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Fourth Quarter 2015 Semi-Annual Groundwater Monitoring Report

Former Chevron-branded Service Station 92029 890 West MacArthur Boulevard Oakland, California Case #: RO0002438



Prepared for: Chevron Environmental Management Company 6101 Bollinger Canyon Road San Ramon, CA 94583

Prepared by: Stantec Consulting Services Inc. 15575 Los Gatos Blvd., Building C Los Gatos, CA 95032



Carryl MacLeod Project Manager Marketing Business Unit Chevron Environmental Management Company 6101 Bollinger Canyon Road San Ramon, CA 94583 Tel (925) 790-6506 CMacleod@chevron.com

February 12, 2016

Mr. Mark Detterman Alameda County Environmental Health 1131 Harbor Bay Parkway, Suite 250 Alameda, CA 94502

Dear Mr. Detterman:

Attached for your review is the *Fourth Quarter 2015 Semi-Annual Groundwater Monitoring Report* for former Chevron-branded service station 92029, located at 890 West MacArthur Boulevard in Oakland, California (**Case #:** RO0002438). This report was prepared by Stantec Consulting Services Inc. (Stantec), upon whose assistance and advice I have relied. I declare under penalty of perjury that the information and/or recommendations contained in the attached report are true and correct, to the best of my knowledge.

If you should have any further questions, please do not hesitate to contact me or the Stantec project manager, Travis Flora, at (408) 356-6124 ext. 238, or travis.flora@stantec.com.

Sincerely,

Carryl MacLeod Project Manager

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February 12, 2016

Attention: Mr. Mark Detterman

Alameda County Environmental Health

1131 Harbor Bay Parkway, Suite 250, Alameda, CA 94502

Reference: Fourth Quarter 2015 Semi-Annual Groundwater Monitoring Report

Former Chevron-branded Service Station 92029 890 West MacArthur Boulevard, Oakland, California

Case #: RO0002438

Dear Mr. Detterman:

On behalf of Chevron Environmental Management Company (Chevron), Stantec Consulting Services Inc. (Stantec) is pleased to submit the Fourth Quarter 2015 Semi-Annual Groundwater Monitoring Report for former Chevron-branded service station 92029, located at 890 West MacArthur Boulevard, Oakland, Alameda County, California (Site - shown on **Figure 1**). This report is presented in three sections: Site Background, Fourth Quarter 2015 Groundwater Monitoring and Sampling Program, and Conclusions and Recommendations.

SITE BACKGROUND

The Site is a former Chevron-branded service station located on the northeast corner at the intersection of West MacArthur Boulevard and Market Street in Oakland, California. The Site is currently a fenced vacant lot. A former Chevron-branded service station operated at the Site from approximately 1956 to 2004. Prior to 1970, Site features consisted of two 5,000-gallon and one 3,000-gallon gasoline underground storage tanks (USTs) located in the eastern portion of the Site, three fuel dispenser islands (one located in the northwestern portion of the Site and two located in the central portion of the Site), associated product piping, a station building with two hydraulic hoists, and a waste oil UST (unknown size) located in the northern portion of the Site. The product piping was replaced in 1970, and the 3,000-gallon UST was replaced with a 10,000-gallon UST sometime before 1978. In 1982, the two 5,000-gallon and one 10,000-gallon USTs were replaced with three 10,000-gallon fiberglass USTs.

In 1984, the service station building was demolished, the hydraulic hoists were removed, and a kiosk was installed near the center of the Site. In addition, the three fuel dispenser islands were removed from the Site and replaced with five fuel dispenser islands (two located in the north-central portion of the Site and three located in the south-central portion of the Site). The fuel dispenser islands were replaced and the USTs were upgraded in 1997. The waste oil UST was removed from the Site sometime between 1984 and 1997. In 2005, the service station was closed and all Site structures, including the three 10,000-gallon fiberglass USTs and fuel dispenser islands, were removed. According to the Well Installation Report, prepared by Conestoga-Rovers & Associates (CRA) and dated November 18, 2008, extensive over-excavation was performed at this time and approximately 5,135 tons of impacted soil and 25,500 gallons of groundwater were removed and disposed off Site.

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Land use near the Site consists of a mixture of commercial and residential properties. The Site is bounded to the north by a residential area, on the west by Market Street followed by a small grocery store and associated parking, on the south by West MacArthur Boulevard followed by a tire sales and service shop, and to the east by a motel.

In a letter dated October 29, 2015, Alameda County Environmental Health (ACEH) responded to the Second Quarter 2015 Semi-Annual Groundwater Monitoring Report, dated June 25, 2015 and the Site Investigation Report, dated September 4, 2015. In the letter, ACEH stated that with the collection of data from the two reports, the Site meets Low-Threat UST Case Closure Policy (LTCP) general, groundwater-specific, and direct-contact criteria, but still fails to meet petroleum vapor intrusion to indoor air criteria. ACEH requested continued semi-annual groundwater monitoring and that the Fourth Quarter 2015 groundwater monitoring report be submitted by January 15, 2016. In a letter dated December 15, 2015, Stantec requested an extension on the Fourth Quarter 2015 groundwater monitoring report to February 12, 2016 due to the short time frame between the groundwater monitoring event (December 29, 2015) and original due date. ACEH approved this extension in email correspondence dated January 6, 2016.

As noted above, ACEH agrees that groundwater-specific LTCP criteria have been met; therefore, fuel oxygenates di-isopropyl ether (DIPE), ethyl tertiary-butyl ether (EtBE), tertiary-amyl methyl ether (TAME), and tertiary-butyl alcohol (TBA) were removed from the groundwater sampling program prior to the Fourth Quarter 2015 event.

FOURTH QUARTER 2015 GROUNDWATER MONITORING AND SAMPLING PROGRAM

Gettler-Ryan Inc. (G-R) performed the Fourth Quarter 2015 groundwater monitoring and sampling event on December 29, 2015. G-R's standard operating procedures (SOPs) and field data sheets are included in **Attachment A**. G-R gauged depth-to-groundwater (DTW) in four Site wells (MW-5 through MW-8) prior to collecting groundwater samples for laboratory analysis. All four wells, which are located down-gradient of the Site, were sampled. Sheen was noted in well MW-6 during sampling.

Investigation-derived waste (IDW) generated during the Fourth Quarter 2015 groundwater monitoring and sampling event was transported by Clean Harbors Environmental Services to Seaport Environmental in Redwood City, California.

Groundwater Elevation and Gradient

Well construction details and a screen interval assessment for each Site well are presented in **Table 1**. All four Site wells are currently screened across the prevailing groundwater table. Current and historical groundwater elevation data are presented in **Table 2**. A groundwater elevation contour map (based on Fourth Quarter 2015 data) is shown on **Figure 2**. The direction of groundwater flow at the time of sampling was generally towards the southwest at an average hydraulic gradient of approximately 0.023 feet per foot (ft/ft). This is generally consistent with the historical direction of groundwater flow, as shown by the groundwater flow direction rose diagram on **Figure 3** illustrating the direction of groundwater flow from First Quarter 2002 to present.

Schedule of Laboratory Analysis

Groundwater samples were analyzed for total petroleum hydrocarbons as gasoline range organics (TPH-GRO) using United States Environmental Protection Agency (US EPA) Method

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8015B (SW-846) and benzene, toluene, ethylbenzene, and total xylenes (BTEX compounds) and methyl tertiary-butyl ether (MtBE) using US EPA Method 8260B (SW-846).

Groundwater Analytical Results

During Fourth Quarter 2015, groundwater samples were collected from four Site wells (MW-5 through MW-8). Current and historical groundwater analytical results are included in **Table 2** and **Table 3**. A figure showing the latest groundwater analytical data plotted on a Site map is included as **Figure 4**. A TPH-GRO isoconcentration map is shown on **Figure 5**. A benzene isoconcentration map is shown on **Figure 6**. A MtBE isoconcentration map is shown on **Figure 7**.

Certified laboratory analysis reports and chain-of-custody documents are presented as **Attachment B**. Hydrographs based on current and historical groundwater elevations and analytical results are included in **Attachment C**. A summary of Fourth Quarter 2015 groundwater analytical results follows:

- TPH-GRO was detected in three Site wells, at concentrations of 4,500 micrograms per liter (μg/L; well MW-5), 6,000 μg/L (well MW-7), and 7,700 μg/L (well MW-6), which are within historical limits for each respective well.
- Benzene was detected in three Site wells, at concentrations of 3 μg/L (well MW-5), 88 μg/L (well MW-7), and 170 μg/L (well MW-6), which are within historical limits for each respective well.
- Toluene was detected in three Site wells, at concentrations of 0.5 μg/L (well MW-7), 2 μg/L (well MW-5), and 4 μg/L (well MW-6), which are within historical limits for each respective well.
- Ethylbenzene was detected in three Site wells, at concentrations of 3 μg/L (well MW-5), 22 μg/L (well MW-6), and 120 μg/L (well MW-7), which are within historical limits for each respective well.
- **Total Xylenes** were detected in three Site wells, at concentrations of 1 µg/L (well MW-6) and 2 µg/L (wells MW-5 and MW-7), which are within historical limits for each respective well.
- MtBE was detected in two Site wells, at concentrations of 3 µg/L (well MW-7) and 15 µg/L (well MW-6). The concentration in well MW-6 is within historical limits, while the concentration in well MW-7 is equal to the historical low.

CONCLUSIONS AND RECOMMENDATIONS

During Fourth Quarter 2015, maximum concentrations of petroleum hydrocarbons were observed in well MW-6, located down-gradient of former service station features (fuel dispenser islands and gasoline USTs) situated in the southern and eastern portions of the Site, and in well MW-7, which is located approximately 95 feet down-gradient of well MW-6. TPH-GRO and BTEX compounds were also detected in well MW-5, located down-gradient of former service station features (fuel dispenser islands, hydraulic hoists, and waste oil UST) situated in the northern portion of the Site. The dissolved-phase petroleum hydrocarbon plume does not appear to extend to furthest down-gradient well MW-8, which is approximately 190 feet southwest of the Site.

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Although the Site meets LTCP groundwater-specific criteria, per ACEH correspondence dated October 29, 2015, the semi-annual groundwater monitoring and sampling program will continue. Should a Second Quarter 2016 groundwater monitoring report be required, it will be submitted by July 15, 2016.

ACEH has requested a meeting with Chevron, Stantec, and the property owner to discuss an efficient strategy to progress the Site towards closure and redevelopment as residential property. Meeting dates previously proposed by Stantec have passed, so new dates will have to be proposed if ACEH would still like to meet.

If you have any questions, please contact the Stantec Project Manager, Travis Flora, at (408) 356-6124 or <u>Travis.Flora@stantec.com</u>.

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LIMITATIONS

Senior Geologist

This document entitled Fourth Quarter 2015 Semi-Annual Groundwater Monitoring Report was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of Chevron Environmental Management Company (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

based on this do	ocument.	
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Reviewed by	(signature)	Exp 07/31/16 Exp 07/31/16 FOR CALIFORNIE
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Attachments:

Table 1 – Well Details / Screen Interval Assessment – Fourth Quarter 2015

Table 2 – Groundwater Monitoring Data and Analytical Results

Table 3 – Additional Groundwater Analytical Results

Figure 1 – Site Location Map

Figure 2 – Groundwater Elevation Contour Map – Fourth Quarter 2015

Figure 3 – Groundwater Flow Direction Rose Diagram – Fourth Quarter 2015

Figure 4 – Site Plan Showing Groundwater Concentrations – Fourth Quarter 2015

Figure 5 – TPH-GRO Isoconcentration Map – Fourth Quarter 2015

Figure 6 – Benzene Isoconcentration Map – Fourth Quarter 2015

Figure 7 – MtBE Isoconcentration Map – Fourth Quarter 2015

Attachment A – Gettler-Ryan Inc. Field Data Sheets and Standard Operating Procedures – Fourth Quarter 2015

Attachment B – Certified Laboratory Analysis Reports and Chain-of-Custody Documents Attachment C – Hydrographs

cc:

Ms. Carryl MacLeod, Chevron Environmental Management Company, 6101 Bollinger Canyon Road, San Ramon, CA 94583 – Electronic Copy

Mr. Buyandalai Itgel, 787 Marlesta Road, Pinole, CA 94564 – Electronic Copy



Table 1 Well Details / Screen Interval Assessment Fourth Quarter 2015

Former Chevron-Branded Service Station 92029 890 West MacArthur Boulevard, Oakland, California

Well ID	Date Installed	Well Type	Casing Diameter (inches)	Top of Casing (feet above msl)	Construction Well Depth (feet bgs)	Current Well Depth ¹ (feet below TOC)	Current Depth to Groundwater ¹ (feet below TOC)	Screen Interval (feet bgs)	Screen Interval Assessment
MW-5	07/24/08	Monitoring	2	49.39	25.00	24.98	7.13	5-25	Depth-to-groundwater within screen interval.
MW-6	07/24/08	Monitoring	2	49.07	25.00	24.95	6.21	5-25	Depth-to-groundwater within screen interval.
MW-7	07/24/08	Monitoring	2	48.74	25.00	24.88	7.68	5-25	Depth-to-groundwater within screen interval.
MW-8	07/24/08	Monitoring	2	47.61	25.00	25.00	9.58	5-25	Depth-to-groundwater within screen interval.

