SOMA
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September 19, 2016

RECEIVED
By Alameda County Environmental Health 9:06 am, Sep 20, 2016

Mr. Martin Musonge
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Subject: **File No. 01-0098 (MYM)**
Site Located at 2844 Mountain Boulevard, Oakland, California

Dear Mr. Musonge:

Enclosed for your review is a copy of SOMA's "Third Quarter 2016 Groundwater Monitoring Report" for the subject property. It has been uploaded to the State's GeoTracker database and Alameda County's FTP site.

Thank you for your time in reviewing our report. Please do not hesitate to call me at (925) 734-6400, if you have any questions or comments.

Sincerely,

Mansour Sepehr, Ph.D., PE
Principal Hydrogeologist

cc: Mr. Tejindar Singh w/enclosure
Ms. Dilan Roe – Alameda County Env. Health

Third Quarter 2016
Groundwater Monitoring Report

2844 Mountain Boulevard
Oakland, California
Regional Board File Number 01-0098

September 19, 2016

Project 5081

Prepared for

Tejindar Singh
6400 Dublin Blvd.
Dublin, California, 94568

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PERJURY STATEMENT

Site Location: 2844 Mountain Boulevard, Oakland, California

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

Tejindar Singh
6400 Dublin Boulevard
Dublin, California 94568
Responsible Party

CERTIFICATION

SOMA Environmental Engineering, Inc. has prepared this report on behalf Tejindar Singh, property owner of 2844 Mountain Blvd., Oakland, California, to comply with requirements of the San Francisco Bay Regional Water Quality Control Board for the Third Quarter 2016 groundwater monitoring event.

Mansour Sepehr, PhD, PE
Principal Hydrogeologist

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1. INTRODUCTION

SOMA Environmental Engineering, Inc. (SOMA) has prepared this report on behalf of Mr. Tejindar Singh, property owner of 2844 Mountain Blvd., Oakland, California. The site is located east of Highway 13 and west of Joaquin Miller Park (Figure 1). Former underground storage tank (UST) locations and site features are shown in Figure 2.

This report summarizes results of the Third Quarter 2016 groundwater monitoring event conducted at the site on August 17, 2016. It includes physical and chemical properties measured in the field for each groundwater sample and laboratory analytical results for groundwater samples.

1.1 Previous Activities

In March 1989 soil contamination was identified during replacement of product lines. Analytical results for a soil sample collected from the southern edge of a premium unleaded tank reported total petroleum hydrocarbons (TPHs) as gasoline (TPH-g) concentration of 8,400 mg/kg. Samples from beneath the lines near the pump islands reported TPH concentrations of less than 100 mg/kg.

In July 1989, contaminated soil was excavated and from the area of the southern end of the premium unleaded UST disposed of. Analysis of 12 soil samples collected from the sides of the excavation reported TPH concentrations ranging between ND to 3,300 mg/kg.

In May 1990, further site investigation including installation of four monitoring wells (RS-1 through RS-4) was conducted. Analysis of soil samples collected above the water table reported TPH concentrations ranging from 1 to 240 mg/kg. Hydrocarbons were detected in groundwater samples collected from all the wells; the highest concentration was found in a sample monitoring well RS-2.

In June 1991 soil vapor extraction began in June 1991. Groundwater remediation began in October 1992. Remediation was suspended in 1992, apparently due to responsible party financial issues.

In April 1994, one 280-gallon waste oil UST was removed with approximately 280 gallons of fluid and rinsate. The site operated as a retail gasoline station. Three USTs, two pump islands and an office/garage building were among the site features. The USTs contained various grades of unleaded gasoline and diesel with storage capacities of 3,000, 4,000, and 10,000 gallons.

In 1996 free product was reported in RS-1.

In July 1998, one 4,000-gallon gasoline UST was excavated and disposed of off-site.

Between July 29 and August 18, 2011, two USTs, one 10,000 gallon and one 3,000 gallon capacity, were excavated and disposed of off-site. The site is currently fenced in, which limits public access to the property.

Further soil and groundwater investigation was conducted at the site in March 2012. In October 2012, two wells (RS-1 and RS-2) were decommissioned in anticipation of excavation activities onsite. Excavation activities commenced on October 3, 2012, and an area of approximately 1,200 square feet was excavated to a depth of 15 feet. A total of 788.65 tons of waste soil was removed and replaced with clean fill material.

On May 9 and 10, 2013, two groundwater monitoring wells (MW-1 and MW-2) and soil and groundwater borings (DPT-5/5W) were installed as approved and requested by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). All site wells were surveyed by a licensed surveyor on May 28, 2013.

Based on the success of a multi-phase extraction (MPE) pilot test conducted at the site in December 2013, SFRWQCB approved an extended MPE event. This event was conducted at the site from September 17, 2014 to November 5, 2014. Details and results of this event are documented in SOMA's report dated December 12, 2014.

Based on SFRWQCB's approval, SOMA installed an additional MPE well (MW-3) on May 1, 2015, in the vicinity of historical groundwater sample T-1, where high contaminant concentrations were observed during UST removal of August 2011. An extended MPE event was conducted utilizing this well and other site wells during May and June 2015.

SOMA submitted a workplan on December 4, 2015 for delineation of horizontal and vertical extent of soil and groundwater contamination of MtBE and TBA. This workplan was approved on February 11, 2016. Therefore, in March 2016, SOMA advanced four soil borings (DPT-6 through DPT-9) for collection of soil and groundwater samples. Results and recommendations are documented in SOMA's 'Additional Site Investigation Report' report dated April 14, 2016.

1.2 Summary of Field Activities and Laboratory Analysis

1.2.1 Field Activities

On August 17, 2016, five monitoring wells (RS-3, RS-4, MW-1, MW-2, and MW-3) were measured for depth to groundwater. Additional field measurements and groundwater samples were collected from all five wells. Properties measured in

the field were pH, temperature, and electrical conductivity (EC). This monitoring event was conducted in accordance with procedures and guidelines of SFBRWQCB.

Figure 2 shows well locations. Appendix A details groundwater monitoring procedures followed during this event.

Purged groundwater was temporarily stored and secured on-site in 55-gallon drums pending transport to an appropriate disposal facility.

1.2.2 Laboratory Analysis

Groundwater samples were submitted to a California state-certified laboratory Curtis and Tompkins Laboratories, for the following analysis:

- TPH-g (gasoline by EPA Method 8260), and TPH-d (diesel by EPA Method 8015);
- BTEX (benzene, toluene, ethylbenzene, and total xylenes), MtBE, gasoline oxygenates (by EPA Method 8260).

2. RESULTS

Results of field measurements and laboratory analyses for the groundwater monitoring event conducted on August 17, 2016 follow below.

2.1 Field Measurements

Monitoring wells MW-1, MW-2, MW-3, RS-3 and RS-4 were measured for depth to groundwater (Table 1). Depths to groundwater ranged from 6.37 feet in MW-3 to 9.38 feet in RS-4. Groundwater elevations ranged from 665.89 feet in RS-4 to 669.38 feet in RS-3.

Figure 3 displays the groundwater elevation map. The groundwater flows southeasterly at a gradient of 0.07 ft/ft. Since the previous monitoring event (May 2016), the groundwater flow direction has shifted slightly from southwesterly to southeasterly and the gradient has increased. Groundwater gradient calculations are included in Appendix B.

2.2 Laboratory Analysis

Groundwater analytical data for this monitoring event is shown in Table 1. Appendix C includes the laboratory report and chain of custody form. No measurable floating product was observed during this monitoring event.

TPH-g was below laboratory-reporting limit in RS-3, MW-2, and MW-3 and was detected in RS-4 and MW-1 at 100 µg/L and 940 µg/L, respectively. Since the

previous monitoring event (May 2016), TPH-g concentrations increased in RS-4 and MW-1 and decreased in MW-2 and MW-3. Figure 4 shows a map of TPH-g concentrations in groundwater. The TPH-g plume appears to be centered in the vicinity of the pump islands around MW-1.

TPH-d was detected in concentrations ranging from 81 µg/L in RS-3 to 5,000 µg/L in MW-1. Since the previous monitoring event (May 2016), TPH-d has increased in RS-3, MW-1, and MW-3 and decreased in RS-4 and MW-2. Figure 5 shows a contour map of TPH-d concentrations in groundwater. TPH-d plume appears to be centered southwest of the pump islands in the vicinity of MW-1.

During the analysis of TPH-d, some groundwater samples exhibited chromatographic pattern that did not resemble the standard pattern for diesel. Refer to the laboratory analytical report attached in Appendix C for further clarification of diesel testing and analysis.

The following BTEX concentrations were observed during this monitoring event:

- All BTEX analytes were below laboratory-reporting limits in RS-3, RS-4, MW-1, and MW-3.
- Benzene was detected in MW-2 at 20 µg/L. Other BTEX analytes were below laboratory-reporting limits in this sample.
- Since the previous monitoring event (May 2016) benzene has decreased in MW-1 and MW-2 and ethylbenzene has decreased in MW-2. Figure 4 shows a map of benzene concentrations in groundwater. The benzene plume appears to be centered to the south of the pump islands in the vicinity of MW-2.

Methyl tertiary-butyl ether (MtBE) concentrations ranged from 0.51 µg/L in RS-3 to 140 µg/L in MW-2. Since the previous monitoring event (May 2016), MtBE has decreased in all groundwater samples.

Figure 6 shows a contour map of current MtBE concentrations in groundwater. This figure includes the results of Third Quarter 2016 groundwater monitoring event as well as the results of recent site investigations. As illustrated, although MtBE concentrations observed in monitoring wells were low, high MtBE concentrations were detected in on-site and off-site borings during recent site investigations. The MtBE plume appears to be centered in the southwestern corner of the site.

Tertiary-butyl alcohol (TBA) was below laboratory-reporting limit in RS-3. Detectable TBA concentrations ranged from 19 µg/L in MW-3 to 10,000 µg/L in MW-2. Since the previous monitoring event (May 2016), TBA increased significantly in RS-4 and decreased in MW-1, MW-2 and significantly in MW-3.

Figure 7 shows a contour map of current TBA concentrations in groundwater. Similar to MtBE, this figure includes the results of Third Quarter 2016

groundwater monitoring event as well as the results of recent site investigations. As illustrated, high TBA concentrations were detected in on-site and off-site borings during recent site investigations. The TBA plume appears to be centered in the southwestern corner of the site.

Tertiary amyl methyl ether (TAME) was below laboratory-reporting limit in RS-3 and MW-1. Detectable TAME concentrations ranged from 1.30 µg/L in MW-3 to 10 µg/L in MW-2. Since the previous monitoring event (May 2016), TAME has decreased in RS-4, MW-1, MW-2, and MW-3. Figure 8 shows a contour map of current TAME concentrations in groundwater. This figure includes the results of Third Quarter 2016 groundwater monitoring event as well as the results of recent site investigations.

3. CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations based on results of Third Quarter 2016 groundwater monitoring are summarized below.

- The groundwater flows southeasterly across the site.
- No free/floating product was observed in any monitoring wells during this monitoring event.
- The highest TPH-g and TPH-d concentrations were detected to the southwest of the pump islands around MW-1. The highest benzene, MtBE, TBA, and TAME concentrations were detected in the vicinity of pump islands around MW-2.
- During the recent site investigations, significantly high concentrations of MtBE, TBA, and TAME were observed in on and off-site borings, as illustrated in Figures 6 through 8. MtBE and TBA plume appear to be centered in the southwestern corner of the site in the vicinity of DPT-2.
- Since the previous monitoring event in May 2016, TPH-g increased in RS-4 and MW-1 and decreased in MW-2 and MW-3; TPH-d increased in RS-3, MW-1, and MW-3 and decreased in RS-4 and MW-2; benzene has decreased in MW-1 and MW-2; ethylbenzene has decreased in MW-2; MtBE decreased in all groundwater samples; TBA increased significantly in RS-4 and decreased in MW-1, MW-2 and significantly in MW-3; and TAME decreased in RS-4, MW-1, MW-2, and MW-3.
- SOMA will continue conducting quarterly groundwater monitoring events at the site.

Based on SFRWQCB's approval, SOMA conducted an investigation in March 2016 to delineate the extent of MtBE and TBA in the subsurface. A report detailing field activities, results, and recommendations was submitted on April 14, 2016. In the report SOMA recommended to prepare a corrective action plan (CAP) in order to address removal of MtBE, TBA, and TAME from the shallow

perched water bearing zone. The CAP will be prepared upon receipt of a written authorization from the SFRWQCB.

4. REPORT LIMITATIONS

This report is the summary of work done by SOMA, including observations and descriptions of site conditions. It includes analytical results produced by Curtis and Tompkins, Laboratories for the current groundwater monitoring event. Quantities and locations of wells were selected to provide the required information, but may not be completely representative of entire site conditions. All conclusions and recommendations are based on results of laboratory analysis. Conclusions beyond those specifically stated in this document should not be inferred from this report.

SOMA warrants that services were provided in accordance with generally accepted environmental engineering and consulting practices at the time of this sampling.

Figures

Source: Google (R) 2012

N

approximate scale in feet

0 100 200

Figure 1: Site Vicinity Map

SOMA ENVIRONMENTAL ENGINEERING, INC.

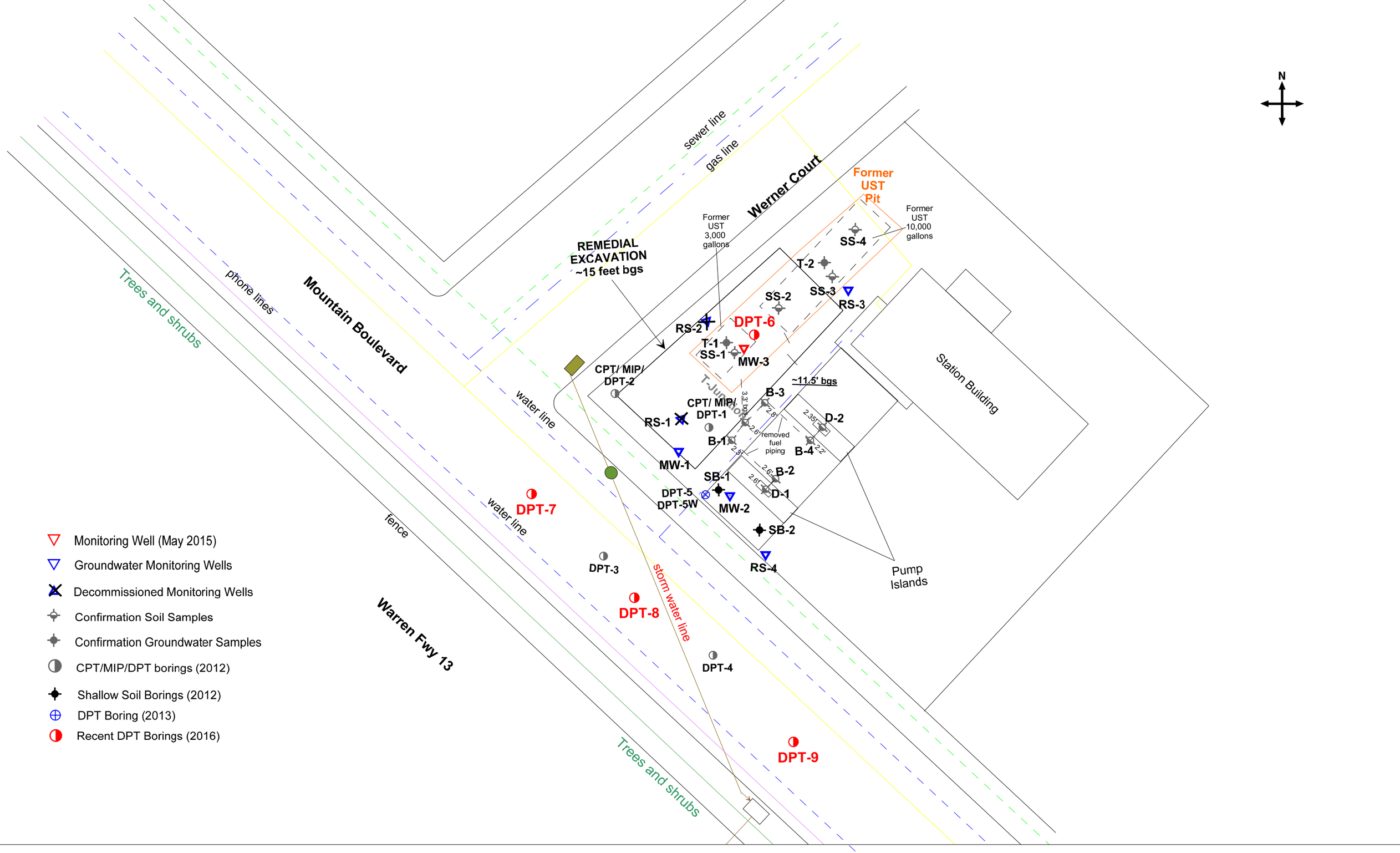

Figure 2: Site Map Showing Locations of Former USTs, Soil Borings, and Groundwater Monitoring Wells

ENVIRONMENTAL ENGINEERING, INC.

