997	35.750	22.358	mg/L		102		80 - 120
	MSD	1709211-01	12.997	36.152	22.358	mg/L	1.1	104	10	80 - 120
Sulfate	DUP	1709211-01	35.000	34.894		mg/L	0.3		10	
	MS	1709211-01	35.000	142.29	101.01	mg/L		106		80 - 120
	MSD	1709211-01	35.000	142.91	101.01	mg/L	0.4	107	10	80 - 120
QC Batch ID: B[D0780]		Used client sample: N								
Nitrite as NO2	DUP	1709120-01	ND	ND		mg/L			10	
	MS	1709120-01	ND	1.7399	1.7289	mg/L		101		90 - 110
	MSD	1709120-01	ND	1.7365	1.7289	mg/L	0.2	100	10	90 - 110
QC Batch ID: B[D0865]		Used client sample: Y - Description: MW-1-W-170406, 04/06/2017 05:35								
Iron (II) Species	DUP	1709216-02	ND	ND		ug/L			10	
QC Batch ID: B[D0937]		Used client sample: N								
Total Alkalinity as CaCO3	DUP	1708857-01	105.58	106.04		mg/L	0.4		10	
QC Batch ID: B[D0938]		Used client sample: Y - Description: MW-2-W-170406, 04/06/2017 06:25								
Total Alkalinity as CaCO3	DUP	1709216-03	167.80	168.72		mg/L	0.5		10	
QC Batch ID: B[D0946]		Used client sample: N								
Total Sulfide	DUP	1709386-01	ND	ND		mg/L			10	
	MS	1709386-01	ND	0.48591	0.50000	mg/L		97.2		80 - 120
	MSD	1709386-01	ND	0.47908	0.50000	mg/L	1.4	95.8	10	80 - 120

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Arcadis
1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B[D0765]						
Total Manganese	B[D0765-BLK1	ND	ug/L	10		
QC Batch ID: B[D0844]						
Dissolved Iron	B[D0844-BLK1	ND	ug/L	50		

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Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Metals Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab
								Percent Recovery	RPD	
QC Batch ID: B[D0765]										
Total Manganese	B[D0765-BS1	LCS	477.77	500.00	ug/L	95.6		85	115	
QC Batch ID: B[D0844]										
Dissolved Iron	B[D0844-BS1	LCS	1116.1	1000.0	ug/L	112		85	115	

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1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery		Lab Quals
								RPD	Percent Recovery	
QC Batch ID: B[D0765]		Used client sample: N								
Total Manganese	DUP	1709225-01	ND	ND		ug/L			20	
	MS	1709225-01	ND	474.26	500.00	ug/L		94.9		75 - 125
	MSD	1709225-01	ND	480.46	500.00	ug/L	1.3	96.1	20	75 - 125
QC Batch ID: B[D0844]		Used client sample: N								
Dissolved Iron	DUP	1709516-01	ND	ND		ug/L			20	
	MS	1709516-01	ND	1091.0	1020.4	ug/L		107		75 - 125
	MSD	1709516-01	ND	1081.3	1020.4	ug/L	0.9	106	20	75 - 125

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1100 Olive Way, Suite 800
Seattle, WA 98102

Reported: 04/13/2017 16:24
Project: 7124
Project Number: 351638
Project Manager: Samuel Miles

Notes And Definitions

- MDL Method Detection Limit
- ND Analyte Not Detected
- PQL Practical Quantitation Limit
- A07 Detection and quantitation limits were raised due to sample dilution caused by high analyte concentration or matrix interference.