Notes:

bgs = below ground surface

msl = mean sea level

TOC = top of casing

¹ = As measured prior to groundwater sampling on December 29, 2015.

Table 2
Groundwater Monitoring Data and Analytical Results

WELL ID/ DATE	TOC* (ff.)	DTW (ff.)	GWE (msl)	TPH-GRO (µg/L)	B (µg/L)	Τ (μg/L)	E (µg/L)	Χ (μg/L)	MtBE (µg/L)
DAIE		<u>(π.)</u> dwater ESL	(IIISI)	100	<u>(μ9/<i>ι</i>)</u> 1	(μg/L) 40	(μg/L) 30	20	(μg/ <i>L</i>)
					'				
MW-5									
08/22/08 ¹	49.39	9.97	39.42						
08/27/08 ³	49.39	10.03	39.36	54	0.5	0.8	<0.5	0.7	10
11/21/08 ³	49.39	8.42	40.97	6,000	93	6	37	6	8
02/13/09 ³	49.39	7.11	42.28	5,100	31	5	20	3	6
05/08/09 ³	49.39	7.21	42.18	3,600	18	4	14	2	2
08/07/09 ³	49.39	9.60	39.79	520	0.7	<0.5	<0.5	<0.5	2
11/05/09 ³	49.39	7.08	42.31	7,400	16	5	18	4	0.9
05/06/10 ³	49.39	6.08	43.31	3,500	4	2	3	0.9	0.9
11/03/10 ⁵	49.39	9.05	40.34	5,000	13	4	8	3	0.9
05/10/11 ⁵	49.39	7.26	42.13	3,200	6	4	7	0.9	<0.5
11/10/11 ⁵	49.39	7.60	41.79	2,600	6	3	10	2	<0.5
05/11/12 ⁵	49.39	6.48	42.91	3,300	<3	<3	<3	<3	<3
11/14/12 ³	49.39	8.89	40.50	2,100	3	2	3	0.6	< 0.5
05/08/13 ³	49.39	8.41	40.98	2,100	2	0.9	2	<0.5	< 0.5
11/06/13 ³	49.39	9.81	39.58	160	<0.5	<0.5	<0.5	<0.5	< 0.5
05/14/14 ³	49.39	6.74	42.65	3,500	1	2	4	<0.5	< 0.5
11/19/14	49.39	INACCESSIBLE	; FLOODED WI	TH SURFACE WATER					
05/07/15 ³	49.39	7.08	42.31	2,800	1	1	2	<0.5	< 0.5
12/29/15 ³	49.39	7.13	42.26	4,500	3	2	3	2	<0.5
MW-6									
08/22/08 ¹	49.07	8.98	40.09						
08/27/08 ³	49.07	8.98	40.09	6,000	990	4	350	530	440
11/21/08 ³	49.07	8.12	40.95	14,000	1,000	15	1,300	550	300
02/13/09 ³	49.07	5.84	43.23	9,700	630	4	510	36	180
05/08/09 ³	49.07	5.77	43.30	7,600	240	4	470	67	38
08/07/09 ³	49.07	8.49	40.58	14,000	1,500	12	1,400	180	330
11/05/09 ³	49.07	6.72	42.35	22,000	870	8	1,300	130	160
05/06/10 ³	49.07	4.89	44.18	5,200	110	2	160	23	9
11/03/10 ⁵	49.07	8.05	41.02	13,000	1,100	8	670	58	160
05/10/11 ^{4,5}	49.07	8.56	40.51	<50	0.6	<0.5	<0.5	<0.5	<0.5
11/10/11 ⁵	49.07	7.59	41.48	5,700	260	7	180	13	37
05/11/12 ⁵	49.07	5.68	43.39	1,200	36	0.6	0.8	<0.5	1
11/14/12 ³	49.07	9.83	39.24	6,400	290	9	180	6	36
05/08/13 ³	49.07	7.03 7.21	41.86	2,000	2 7 0 77	1	9	<0.5	6
11/06/13 ³	49.07 49.07	7.21 9.27	39.80	5,300	330 ⁶	3 ⁶	9 8 ⁶	16	78 ⁶

Table 2 Groundwater Monitoring Data and Analytical Results

WELL ID/ DATE	TOC* (ff.)	DTW (ff.)	GWE (msl)	TPH-GRO (μg/L)	Β (μg/L)	Τ (μg/L)	Ε (μg/L)	Χ (μg/L)	MtBE (μg/L)
	Groun	dwater ESL		100	1	40	30	20	5
MW-6 (cont)									
05/14/14 ³	49.07	6.29	42.78	5,000	140	6	46	2	10
11/19/14	49.07	INACCESSIBLE	E; FLOODED WI	TH SURFACE WATER					
05/07/15 ³	49.07	7.20	41.87	3,600	19	2	7	<0.5	2
12/29/15 ³	49.07	6.21	42.86	7,700	170	4	22	1	15
MW-7									
08/22/08 ¹	48.74	10.20	38.54						
08/27/08 ³	48.74	10.19	38.55	<50	<0.5	0.6	<0.5	0.7	6
11/21/08 ³	48.74	9.51	39.23	1,100	80	<0.5	65	0.7	6
02/13/09 ³	48.74	7.95	40.79	630	30	<0.5	38	0.9	7
05/08/09 ³	48.74	8.04	40.70	1,200	83	<0.5	190	2	8
08/07/09 ³	48.74	9.88	38.86	8,900	240	0.7	770	5	5
11/05/09 ³	48.74	9.03	39.71	12,000	630	<1	1,300	420	5
05/06/10 ³	48.74	7.88	40.86	4,000	190	<0.5	270	7	6
11/03/10 ⁵	48.74	9.48	39.26	5,700	150	0.7	45	2	4
05/10/11 ⁵	48.74	8.82	39.92	3,500	180	<0.5	150	2	5
11/10/11 ⁵	48.74	9.68	39.06	1,500	2	<0.5	2	<0.5	5
05/11/12 ⁵	48.74	8.37	40.37	9,200	440	<5	1,000	33	<5
11/14/12 ³	48.74	9.79	38.95	5,000	<3	<3	6	<3	4
05/08/13 ³	48.74	9.54	39.20	2,200	10	<0.5	2	<0.5	5
11/06/13 ³	48.74	10.60	38.14	790	<0.5	<0.5	<0.5	<0.5	4
05/14/14 ³	48.74	8.73	40.01	8,200	380 ⁶	<16	460 ⁶	34 ⁶	46
11/19/14 ³	48.74	10.33	38.41	1,200	0.6	<0.5	1	<0.5	5
05/07/15 ³	48.74	9.33	39.41	5,000	24	0.8	19	1	3
12/29/15 ³	48.74	7.68	41.06	6,000	88	0.5	120	2	3
MW-8									
08/22/08 ¹	47.61	12.41	35.20						
08/27/08 ³	47.61	12.42	35.19	<50	<0.5	0.7	<0.5	0.6	<0.5
11/21/08 ³	47.61	11.42	36.19	<50	<0.5	<0.5	<0.5	<0.5	<0.5
02/13/09 ³	47.61	8.87	38.74	<50	<0.5	<0.5	<0.5	<0.5	<0.5
05/08/09 ³	47.61	10.79	36.82	<50	<0.5	<0.5	<0.5	<0.5	<0.5
08/07/09 ³	47.61	12.33	35.28	<50	<0.5	<0.5	<0.5	<0.5	<0.5
11/05/09 ³	47.61	11.23	36.38	<50	<0.5	<0.5	<0.5	<0.5	<0.5
05/06/10 ³	47.61	10.28	37.33	<50	<0.5	<0.5	<0.5	<0.5	<0.5
11/03/10 ⁵	47.61	11.37	36.24	<50	<0.5	<0.5	<0.5	<0.5	<0.5
05/10/11 ⁵	47.61	11.55	36.06	<50	<0.5	<0.5	<0.5	<0.5	<0.5

Table 2 Groundwater Monitoring Data and Analytical Results

WELL ID/	TOC*	DTW	GWE	TPH-GRO	Β (μg/L)	Τ (μg/L)	Ε (μg/L)	Χ (μg/L)	M†BE
DATE	(ft.)	(ft.)	(msl)	(μg/L)					(µg/L)
	Groundy	vater ESL		100	1	40	30	20	5
MW-8 (cont)									
11/10/11 ⁵	47.61	11.49	36.12	<50	<0.5	<0.5	<0.5	< 0.5	<0.5
05/11/12 ⁵	47.61	10.89	36.72	<50	<0.5	<0.5	<0.5	<0.5	<0.5
11/14/12 ³	47.61	11.73	35.88	<50	<0.5	<0.5	<0.5	<0.5	<0.5
05/08/13 ³	47.61	12.03	35.58	<50	<0.5	<0.5	< 0.5	<0.5	<0.5
11/06/13 ³	47.61	12.63	34.98	<50	<0.5	<0.5	< 0.5	<0.5	<0.5
05/14/14 ³	47.61	11.69	35.92	<50	<0.5	<0.5	<0.5	<0.5	<0.5
11/19/14 ³	47.61	12.33	35.28	<50	<0.5	<0.5	< 0.5	<0.5	<0.5
05/07/15 ³	47.61	11.79	35.82	<50	<0.5	< 0.5	< 0.5	<0.5	<0.5
12/29/15 ³	47.61	9.58	38.03	<50	<0.5	<0.5	<0.5	<0.5	<0.5
MW-1	50.71	4.50	44.01	. 50	*0.50	40.50	40.50	-1.5	0.54.02
03/12/02	50.71	6.50	44.21	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<2 ²
06/07/02	50.71	8.69	42.02	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<2 ²
09/13/02	50.71	9.28	41.43	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<2 ²
12/13/02	50.71	8.48	42.23	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<2 ²
03/01/03	50.71	7.34	43.37	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<0.5 ²
06/27/03 ³	50.71	9.29	41.42	<50	<0.5	0.6	<0.5	<0.5	<0.5
09/30/03 ³	50.71	10.17	40.54	<50	<0.5	0.6	<0.5	<0.5	<0.5
12/03/03 ³	50.71	7.82	42.89	<50	<0.5	<0.5	<0.5	<0.5	<0.5
03/10/04 ³	50.71	6.57	44.14	<50	<0.5	<0.5	<0.5	<0.5	<0.5
06/30/04 ³	50.71	9.78	40.93	<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/30/04 ³	50.71	9.91	40.80	<50	<0.5	<0.5	<0.5	<0.5	<0.5
12/29/04 ³	50.71	2.90	47.81	<50	<0.5	<0.5	<0.5	<0.5	<0.5
03/23/05 ³	50.71	2.90	47.81	<50	<0.5	<0.5	<0.5	<0.5	<0.5
06/22/05 ³	50.71	8.59	42.12	<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/02/05 ³	50.71	9.38	41.33	<50	<0.5	<0.5	<0.5	<0.5	<0.5
12/02/05	50.71	8.44	42.27						
03/20/06	50.71	3.05	47.66						
06/01/06	50.71	6.77	43.94						
09/11/06	50.71	9.18	41.53						
DESTROYED									
MW-2									
03/12/02 ¹	52.57	6.09	46.48	<50	<0.50	<0.50	<0.50	<1.5	<2.5/3 ²
06/07/02	52.57	8.65	43.92	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<2 ²
09/13/02	52.57	9.58	42.99	<50 <50	<0.50	<0.50	<0.50	<1.5	<2.5/<2
12/13/02	52.57	8.50	44.07	<50	<0.50	<0.50	<0.50	<1.5	<2.5/<2 <2.5/<2 ²

Table 2
Groundwater Monitoring Data and Analytical Results

WELL ID/ DATE	TOC* (ff.)	DTW (ft.)	GWE (msl)	TPH-GRO (µg/L)	B (µg/L)	Τ (μg/L)	E (µg/L)	Χ (μg/L)	M†BE (µg/L)
	Groundy	vater ESL		100	1	40	30	20	5
MW-2 (cont)									
03/01/03	52.57	7.00	45.57	<50	< 0.50	<0.50	<0.50	<1.5	<2.5/<0.5 ²
06/27/03 ³	52.57	9.59	42.98	<50	<0.5	<0.5	<0.5	<0.5	< 0.5
09/30/03 ³	52.57	10.64	41.93	<50	<0.5	<0.5	<0.5	< 0.5	0.7
12/03/03 ³	52.57	7.54	45.03	<50	<0.5	<0.5	<0.5	< 0.5	< 0.5
03/10/04 ³	52.57	6.05	46.52	<50	<0.5	<0.5	<0.5	< 0.5	< 0.5
06/30/04 ³	52.57	10.15	42.42	<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/30/04 ³	52.57	10.14	42.43	<50	<0.5	<0.5	<0.5	< 0.5	< 0.5
12/29/04 ³	52.57	2.29	50.28	<50	<0.5	<0.5	<0.5	<0.5	<0.5
03/23/05 ³	52.57	2.44	50.13	<50	<0.5	<0.5	<0.5	<0.5	<0.5
06/22/05 ³	52.57	8.99	43.58	<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/02/05 ³	52.57	10.17	42.40	<50	<0.5	< 0.5	< 0.5	<0.5	<0.5
12/02/05	52.57	8.99	43.58						
03/20/06	52.57	2.70	49.87						
06/01/06	51.57	6.51	45.06						
09/11/06	51.57	10.06	41.51						
DESTROYED									
MW-3									
03/12/021	50.31	6.50	43.81	12,000	600	8.5	1,100	370	700/650 ²
06/07/02	50.31	7.74	42.57	14,000	630	8.8	1,200	160	520/490 ²
09/13/02	50.31	9.73	40.58	3,000	270	3.2	200	11	600/640 ²
12/13/02	50.31	8.60	41.71	24,000	1,100	14	2,400	220	650/540 ²
03/01/03	50.31	6.75	43.56	16,000	500	9.0	1,200	130	460/330 ²
06/27/03 ³	50.31	9.25	41.06	9,500	390	6	450	30	470
09/30/03 ³	50.31	10.31	40.00	2,000	110	1	100	3	710
12/03/03 ³	50.31	8.18	42.13	19,000	970	8	2,100	85	420
03/10/04 ³	50.31	6.10	44.21	15,000	550	6	960	95	220
06/30/04 ³	50.31	9.80	40.51	3,200	150	1	100	3	660
09/30/04 ³	50.31	10.18	40.13	1,900	66	0.8	84	4	690
12/29/04 ³	50.31	4.58	45.73	16,000	470	7	820	47	170
03/23/05 ³	50.31	5.07	45.24	18,000	380	6	960	58	140
06/22/05 ³	50.31	8.12	42.19	16,000	700	6	950	62	300
09/02/05 ³	50.31	9.41	40.90	8,400	380	4	510	41	440
12/02/05 ³	50.31	7.97	42.34	16,000	490	6	1,200	32	170