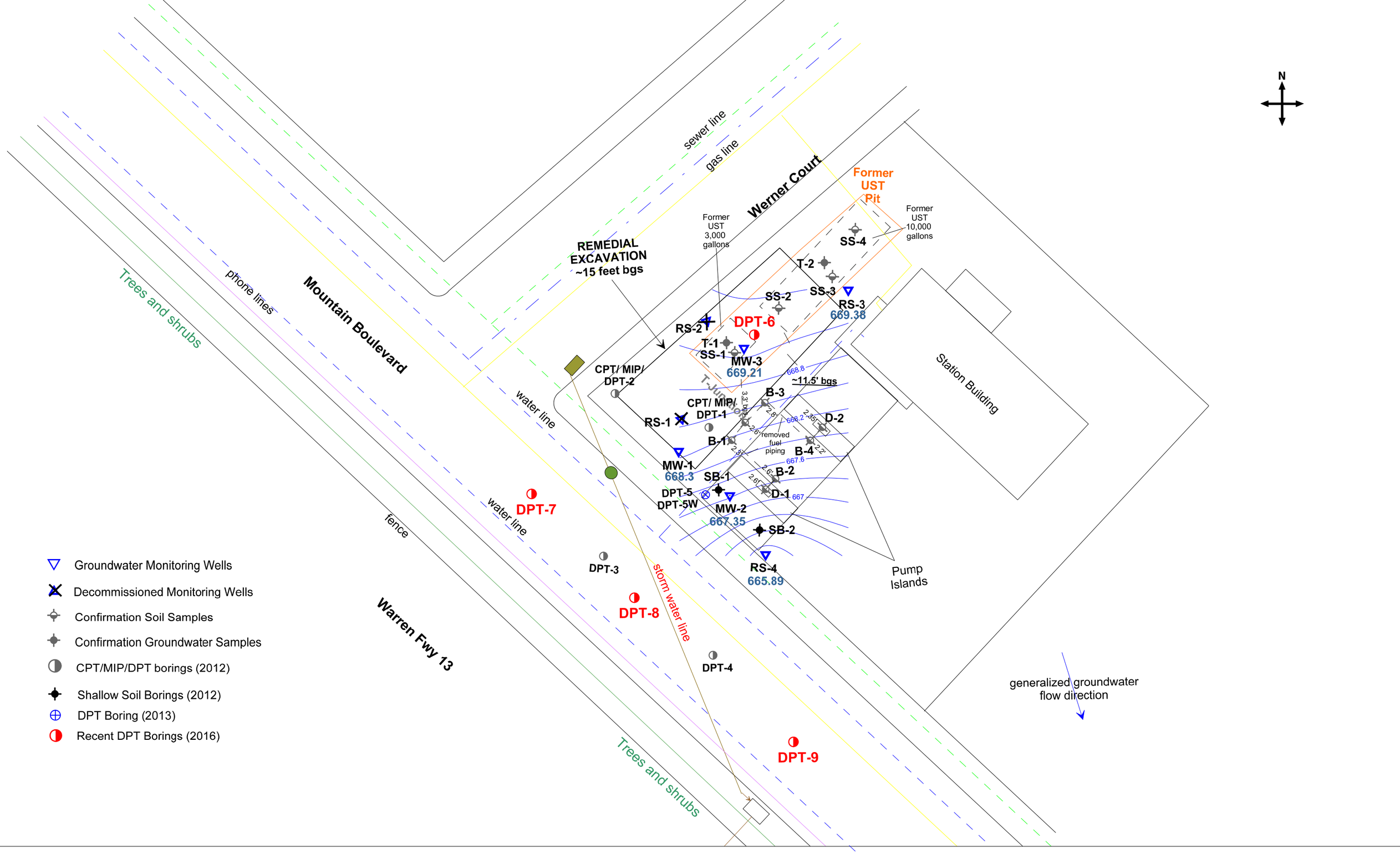

Figure 3: Groundwater Elevation Contour Map in Feet, August 17, 2016

ENVIRONMENTAL ENGINEERING, INC.

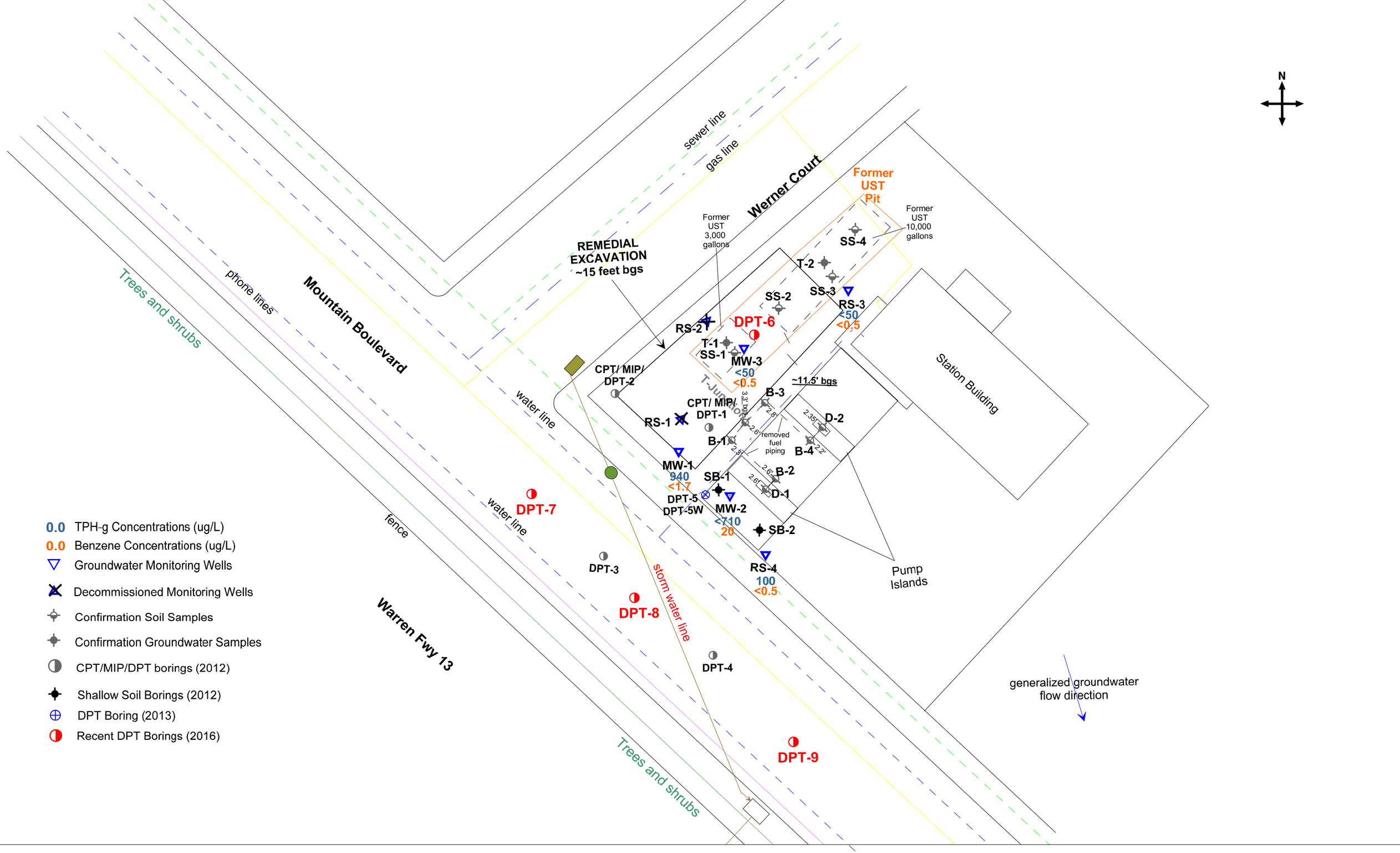

Figure 4: Map Showing TPH-g and Benzene Concentrations in Groundwater, August 17, 2016

ENVIRONMENTAL ENGINEERING, INC.

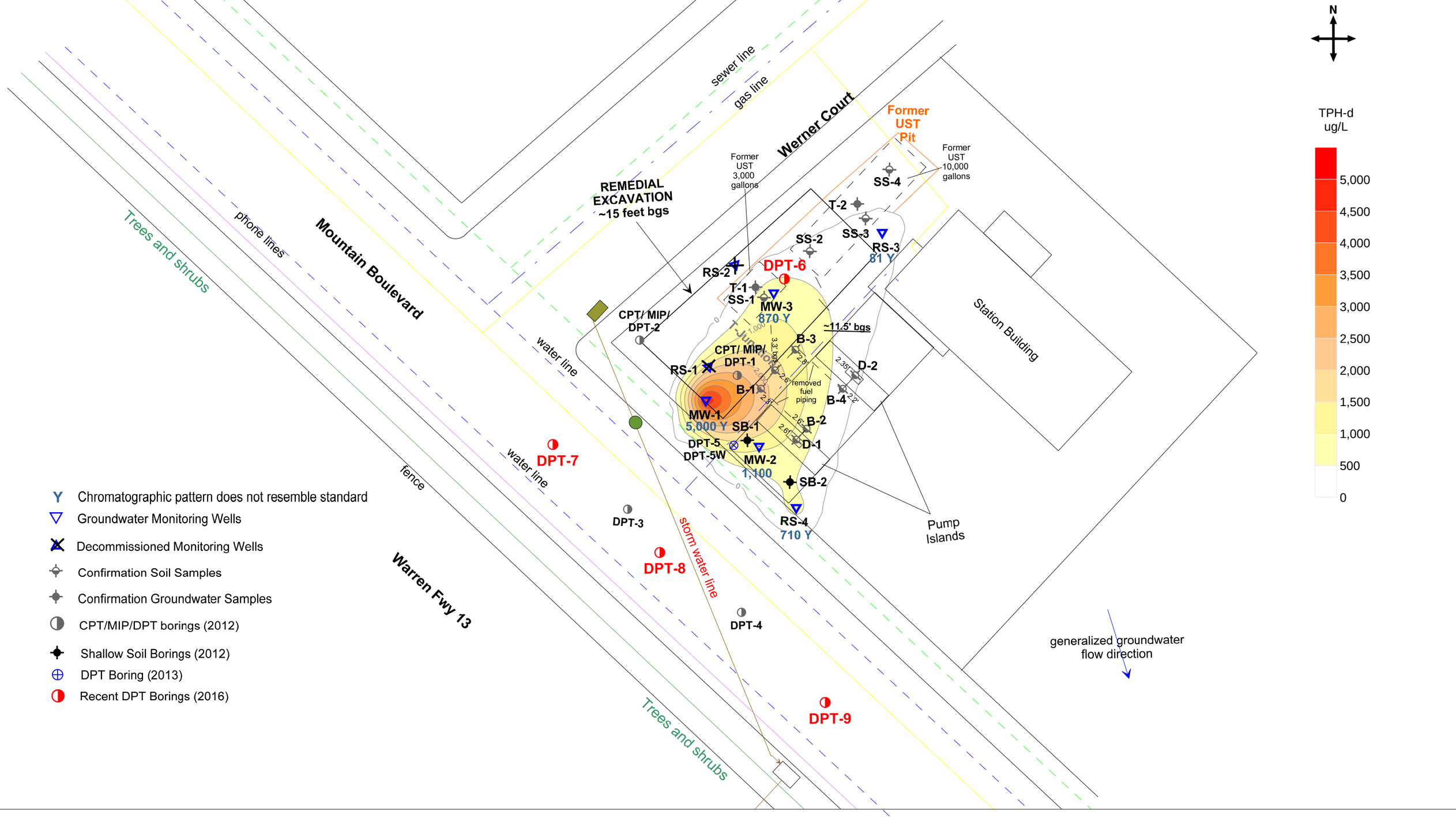

Figure 5: Contour Map Showing TPH-d Concentrations in Groundwater, August 17, 2016

ENVIRONMENTAL ENGINEERING, INC.

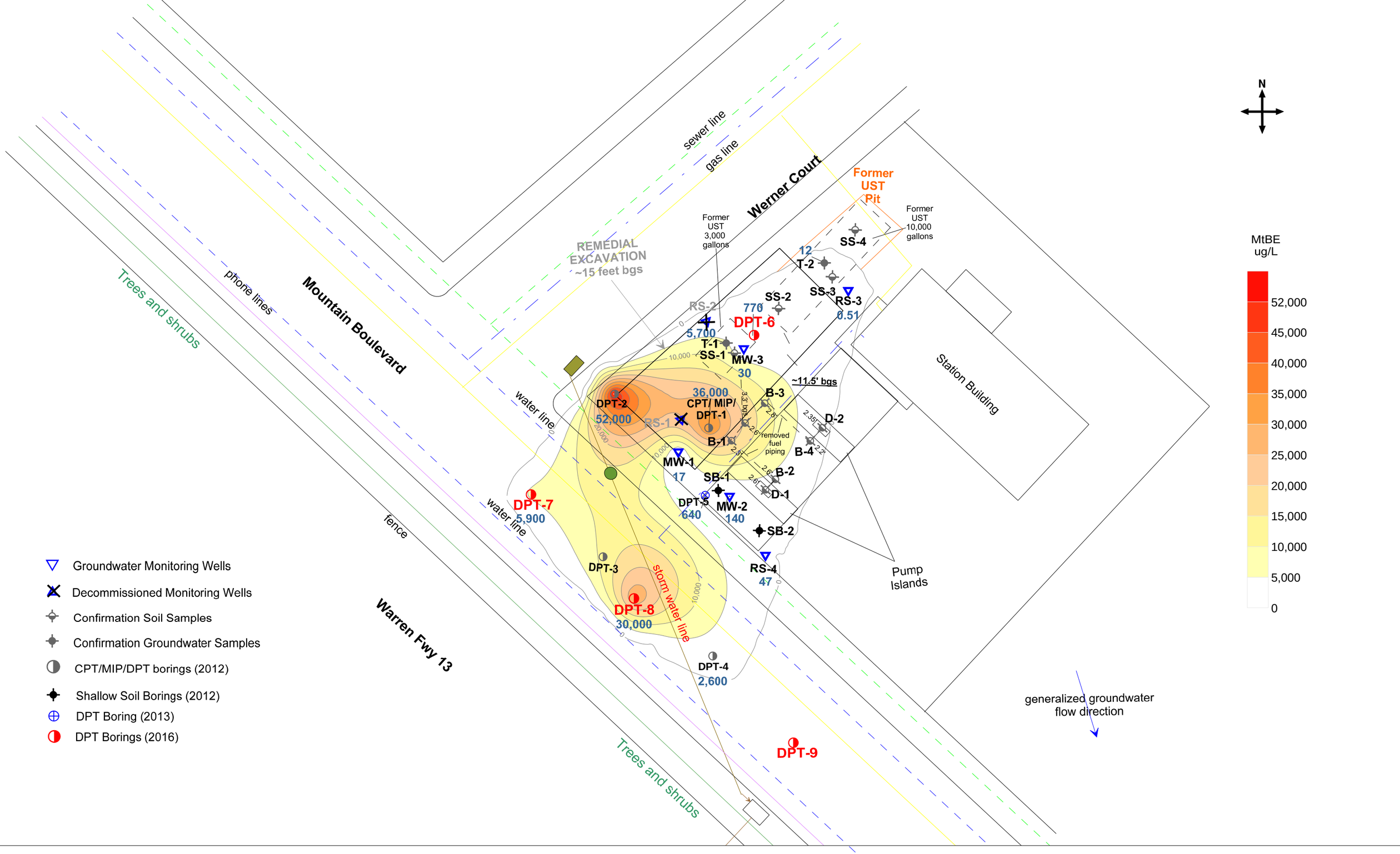

Figure 6: Contour Map Showing Current MtBE Concentrations in Groundwater

ENVIRONMENTAL ENGINEERING, INC.

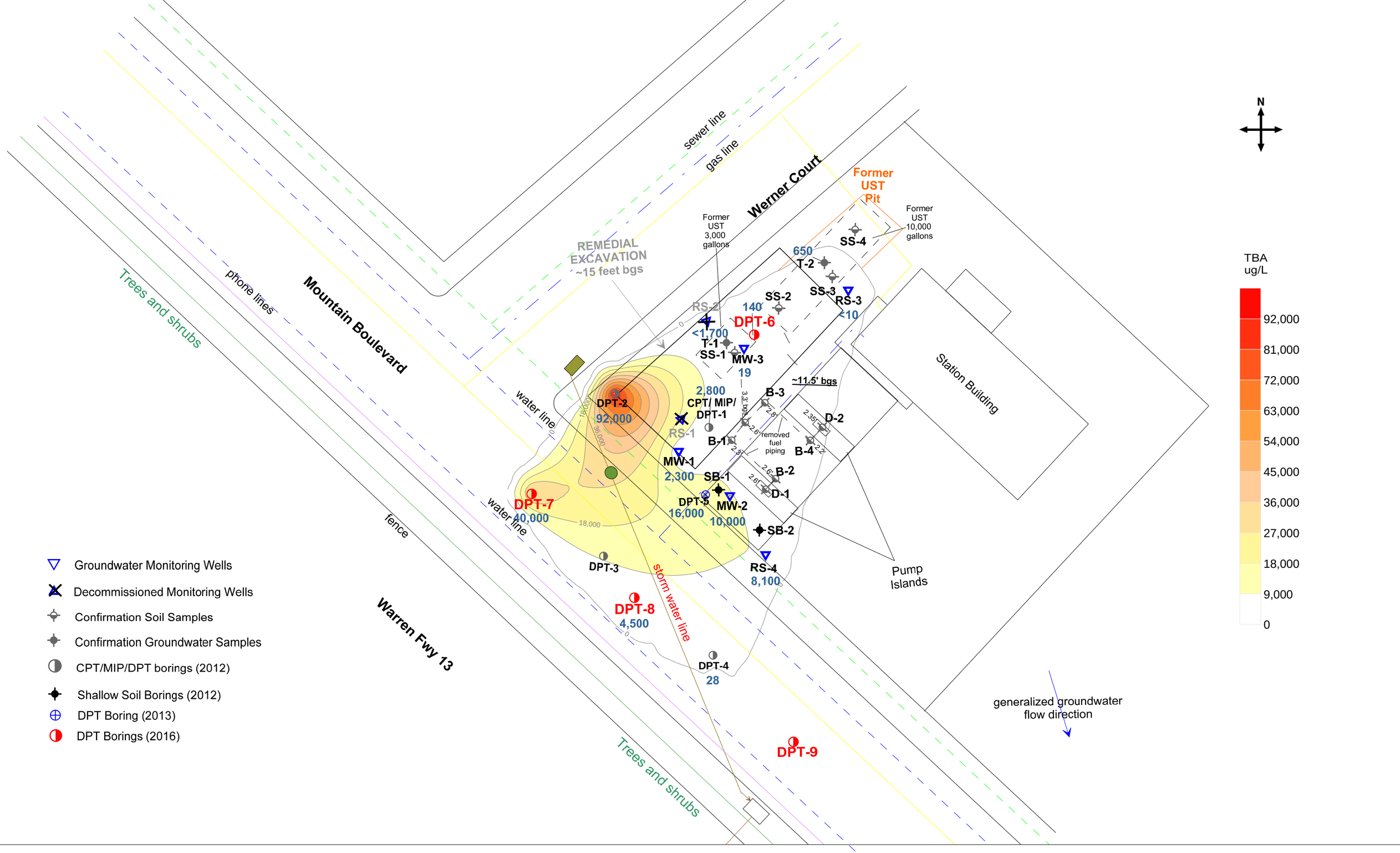

Figure 7: Contour Map Showing Current TBA Concentrations in Groundwater

ENVIRONMENTAL ENGINEERING, INC.