Table 2
Groundwater Monitoring Data and Analytical Results

WELL ID/ DATE	TOC*	DTW	GWE	TPH-GRO (µg/L)	Β (μg/L)	Τ (μg/L)	Ε (μg/L)	Χ (μg/L)	MtBE (μg/L)
DAIE	(ft.)	(ft.)	(msl)						
	Groundy	vater ESL		100	1	40	30	20	5
MW-3 (cont)									
03/20/06 ³	50.31	5.32	44.99	4,200	79	0.8	2	10	34
06/01/06 ³	50.31	7.07	43.24	5,400	67	1	26	3	28
09/11/06 ³	50.31	9.07	41.24	14,000	270	5	240	38	97
DESTROYED									
MW-4									
03/12/02 ¹	49.93	5.34	44.59	9,700	360	5.3	1,100	150	170/170 ²
06/07/02	49.93	8.52	41.41	7,300	170	2.7	280	21	200/120 ²
09/13/02	49.93	9.86	40.07	5,800	92	4.5	80	14	190/160 ²
12/13/02	49.93	9.42	40.51	10,000	250	2.2	330	19	170/200 ²
03/01/03	49.93	7.33	42.60	12,000	300	4.6	900	110	160/100 ²
06/27/03 ³	49.93	9.62	40.31	7,500	110	2	200	58	130
09/30/03 ³	49.93	11.13	38.80	3,600	18	<1	16	7	520
12/03/03 ³	49.93	7.80	42.13	16,000	1,000	6	720	52	73
03/10/04 ³	49.93	6.69	43.24	2,200	230	3	610	71	55
06/30/04 ³	49.93	10.33	39.60	7,700	59	<1	78	17	110
09/30/04 ³	49.93	10.75	39.18	4,800	100	1	33	10	400
12/29/04 ³	49.93	3.34	46.59	13,000	250	3	480	27	42
03/23/05 ³	49.93	4.24	45.69	12,000	130	2	280	16	24
06/22/05 ³	49.93	7.95	41.98	6,400	290	2	11	11	18
09/02/05 ³	49.93	9.46	40.47	3,700	180	1	13	7	18
12/02/05 ³	49.93	7.60	42.33	11,000	840	5	480	24	34
03/20/06 ³	49.93	4.50	45.43	790	14	<0.5	1	0.6	2
06/01/06 ³	49.93	7.30	42.63	5,100	48	0.8	42	4	2
09/11/06 ³ DESTROYED	49.93	9.38	40.55	6,700	64	3	44	3	4
TRIP BLANK									
QA									
03/12/02				<50	<0.50	< 0.50	< 0.50	<1.5	<2.5
06/07/02				<50	< 0.50	< 0.50	< 0.50	<1.5	<2.5
09/13/02				<50	< 0.50	< 0.50	< 0.50	<1.5	<2.5
12/13/02				<50	< 0.50	< 0.50	< 0.50	<1.5	<2.5
03/01/03				<50	< 0.50	< 0.50	< 0.50	<1.5	<2.5
06/27/03 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/30/03 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
12/03/03 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5

Table 2
Groundwater Monitoring Data and Analytical Results

WELL ID/ DATE	TOC* (ff.)	DTW (ff.)	GWE (msl)	TPH-GRO (μg/L)	B (µg/L)	Τ (μg/L)	E (µg/L)	Χ (μg/L)	MtBE (µg/L)
····=		water ESL	(100	1	40	30	20	5
QA (cont)									
03/10/04 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
06/30/04 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/30/04 ³				<50	<0.5	<0.7	<0.8	<0.8	<0.5
2/29/04 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
03/23/05 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
06/22/05 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/02/05 ³				<50	< 0.5	14	<0.5	14	<0.5
12/02/05 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
03/20/06 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
06/01/06 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
09/11/06 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
08/27/08 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
1/21/08 ⁵				<50	< 0.5	<0.5	<0.5	< 0.5	
)2/13/09 ⁵				<50	< 0.5	<0.5	<0.5	< 0.5	
05/08/09 ⁵				<50	<0.5	<0.5	<0.5	<0.5	
08/07/09 ⁵				<50	<0.5	<0.5	<0.5	<0.5	
11/14/12 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
05/08/13 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
11/06/13 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
05/14/14 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
11/19/14 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
05/07/15 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5
12/29/15 ³				<50	<0.5	<0.5	<0.5	<0.5	<0.5

Table 2

Groundwater Monitoring Data and Analytical Results

Former Chevron-Branded Service Station 92029 890 West MacArthur Boulevard, Oakland, California

EXPLANATIONS:

Current groundwater monitoring data was provided by Gettler-Ryan Inc. Current laboratory analytical results were provided by Eurofins Lancaster Laboratories.

TOC = Top of Casing

TPH-GRO = Total Petroleum Hydrocarbons as Gasoline Range Organics

-- = Not Measured/Not Analyzed

(ft.) = FeetB = BenzeneQA = Quality Assurance/Trip BlankDTW = Depth to WaterT = TolueneEPA = Environmental Protection Agency

GWE = Groundwater Elevation E = Ethylbenzene (msl) = Mean sea level X = Xylenes

(µg/L) = Micrograms per liter MtBE = Methyl tertiary-butyl ether

ESL = California Regional Water Quality Control Board - San Francisco Bay Region Environmental Screening Level for groundwater that is a current or potential source of drinking water

- * Current TOC elevations were surveyed on October 1, 2008, by CRA. The benchmark for this survey was a USGS bronze disk located near the north end of the curb return at the Northwest corner of 38th Street and Broadway, (Benchmark Elevation = 85.41 feet, NGVD29).
- Well development performed.
- ² MtBE by EPA Method 8260.
- BTEX and MtBE by EPA Method 8260.
- ⁴ Laboratory confirmed analytical result.
- ⁵ BTEX by EPA Method 8260.
- ⁶ Laboratory report indicates reporting limits were raised due to interference from the sample matrix.

WELL ID/	ETHANOL	TBA	DIPE	EtBE	TAME	1,2-DCA	1,2-DBA	PCE
DATE	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(µg/L)	(µg/L)	(µg/L)	(μg/L)
Groundwater ESL	NE	12	NE	NE	NE	0.5	0.05	5
MW-5								
08/27/08		2	<0.5	<0.5	<0.5			
11/21/08		4	<0.5	<0.5	<0.5			
02/13/09		3	<0.5	<0.5	<0.5			
05/08/09		7	<0.5	<0.5	<0.5			
08/07/09		<2	<0.5	<0.5	<0.5			
11/05/09		2	<0.5	<0.5	<0.5			
05/06/10		<2	<0.5	<0.5	<0.5			
11/03/10		<2	<0.5	<0.5	<0.5			
05/10/11		<2	<0.5	<0.5	<0.5			
11/10/11		<2	<0.5	<0.5	<0.5			
05/11/12		<10	<3	<3	<3			
11/14/12		<2	<0.5	<0.5	<0.5			
05/08/13		<2	<0.5	<0.5	<0.5			
11/06/13		<2	<0.5	<0.5	<0.5			
05/14/14		<5	<0.5	<0.5	<0.5			<0.5
05/07/15		<2	<0.5	<0.5	<0.5			
MW-6								
		390	<0.5	<0.5	6			
08/27/08 11/21/08		320	<13	<13	<13			
02/13/09		100	<1	<1	4	<u></u>		
02/13/09		16	<0.5	<0.5	0.9			
08/07/09		190	<3	<3	5			
11/05/09		86	<1	<1	4			
05/06/10		2	<0.5	<0.5	<0.5			
11/03/10		98	<3	<3	3			
05/10/11		<2	<0.5	<0.5	<0.5			
11/10/11		19	<1	<1	<1			
		<2	<0.5	<0.5	<0.5			
05/11/12 11/14/12		16	<0.5	<0.5	0.7			
05/08/13		5	<0.5	<0.5	<0.5			
		60	<0.5 <1	<1	2			
11/06/13 ²		8	<0.5	<0.5	<0.5			<0.5
05/14/14		3	<0.5	<0.5	<0.5			~0.5
05/07/15		5	~0.0	~0.0	~ 0.0			

WELL ID/	ETHANOL	TBA	DIPE	E†BE	TAME	1,2-DCA	1,2-DBA	PCE
DATE	(µg/L)	(µg/L)	(μg/L)	(µg/L)	(µg/L)	(µg/L)	(μg/L)	(µg/L)
Groundwater ESL	NE	12	NE	NE	NE	0.5	0.05	5
MW-7								
08/27/08		<2	<0.5	<0.5	< 0.5			
11/21/08		5	<0.5	<0.5	<0.5			
02/13/09		<2	<0.5	<0.5	< 0.5			
05/08/09		<2	<0.5	<0.5	< 0.5			
08/07/09		4	<0.5	<0.5	<0.5			
11/05/09		9	<1	<1	<1			
05/06/10		3	<0.5	<0.5	<0.5			
11/03/10		6	<0.5	<0.5	<0.5			
05/10/11		3	<0.5	<0.5	<0.5			
11/10/11		4	<0.5	<0.5	<0.5			
05/11/12		<20	<5	<5	<5			
11/14/12		<10	<3	<3	<3			
05/08/13		<2	<0.5	<0.5	<0.5			
11/06/13		<2	<0.5	<0.5	<0.5			
05/14/14 ²		<10	<1	<1	<1			<1
11/19/14		<2	<0.5	<0.5	<0.5			
05/07/15		2	<0.5	<0.5	<0.5			
MW-8								
08/27/08		<2	<0.5	<0.5	<0.5			
11/21/08		<2	<0.5	<0.5	<0.5	 		
		<2	<0.5	<0.5	<0.5			
02/13/09		<2	<0.5	<0.5	<0.5	 		
05/08/09		<2	<0.5	<0.5	<0.5			
08/07/09		<2	<0.5	<0.5	<0.5			
11/05/09		<2	<0.5	<0.5	<0.5	 	 	
05/06/10		<2	<0.5	<0.5	<0.5	 	 	
11/03/10		<2	<0.5 <0.5	<0.5	<0.5	 	 	
05/10/11		<2	<0.5	<0.5	<0.5			
11/10/11		<2		<0.5				
05/11/12		<2	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5			
11/14/12								
05/08/13		<2	<0.5	<0.5	<0.5			
11/06/13		<2	<0.5	<0.5	<0.5			
05/14/14		<5	<0.5	<0.5	<0.5			<0.5
11/19/14		<2	<0.5	<0.5	<0.5			
05/07/15		<2	<0.5	<0.5	<0.5			

WELL ID/	ETHANOL	TBA	DIPE	E†BE	TAME	1,2-DCA	1,2-DBA	PCE
DATE	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Groundwater ESL	NE	12	NE	NE	NE	0.5	0.05	5
MW-1								
03/12/02		<100	<2	<2	<2	<2	<2	
06/07/02		<100	<2	<2	<2	<2	<2	
09/13/02		<100	<2	<2	<2	<2	<2	
12/13/02		<100	<2	<2	<2	<2	<2	
03/01/03		<5	<0.5	<0.5	<0.5	<0.5	<0.5	
06/27/03		<5	<0.5	<0.5	<0.5	<0.5	<0.5	
09/30/03	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
12/03/03	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
03/10/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
06/30/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
09/30/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
12/31/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
03/23/05	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
06/22/05	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
09/02/05	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
DESTROYED								
MW-2								
03/12/02		<100	<2	<2	<2	<2	<2	
06/07/02		<100	<2	<2	<2	<2	<2	
09/13/02		<100	<2	<2	<2	<2	<2	
12/13/02		<100	<2	<2	<2	<2	<2	
03/01/03		<5	<0.5	<0.5	<0.5	<0.5	<0.5	
06/27/03		<5	<0.5	<0.5	<0.5	<0.5	<0.5	
09/30/03	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
12/03/03	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
03/10/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
06/30/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
09/30/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
12/31/04	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
03/23/05	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
06/22/05	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
09/02/05	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
DESTROYED		-						

Table 3 Additional Groundwater Analytical Results

WELL ID/	ETHANOL	TBA	DIPE	EtBE	TAME	1,2-DCA	1,2-DBA	PCE
DATE	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(µg/L)	(µg/L)
Groundwater ESL	NE	12	NE	NE	NE	0.5	0.05	5
MW-3								
03/12/02		<100	<2	<2	18	<2	<2	
06/07/02		230	<5.0	<5.0	11	<5.0	<5.0	
09/13/02		170	<2	<2	8	<2	<2	
12/13/02		240	<2	<2	29	31	<2	
03/01/03		160	<0.5	<0.5	10	<0.5	<0.5	
06/27/03		200	<0.5	<0.5	11	<0.5	< 0.5	
09/30/03	<50	120	<0.5	<0.5	6	0.7	<0.5	
12/03/03	<250	200	<3	<3	14	<3	<3	
03/10/04	<50	140	<0.5	<0.5	5	<0.5	<0.5	
06/30/04	<50	100	<0.5	<0.5	5	<0.5	<0.5	
09/30/04	<50	72	<0.5	<0.5	4	0.5	< 0.5	
12/31/04	<50	77	<0.5	<0.5	5	<0.5	<0.5	
03/23/05	<50	<5	<0.5	<0.5	4	<0.5	3	
06/22/05	<250	150	<3	<3	6	<3	<3	
09/02/05	<100	99	<1	<1	<1	<1	<1	
12/02/05	<100	66	<1	<1	5	<1	<1	
03/20/06	<50	14	<0.5	<0.5	<0.5	<0.5	<0.5	
06/01/06	<50	12	<0.5	<0.5	0.8	<0.5	<0.5	
09/11/06	<50	47	<0.5	<0.5	2	<0.5	<0.5	
DESTROYED								
MW-4								
03/12/02		<100	<2	<2	13	<2	<2	
06/07/02		<100	<2	<2	14	<2	<2	
09/13/02		<100	<2	<2	14	<2	<2	
12/13/02		<100	<2	<2	17	<2	<2	
03/01/03		19	<0.5	<0.5	8	<0.5	<0.5	
06/27/03		22	<0.5	<0.5	11	<0.5	<0.5	
09/30/03	<100	<10	<1	<1	9	<1	<1	
12/03/03	<50	18	<0.5	<0.5	5	<0.5	<0.5	
03/10/04	<50	11	<0.5	<0.5	4	<0.5	<0.5	
06/30/04	<100	<10	<1	<1	6	<1	<1	
09/30/04	<50	17	<0.5	<0.5	7	<0.5	<0.5	
12/31/04	<50	11	<0.5	<0.5	2	<0.5	<0.5	
03/23/05	<50	<5	<0.5	<0.5	1	<0.5	0.9	
06/22/05	<50	15	<0.5	<0.5	1	<0.5	<0.5	
09/02/05	<50	6	<0.5	<0.5	<0.5	<0.5	<0.5	
12/02/05	<50	11	<0.5	<0.5	1	<0.5	<0.5	

WELL ID/ DATE	ETHANOL (µg/L)	TBA (μg/L)	DIPE (µg/L)	EtBE (μg/L)	TAME (µg/L)	1,2-DCA (µg/L)	1,2-DBA (µg/L)	PCE (µg/L)
Groundwater ESL	NE	12	NE	NE	NE	0.5	0.05	5
MW-4 (cont)								
03/20/06	<50	<5	<0.5	<0.5	<0.5	<0.5	< 0.5	
06/01/06	<50	<5	<0.5	< 0.5	<0.5	<0.5	< 0.5	
09/11/06	<50	<5	<0.5	<0.5	<0.5	<0.5	<0.5	
DESTROYED								

Table 3

Additional Groundwater Analytical Results

Former Chevron-Branded Service Station 92029 890 West MacArthur Boulevard, Oakland, California

EXPLANATIONS:

Current groundwater monitoring data was provided by Gettler-Ryan Inc. Current laboratory analytical results were provided by Eurofins Lancaster Laboratories

TBA = Tertiary-Butyl Alcohol

DIPE = Di-Isopropyl Ether

EtBE = Ethyl Tertiary-Butyl Ether

TAME = Tertiary-Amyl Methyl Ether

1,2-DCA = 1,2-Dichloroethane

1.2-DBA = 1.2-Dibromoethane

PCE = Tetrachloroethene

(µg/L) = Micrograms per liter

-- = Not Analyzed

EPA = Environmental Protection Agency

ESL = California Regional Water Quality Control Board - San Francisco Bay Region Environmental Screening Level for groundwater that is a current or potential source of drinking water

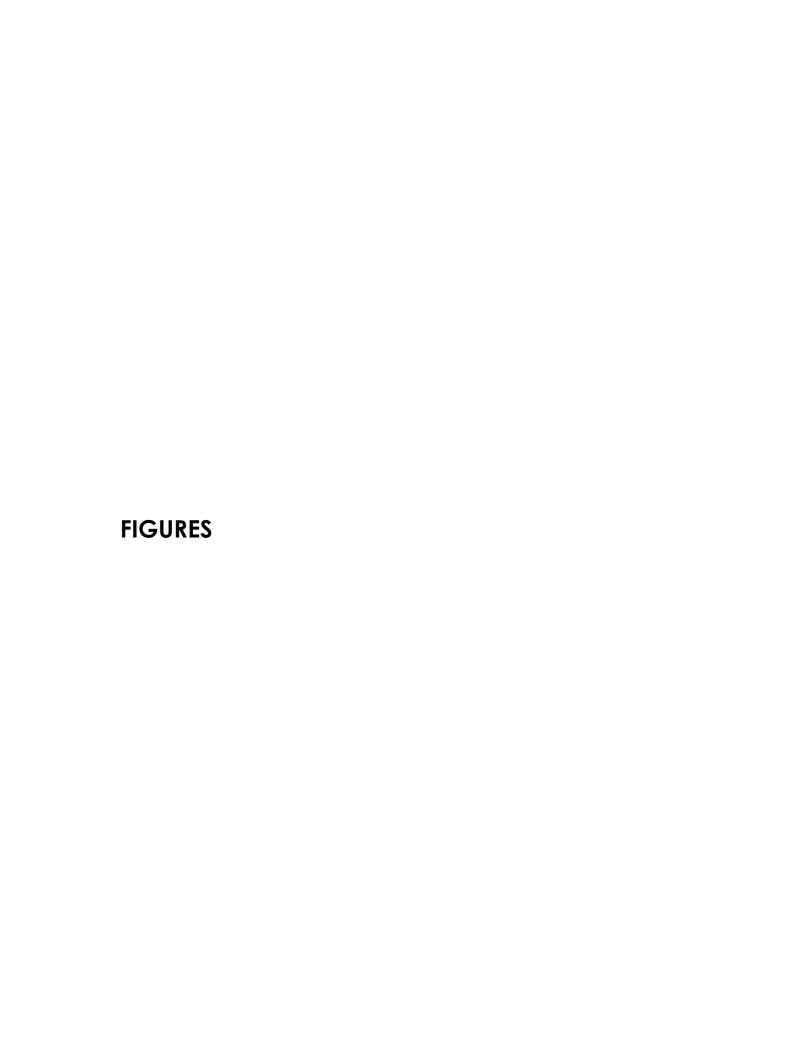
NE = ESL not established

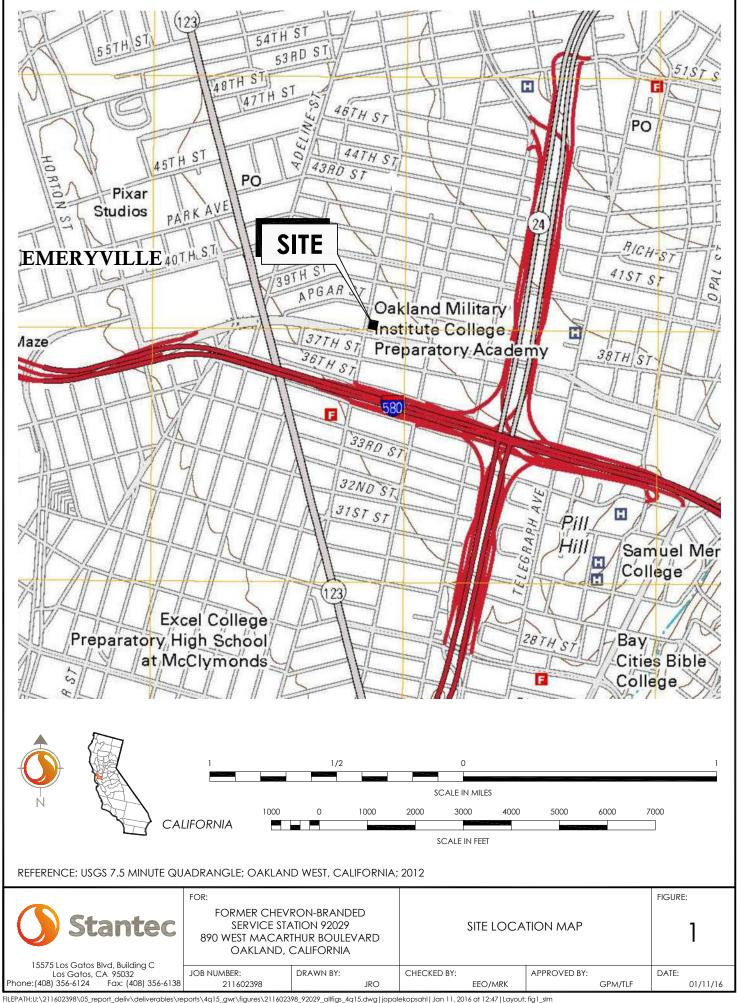
ANALYTICAL METHOD:

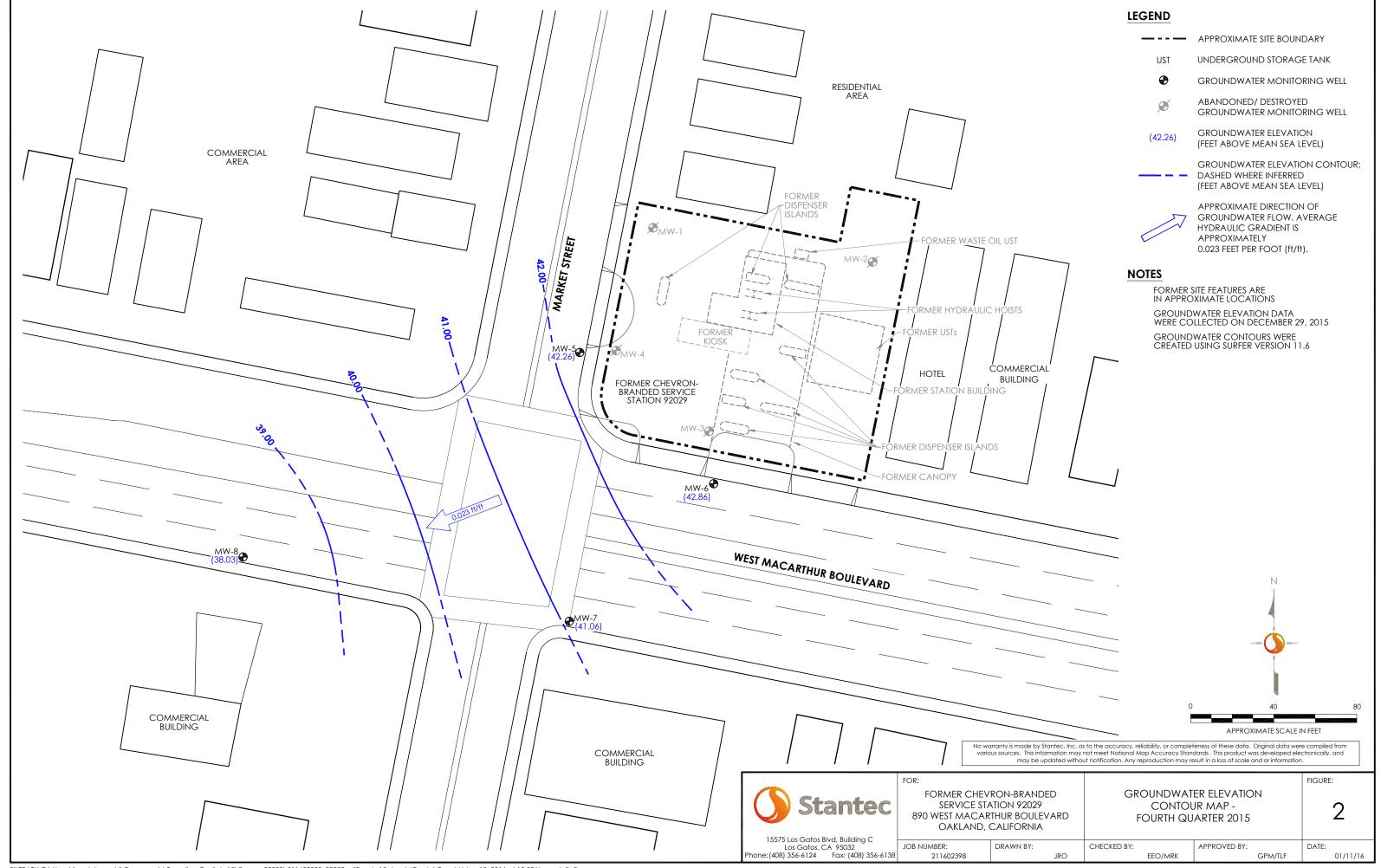
EPA Method 8260 for Oxygenate Compounds

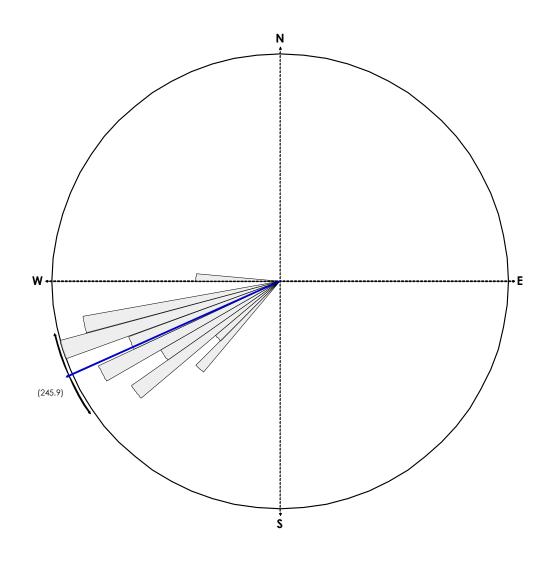
¹ Laboratory confirmed analytical result.