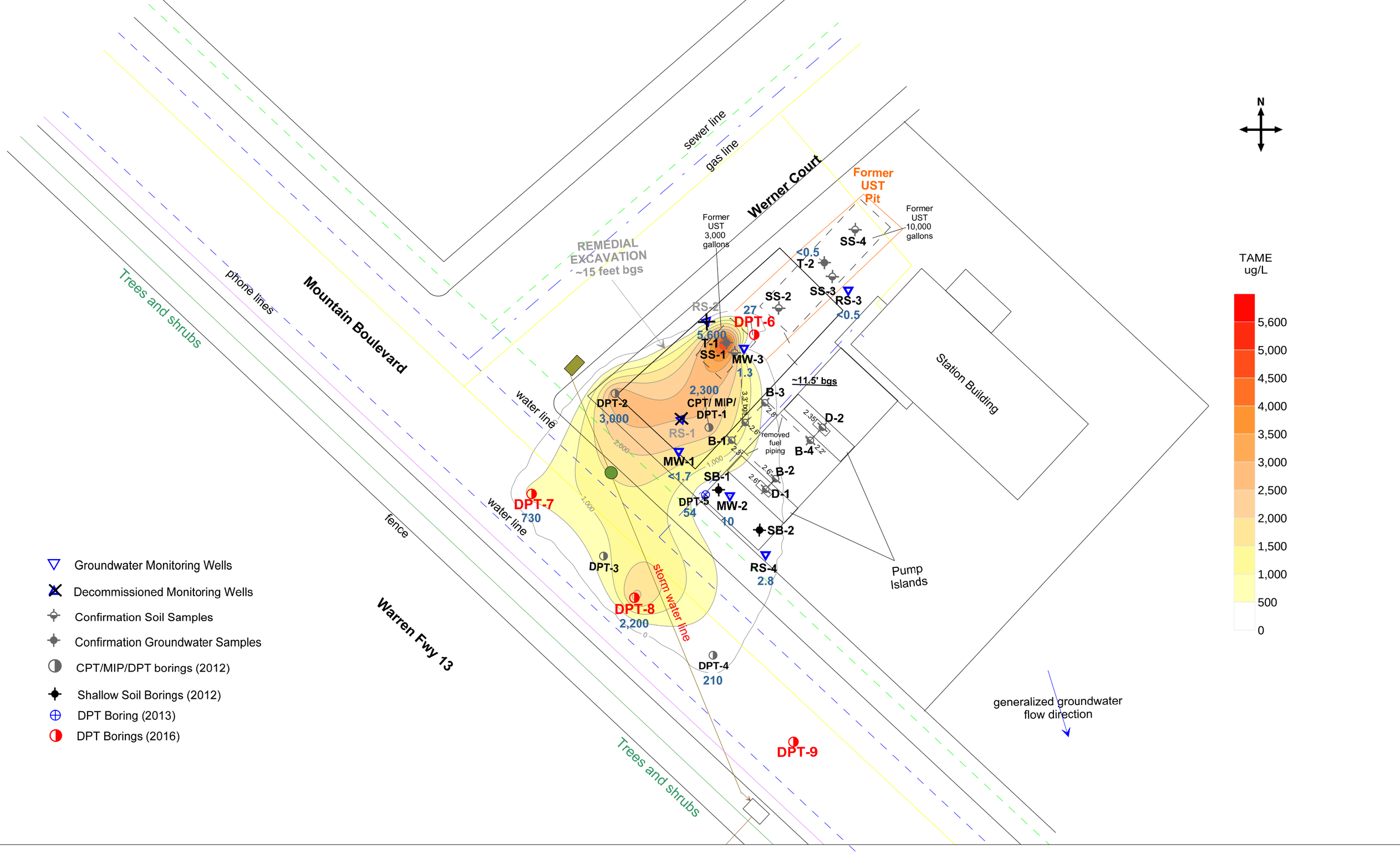

Figure 8: Contour Map Showing Current TAME Concentrations in Groundwater

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Tables

Table 1
Historical Groundwater Analytical Results
2844 Mountain Boulevard, Oakland, CA

Monitoring Well	Date	Casing Elevation (Ft.)	Depth to Top Fluid (Ft.)	Depth to Groundwater (Ft.)	Free-Product Thickness	Groundwater Elevation	TPH-g µg/L	TPH-d µg/L	TPH-mo µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	MtBE µg/L	TBA µg/L	TAME µg/L
RS-1	5/1/90	675.63	7.20	7.20	0.00	668.43	2,700	-	-	370	420	40	320	-	-	-
	5/1/91	675.63	8.35	8.35	0.00	667.28	1,300	-	-	580	130	62	240	-	-	-
	10/1/91	675.63	10.22	10.22	0.00	665.41	1,100	-	-	140	100	45	210	-	-	-
	1/1/92	675.63	8.06	8.06	0.00	667.57	1,700	-	-	9.9	31	9.7	170	-	-	-
	1/1/93	675.63	5.30	5.30	0.00	670.33	3,700	-	-	650	9.2	51	170	-	-	-
	8/1/93	675.63	8.56	8.56	0.00	667.07	900	-	-	14	0.6	2.1	8	-	-	-
	11/1/93	675.63	8.44	8.44	0.00	667.19	1,400	-	-	9.6	ND	0.9	5	-	-	-
	1/1/94	675.63	6.88	6.88	0.00	668.75	4,200	-	-	95	3.1	58	130	-	-	-
	5/1/94	675.63	7.87	7.87	0.00	667.76	7,500	-	-	270	11	37	96	-	-	-
	8/1/94	675.63	16.28	16.28	0.00	659.35	130	-	-	12	0.5	2.6	5	-	-	-
	11/1/94	675.63	8.02	8.02	0.00	667.61	270	-	-	4.7	0.7	0.6	15	-	-	-
	2/1/95	675.63	6.51	6.51	0.00	669.12	12,000	-	-	81	2.3	1	12	-	-	-
	6/1/95	675.63	7.34	7.34	0.00	668.29	37,000	-	-	460	ND	ND	ND	63,000	-	-
	11/1/95	675.63	8.71	8.71	0.00	666.92	ND	-	-	660	16	140	330	31,000	-	-
	2/1/96	675.63	6.95	6.95	0.00	668.68	66,000	-	-	110	ND	12	21	84,000	-	-
	9/18/96	675.63	8.44	8.52	0.08	667.17	1 INCH FLOATING PRODUCT			-	-	-	-	-	-	-
	12/11/96	675.63	6.42	6.62	0.20	669.17	79,000	-	-	4,000	37,000	8,000	45,000	220,000	-	-
	2/21/97	675.63	6.88	6.92	0.04	668.74	1/2 INCH FLOATING PRODUCT			-	-	-	-	-	-	-
	5/28/97	675.63	7.88	7.96	0.08	667.73	156,000	-	-	9,400	51,000	7,000	45,000	112,000	-	-
	9/2/97	675.63	8.34	8.38	0.04	667.28	1/2 INCH FLOATING PRODUCT			-	-	-	-	-	-	-
	11/24/97	675.63	6.98	7.00	0.02	668.65	1/4 INCH FLOATING PRODUCT			-	-	-	-	-	-	-
	2/25/98	675.63	3.51	3.52	0.01	672.12	1/8 INCH FLOATING PRODUCT			-	-	-	-	-	-	-
	5/27/98	675.63	7.31	7.31	0.00	668.32	40,000	-	-	2,200	4,000	2,300	19,000	350,000	-	-
	9/16/98	675.63	8.10	8.10	0.00	667.53	62,000	-	-	2,400	2,300	2,100	14,000	250,000	-	-
	11/23/98	675.63	7.10	7.10	0.00	668.53	99,000	-	-	2,600	5,800	2,500	18,000	130,000	-	-
	2/23/99	675.67	4.82	4.87	0.05	670.84	5/8 INCH FLOATING PRODUCT			-	-	-	-	-	-	-
	5/5/99	675.67	6.86	6.90	0.04	668.80	FLOATING PRODUCT		-	-	-	-	-	-	-	-
	8/24/99	675.67	7.87	7.90	0.03	667.80	FLOATING PRODUCT		-	-	-	-	-	-	-	-
	2/8/12	675.67	6.80	6.80	0.00	668.87	60,000 x	8,200 x	<936	790	<6.4	2,000	430	65,000	41,000	5,100
	5/4/12	675.67	6.57	6.57	0.00	669.10	18,000	10,000	NA	600	<36	2,000	870	22,000	11,000	1,800
	8/6/12	675.67	7.61	7.61	0.00	668.06	16,000	12,000	NA	940	<130	2,000	560	42,000	35,000	3,400
	Well Destroyed October 1, 2012															
RS-2	5/1/90	689.00	7.06	7.06	0.00	681.94	23,000	-	-	7,200	4,800	300	3,300	-	-	-
	5/1/91	689.00	7.14	7.14	0.00	681.86	26,000	-	-	14,000	1,800	750	2,900	-	-	-
	10/1/91	688.89	8.84	8.84	0.00	680.05	13,000	-	-	4,300	910	300	2,300	-	-	-
	1/1/92	688.89	7.34	7.34	0.00	681.55	8,300	-	-	1,800	920	140	1,700	-	-	-
	1/1/93	688.89	4.10	4.10	0.00	684.79	41,000	-	-	7,000	210	1,200	4,200	-	-	-
	8/1/93	688.89	7.32	7.32	0.00	681.57	19,000	-	-	5,300	62	810	1,600	-	-	-
	11/1/93	688.89	7.34	7.34	0.00	681.55	9,300	-	-	2,400	3.90	46	800	-	-	-
	1/1/94	688.89	5.52	5.52	0.00	683.37	30,000	-	-	4,900	ND	880	2,600	-	-	-
	5/1/94	675.25	6.40	6.40	0.00	668.85	120,000	-	-	3,300	330	ND	2,200	-	-	-
	8/1/94	675.25			0.00	675.25	510	-	-	7.30	3.80	3.50	32	-	-	-
	11/1/94	675.25	9.82	9.82	0.00	665.43	620	-	-	6.60	3.90	1.10	47	-	-	-

Table 1
Historical Groundwater Analytical Results
2844 Mountain Boulevard, Oakland, CA

Monitoring Well	Date	Casing Elevation (Ft.)	Depth to Top Fluid (Ft.)	Depth to Groundwater (Ft.)	Free-Product Thickness	Groundwater Elevation	TPH-g µg/L	TPH-d µg/L	TPH-mo µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	MtBE µg/L	TBA µg/L	TAME µg/L
RS-2 cont.	2/1/95	675.25	4.81	4.81	0.00	670.44	22,000	-	-	228	80	2	463	-	-	-
	6/1/95	675.25	5.80	5.80	0.00	669.45	49,000	-	-	1,300	160	200	1,600	71,000	-	-
	11/1/95	675.25	7.64	7.64	0.00	667.61	ND	-	-	670	25	150	360	65,000	-	-
	2/1/96	675.25	4.69	4.69	0.00	670.56	75,000	-	-	1,400	170	59	460	71,000	-	-
	9/18/96	675.25	7.34	7.34	0.00	667.91	6,300	-	-	2,000	48	350	570	160,000	-	-
	12/11/96	675.25	5.08	5.08	0.00	670.17	16,000	-	-	2,000	840	200	3,200	180,000	-	-
	2/21/97	675.25	5.42	5.42	0.00	669.83	22,000	-	-	2,100	1,300	600	5,100	56,000	-	-
	5/28/97	675.25	6.40	6.40	0.00	668.85	156,000	-	-	4,200	89	1,000	6,900	390,000	-	-
	9/2/97	675.25	6.93	6.93	0.00	668.32	<50	-	-	1,300	25	360	1,400	180,000	-	-
	11/24/97	675.25	5.93	5.93	0.00	669.32	<50	-	-	600	ND	ND	ND	610,000	-	-
	2/25/98	675.25	4.59	4.59	0.00	670.66	11,000	-	-	1,100	<50	320	2,400	330,000	-	-
	5/27/98	675.25	5.61	5.61	0.00	669.64	13,000	-	-	2,000	150	600	2,700	380,000	-	-
	9/16/98	675.25	6.84	6.84	0.00	668.41	11,000	-	-	1,600	20	1,600	1,600	280,000	-	-
	11/23/98	675.25	6.24	6.24	0.00	669.01	12,000	-	-	1,200	84	<5	960	140,000	-	-
	2/23/99	675.28	4.62	4.62	0.00	670.66	8,800	-	-	1,500	650	640	1,500	450,000	-	-
	5/5/99	675.28	7.55	7.55	0.00	667.73	29,000	-	-	2,000	1,300	500	3,700	270,000	-	-
	8/24/99	675.28	6.62	6.62	0.00	668.66	12,000	-	-	1,900	20	370	980	340,000	-	-
	2/8/12	675.28	5.52	5.52	0.00	669.76	18,000 x	6,800 x	<378	540	<6.4	120	710	2,800	64,000	420
	5/4/12	675.28	5.18	5.18	0.00	670.10	16,000	13,000	NA	690	23	460	1,140	6,800	21,000	960
	8/6/12	675.28	6.33	6.33	0.00	668.95	11,000	10,000	NA	810	<25	210	473	3,300	18,000	580
	Well Destroyed October 1, 2012															
RS-3	5/1/90	670.00	6.00	6.00	0.00	664.00	330	-	-	2	1	1	150	-	-	-
	5/1/91	670.00	6.76	6.76	0.00	663.24	ND	-	-	0.40	ND	0.80	8	-	-	-
	10/1/91	670.00	8.98	8.98	0.00	661.02	ND	-	-	ND	ND	ND	ND	-	-	-
	1/1/92	670.00	6.81	6.81	0.00	663.19	ND	-	-	2.20	7.20	0.60	4	-	-	-
	1/1/93	670.00	4.05	4.05	0.00	665.95	ND	-	-	ND	ND	ND	ND	-	-	-
	8/1/93	670.00	7.19	7.19	0.00	662.81	ND	-	-	30	6	2.40	5	-	-	-
	11/1/93	670.00	7.12	7.12	0.00	662.88	ND	-	-	4.80	0.40	0.60	2	-	-	-
	1/1/94	670.00	5.42	5.42	0.00	664.58	330	-	-	25	3.20	3.90	12	-	-	-
	5/1/94	676.20	5.78	5.78	0.00	670.42	670	-	-	34	4	28	70	-	-	-
	8/1/94	676.20	5.86	5.86	0.00	670.34	ND	-	-	ND	ND	ND	ND	-	-	-
	11/1/94	676.20	5.08	5.08	0.00	671.12	69	-	-	2.50	3.10	1	4	-	-	-
	2/1/95	676.20	4.51	4.51	0.00	671.69	ND	-	-	0.30	0.40	ND	1	-	-	-
	6/1/95	676.20	5.29	5.29	0.00	670.91	ND	-	-	ND	ND	ND	ND	66	-	-
	11/1/95	676.20	7.10	7.10	0.00	669.10	ND	-	-	ND	ND	ND	ND	44	-	-
	2/1/96	676.20	4.48	4.48	0.00	671.72	120	-	-	ND	ND	ND	ND	110	-	-
	9/18/96	676.20	6.92	6.92	0.00	669.28	1,000	-	-	13	8.60	10	17	33	-	-
	12/11/96	676.20	4.90	4.90	0.00	671.30	85	-	-	20	2	<0.5	14	4,700	-	-
	2/21/97	676.20	4.94	4.94	0.00	671.26	120	-	-	5	2	2	6	850	-	-
	5/28/97	676.20	7.92	7.92	0.00	668.28	<50	-	-	6	<0.5	<0.5	<2	2,400	-	-
	9/2/97	676.20	6.60	6.60	0.00	669.60	<50	-	-	0.90	<0.5	<0.5	<2	8,600	-	-
	11/24/97	676.20	5.89	5.89	0.00	670.31	140	-	-	13	2	1	12	3,600	-	-
	2/25/98	676.20	4.29	4.29	0.00	671.91	<50	-	-	<0.5	<0.5	<0.5	4	850	-	-
	5/27/98	676.20	5.01	5.01	0.00	671.19	<50	-	-	7	<0.5	<0.5	11	940	-	-