 $^{^{2}}$ Laboratory report indicates reporting limits were raised due to interference from the sample matrix.









EQUAL AREA PLOT

Number of Points 36

Class Size 5

Vector Mean 245.87

Vector Magnitude 35.32

Consistency Ratio 0.98

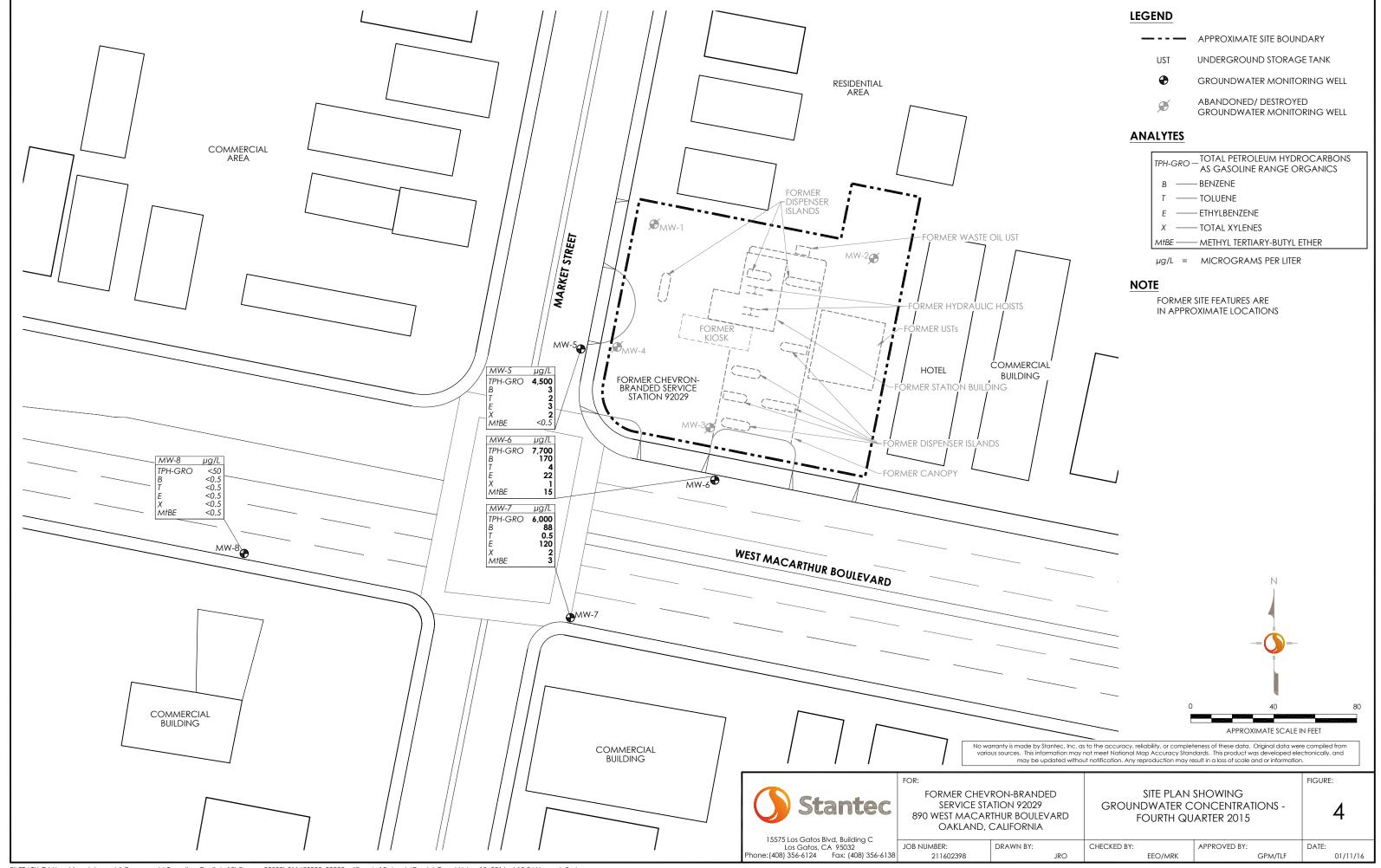
NOTE: ROSE DIAGRAM IS BASED ON THE DIRECTION OF GROUNDWATER FLOW BEGINNING FIRST QUARTER 2002.

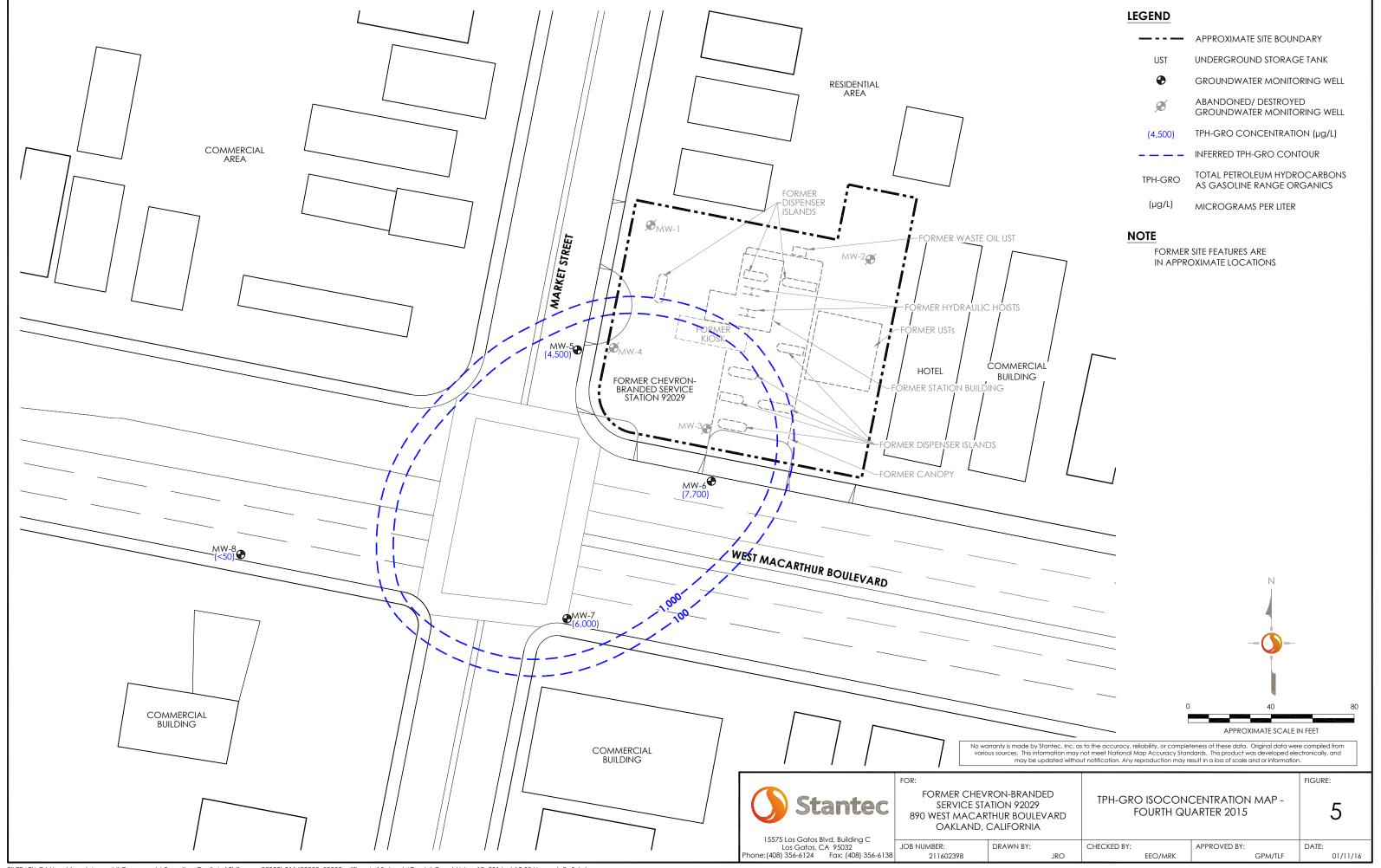


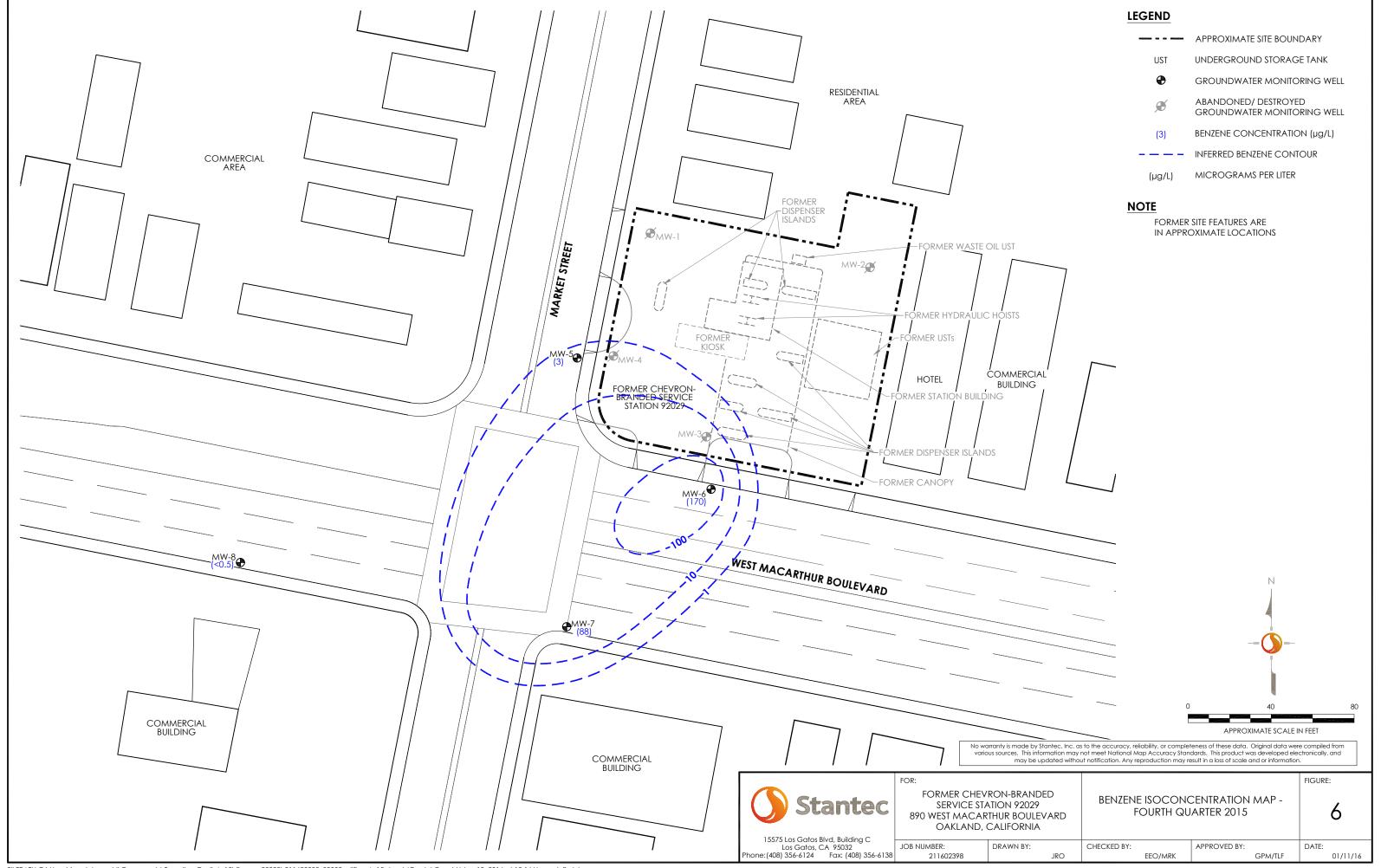
15575 Los Gatos Blvd, Building C Los Gatos, CA 95032 ::(408) 356-6124 Fax: (408) 356-6138