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2844 Mountain Boulevard, Oakland, CA

Monitoring Well	Date	Casing Elevation (Ft.)	Depth to Top Fluid (Ft.)	Depth to Groundwater (Ft.)	Free-Product Thickness	Groundwater Elevation	TPH-g µg/L	TPH-d µg/L	TPH-mo µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	MtBE µg/L	TBA µg/L	TAME µg/L
RS-3 cont.	9/16/98	676.20	6.21	6.21	0.00	669.99	<50	-	-	2	2	2	10	670	-	-
	11/24/98	676.20	5.58	5.58	0.00	670.62	85	-	-	9	23	<0.5	19	180	-	-
	2/24/99	676.23	4.30	4.30	0.00	671.93	<50	-	-	<0.5	0.90	<0.5	<1.0	150	-	-
	5/5/99	676.23	4.92	4.92	0.00	671.31	<50	-	-	1	2	1	6	130	-	-
	8/24/99	676.23	6.64	6.64	0.00	669.59	80	-	-	0.80	<0.5	0.60	<1	300	-	-
	2/8/12	676.23	5.72	5.72	0.00	670.51	130 x	<42	<94	<0.13	0.59	2.90	18.1	7.9	<1.5	<0.17
	5/4/12	676.23	5.25	5.25	0.00	670.98	<50	330 Y	NA	<0.5	<0.5	<0.5	<0.5	10	18	2.4
	8/6/12	676.23	6.65	6.65	0.00	669.58	<50	390 Y	NA	<0.5	<0.5	<0.5	<0.5	13	<10	3.2
	3/29/13	676.23	6.01	6.01	0.00	670.22	<50	90 Y	NA	<0.5	<0.5	<0.5	<0.5	3.6	<10	<0.5
	6/6/13	676.08	6.45	6.45	0.00	669.63	<50	66 Y	NA	<0.5	<0.5	<0.5	<0.5	1.5	<10	<0.5
	9/4/13	676.08	6.91	6.91	0.00	669.17	<50	170 Y	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<0.5
	12/30/13	676.08	7.21	7.21	0.00	668.87	<50	61 Y	NA	<0.5	<0.5	<0.5	<0.5	21	680	0.64
	3/10/14	676.08	5.68	5.68	0.00	670.40	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	14	320	0.61
	6/3/14	676.08	6.72	6.72	0.00	669.36	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	41	490	1.70
	8/27/14	676.08	7.10	7.10	0.00	668.98	<50	120 Y	NA	<0.5	<0.5	<0.5	<0.5	27	<10	1.20
	11/13/14	676.08	6.53	6.53	0.00	669.55	<50*	58 Y	NA	<0.5	<0.5	<0.5	<0.5	19	<10	0.60
	2/12/15	676.08	5.95	5.95	0.00	670.13	<50	56 Y	NA	<0.5	<0.5	<0.5	<0.5	19	<10	<0.5
	5/13/15	676.08	6.93	6.93	0.00	669.15	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	4.6	<10	<0.5
post-MPE	6/22/15	676.08	8.87	8.87	0.00	667.21	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<0.5
	8/12/15	676.08	7.79	7.79	0.00	668.29	<50	<52	NA	<0.5	<0.5	<0.5	<0.5	0.57	<10	<0.5
	11/12/15	676.08	7.85	7.85	0.00	668.23	<50	<49	NA	<0.5	<0.5	<0.5	<0.5	1.10	<10	<0.5
	2/15/16	676.08	5.88	5.88	0.00	670.20	<50	<49	NA	<0.5	<0.5	<0.5	<0.5	5.40	<10	<0.5
	5/6/16	676.08	5.93	5.93	0.00	670.15	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	4.80	<10	<0.5
	8/17/16	**676.08**	**6.70**	**6.70**	**0.00**	**669.38**	**<50**	**81Y**	**NA**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**0.51**	**<10**	**<0.5**
RS-4	5/1/90	675.38	8.34	8.34	0.00	667.04	440	-	-	9	11	9	49	-	-	-
	5/1/91	675.38	9.50	9.50	0.00	665.88	ND	-	-	8	4	3	5	-	-	-
	10/1/91	675.38	10.82	10.82	0.00	664.56	830	-	-	280	120	24	170	-	-	-
	1/1/92	675.38	9.31	9.31	0.00	666.07	620	-	-	34	8.30	2.10	21	-	-	-
	1/1/93	675.38	6.89	6.89	0.00	668.49	150	-	-	32	1.70	5.80	13	-	-	-
	8/1/93	675.38	9.68	9.68	0.00	665.70	ND	-	-	0.90	0.70	ND	0	-	-	-
	11/1/93	675.38	9.83	9.83	0.00	665.55	ND	-	-	ND	ND	ND	ND	-	-	-
	1/1/94	675.38	8.17	8.17	0.00	667.21	ND	-	-	1.70	ND	0.81	2	-	-	-
	5/1/94	675.38	8.69	8.69	0.00	666.69	ND	-	-	ND	ND	ND	1	-	-	-
	8/1/94	675.38	9.04	9.04	0.00	666.34	420	-	-	6.50	4.10	1.90	40	-	-	-
	11/1/94	675.38	8.00	8.00	0.00	667.38	130	-	-	4.10	0.70	1.70	8	-	-	-
	2/1/95	675.38	7.93	7.93	0.00	667.45	ND	-	-	6	1.20	3.50	13	-	-	-
	6/1/95	675.38	8.61	8.61	0.00	666.77	ND	-	-	ND	ND	ND	ND	69	-	-
	11/1/95	675.38	10.43	10.43	0.00	664.95	ND	-	-	ND	ND	ND	ND	47	-	-
	2/1/96	675.38	7.44	7.44	0.00	667.94	960	-	-	ND	ND	0.60	ND	80	-	-
	9/18/96	675.38	9.58	9.58	0.00	665.80	<50	-	-	<0.5	<0.5	<0.5	<2	200	-	-
	12/11/96	675.38	7.50	7.50	0.00	667.88	75	-	-	<0.5	0.60	<0.5	<0.5	104	-	-

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2844 Mountain Boulevard, Oakland, CA

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RS-4 cont.	2/21/97	675.38	8.26	8.26	0.00	667.12	<50	-	-	1	1	<0.5	1	190	-	-
	5/28/97	675.38	8.92	8.92	0.00	666.46	<50	-	-	6	<0.5	<0.5	<2	110	-	-
	9/2/97	675.38	9.39	9.39	0.00	665.99	100	-	-	3	<0.5	<0.5	<2	39	-	-
	11/24/97	675.38	8.22	8.22	0.00	667.16	41	-	-	<0.5	2	<0.5	<2	210	-	-
	2/25/98	675.38	7.19	7.19	0.00	668.19	<50	-	-	3	<0.5	<0.5	<1	5,600	-	-
	5/27/98	675.38	8.40	8.40	0.00	666.98	<50	-	-	<0.5	<0.5	<0.5	<1	2,400	-	-
	9/16/98	675.38	9.26	9.26	0.00	666.12	<50	-	-	<0.5	<0.5	<0.5	<1	230	-	-
	11/24/98	675.38	8.50	8.50	0.00	666.88	<50	-	-	2	<0.5	<0.5	<1	100	-	-
	2/24/99	675.42	7.20	7.20	0.00	668.22	<50	-	-	2	3	0.80	5	670	-	-
	5/5/99	675.42	8.37	8.37	0.00	667.05	100	-	-	<0.5	<0.5	<0.5	<1	440	-	-
	8/24/99	675.42	8.36	8.36	0.00	667.06	<50	-	-	<0.5	<0.5	<0.5	<1	<500	-	-
	2/8/12	675.42	8.11	8.11	0.00	667.31	140,000	130,000 x	<9,360	120	2,600	4,700	28,200	28,000	100,000	1,800
	5/4/12	675.42	8.31	8.31	0.00	667.11	67,000	12,000 Y	NA	61	900	2,100	9,700	32,000	69,000	1,700
	8/6/12	675.42	9.01	9.01	0.00	666.41	49,000	8,900	NA	<130	350	1,700	8,100	19,000	90,000	1,300
	3/29/13	675.42	8.49	8.49	0.00	666.93	14,000	14,000	NA	<100	<100	440	1,340	14,000	110,000	590
	6/6/13	675.27	8.48	8.48	0.00	666.79	12,000	7,200	NA	11	<3.6	420	886	16,000	66,000	970
	9/4/13	675.27	9.39	9.39	0.00	665.88	20,000	5,100	NA	<100	<100	660	2,830	18,000	75,000	1,200
	12/30/13	675.27	9.57	9.57	0.00	665.70	<13,000	9,900	NA	<130	<130	<130	150	16,000	37,000	1,100
	3/10/14	675.27	7.65	7.65	0.00	667.62	<10,000	3,700	NA	<100	<100	<100	<100	11,000	38,000	640
	6/3/14	675.27	9.27	9.27	0.00	666.00	<3,600	4,400	NA	<36	<36	40	<36	3,700	27,000	260
	8/27/14	675.27	9.43	9.43	0.00	665.84	2,500	4,700	NA	<20	<20	40	<20	2,100	28,000	150
	11/13/14	675.27	9.56	9.56	0.00	665.71	2,200*	3,500	NA	<20	<20	<20	36	11,000	15,000	910
	2/12/15	675.27	8.03	8.03	0.00	667.24	<1,300	1,900	NA	<13	<13	<13	<13	500	14,000	25
	5/13/15	675.27	9.05	9.05	0.00	666.22	<1,300	1,100	NA	<13	<13	<13	<13	460	25,000	21
Post-MPE	6/22/15	675.27	10.62	10.62	0.00	664.65	<1,300	770	NA	<13	<13	<13	<13	5,900	7,900	500
	8/12/15	675.27	9.93	9.93	0.00	665.34	320	1,300	NA	<1.3	<1.3	1.3	1.7	230	6,400	18
	11/12/15	675.27	9.58	9.58	0.00	665.69	170	440	NA	<0.5	<0.5	1.4	0.55	12	1,400	0.66
	2/15/16	675.27	8.43	8.43	0.00	666.84	<100	350 Y	NA	<1.0	<1.0	<1.0	<1.0	8.80	270	<1.0
	5/6/16	675.27	6.47	6.47	0.00	668.80	<50	850 Y	NA	<0.5	<0.5	<0.5	<0.5	160	21	5.60
	8/17/16	**675.27**	**9.38**	**9.38**	**0.00**	**665.89**	**100**	**710 Y**	**NA**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**47**	**8,100**	**2.80**
MW-1	6/6/13	674.92	6.03	6.03	0.00	668.89	<17,000	13,000	NA	930	370	470	1,760	55,000	32,000	7,200
	9/4/13	674.92	7.10	7.10	0.00	667.82	<50,000	13,000	NA	2,000	<500	1,400	4,200	70,000	48,000	7,700
	12/30/13	674.92	7.27	7.27	0.00	667.65	34,000	13,000	NA	920	1,000	1,300	4,900	43,000	43,000	4,500
	3/10/14	674.92	5.51	5.51	0.00	669.41	<20,000	11,000	NA	720	<200	890	1,970	25,000	30,000	2,600
	6/3/14	674.92	6.74	6.74	0.00	668.18	8,900	7,400	NA	350	<83	550	1,420	11,000	28,000	1,300
	8/27/14	674.92	7.23	7.23	0.00	667.69	8,100	12,000	NA	640	<63	610	720	8,400	23,000	1,500
	11/13/14	674.92	7.36	7.36	0.00	667.56	7,400*	7,900	NA	270	<63	360	880	6,100	12,000	910
	2/12/15	674.92	5.80	5.80	0.00	669.12	4,300	11,000	NA	200	<25	200	350	3,400	18,000	500
	5/13/15	674.92	7.00	7.00	0.00	667.92	2,700	7,100	NA	150	<8.3	170	76	1,000	12,000	150
Post-MPE	6/22/15	674.92	12.11	12.11	0.00	662.81	<1,300	2,600	NA	<13	<13	<13	<13	4,800	17,000	450
	8/12/15	674.92	8.25	8.25	0.00	666.67	2,000	8,100	NA	31	<8.3	27	46	530	10,000	57
	11/12/15	674.92	7.79	7.79	0.00	667.13	2,500	5,100	NA	16	<5.0	34	6.9	120	6,200	13

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MW-1 cont.	2/15/16	674.92	5.94	5.94	0.00	668.98	970	3,700	NA	3.20	<2.5	27	11	75	4,100	7.40
	5/6/16	674.92	5.92	5.92	0.00	669.00	690	2,900	NA	1.80	<1.7	<1.7	<1.7	26	2,900	2.50
	8/17/16	**674.92**	**6.62**	**6.62**	**0.00**	**668.30**	**940**	**5,000 Y**	**NA**	**<1.7**	**<1.7**	**<1.7**	**<1.7**	**17**	**2,300**	**<1.7**
MW-2	6/6/13	675.02	6.70	6.70	0.00	668.32	16,000	5,400	NA	910	<130	610	2,290	59,000	64,000	7,700
	9/4/13	675.02	7.79	7.79	0.00	667.23	<25,000	3,900	NA	860	<250	710	1,580	32,000	31,000	4,600
	12/30/13	675.02	8.05	8.05	0.00	666.97	<13,000	6,300	NA	180	<130	<130	330	18,000	53,000	1,800
	3/10/14	675.02	6.08	6.08	0.00	668.94	14,000	11,000	NA	210	<130	360	700	15,000	40,000	1,800
	6/3/14	675.02	7.54	7.54	0.00	667.48	<7,100	6,200	NA	170	<71	310	150	8,000	29,000	920
	8/27/14	675.02	7.90	7.90	0.00	667.12	3,400	5,000	NA	100	<8.3	120	88	2,300	25,000	310
	11/13/14	675.02	8.12	8.12	0.00	666.90	1,000*	4,700	NA	120	<8.3	11	<8.3	4,000	22,000	460
	2/12/15	675.02	6.33	6.33	0.00	668.69	<4,200	5,400	NA	98	<42	58	<42	6,300	42,000	610
	5/13/15	675.02	7.72	7.72	0.00	667.30	<2,000	4,900	NA	86	<20	45	<20	870	34,000	96
Post-MPE	6/22/15	675.02	11.30	11.30	0.00	663.72	<2,000	3,300	NA	<20	<20	<20	<20	3,400	18,000	460
	8/12/15	675.02	8.86	8.86	0.00	666.16	<2,000	2,800 Y	NA	<20	<20	<20	<20	470	23,000	31
	11/12/15	675.02	8.30	8.30	0.00	666.72	<2,000	1,800	NA	<20	<20	<20	<20	340	37,000	25
	2/15/16	675.02	6.67	6.67	0.00	668.35	620	1,900	NA	32	<2.0	8.2	<2.0	180	26,000	15
	5/6/16	675.02	5.72	5.72	0.00	669.30	1,200	1,700	NA	43	<2.5	14	<2.5	220	19,000	20
	8/17/16	**675.02**	**7.67**	**7.67**	**0.00**	**667.35**	**<710**	**1,100**	**NA**	**20**	**<7.1**	**<7.1**	**<7.1**	**140**	**10,000**	**10**
MW-3	5/13/15	675.58	6.60	6.60	0.00	668.98	<50	7,000	NA	<0.5	<0.5	<0.5	0.75	160	380	8.4
Post-MPE	6/22/15	675.58	14.31	14.31	0.00	661.27	<100	650 Y	NA	<1.0	<1.0	<1.0	<1.0	190	17	6.3
	8/12/15	675.58	7.80	7.80	0.00	667.78	<170	410 Y	NA	<1.7	<1.7	<1.7	<1.7	590	41	20
	11/12/15	675.58	7.78	7.78	0.00	667.80	<50	220 Y	NA	<0.5	<0.5	<0.5	<0.5	67	<10	1.70
	2/15/16	675.58	5.40	5.40	0.00	670.18	<50	370 Y	NA	<0.5	<0.5	<0.5	<0.5	140	<10	3.20
	5/6/16	675.58	5.68	5.68	0.00	669.90	140	490 Y	NA	<0.5	<0.5	<0.5	<0.5	190	9,000	10
	8/17/16	**675.58**	**6.37**	**6.37**	**0.00**	**669.21**	**<50**	**870 Y**	**NA**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**30**	**19**	**1.30**
ESLs (µg/L)	**Ground-water**						100	100	NA	1.00	40	13	20	5.00	12	NL
	Vapor Intrusion						NV	NV	NV	1.10	3,600	13	1,300	1,200	NV	NL

Note:

< : Below Laboratory Reporting Limit (Method Detection Limit)

x : Does not match pattern of reference Gasoline standard/ Not typical of diesel standard pattern (possibly fuel lighter than diesel)

* : Laboratory instruments for EPA8260 were down. Therefore, TPH-g was analyzed by EPA8015B instead of EPA8260 for samples collected on 11/13/2014

ESL: Environmental Screening Level by California Regional Water Quality Control Board San Francisco Bay Region, February 2016

NL: Not Listed

NV: No Value

Appendix A

Standard Operating Procedures for Conducting Groundwater Monitoring Activities

Standard Operating Procedures for Conducting Groundwater Monitoring Activities

Water Level Measurements

Prior to measurement of groundwater depth at each monitoring well, equalization with the surrounding aquifer must be achieved. Initially, the well cap is removed and the pressure is allowed to dissipate, creating a more stable water table level within the well. After about 10-15 minutes, once the water level in the well stabilizes, the depth to groundwater in each monitoring well is measured from the top of the casing to the nearest 0.01 foot using an electric sounder.