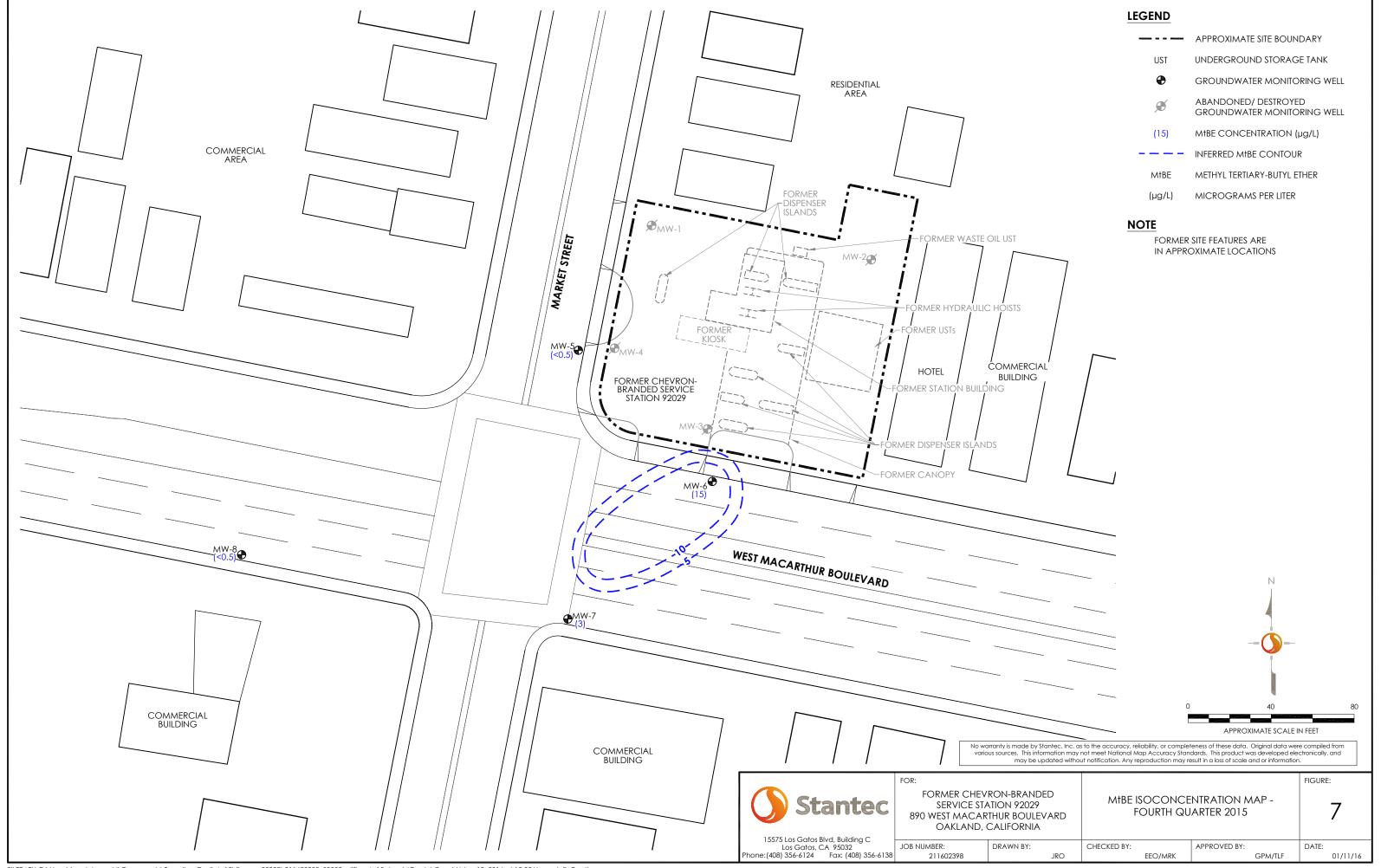
FORMER CHEVRON-BRANDED SERVICE STATION 92029 890 WEST MACARTHUR BOULEVARD OAKLAND, CALIFORNIA GROUNDWATER FLOW DIRECTION ROSE DIAGRAM -FOURTH QUARTER 2015 FIGURE:

JOB NUMBER: DRAWN BY: CHECKED BY: APPROVED BY: DATE:
211602398 JRO EEO GPM/TLF 01/11/16









ATTACHMENT A
Gettler-Ryan Inc. Field Data Sheets and Standard
Operating Procedures – Fourth Quarter 2015

TRANSMITTAL

January 8, 2016 G-R #386911

TO:

Mr. Travis Flora

Stantec

15575 Los Gatos Blvd., Building C Los Gatos, California 95032

FROM:

Deanna L. Harding

Project Coordinator Gettler-Ryan Inc.

6805 Sierra Court, Suite G Dublin, California 94568 RE:

Former Chevron Service Station

#9-2029

890 West MacArthur Blvd.

Oakland, California

RO 0002438

WE HAVE ENCLOSED THE FOLLOWING:

DESCRIPTION				
Groundwater Monitoring and Sampling Data Package Second Semi-Annual Event of December 29, 2015				

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/9-2029

WELL CONDITION STATUS SHEET

Client/											
Facility #:		n #9-2029					Job #:	386911			1011
Site Address:	890 Wes	st Macarth	ur Blvd.				Event Date:		12 2	19.15	
City:	Oakland	I, CA				-	Sampler:		FT		
WELL ID	Vault Frame Condition	Gasket/ O-Ring (M) Missing (R) Replaced	Bolts (M) Missing (R) Replaced	Bolt Flanges B=Broken S=Stripped R=Retaped	Apron Condition C=Cracked B=Broken G=Gone	Grout Seal (Deficient) Inches from TOC	Casing (Condition prevents tight cap seal)	REPLACE LOCK Y/N	REPLACE CAP Y/N	WELL VAULT Manufacture/Size/ # of Bolts	Pictures Taken
MWS	OK						→>	N	N	A	
MW-6	OK						->	Y	V	Mountson (6"/2	
MW-7	DK						->	N	N		
MW-8	OL						→ ×	2	N		
							· ·			───	
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Comments											
								· · · · · · · · · · · · · · · · · · ·			

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.

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/SAMPLING FIELD DATA SHEET

Client/Facility#:	Chevron #9-	2029		Job Number:	386911	386911		
Site Address:	890 West Ma	acarthur	Blvd.	Event Date:	12.29.15	(ir	— (inclusive)	
City:	City: Oakland, CA			Sampler:	FT		()	
-				·				
Well ID	MW-5	_	D	ate Monitored:	12.29.	15		
Well Diameter	2 in	<u> </u>	Volum	me 3/4"= 0.				
Total Depth	24.98 ft.	_		or (VF) 4"= 0.				
Depth to Water	7.13 ft.	xVF\7	heck if water column		ft. Estimated Purge Volume	. 9.5	al.	
Depth to Water v			ater Column x 0.20) +			yy.	(2400 hrs)	
Purge Equipment:		Sa	ampling Equipment:	,				
Disposable Bailer			sposable Bailer		Depth to Product	:	ft	
Stainless Steel Baile			essure Bailer		Depth to Water:_		ft	
Stack Pump			etal Filters		Hydrocarbon Thi		ft	
Peristaltic Pump			eristaltic Pump		Visual Confirmati	on/Description:		
QED Bladder Pump	***************************************		ED Bladder Pump					
Other:			her:		Skimmer / Absort Amt Removed fro			
					Amt Removed fro			
Start Time (purge): 1045		Weather Con	ditions:	SUNNY			
	ite: 1\14 /12	2.20.5		CLEAN		W -24		
Approx. Flow Ra						MODEN	<u> </u>	
• •		gpm.	Sediment Des		None			
Did well de-water	LS	it yes, i in	ne: voi	lume:	_ gal. DTW @ Sam	pling:	82	
Time	Volume (gal.)	pН	Conductivity (µS)/ mS	Temperature	D.O.	ORP		
(2400 hr.)	(34)	_	µmhos/cm)	(Ø / F)	(mg/L)	(mV)		
1051	3.0	6.52	654	18.2				
1057	6.0	6.55	660	18.5				
1103	9.0	6.58	668	18.8				
<u></u>			ABORATORY IN	EODMATION				
SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY		ANALYSES		
MW-5	💪 x voa vial	YES	HCL	LANCASTER	TPH-GRO(8015)/BTEX+			
								
COMMENTS:								
•								



WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#:	Chevron #9-2029		Job Number:	386911	
Site Address:	890 West Macart	hur Blvd.	Event Date:	12.29.15	(inclusive)
City:	Oakland, CA		- Sampler:	FT	` ,
					-
Well ID	MW- 6	_	Date Monitored:	12.29.15	
Well Diameter	2 in.	•	olume 3/4"= 0.		'= 0.38
Total Depth	24.95 ft.		actor (VF) 4"= 0.		'= 5.80
Depth to Water	621 ft. [18.74 xVF_		ımn is less then 0.50	ft. Estimated Purge Volume: <u> </u>	.
Depth to Water v	v/ 80% Recharge [(Heigh				y gai.
	• •			Time Started:	(2400 hrs)
Purge Equipment:		Sampling Equipmen	nt:	Time Completed:	
Disposable Bailer	 _	Disposable Bailer		Depth to Product: Depth to Water:	π
Stainless Steel Baile	r	Pressure Bailer		Hydrocarbon Thickness:	"
Stack Pump		Metal Filters		Visual Confirmation/Pesc	
Peristaltic Pump		Peristaltic Pump			.p.0011.
QED Bladder Pump		QED Bladder Pump		Skimmer / Absorbant Soc	k (circle one)
Other:		Other:		Amt Removed from Skimi	
				Amt Removed from Well:	
				Water Removed:	ltr
Start Time (purge Sample Time/Da Approx. Flow Ra Did well de-wate Time (2400 hr.)	te: 12.05 /12.29 te:gpm.	Sediment I	or: <u>CLBAL</u> Description:	SUNDY Odor: (M) / N ST NOW gal. DTW (@ Sampling: D.O. ORP (mg/L) (mV)	8.65
1149	7.0 4.5	2 681	19.0		
1188	10.0 6.5	5 690	19.2		
		LABORATORY	INFORMATION		
SAMPLE ID	(#) CONTAINER REFI			ANALYS	ES
MW- 💪	🕻 x voa vial YE	S HCL	LANCASTER	TPH-GRO(8015)/BTEX+MTBE(8	
COMMENTS:		Sheen	PRESENT 11	У H20	
Add/Replaced Ga	sket: Add/Re	placed Bolt:	Add/Replaced Loc	k: Add/Replaced	Plug:



WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#:	Chevron #9-2	2029		Job Number:	386911		
Site Address:	890 West Ma	acarthur E	Blvd.	Event Date:	12.29.	K	- (inclusive)
City:	Oakland, CA			Sampler:	FT		
				· · · · · · · · · · · · · · · · · · ·			
Well ID	MW- 7	_		ate Monitored:	12.2	9.15	_
Well Diameter	2 in.	<u>.</u>	Volu	me 3/4"= 0.	.02 1"= 0.04 2	"= 0.17 3"= 0.3	38
Total Depth	24.88 ft.	_	I	or (VF) 4"= 0.		'= 1.50 12"= 5.8	
Depth to Water	7.68 ft.		eck if water columi				
	17.20				Estimated Purge Vo	lume: 9.0	_ gal.
Depth to Water	w/ 80% Recharge	[(Height of Wa	ter Column x 0.20) +	DTWJ: 11.12	Time Started	d:	(2400 hrs)
Purge Equipment:		San	npiing Equipment:		i i	eted:	. ,
Disposable Bailer			oosable Bailer		Depth to Pro	duct:	ft l
Stainless Steel Baile			ssure Bailer		Depth to Wa	ter:	ft
Stack Pump			al Filters			Thickness	ft
Peristaltic Pump			staltic Pump		Visual Confi	mation/Descriptio	n:
QED Bladder Pump			D Bladder Pump				
Other:			er:			bsorbant Sock (cired from Skimmer:_	
						ed from Well:	
					1	ved:	
Start Time (purge): 1225		Weather Cor	ditions	C 1 1		
	ate: 1255 / 1	2 26.5		CLEN	Odor: の / N		
					_	MODE	MATE
Approx. Flow Ra	te:	gpm.	Sediment De	scription:	NO	E	
	te:	gpm.	Sediment De	scription:	NO	E	9.75
Approx. Flow Ra Did well de-wate	r?	gpm. If yes, Time	Sediment De	scription: lume: Temperature	NO	E	
Approx. Flow Ra Did well de-wate	te:	gpm.	Sediment De Conductivity PS / mS	Scription: Jume: Temperature (<u></u> gal. DTW @ \$	Sampling:	
Approx. Flow Ra Did well de-wate	r?	gpm. If yes, Time	Sediment De	scription: lume: Temperature	りの gal. DTW @ S	Sampling:	
Approx. Flow Ra Did well de-wate Time (2400 hr.)	volume (gal.)	gpm. If yes, Time	Sediment De Conductivity Fig. / mS pmhos/cm)	Scription: Jume: Temperature (りの gal. DTW @ S	Sampling:	
Approx. Flow Ra Did well de-wate Time (2400 hr.)	volume (gal.)	gpm. If yes, Time pH 6.33	Sediment De Conductivity (µ3/mS µmhos/cm)	Scription: Jume: Temperature (O / F)	りの gal. DTW @ S	Sampling:	
Approx. Flow Ra Did well de-wate Time (2400 hr.)	Volume (gal.) 3.0 6.0	gpm. If yes, Time pH 6.33	Sediment De e: Vo Conductivity	Temperature (Ø / F)	りの gal. DTW @ S	Sampling:	
Approx. Flow Ra Did well de-wate Time (2400 hr.)	Volume (gal.) 3.0 6.0	pH 6.33 6.36	Sediment De e: Vo Conductivity	Temperature (0 / F) 18.6	りの gal. DTW @ S	Sampling:	
Approx. Flow Ra Did well de-wate Time (2400 hr.) 1231 1237 1243	Volume (gal.) 3.0 6.0 9.0	pH 6.33 6.34	Sediment De e: Vo Conductivity (µ9/ mS µmhos/cm) 734 741 749	Temperature (O / F) 18.6 19.3	りの gal. DTW @ S	ORP (mV)	
Approx. Flow Ra Did well de-wate Time (2400 hr.) 1231 1237 1243	Volume (gal.) 3.0 6.0 9.0 (#) CONTAINER	gpm. If yes, Time pH 6.33 6.34 C.39	Sediment De Set	Temperature (Ø / F) 18.6 19.6 19.3 FORMATION LABORATORY	gal. DTW @ \$ D.O. (mg/L)	ORP (mV)	9.75
Approx. Flow Ra Did well de-wate Time (2400 hr.) 1231 1237 1243	Volume (gal.) 3.0 6.0 9.0	pH 6.33 6.34	Sediment De e: Vo Conductivity (µ9/ mS µmhos/cm) 734 741 749	Temperature (O / F) 18.6 19.3	りの gal. DTW @ S	ORP (mV)	9.75
Approx. Flow Ra Did well de-wate Time (2400 hr.) 1231 1237 1243	Volume (gal.) 3.0 6.0 9.0 (#) CONTAINER	gpm. If yes, Time pH 6.33 6.34 C.39	Sediment De Set	Temperature (Ø / F) 18.6 19.6 19.3 FORMATION LABORATORY	gal. DTW @ \$ D.O. (mg/L)	ORP (mV)	9.75
Approx. Flow Ra Did well de-wate Time (2400 hr.) 1231 1237 1243	Volume (gal.) 3.0 6.0 9.0 (#) CONTAINER	gpm. If yes, Time pH 6.33 6.34 C.39	Sediment De Set	Temperature (Ø / F) 18.6 19.6 19.3 FORMATION LABORATORY	gal. DTW @ \$ D.O. (mg/L)	ORP (mV)	9.75
Approx. Flow Ra Did well de-wate Time (2400 hr.) 1231 1237 1243	Volume (gal.) 3.0 6.0 9.0 (#) CONTAINER	gpm. If yes, Time pH 6.33 6.34 C.39	Sediment De Set	Temperature (Ø / F) 18.6 19.6 19.3 FORMATION LABORATORY	gal. DTW @ \$ D.O. (mg/L)	ORP (mV)	9.75
Approx. Flow Ra Did well de-wate Time (2400 hr.) 1231 1237 1243	Volume (gal.) 3.0 6.0 9.0 (#) CONTAINER	gpm. If yes, Time pH 6.33 6.34 C.39	Sediment De Set	Temperature (Ø / F) 18.6 19.6 19.3 FORMATION LABORATORY	gal. DTW @ \$ D.O. (mg/L)	ORP (mV)	9.75
Approx. Flow Ra Did well de-wate Time (2400 hr.) 1231 1237 1243	Volume (gal.) 3.0 6.0 9.0 (#) CONTAINER	gpm. If yes, Time pH 6.33 6.34 C.39	Sediment De Set	Temperature (Ø / F) 18.6 19.6 19.3 FORMATION LABORATORY	gal. DTW @ \$ D.O. (mg/L)	ORP (mV)	9.75
Approx. Flow Ra Did well de-wate Time (2400 hr.) 1231 1237 1243	Volume (gal.) 3.0 6.0 9.0 (#) CONTAINER	gpm. If yes, Time pH 6.33 6.34 C.39	Sediment De Set	Temperature (Ø / F) 18.6 19.6 19.3 FORMATION LABORATORY	gal. DTW @ \$ D.O. (mg/L)	ORP (mV)	9.75
Approx. Flow Ra Did well de-wate Time (2400 hr.) 1231 1237 1243 SAMPLE ID MW-7	Volume (gal.) 3.0 6.0 9.0 (#) CONTAINER	gpm. If yes, Time pH 6.33 6.34 C.39	Sediment De Set	Temperature (Ø / F) 18.6 19.6 19.3 FORMATION LABORATORY	gal. DTW @ \$ D.O. (mg/L)	ORP (mV)	9.75
Approx. Flow Ra Did well de-wate Time (2400 hr.) 1231 1237 1243	Volume (gal.) 3.0 6.0 9.0 (#) CONTAINER	gpm. If yes, Time pH 6.33 6.34 C.39	Sediment De Set	Temperature (Ø / F) 18.6 19.6 19.3 FORMATION LABORATORY	gal. DTW @ \$ D.O. (mg/L)	ORP (mV)	9.75
Approx. Flow Ra Did well de-wate Time (2400 hr.) 1231 1237 1243 SAMPLE ID MW-7	Volume (gal.) 3.0 6.0 9.0 (#) CONTAINER	gpm. If yes, Time pH 6.33 6.34 C.39	Sediment De Set	Temperature (Ø / F) 18.6 19.6 19.3 FORMATION LABORATORY	gal. DTW @ \$ D.O. (mg/L)	ORP (mV)	9.75



WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Site Address:	Chevron #9-2029 890 West Macart	hur Plyd	Job Number:	386911	
	••	ilur bivu.	Event Date:	12.29.15	(inclusive)
City:	Oakland, CA		Sampler:	<u>FT</u>	
Well ID Well Diameter		D	ate Monitored:	12.29.15	
Total Depth	25.00 ft.	Volum Facto	ne 3/4"= 0. or (VF) 4"= 0.		= 0.38 = 5.80
Depth to Water		Check if water column			
Doparto Water		***************************************		Estimated Purge Volume: 8.0	oal.
Depth to Water	w/ 80% Recharge [(Heigh				(2400 hrs)
Purge Equipment:		Sampling Equipment:		Time Completed:	
Disposable Bailer		Disposable Bailer		Depth to Product:	<i>•</i>
Stainless Steel Baile	er — — — —	Pressure Bailer		Depth to Water:	ft
Stack Pump	 	Metal Filters		Hydrocarbon Thickness:	f
Peristaltic Pump		Peristaltic Pump		Visual Confirmation/Descri	otion:
QED Bladder Pump		QED Bladder Pump		Skimmer / Absorbant Sock	(circle one)
Other:		Other:		Amt Removed from Skimm	
				Amt Removed from Well:	
				Water Removed:	ltr
Start Time (purge	e): <u>1315</u>	Weather Con	ditions:	SULLY	
Sample Time/Da	ite: 1342/12.29	Water Color:	LT. BAN.	Odor: Y / 🚳	
Approx. Flow Ra	ite: gpm.	Sediment De		S. SILTY	
Did well de-wate			_	_ gal. DTW @ Sampling: _	10.92
Time (2400 hr.)	Volume (gal.) pH	Conductivity	Temperature	D.O. ORP	·
_		µmhos/cm)	-	(mg/L) (mV)	
1320	25 6.4		18.9		_
1323	0.0 6.4	<u> 532</u>	19.3		~
1381	8.0 6.5	<u> 539</u>	19.5		
					~~~
		LABORATORY IN	FORMATION		
SAMPLE ID	(#) CONTAINER REF		LABORATORY	ANALYSE	S
MW- 8	( x voa vial YE	S HCL	LANCASTER	TPH-GRO(8015)/BTEX+MTBE(82	260)
COMMENTS:				<u> </u>	
Add/Replaced Ga	sket: Add/Re	placed Bolt:	Add/Replaced Loc	k: Add/Replaced P	lug:

# Chevron California Region Analysis Request/Chain of Custody

12	eurofins 2915-\$3	Lancaste Laborato			Ac	cct. # _				Group	p #				Sa	oratorie Imple i	#	0	(0)						104	12	i.
0	2 22 2220 OW	Client Inf	and the same of th		120211000			4	Matrix			(5)			Aı	nalys	es l	Requ	uest	ed				SCR_#:		fi ság	44
Facility	8#9-2029-OML	G-K#38691	Globa	WEST	3001/38	87	100	24.											e l								
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ATTACHMENT B
Certified Laboratory Analysis Reports and
Chain-of-Custody Documents

# Analysis Report

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

#### ANALYTICAL RESULTS

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601 Chevron 6001 Bollinger Canyon Rd L4310 San Ramon CA 94583

January 08, 2016

Project: 92029

Submittal Date: 12/30/2015 Group Number: 1620591 PO Number: 0015188594 Release Number: CMACLEOD State of Sample Origin: CA

Client Sample Description	<u>Lancaster Labs (LL) #</u>
QA-T-151229 NA Water	8192101
MW-5-W-151229 Grab Groundwater	8192102
MW-6-W-151229 Grab Groundwater	8192103
MW-7-W-151229 Grab Groundwater	8192104
MW-8-W-151229 Grab Groundwater	8192105

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 <a href="http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/">http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/</a>.

ELECTRONIC	Stantec	Attn: Marisa Kaffenberger
COPY TO		
ELECTRONIC	Stantec	Attn: Erin O'Malley
COPY TO		
ELECTRONIC	Stantec International	Attn: Travis Flora
COPY TO		
ELECTRONIC	Stantec	Attn: Laura Viesselman
COPY TO		
ELECTRONIC	Gettler-Ryan Inc.	Attn: Gettler Ryan
COPY TO	·	,

# Analysis Report

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Respectfully Submitted,

Amek Carter Specialist

(717) 556-7252



# Analysis Report

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

Sample Description: QA-T-151229 NA Water

QA-T-151229 NA Water LL Sample # WW 8192101 Facility# 92029 Job# 386911 GRD LL Group # 1620591 890 W Macarthur-Oakland T0600173887 Account # 10906

Project Name: 92029

Collected: 12/29/2015 Chevron

6001 Bollinger Canyon Rd L4310

San Ramon CA 94583

Submitted: 12/30/2015 09:30 Reported: 01/08/2016 23:52

2029Q

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

#### General 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.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10945	BTEX/MTBE	SW-846 8260B	1	P160062AA	01/06/2016 10:05	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P160062AA	01/06/2016 10:05	Brett W Kenyon	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	16004A20A	01/05/2016 05:19	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16004A20A	01/05/2016 05:19	Jeremy C Giffin	1



# Analysis Report

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

Sample Description: MW-5-W-151229 Grab Groundwater

LL Sample # WW 8192102 Facility# 92029 Job# 386911 GRD LL Group # 1620591 890 W Macarthur-Oakland T0600173887 Account # 10906

Project Name: 92029

Collected: 12/29/2015 11:14 by FT Chevron

6001 Bollinger Canyon Rd L4310

San Ramon CA 94583

Submitted: 12/30/2015 09:30 Reported: 01/08/2016 23:52

#### 20295

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS	Volatiles SW-846	8260B	ug/l	ug/l	
10945	Benzene	71-43-2	3	0.5	1
10945	Ethylbenzene	100-41-4	3	0.5	1
10945	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	1
10945	Toluene	108-88-3	2	0.5	1
10945	Xylene (Total)	1330-20-7	2	0.5	1
GC Vol	Latiles SW-846	8015B	ug/l	ug/l	
01728	TPH-GRO N. CA water C6-C12	n.a.	4,500	250	5

#### General 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.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10945	BTEX/MTBE	SW-846 8260B	1	P160062AA	01/06/2016 12:4	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P160062AA	01/06/2016 12:4	Brett W Kenyon	1
01728	TPH-GRO N. CA water	SW-846 8015B	1	16004A20A	01/05/2016 13:4	Jeremy C Giffin	5
01146	C6-C12 GC VOA Water Prep	SW-846 5030B	1	16004A20A	01/05/2016 13:4	Jeremy C Giffin	5
01146	GC VOA Water Frep	SW-040 SUSUB	_	16004A20A	01/05/2016 13:4	s beremy c Gillin	5



# Analysis Report

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

Sample Description: MW-6-W-151229 Grab Groundwater

Facility# 92029 Job# 386911 GRD 890 W Macarthur-Oakland T0600173887

LL Group # 1620591 Account # 10906

LL Sample # WW 8192103

Project Name: 92029

Collected: 12/29/2015 12:05 by FT Chevron

6001 Bollinger Canyon Rd L4310

San Ramon CA 94583

Submitted: 12/30/2015 09:30 Reported: 01/08/2016 23:52

20296

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS	Volatiles SW-846	8260B	ug/l	ug/l	
10945	Benzene	71-43-2	170	0.5	1
10945	Ethylbenzene	100-41-4	22	0.5	1
10945	Methyl Tertiary Butyl Ether	1634-04-4	15	0.5	1
10945	Toluene	108-88-3	4	0.5	1
10945	Xylene (Total)	1330-20-7	1	0.5	1
GC Vol	latiles SW-846	8015B	ug/l	ug/l	
01728	TPH-GRO N. CA water C6-C12	n.a.	7,700	250	5