Purging and Field Measurements

Prior to sample collection, each monitoring well is purged using a battery-operated, 2-inch-diameter pump (Model ES-60 DC). To ensure that final samples are in equilibrium with, and representative of, the surrounding groundwater, during purging several samples are taken for field measurements of pH, temperature and electrical conductivity (EC). These parameters are measured with a Hanna pH, conductivity, and temperature meter. Equipment is calibrated on-site using standard solutions and procedures provided by the manufacturer.

The pH of groundwater has an effect on the activity of microbial populations in the groundwater. The groundwater temperature affects the metabolic activity of bacteria. The groundwater EC is directly related to the concentration of total dissolved solids (TDS) in solution.

Purging continues until these parameters stabilize or three casing volumes are purged.

Sampling

For sampling purposes, after purging a disposable polyethylene bailer is used to collect sufficient samples from each monitoring well for laboratory analyses. Groundwater samples are transferred to 40-mL VOA vials and preserved with hydrochloric acid. The vials are sealed to prevent air bubbles from forming within the headspace. For TPH-d and TPH-mo analysis, groundwater samples are collected using 1-L, amber, nonpreserved glass containers. Samples are placed in an ice-filled cooler and maintained at 4°C. A chain of custody form for all samples is prepared to accompany the samples, which are promptly delivered to a California state-certified analytical laboratory.

Appendix B

Tables of Elevations and Coordinates on Wells,
Field Measurements of Physical and Chemical
Parameters of the Groundwater Samples
and Groundwater Gradient Calculations

DATE: 5/28/2013
JOB# 13004

TABLE OF ELEVATIONS & COORDINATES ON MONITORING WELLS

SOMA ENVIRONMENTAL ENGINEERING
2844 MOUNTAIN BLVD
OAKLAND, CA 94602

WELL ID #	NORTHING (FT.) / LATITUDE (D.DEG.)	EASTING (FT.) / LONGITUDE (D.DEG.)	ELEVATION (FT.)	DESCRIPTION
MW-1	2122404.169	6071174.709	674.92	SET NOTCH N. SIDE 4" PVC
	N37.81151896	W122.1980061	675.50	SET PUNCH N. SIDE
			675.49	NORTH SIDE AC
MW-2	2122393.627	6071186.912	675.02	SET NOTCH N. SIDE 4" PVC
	N37.81149062	W122.1979632	675.53	SET PUNCH N. SIDE
			675.51	
RS-3	2122442.569	6071215.114	676.08	SET NOTCH N. SIDE 4" PVC
	N37.81162641	W122.1978687	676.47	SET PUNCH N. SIDE
			676.38	NORTH SIDE AC
RS-4	2122379.611	6071195.421	675.27	TOP 4" PVC
	N37.81145256	W122.1979329	675.70	SET PUNCH N. SIDE
			675.59	NORTH SIDE AC

HORIZONTAL CONTROL: CALIFORNIA COORDINATE SYSTEM ZONE 3, NAD83.
ELLIPSOID: WGS 1984
EPOCH: NAD_83 (2011) 2010.0000
GEOID MODEL: GEOID12A

VERTICAL CONTROL: BENCH MARK: CITY OF OAKLAND BM 2806
CINCH NAIL IN SOUTHWESTERLY CURB OF MOUNTAIN BLVD, 150' SOUTHEASTERLY FROM THE CENTERLINE OF KEARNEY AVE EXTENDED. NORTHING 2,122,547.687', EASTING 6,070,956.301'
ELEVATION= 674.892' NAVD 88 DATUM

EQUIPMENT USED: TRIMBLE GPS-R8 & TS S6, TOPCON AT-G2 LEVEL

6/03/13

EDGIS LAND SURVEYING
LAND SURVEYING AND MAPPING
1374 Garland Avenue, Clovis, CA 93612
Phone (559) 803-2679
email: edgis@aol.com

DATE: 5/16/2015
JOB# 15006

TABLE OF ELEVATIONS & COORDINATES ON MONITORING WELLS

SOMA ENVIRONMENTAL ENGINEERING
2844 MOUNTAIN BLVD
OAKLAND, CA 94602

WELL ID #	NORTHING (FT.) / LATITUDE (D.DEG.)	EASTING (FT.) / LONGITUDE (D.DEG.)	ELEVATION (FT.)	DESCRIPTION
MW-3	2122428.726	6071190.266	675.58	SET NOTCH N. SIDE 4" PVC
	N37.811587175	W122.197953799	675.85	SET PUNCH N. SIDE
			675.83	NORTH SIDE AC

HORIZONTAL CONTROL:
SURVEY BASED ON PREVIOUS SURVEY BY EDGIS LAND SURVEYING DATED: 5/28/2013
COORDINATE VALUES ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM, ZONE 3, NAD83.

VERTICAL CONTROL: BENCH MARK: CITY OF OAKLAND BM 2806
CINCH NAIL IN SOUTHWESTERLY CURB OF MOUNTAIN BLVD, 150' SOUTHEASTERLY FROM THE CENTERLINE OF KEARNEY AVE EXTENDED. NORTHING 2,122,547.687', EASTING 6,070,956.301'
ELEVATION= 674.892' NAVD 88 DATUM

EQUIPMENT USED: TRIMBLE TS S6, TOPCON AT-G2 LEVEL

5/16/15

EDGIS LAND SURVEYING
LAND SURVEYING AND MAPPING
2519 Shaw Ave., Ste. 111
Fresno, CA 93711
Phone (559) 803-2679
Email: edgis@aol.com

ENVIRONMENTAL ENGINEERING, INC

Well No.:	RS-3	**Project No.:**	5081
Casing Diameter:	4 inches	**Address:**	2844 Mountain Blvd.
Depth of Well:	23.45 feet		Oakland, CA
Top of Casing Elevation:	676.08 feet	**Date:**	August 17, 2016
Depth to Groundwater:	6.70 feet	**Sampler:**	Davoud Bazrpash
Groundwater Elevation:	669.38 feet		
Water Column Height:	16.75 feet		
Purged Volume:	12 gallons		

Purging Method: **Bailer** ☐ **Pump** ☑

Sampling Method: **Bailer** ☑ **Pump** ☐

Color: **Yes** ☐ **No** ☑ **Describe:** clear

Sheen: **Yes** ☐ **No** ☑ **Describe:**

Odor: **Yes** ☑ **No** ☐ **Describe:** Petroleum

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
8/17/16 14:05	START			
14:10	3	7.25	21.8	771
14:15	6	7.34	21.8	767
14:20	9	7.40	21.8	762
14:25	12	7.47	22.1	757
START Sampling @ 14:35		4		

Notes:

ENVIRONMENTAL ENGINEERING, INC

Well No.:	RS-4	**Project No.:**	5081
Casing Diameter:	4 inches	**Address:**	2844 Mountain Blvd.
Depth of Well:	25.52 feet		Oakland, CA
Top of Casing Elevation:	675.27 feet	**Date:**	August 17, 2016
Depth to Groundwater:	9.38 feet	**Sampler:**	Davoud Bazrpash
Groundwater Elevation:	665.89 feet		
Water Column Height:	16.14 feet		
Purged Volume:	12 gallons		

Purging Method:	**Bailer**	☐	**Pump**	☑
Sampling Method:	**Bailer**	☑	**Pump**	☐

Color:	**Yes**	☐	**No**	☑	**Describe:** Clear
Sheen:	**Yes**	☐	**No**	☑	**Describe:**
Odor:	**Yes**	☑	**No**	☐	**Describe:** Petroleum

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
8/17/16 4:28	START			
4:32	3	7.36	21.9	689
4:39	6	7.37	21.5	681
4:44	9	7.39	21.3	677
4:50	12	7.35	21.8	685
	Sampled			

Notes:

ENVIRONMENTAL ENGINEERING, INC

Well No.:	MW-1	**Project No.:**	5081
Casing Diameter:	4 inches	**Address:**	2844 Mountain Blvd.
Depth of Well:	19.70 feet		Oakland, CA
Top of Casing Elevation:	674.92 feet	**Date:**	August 17 2016
Depth to Groundwater:	6.62 feet	**Sampler:**	Davoud Bazrpash
Groundwater Elevation:	668.30 feet		
Water Column Height:	13.08 feet		
Purged Volume:	12 gallons		

Purging Method: **Bailer** ☐ **Pump** ☑

Sampling Method: **Bailer** ☑ **Pump** ☐

Color: **Yes** ☐ **No** ☑ **Describe:** Clear

Sheen: **Yes** ☐ **No** ☑ **Describe:**

Odor: **Yes** ☑ **No** ☐ **Describe:** Petroleum

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
8,17,16	START			
3.15	3	7.44	22.6	6,75
3.19	6	7.47	22.5	679
3.22	9	7.48	22.2	680
3.26	12	7.43	22.4	674
START SAMPLING @	15:38			

Notes:

ENVIRONMENTAL ENGINEERING, INC

Well No.:	MW-2	**Project No.:**	5081
Casing Diameter:	4 inches	**Address:**	2844 Mountain Blvd.
Depth of Well:	19.75 feet		Oakland, CA
Top of Casing Elevation:	675.02 feet	**Date:**	August 17, 2016
Depth to Groundwater:	7.67 feet	**Sampler:**	Davoud Bazrpash
Groundwater Elevation:	667.35 feet		
Water Column Height:	12.08 feet		
Purged Volume:	12 gallons		

Purging Method:	**Bailer**	☐	**Pump**	☑
Sampling Method:	**Bailer**	☑	**Pump**	☐

Color:	**Yes**	☐	**No**	☑	**Describe:** Clear
Sheen:	**Yes**	☐	**No**	☑	**Describe:**
Odor:	**Yes**	☑	**No**	☐	**Describe:** Petroleum

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
8/17/16 START				
3:52	3	7.61	22.1	649
3:56	6	7.57	21.7	651
3:59	9	7.58	21.8	655
4:03	12	7.56	21.9	652
START SAMPLING @	16:12			

Notes:

ENVIRONMENTAL ENGINEERING, INC

Well No.:	MW-3	**Project No.:**	5081
Casing Diameter:	4 inches	**Address:**	2844 Mountain Blvd.
Depth of Well:	24.60 feet		Oakland, CA
Top of Casing Elevation:	675.58 feet	**Date:**	August 17, 2016
Depth to Groundwater:	6.37 feet	**Sampler:**	Davoud Bazrpash
Groundwater Elevation:	669.21 feet		
Water Column Height:	~~6.37~~ 18.23 feet		
Purged Volume:	12 gallons		

Purging Method:	**Bailer**	☐	**Pump**	☑
Sampling Method:	**Bailer**	☑	**Pump**	☐

Color:	**Yes**	☐	**No**	☑	**Describe:** Clear
Sheen:	**Yes**	☐	**No**	☑	**Describe:**
Odor:	**Yes**	☐	**No**	☑	**Describe:**

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
8/17/16 START				
14:45	3	7.97	24.0	705
14:50	6	7.99	23.5	711
14:53	9	8.01	22.7	717
14:55	12	7.98	22.5	715
START Sampling:	15:05			

Notes:

EPA On-line Tools for Site Assessment Calculation

Hydraulic Gradient -- Magnitude and Direction

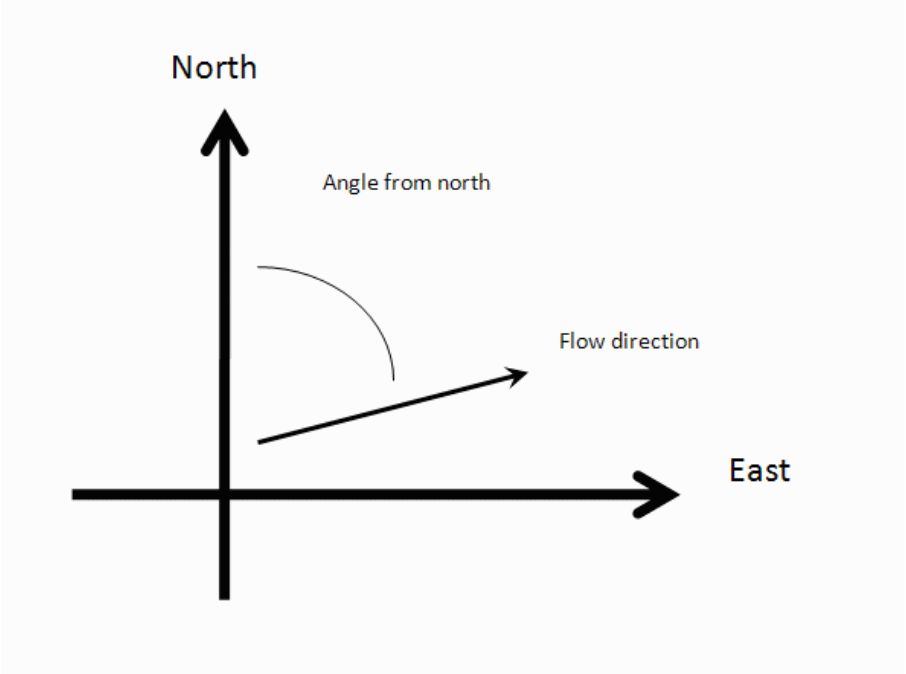
Gradient Calculation from fitting a plane to as many as thirty points

$a\,x_1 + b\,y_1 + c = h_1$
$a\,x_2 + b\,y_2 + c = h_2$
$a\,x_3 + b\,y_3 + c = h_3$
. . .
$a\,x_{30} + b\,y_{30} + c = h_{30}$

where (x_i, y_i) are the coordinates of the well and
h_i is the head

i = 1,2,3, ... , 30
The coefficients a, b, and c are calculated by a least-squares fitting of the the data to a plane

The gradient is calculated from the square root of $(a^2 + b^2)$ and the angle from the arctangent of a/b or b/a depending on the quadrant



Inputs

Example Data Set 1 | Example Data Set 2 | Calculate | Clear
Save Data | Recall Data | Go Back
Site Name: 2844 Mountain Blvd, Oakla
Date: August 17, 2016 | Current Date
Calculation basis: Head
Coordinates: ft

I.D.	x-coordinate	y-coordinate	head (ft)
1) RS-3	6071215.111	2122442.671	669.38
2) RS-4	6071195.458	2122379.324	665.89
3) MW-1	6071174.931	2122404.178	668.3
4) MW-2	6071186.39	2122393.492	667.35
5) MW-3	6071190.453	2122428.874	669.21
6)			
7)			
8)			
9)			
10)			
11)			
12)			
13)			
14)			
15)			
16)			

17)				
18)				
19)				
20)				
21)				
22)				
23)				
24)				
25)				
26)				
27)				
28)				
29)				
30)				

Results

Number of Points Used in Calculation	5
Max. Difference Between Head Values	1.064
Gradient Magnitude (i)	0.07280
Flow direction as degrees from North (positive y axis)	151.1
Coefficient of Determination (R^2)	0.995

WCMS

Last updated on 2/23/2016

Appendix C

Laboratory Report and Chain of Custody Form

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 279882
ANALYTICAL REPORT

SOMA Environmental Engineering Inc.
6620 Owens Dr.
Pleasanton, CA 94588

Project : 5081
Location : 2844 Mountain Blvd., Oakland
Level : II

Sample ID	Lab ID
RS-3	279882-001
RS-4	279882-002
MW-1	279882-003
MW-2	279882-004
MW-3	279882-005

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 08/26/2016

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**279882**
Client:	**SOMA Environmental Engineering Inc.**
Project:	**5081**
Location:	**2844 Mountain Blvd., Oakland**
Request Date:	**08/18/16**
Samples Received:	**08/18/16**

This data package contains sample and QC results for five water samples, requested for the above referenced project on 08/18/16. The samples were received cold and intact. This report was revised on 09/12/16 to correct sampled dates.

TPH-Extractables by GC (EPA 8015B):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
No analytical problems were encountered.

CT# 279882

Subject: Revised Report Request
From: Ruchi Mathur <rmathur@somaenv.com>
Date: 9/8/2016 10:44 AM
To: 'Tracy Babjar' <tracy.babjar@ctberk.com>

Hi Tracy,
Job # 279882: Davoud made a mistake on the COC. He had sampled on August 17, but instead he wrote down August 18 as sampling date. I have attached a revised COC.
I was wondering if you could please revise the report to reflect the correct sampling date?
Please let me know if this is possible?

Thank You,
Ruchi Mathur
Project Engineer
SOMA Environmental Engineering, Inc.
Phone: 925-734-6400
FAX : 925-734-6401

Attachments:

Revised COC_279882.pdf 386 KB

CHAIN OF CUSTODY

Curtis & Tompkins, Ltd
Analytical Laboratory Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510)486-0900 Phone
(510)486-0532 Fax

LOGIN # 279882

Sampler: Davoud Bazrpash

Project No: 5081

Report To: Joyce Bobek

Project Name: 2844 Mountain Blvd., Oakland

Company : SOMA Environmental

Turnaround Time: Standard

Telephone: 925-734-6400

Fax: 925-734-6401

Lab No.	Sample ID.	Sampling Date Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCL	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: ICE	Analyses: TPH-g, BTEX, MtBE 8260B	Analyses: Gasoline Oxygenates 8260B	Analyses: TPH-d 8015
1	RS-3	8/17/16 14:35		*		3 VOAs, 2-500 mL Ambers	*			*	*	*	*
2	RS-4	8/17/16 16:50		*		3 VOAs, 2-500 mL Ambers	*			*	*	*	*
3	MW-1	8/17/16 15:38		*		3 VOAs, 2-500 mL Ambers	*			*	*	*	*
4	MW-2	8/17/16 16:12		*		3 VOAs, 2-500 mL Ambers	*			*	*	*	*
5	MW-3	8/17/16 15:05		*		3 VOAs, 2-500 mL Ambers	*			*	*	*	*

Notes: **EDF OUTPUT REQUIRED**
GasOx: DIPE, ETBE, TAME, TBA

RELINQUISHED BY:

DB 8/18/16 10:26 DATE/TIME

DATE/TIME

DATE/TIME

RECEIVED BY:

Pat Geraghty 8/18/16 10:26 AM DATE/TIME

DATE/TIME

DATE/TIME

Curtis & Tompkins, Ltd.

Detections Summary for 279882

Results for any subcontracted analyses are not included in this summary.

Client : SOMA Environmental Engineering Inc.
Project : 5081
Location : 2844 Mountain Blvd., Oakland

Client Sample ID : RS-3 Laboratory Sample ID : 279882-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	81	Y	52	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
MTBE	0.51		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B

Client Sample ID : RS-4 Laboratory Sample ID : 279882-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	710	Y	52	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	100		50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
tert-Butyl Alcohol (TBA)	8,100		100	ug/L	As Recd	10.00	EPA 8260B	EPA 5030B
Methyl tert-Amyl Ether (TAME)	2.8		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
MTBE	47		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B

Client Sample ID : MW-1 Laboratory Sample ID : 279882-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	5,000	Y	52	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	940		170	ug/L	As Recd	3.333	EPA 8260B	EPA 5030B
tert-Butyl Alcohol (TBA)	2,300		33	ug/L	As Recd	3.333	EPA 8260B	EPA 5030B
MTBE	17		1.7	ug/L	As Recd	3.333	EPA 8260B	EPA 5030B

Client Sample ID : MW-2 Laboratory Sample ID : 279882-004

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	1,100		52	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
tert-Butyl Alcohol (TBA)	10,000		140	ug/L	As Recd	14.29	EPA 8260B	EPA 5030B
Methyl tert-Amyl Ether (TAME)	10		7.1	ug/L	As Recd	14.29	EPA 8260B	EPA 5030B
MTBE	140		7.1	ug/L	As Recd	14.29	EPA 8260B	EPA 5030B
Benzene	20		7.1	ug/L	As Recd	14.29	EPA 8260B	EPA 5030B

Client Sample ID : MW-3 Laboratory Sample ID : 279882-005

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	870	Y	52	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
tert-Butyl Alcohol (TBA)	19		10	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Methyl tert-Amyl Ether (TAME)	1.3		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
MTBE	30		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B

Y = Sample exhibits chromatographic pattern which does not resemble standard

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5081	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	238288
Units:	ug/L	Sampled:	08/17/16
Diln Fac:	1.000	Received:	08/18/16

Field ID: RS-3 Prepared: 08/22/16
Type: SAMPLE Analyzed: 08/24/16
Lab ID: 279882-001

Analyte	Result	RL
Diesel C10-C24	81 Y	52

Surrogate	%REC	Limits
o-Terphenyl	125	67-136

Field ID: RS-4 Prepared: 08/22/16
Type: SAMPLE Analyzed: 08/24/16
Lab ID: 279882-002

Analyte	Result	RL
Diesel C10-C24	710 Y	52

Surrogate	%REC	Limits
o-Terphenyl	124	67-136

Field ID: MW-1 Prepared: 08/22/16
Type: SAMPLE Analyzed: 08/24/16
Lab ID: 279882-003

Analyte	Result	RL
Diesel C10-C24	5,000 Y	52

Surrogate	%REC	Limits
o-Terphenyl	117	67-136

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5081	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	238288
Units:	ug/L	Sampled:	08/17/16
Diln Fac:	1.000	Received:	08/18/16

Field ID: MW-2 Prepared: 08/22/16
Type: SAMPLE Analyzed: 08/25/16
Lab ID: 279882-004

Analyte	Result	RL
Diesel C10-C24	1,100	52

Surrogate	%REC	Limits
o-Terphenyl	108	67-136

Field ID: MW-3 Prepared: 08/22/16
Type: SAMPLE Analyzed: 08/24/16
Lab ID: 279882-005

Analyte	Result	RL
Diesel C10-C24	870 Y	52

Surrogate	%REC	Limits
o-Terphenyl	112	67-136

Type: BLANK Prepared: 08/23/16
Lab ID: QC848803 Analyzed: 08/24/16

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	86	67-136

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5081	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	238288
Units:	ug/L	Prepared:	08/22/16
Diln Fac:	1.000	Analyzed:	08/24/16

Type: BS Cleanup Method: EPA 3630C
Lab ID: QC848295

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,767	71	60-121

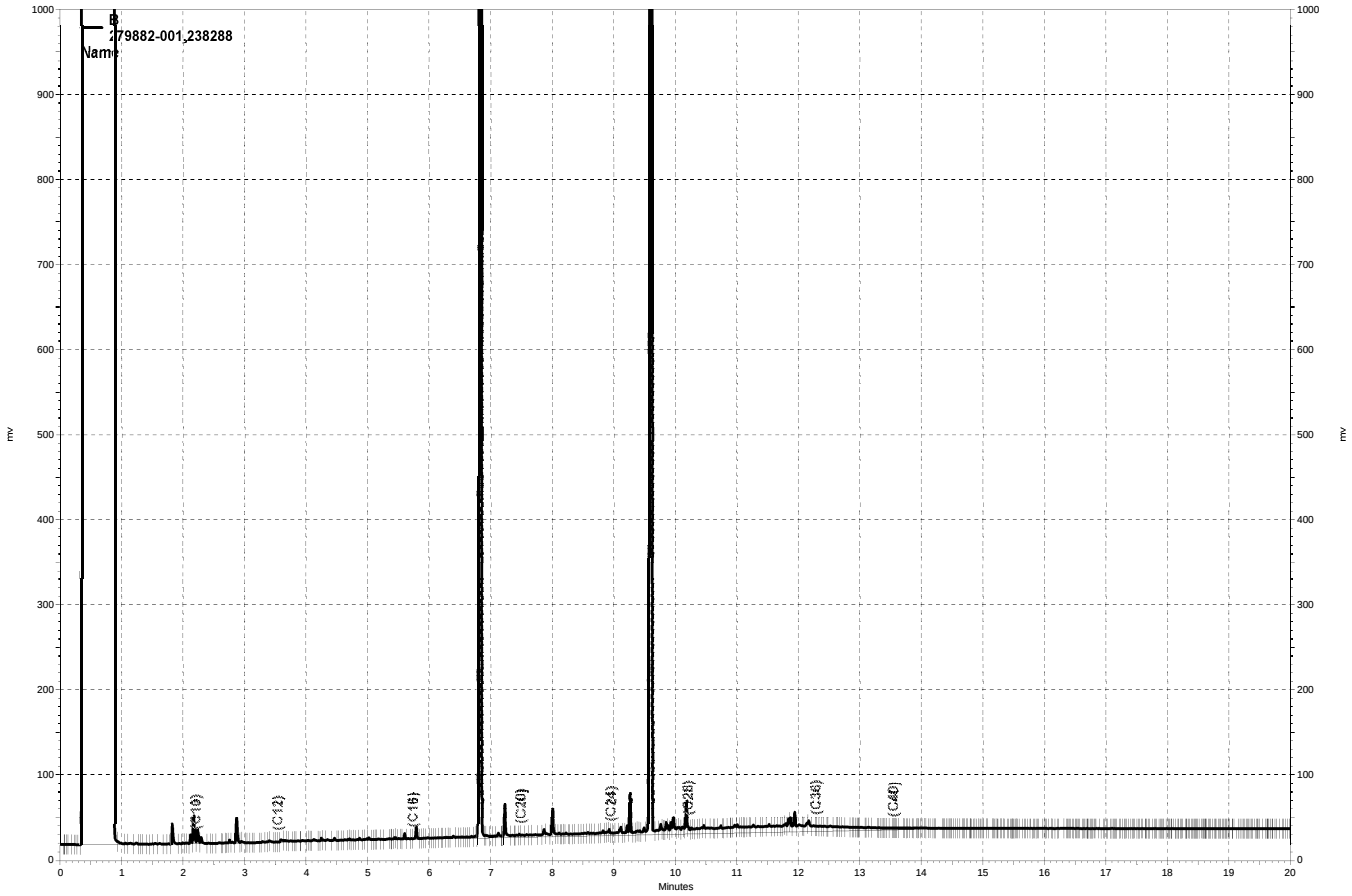
Surrogate	%REC	Limits
o-Terphenyl	84	67-136

Type: BSD Cleanup Method: EPA 3630C
Lab ID: QC848296

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	1,666	67	60-121	6	32

Surrogate	%REC	Limits
o-Terphenyl	74	67-136

RPD= Relative Percent Difference



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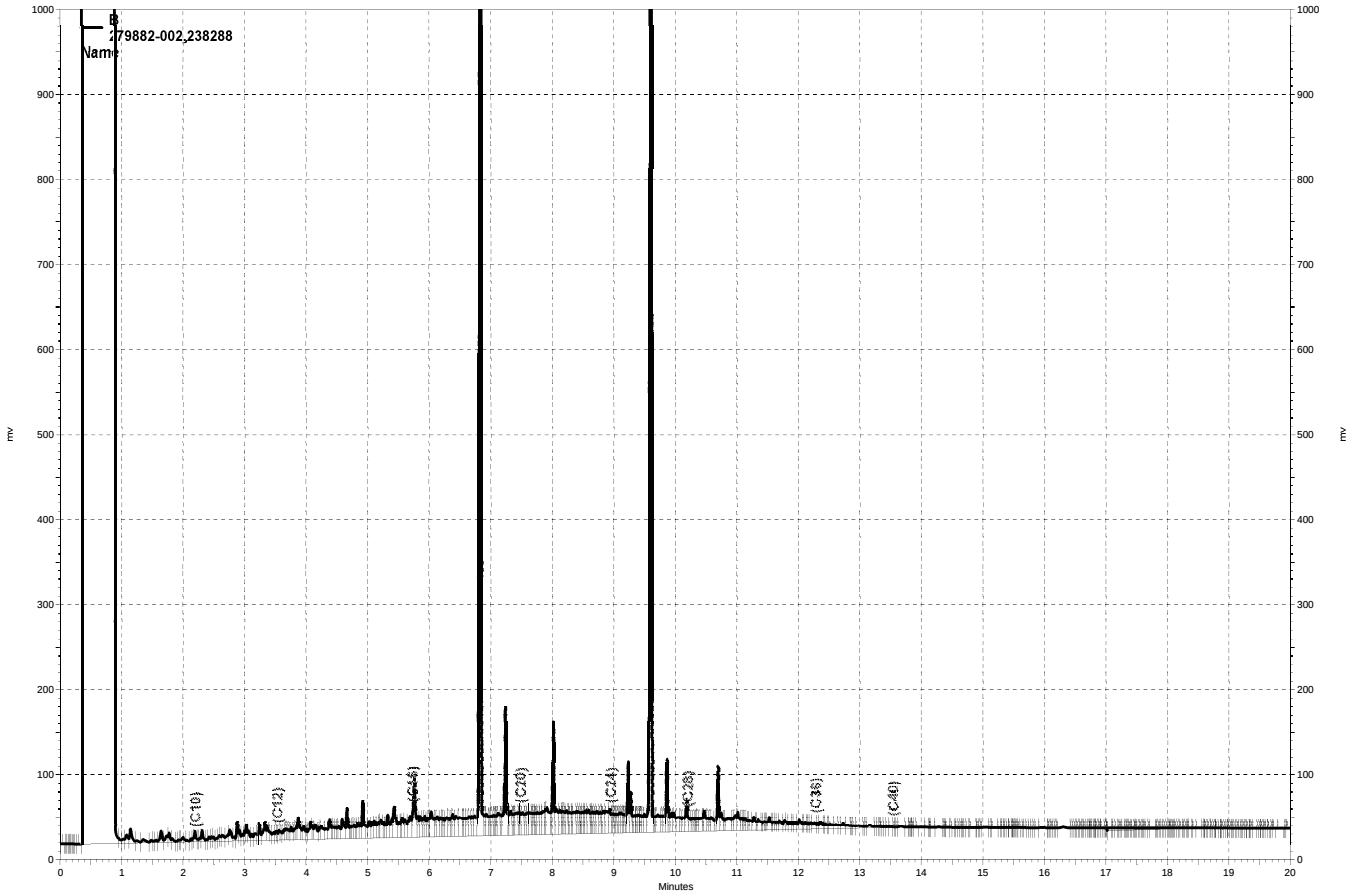

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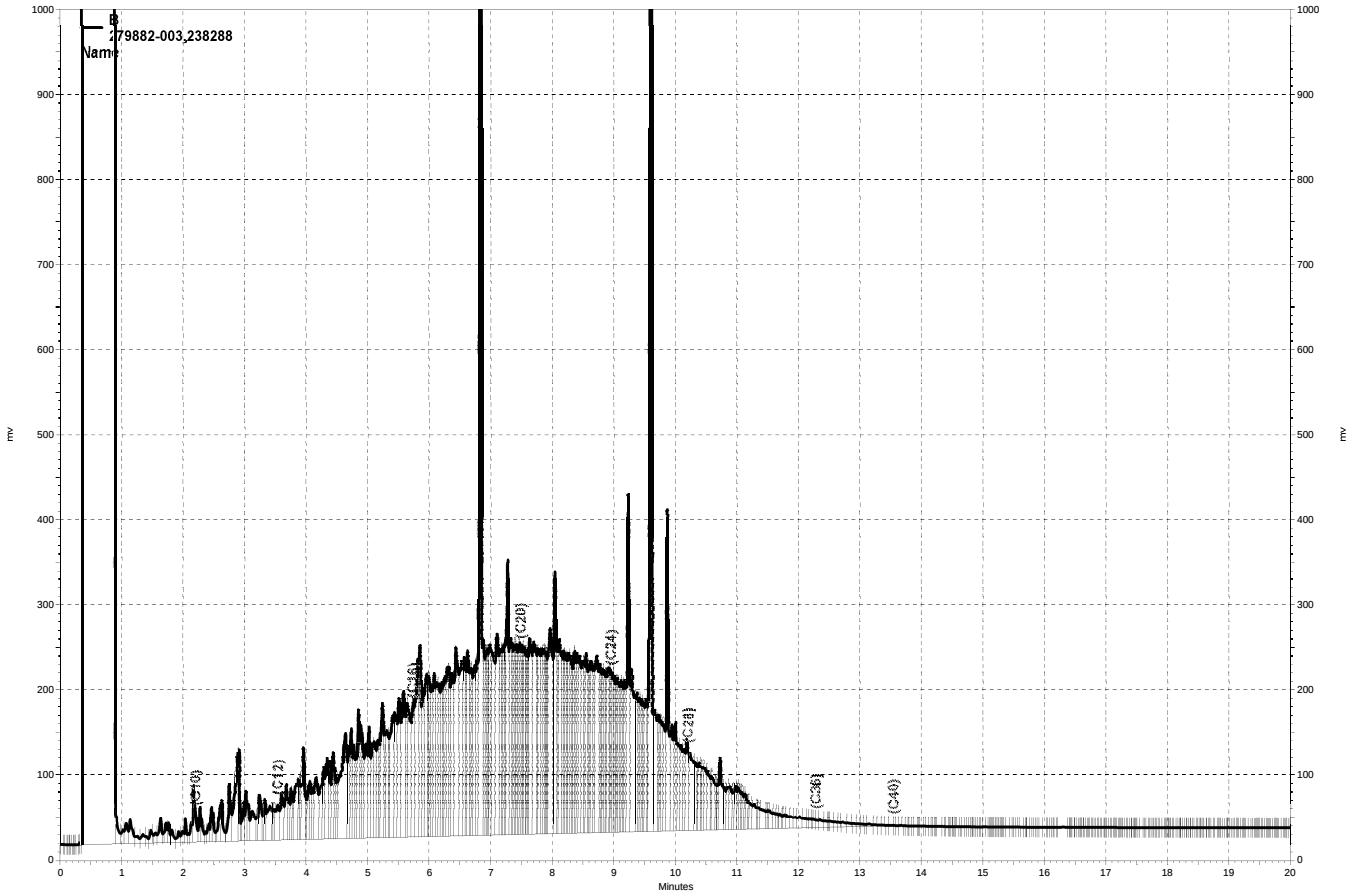