#### General 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.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10945	BTEX/MTBE	SW-846 8260B	1	P160062AA	01/06/2016 13:09	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P160062AA	01/06/2016 13:09	Brett W Kenyon	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	16004A20A	01/05/2016 14:11	Jeremy C Giffin	5
01146	GC VOA Water Prep	SW-846 5030B	1	16004A20A	01/05/2016 14:11	Jeremy C Giffin	5



# Analysis Report

LL Sample # WW 8192104

LL Group # 1620591

Account # 10906

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

Sample Description: MW-7-W-151229 Grab Groundwater

Facility# 92029 Job# 386911 GRD 890 W Macarthur-Oakland T0600173887

Project Name: 92029

Collected: 12/29/2015 12:55 by FT Chevron

6001 Bollinger Canyon Rd L4310

San Ramon CA 94583

Submitted: 12/30/2015 09:30 Reported: 01/08/2016 23:52

20297

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS	Volatiles SW-846	8260B	ug/l	ug/l	
10945	Benzene	71-43-2	88	0.5	1
10945	Ethylbenzene	100-41-4	120	0.5	1
10945	Methyl Tertiary Butyl Ether	1634-04-4	3	0.5	1
10945	Toluene	108-88-3	0.5	0.5	1
10945	Xylene (Total)	1330-20-7	2	0.5	1
GC Vol	Latiles SW-846	8015B	ug/l	ug/l	
01728	TPH-GRO N. CA water C6-C12	n.a.	6,000	250	5

#### General 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.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10945	BTEX/MTBE	SW-846 8260B	1	P160062AA	01/06/2016 13:35	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P160062AA	01/06/2016 13:35	Brett W Kenyon	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	16004A20A	01/05/2016 14:38	Jeremy C Giffin	5
01146	GC VOA Water Prep	SW-846 5030B	1	16004A20A	01/05/2016 14:38	Jeremy C Giffin	5



# Analysis Report

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

Sample Description: MW-8-W-151229 Grab Groundwater

Facility# 92029 Job# 386911 GRD 890 W Macarthur-Oakland T0600173887

LL Group # 1620591 Account # 10906

LL Sample # WW 8192105

Project Name: 92029

Collected: 12/29/2015 13:42 by FT Chevron

6001 Bollinger Canyon Rd L4310

San Ramon CA 94583

Submitted: 12/30/2015 09:30 Reported: 01/08/2016 23:52

20298

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

#### General 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.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10945	BTEX/MTBE	SW-846 8260B	1	P160062AA	01/06/2016 10:31	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P160062AA	01/06/2016 10:31	Brett W Kenyon	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	16004A20A	01/05/2016 07:09	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	16004A20A	01/05/2016 07:09	Jeremy C Giffin	1

# Analysis Report

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

## Quality Control Summary

Client Name: Chevron Group Number: 1620591

Reported: 01/08/2016 23:52

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	ug/l
Batch number: P160062AA	Sample number(s)	: 8192101-8192105
Benzene	N.D.	0.5
Ethylbenzene	N.D.	0.5
Methyl Tertiary Butyl Ether	N.D.	0.5
Toluene	N.D.	0.5
Xylene (Total)	N.D.	0.5
Batch number: 16004A20A	Sample number(s)	: 8192101-8192105
TPH-GRO N. CA water C6-C12	N.D.	50

#### LCS/LCSD

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: P160062AA	Sample numbe	r(s): 81921	101-8192105						
Benzene	20	19.84			99		78-120		
Ethylbenzene	20	19.08			95		78-120		
Methyl Tertiary Butyl Ether	20	20.1			101		75-120		
Toluene	20	19.32			97		80-120		
Xylene (Total)	60	57.92			97		80-120		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16004A20A	Sample numbe	r(s): 81921	101-8192105						
TPH-GRO N. CA water C6-C12	1100	1047.99	1100	1028.75	95	94	71-138	2	30

### 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: P160062AA	Sample numb	er(s): 8192	2101-8192	105 UNSPK:	8192105					
Benzene	N.D.	20	21.23	20	21.88	106	109	78-120	3	30
Ethylbenzene	N.D.	20	19.93	20	20.24	100	101	78-120	2	30
Methyl Tertiary Butyl Ether	N.D.	20	20.83	20	21.23	104	106	75-120	2	30
Toluene	N.D.	20	20.27	20	20.32	101	102	80-120	0	30
Xylene (Total)	N.D.	60	61.2	60	61.74	102	103	80-120	1	30

^{*-} Outside of specification

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.

⁽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.



# Analysis Report

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

### Quality Control Summary

Client Name: Chevron Group Number: 1620591

Reported: 01/08/2016 23:52

### 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: BTEX/MTBE Batch number: P160062AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8192101	100	103	94	98
8192102	101	101	94	103
8192103	101	101	95	99
8192104	101	101	96	99
8192105	102	102	94	98
Blank	103	101	94	97
LCS	101	102	95	99
MS	101	103	94	99
MSD	103	102	95	97
Limits:	80-116	77-113	80-113	78-113

Analysis Name: TPH-GRO N. CA water C6-C12

Batch number: 16004A20A

	Trifluorotoluene-F
8192101	89
8192102	102
8192103	102
8192104	97
8192105	89
Blank	88
LCS	101
LCSD	97

Limits: 63-135

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.

^{*-} Outside of specification

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

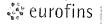
⁽²⁾ The unspiked result was more than four times the spike added.

# Chevron California Region Analysis Request/Chain of Custody

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Consulant Phone # 7444 x180		1 11/4			4)		Potable	NPDES	Air	ber of	i	8	15 with	ots with	an	Oxygenates		Lead					☐ Run oxy's	
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Issued by Dept. 40 Management 7050.03



# Sample Administration Receipt Documentation Log

Doc Log ID:

132365

Group Number(s):

1620591

Client: CA Office

**Delivery and Receipt Information** 

Delivery Method:

**BASC** 

Arrival Timestamp:

12/30/2015 9:30

Number of Packages:

<u>2</u>

Number of Projects:

2

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 ≥ 6mm:

Air Quality Samples Present:

No

Samples Chilled:

Yes

Total Trip Blank Qty:

2

Paperwork Enclosed:

Yes

Trip Blank Type:

HCL No

Samples Intact:

Yes No

Missing Samples: Extra Samples:

No

Discrepancy in Container Qty on COC:

No

Unpacked by Timothy Cubberley (6520) at 10:08 on 12/30/2015

### Samples Chilled Details

Thermometer Types:

DT = Digital (Temp. Bottle)

IR = Infrared (Surface Temp)

All Temperatures in °C.

Cooler#	Thermometer ID	Corrected Temp	Therm. Type	<u>Ice Type</u>	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.4	DT	Wet	, <b>Y</b>	Bagged	. <b>N</b>
2	DT131	2.3	DT	Wet	Υ	Bagged	N.

T = 717-656-2300 F = 717-656-2681 www.LancasterLabs.com



## **Explanation of Symbols and Abbreviations**

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

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

< less than

> greater than

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

ppb parts per billion

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

as-received basis.

### 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 ≥ 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.

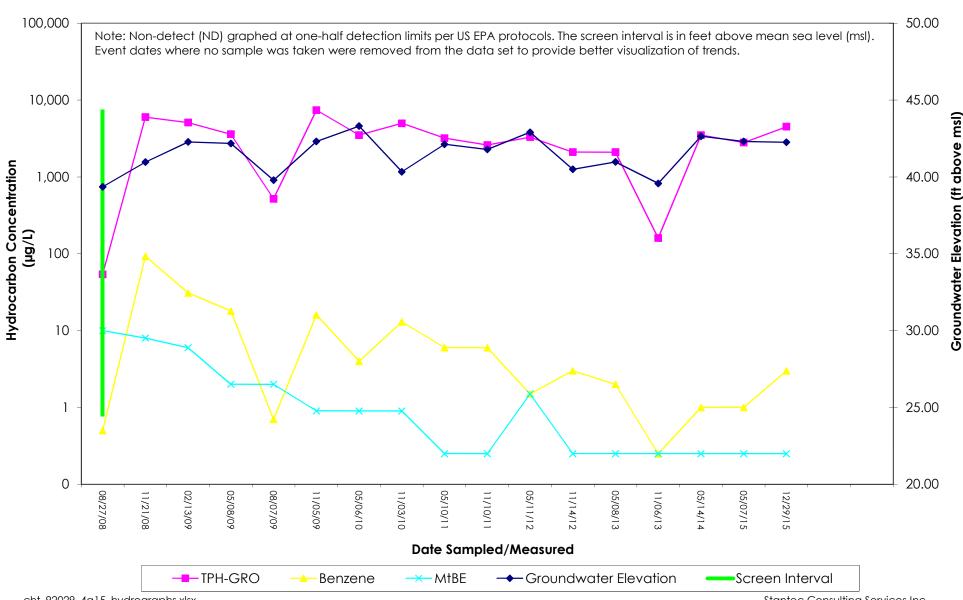
This report shall not be reproduced except in full, without the written approval of the laboratory.

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.

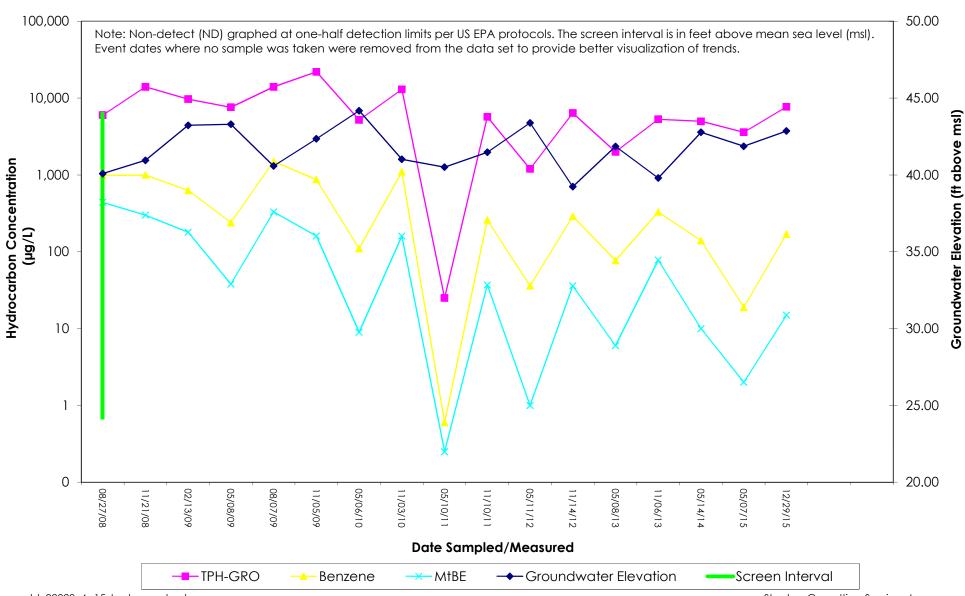
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ATTACHMENT C Hydrographs

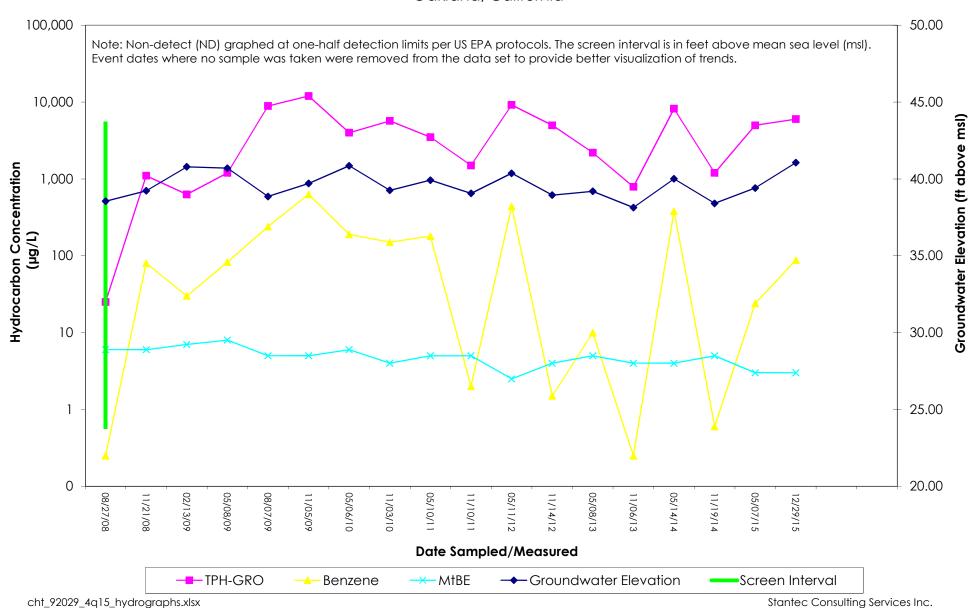
### MW-5 TPH-GRO, Benzene, & MtBE Concentrations and Groundwater Elevations vs. Time



### MW-6 TPH-GRO, Benzene, & MtBE Concentrations and Groundwater Elevations vs. Time



### MW-7 TPH-GRO, Benzene, & MtBE Concentrations and Groundwater Elevations vs. Time



### MW-8 TPH-GRO, Benzene, & MtBE Concentrations and Groundwater Elevations vs. Time