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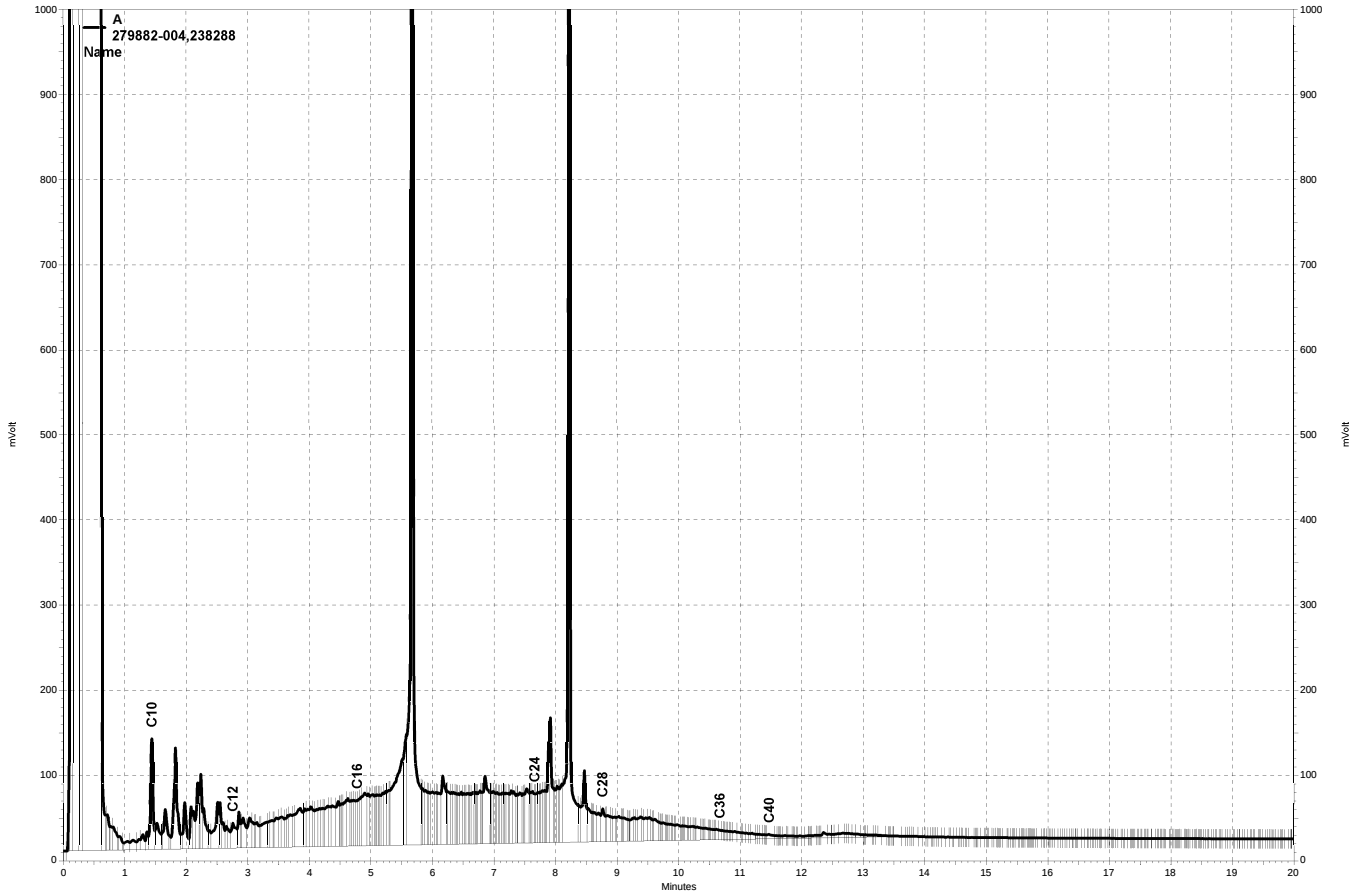

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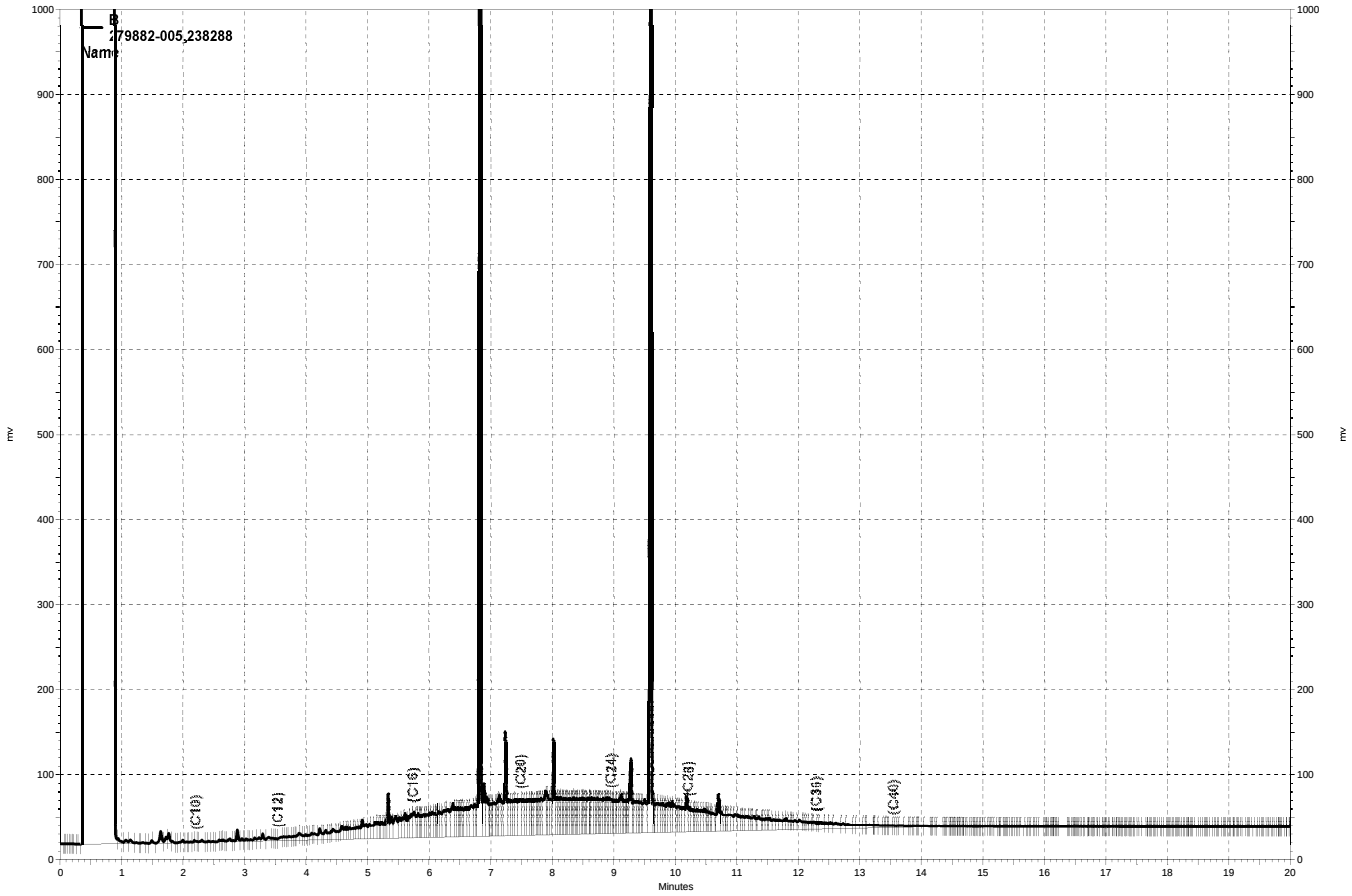

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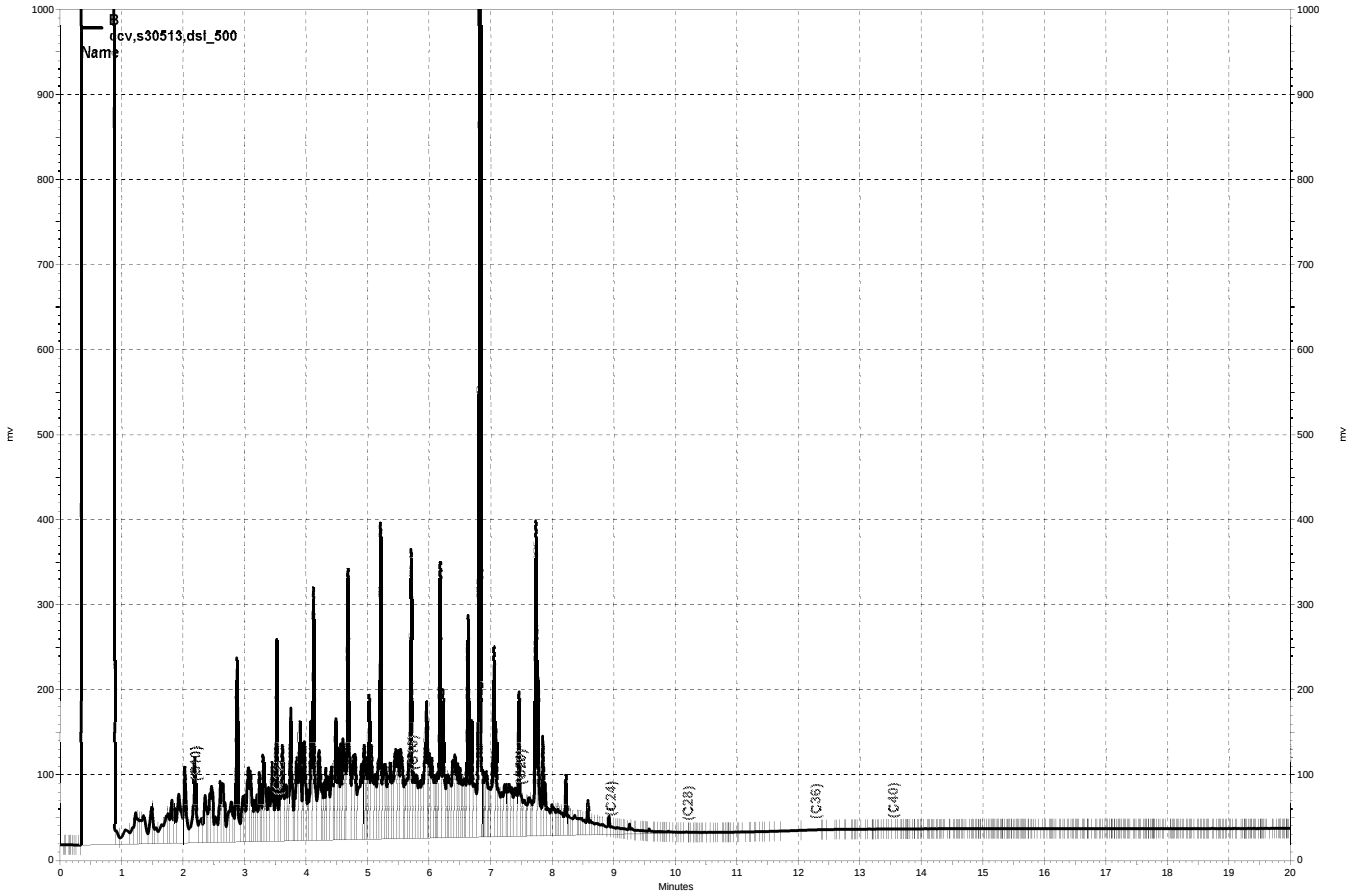

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Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Field ID:	RS-3	Diln Fac:	1.000
Lab ID:	279882-001	Sampled:	08/17/16
Matrix:	Water	Received:	08/18/16
Units:	ug/L		

Analyte	Result	RL	Batch#	Analyzed
Gasoline C7-C12	ND	50	238271	08/21/16
tert-Butyl Alcohol (TBA)	ND	10	238286	08/22/16
Isopropyl Ether (DIPE)	ND	0.50	238286	08/22/16
Ethyl tert-Butyl Ether (ETBE)	ND	0.50	238286	08/22/16
Methyl tert-Amyl Ether (TAME)	ND	0.50	238286	08/22/16
Ethanol	ND	1,000	238286	08/22/16
MTBE	0.51	0.50	238286	08/22/16
1,2-Dichloroethane	ND	0.50	238286	08/22/16
Benzene	ND	0.50	238286	08/22/16
Toluene	ND	0.50	238286	08/22/16
1,2-Dibromoethane	ND	0.50	238286	08/22/16
Ethylbenzene	ND	0.50	238286	08/22/16
m,p-Xylenes	ND	0.50	238286	08/22/16
o-Xylene	ND	0.50	238286	08/22/16

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	103	80-128	238286	08/22/16
1,2-Dichloroethane-d4	105	75-139	238286	08/22/16
Toluene-d8	105	80-120	238286	08/22/16
Bromofluorobenzene	112	80-120	238286	08/22/16

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Field ID:	RS-4	Units:	ug/L
Lab ID:	279882-002	Sampled:	08/17/16
Matrix:	Water	Received:	08/18/16

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
Gasoline C7-C12	100	50	1.000	238271	08/21/16
tert-Butyl Alcohol (TBA)	8,100	100	10.00	238286	08/22/16
Isopropyl Ether (DIPE)	ND	0.50	1.000	238271	08/21/16
Ethyl tert-Butyl Ether (ETBE)	ND	0.50	1.000	238271	08/21/16
Methyl tert-Amyl Ether (TAME)	2.8	0.50	1.000	238271	08/21/16
Ethanol	ND	10,000	10.00	238286	08/22/16
MTBE	47	0.50	1.000	238271	08/21/16
1,2-Dichloroethane	ND	0.50	1.000	238271	08/21/16
Benzene	ND	0.50	1.000	238271	08/21/16
Toluene	ND	0.50	1.000	238271	08/21/16
1,2-Dibromoethane	ND	0.50	1.000	238271	08/21/16
Ethylbenzene	ND	0.50	1.000	238271	08/21/16
m,p-Xylenes	ND	0.50	1.000	238271	08/21/16
o-Xylene	ND	0.50	1.000	238271	08/21/16

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	103	80-128	1.000	238271	08/21/16
1,2-Dichloroethane-d4	111	75-139	1.000	238271	08/21/16
Toluene-d8	106	80-120	1.000	238271	08/21/16
Bromofluorobenzene	99	80-120	1.000	238271	08/21/16

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Field ID:	MW-1	Batch#:	238378
Lab ID:	279882-003	Sampled:	08/17/16
Matrix:	Water	Received:	08/18/16
Units:	ug/L	Analyzed:	08/24/16
Diln Fac:	3.333		

Analyte	Result	RL
Gasoline C7-C12	940	170
tert-Butyl Alcohol (TBA)	2,300	33
Isopropyl Ether (DIPE)	ND	1.7
Ethyl tert-Butyl Ether (ETBE)	ND	1.7
Methyl tert-Amyl Ether (TAME)	ND	1.7
Ethanol	ND	3,300
MTBE	17	1.7
1,2-Dichloroethane	ND	1.7
Benzene	ND	1.7
Toluene	ND	1.7
1,2-Dibromoethane	ND	1.7
Ethylbenzene	ND	1.7
m,p-Xylenes	ND	1.7
o-Xylene	ND	1.7

Surrogate	%REC	Limits
Dibromofluoromethane	110	80-128
1,2-Dichloroethane-d4	118	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Field ID:	MW-2	Batch#:	238378
Lab ID:	279882-004	Sampled:	08/17/16
Matrix:	Water	Received:	08/18/16
Units:	ug/L	Analyzed:	08/24/16
Diln Fac:	14.29		

Analyte	Result	RL
Gasoline C7-C12	ND	710
tert-Butyl Alcohol (TBA)	10,000	140
Isopropyl Ether (DIPE)	ND	7.1
Ethyl tert-Butyl Ether (ETBE)	ND	7.1
Methyl tert-Amyl Ether (TAME)	10	7.1
Ethanol	ND	14,000
MTBE	140	7.1
1,2-Dichloroethane	ND	7.1
Benzene	20	7.1
Toluene	ND	7.1
1,2-Dibromoethane	ND	7.1
Ethylbenzene	ND	7.1
m,p-Xylenes	ND	7.1
o-Xylene	ND	7.1

Surrogate	%REC	Limits
Dibromofluoromethane	108	80-128
1,2-Dichloroethane-d4	118	75-139
Toluene-d8	100	80-120
Bromofluorobenzene	102	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Field ID:	MW-3	Diln Fac:	1.000
Lab ID:	279882-005	Sampled:	08/17/16
Matrix:	Water	Received:	08/18/16
Units:	ug/L		

Analyte	Result	RL	Batch#	Analyzed
Gasoline C7-C12	ND	50	238271	08/21/16
tert-Butyl Alcohol (TBA)	19	10	238286	08/22/16
Isopropyl Ether (DIPE)	ND	0.50	238286	08/22/16
Ethyl tert-Butyl Ether (ETBE)	ND	0.50	238286	08/22/16
Methyl tert-Amyl Ether (TAME)	1.3	0.50	238286	08/22/16
Ethanol	ND	1,000	238286	08/22/16
MTBE	30	0.50	238286	08/22/16
1,2-Dichloroethane	ND	0.50	238286	08/22/16
Benzene	ND	0.50	238286	08/22/16
Toluene	ND	0.50	238286	08/22/16
1,2-Dibromoethane	ND	0.50	238286	08/22/16
Ethylbenzene	ND	0.50	238286	08/22/16
m,p-Xylenes	ND	0.50	238286	08/22/16
o-Xylene	ND	0.50	238286	08/22/16

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	99	80-128	238286	08/22/16
1,2-Dichloroethane-d4	106	75-139	238286	08/22/16
Toluene-d8	103	80-120	238286	08/22/16
Bromofluorobenzene	112	80-120	238286	08/22/16

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	238271
Units:	ug/L	Analyzed:	08/21/16
Diln Fac:	1.000		

Type: BS Lab ID: QC848234

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	62.50	50.49	81	32-155
Isopropyl Ether (DIPE)	12.50	9.895	79	57-128
Ethyl tert-Butyl Ether (ETBE)	12.50	13.04	104	62-120
Methyl tert-Amyl Ether (TAME)	12.50	12.39	99	69-120
MTBE	12.50	11.82	95	65-120
1,2-Dichloroethane	12.50	12.25	98	74-133
Benzene	12.50	12.46	100	80-123
Toluene	12.50	13.36	107	80-121
1,2-Dibromoethane	12.50	13.15	105	80-120
Ethylbenzene	12.50	14.18	113	80-123
m,p-Xylenes	25.00	30.74	123	80-126
o-Xylene	12.50	14.29	114	80-126

Surrogate	%REC	Limits
Dibromofluoromethane	105	80-128
1,2-Dichloroethane-d4	107	75-139
Toluene-d8	108	80-120
Bromofluorobenzene	102	80-120

Type: BSD Lab ID: QC848235

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	62.50	70.40	113	32-155	33	33
Isopropyl Ether (DIPE)	12.50	10.57	85	57-128	7	20
Ethyl tert-Butyl Ether (ETBE)	12.50	13.00	104	62-120	0	20
Methyl tert-Amyl Ether (TAME)	12.50	12.84	103	69-120	4	20
MTBE	12.50	12.50	100	65-120	6	22
1,2-Dichloroethane	12.50	13.13	105	74-133	7	20
Benzene	12.50	12.65	101	80-123	1	20
Toluene	12.50	13.35	107	80-121	0	20
1,2-Dibromoethane	12.50	13.46	108	80-120	2	20
Ethylbenzene	12.50	14.32	115	80-123	1	21
m,p-Xylenes	25.00	29.57	118	80-126	4	21
o-Xylene	12.50	13.43	107	80-126	6	20

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-128
1,2-Dichloroethane-d4	105	75-139
Toluene-d8	110	80-120
Bromofluorobenzene	102	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC848236	Batch#:	238271
Matrix:	Water	Analyzed:	08/21/16
Units:	ug/L		

Analyte	Result	RL
Gasoline C7-C12	ND	50
tert-Butyl Alcohol (TBA)	ND	10
Isopropyl Ether (DIPE)	ND	0.50
Ethyl tert-Butyl Ether (ETBE)	ND	0.50
Methyl tert-Amyl Ether (TAME)	ND	0.50
Ethanol	ND	1,000
MTBE	ND	0.50
1,2-Dichloroethane	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
1,2-Dibromoethane	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-128
1,2-Dichloroethane-d4	102	75-139
Toluene-d8	109	80-120
Bromofluorobenzene	99	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	238271
Units:	ug/L	Analyzed:	08/21/16
Diln Fac:	1.000		

Type: BS Lab ID: QC848237

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,093	109	76-120

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-128
1,2-Dichloroethane-d4	103	75-139
Toluene-d8	106	80-120
Bromofluorobenzene	100	80-120

Type: BSD Lab ID: QC848238

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1,000	1,105	110	76-120	1	20

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-128
1,2-Dichloroethane-d4	104	75-139
Toluene-d8	108	80-120
Bromofluorobenzene	96	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	238286
Units:	ug/L	Analyzed:	08/22/16
Diln Fac:	1.000		

Type: BS Lab ID: QC848288

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	62.50	67.11	107	32-155
Isopropyl Ether (DIPE)	12.50	11.33	91	57-128
Ethyl tert-Butyl Ether (ETBE)	12.50	12.60	101	62-120
Methyl tert-Amyl Ether (TAME)	12.50	13.01	104	69-120
MTBE	12.50	12.06	96	65-120
1,2-Dichloroethane	12.50	13.27	106	74-133
Benzene	12.50	13.32	107	80-123
Toluene	12.50	13.27	106	80-121
1,2-Dibromoethane	12.50	12.64	101	80-120
Ethylbenzene	12.50	13.07	105	80-123
m,p-Xylenes	25.00	26.60	106	80-126
o-Xylene	12.50	12.63	101	80-126

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-128
1,2-Dichloroethane-d4	107	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	102	80-120

Type: BSD Lab ID: QC848289

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	62.50	71.75	115	32-155	7	33
Isopropyl Ether (DIPE)	12.50	11.04	88	57-128	3	20
Ethyl tert-Butyl Ether (ETBE)	12.50	12.17	97	62-120	4	20
Methyl tert-Amyl Ether (TAME)	12.50	12.71	102	69-120	2	20
MTBE	12.50	11.67	93	65-120	3	22
1,2-Dichloroethane	12.50	13.27	106	74-133	0	20
Benzene	12.50	12.53	100	80-123	6	20
Toluene	12.50	12.81	102	80-121	4	20
1,2-Dibromoethane	12.50	12.84	103	80-120	2	20
Ethylbenzene	12.50	12.51	100	80-123	4	21
m,p-Xylenes	25.00	24.92	100	80-126	7	21
o-Xylene	12.50	12.14	97	80-126	4	20

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-128
1,2-Dichloroethane-d4	104	75-139
Toluene-d8	103	80-120
Bromofluorobenzene	101	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC848290	Batch#:	238286
Matrix:	Water	Analyzed:	08/22/16
Units:	ug/L		

Analyte	Result	RL
Gasoline C7-C12	NA	
tert-Butyl Alcohol (TBA)	ND	10
Isopropyl Ether (DIPE)	ND	0.50
Ethyl tert-Butyl Ether (ETBE)	ND	0.50
Methyl tert-Amyl Ether (TAME)	ND	0.50
Ethanol	ND	1,000
MTBE	ND	0.50
1,2-Dichloroethane	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
1,2-Dibromoethane	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-128
1,2-Dichloroethane-d4	107	75-139
Toluene-d8	105	80-120
Bromofluorobenzene	114	80-120

NA= Not Analyzed
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	238378
Units:	ug/L	Analyzed:	08/24/16
Diln Fac:	1.000		

Type: BS Lab ID: QC848667

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	62.50	55.16	88	32-155
Isopropyl Ether (DIPE)	12.50	12.58	101	57-128
Ethyl tert-Butyl Ether (ETBE)	12.50	12.42	99	62-120
Methyl tert-Amyl Ether (TAME)	12.50	12.05	96	69-120
MTBE	12.50	11.69	94	65-120
1,2-Dichloroethane	12.50	13.52	108	74-133
Benzene	12.50	13.43	107	80-123
Toluene	12.50	12.80	102	80-121
1,2-Dibromoethane	12.50	11.30	90	80-120
Ethylbenzene	12.50	13.37	107	80-123
m,p-Xylenes	25.00	25.88	104	80-126
o-Xylene	12.50	12.66	101	80-126

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-128
1,2-Dichloroethane-d4	107	75-139
Toluene-d8	101	80-120
Bromofluorobenzene	99	80-120

Type: BSD Lab ID: QC848668

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	62.50	53.15	85	32-155	4	33
Isopropyl Ether (DIPE)	12.50	12.59	101	57-128	0	20
Ethyl tert-Butyl Ether (ETBE)	12.50	12.98	104	62-120	4	20
Methyl tert-Amyl Ether (TAME)	12.50	11.87	95	69-120	2	20
MTBE	12.50	11.52	92	65-120	1	22
1,2-Dichloroethane	12.50	12.98	104	74-133	4	20
Benzene	12.50	13.07	105	80-123	3	20
Toluene	12.50	12.41	99	80-121	3	20
1,2-Dibromoethane	12.50	10.93	87	80-120	3	20
Ethylbenzene	12.50	13.17	105	80-123	2	21
m,p-Xylenes	25.00	24.49	98	80-126	6	21
o-Xylene	12.50	12.35	99	80-126	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	106	80-128
1,2-Dichloroethane-d4	106	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	99	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC848669	Batch#:	238378
Matrix:	Water	Analyzed:	08/24/16
Units:	ug/L		

Analyte	Result	RL
Gasoline C7-C12	ND	50
tert-Butyl Alcohol (TBA)	ND	10
Isopropyl Ether (DIPE)	ND	0.50
Ethyl tert-Butyl Ether (ETBE)	ND	0.50
Methyl tert-Amyl Ether (TAME)	ND	0.50
Ethanol	ND	1,000
MTBE	ND	0.50
1,2-Dichloroethane	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
1,2-Dibromoethane	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-128
1,2-Dichloroethane-d4	103	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	99	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	279882	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	238378
Units:	ug/L	Analyzed:	08/24/16
Diln Fac:	1.000		

Type: BS Lab ID: QC848670

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,143	114	76-120

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-128
1,2-Dichloroethane-d4	104	75-139
Toluene-d8	100	80-120
Bromofluorobenzene	99	80-120

Type: BSD Lab ID: QC848671

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1,000	1,036	104	76-120	10	20

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-128
1,2-Dichloroethane-d4	105	75-139
Toluene-d8	98	80-120
Bromofluorobenzene	99	80-120

RPD= Relative Percent Difference

Data File: \\gcmsserver\DD\chem\MSVOA06.i\082116.b\FHL12TVH.D

Date : 21-AUG-2016 19:34

Client ID: DYNA P&T

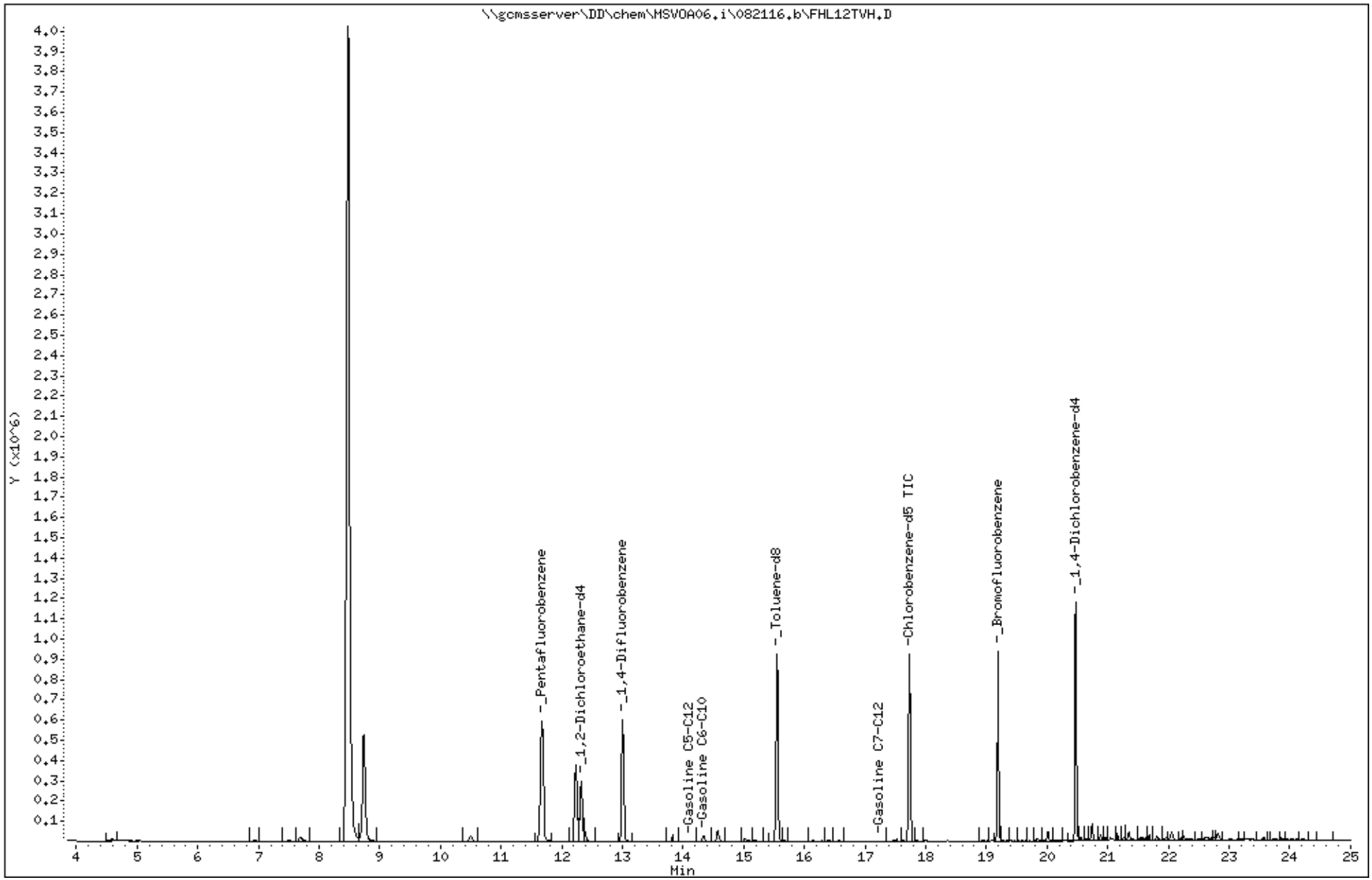
Instrument: MSVOA06.i

Sample Info: S,279882-002

Operator: VOC

Column phase:

Column diameter: 2.00



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Date : 24-AUG-2016 19:58

Client ID:

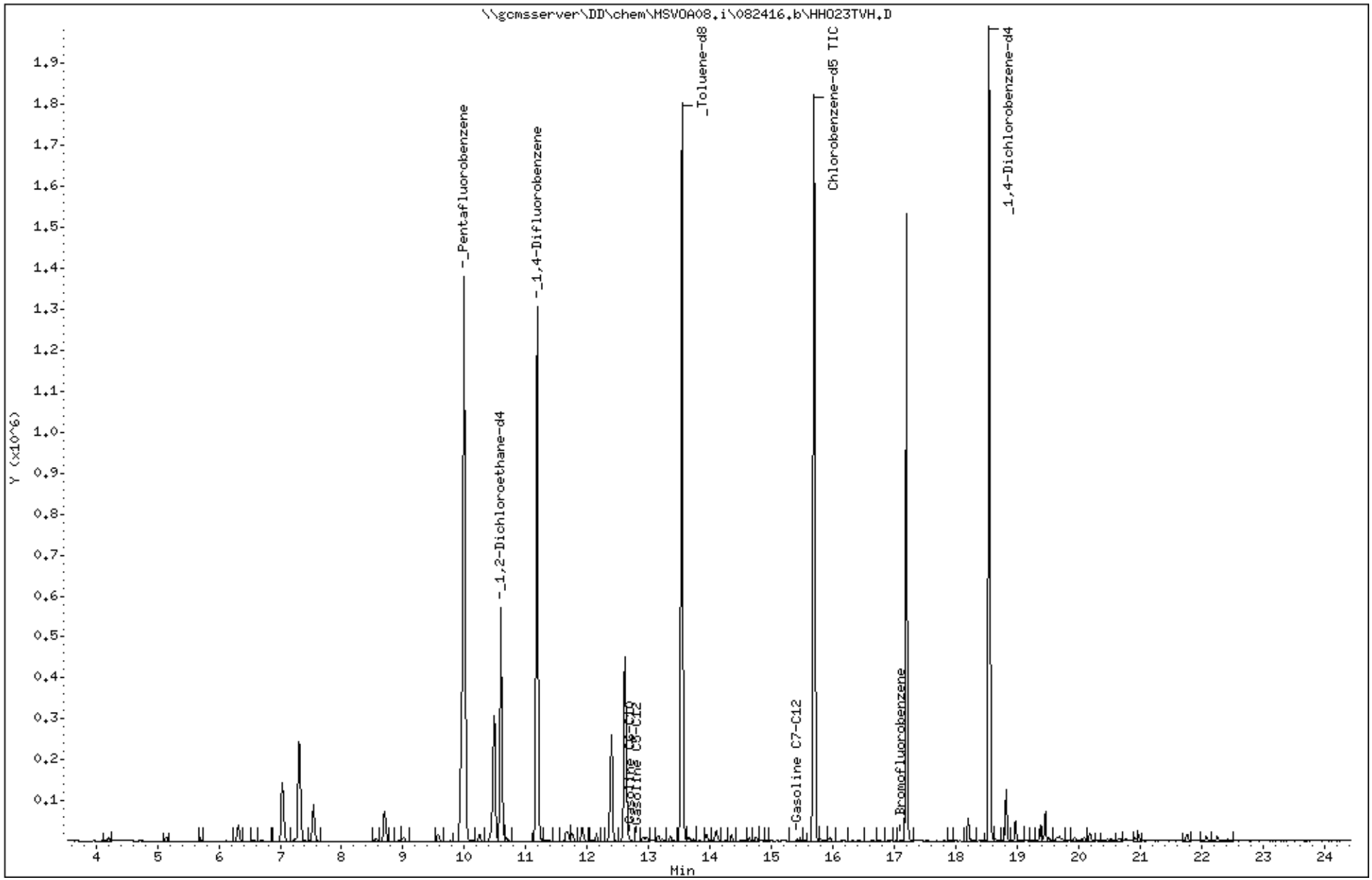
Instrument: MSVOA08.i

Sample Info: s,279882-003,

Operator: VOC

Column phase:

Column diameter: 2.00



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Date : 21-AUG-2016 16:16

Client ID: DYNA P&T

Instrument: MSVOA06.i

Sample Info: CCV/BS,QC848237,238271,S30291,.01/100

Operator: VOC

Column phase:

Column diameter: 2.00