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September 4, 2015

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

RECEIVED

By Alameda County Environmental Health 10:28 am, Sep 04, 2015

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 2015 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

**Third Quarter 2015
Groundwater Monitoring Report**

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

September 4, 2015

Project 5081

Prepared for

**Tejindar Singh
6400 Dublin Blvd.
Dublin, California, 94568**



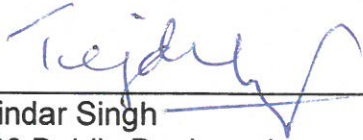
ENVIRONMENTAL ENGINEERING, INC.

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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".

A handwritten signature in blue ink, appearing to read "Tejinder Singh", written over a horizontal line.

Tejinder Singh
6400 Dublin Boulevard
Dublin, California 94568
Responsible Party

CERTIFICATION

SOMA Environmental Engineering, Inc. has prepared this report on behalf of 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 2015 groundwater monitoring event.



Mansour Sepehr, PhD, PE
Principal Hydrogeologist



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- Appendix C Laboratory Report and Chain of Custody Form

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 2015 groundwater monitoring event conducted at the site on August 12, 2015. 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.

1.2 Summary of Field Activities and Laboratory Analysis

1.2.1 Field Activities

On August 12, 2015, 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 RS-3, MW-1, MW-2, and MW-3. Properties measured in the field were pH, temperature, and electrical conductivity (EC). Only a grab sample could be collected from RS-4 because of accessibility issues as this well is fitted with a compression cap that could not be unscrewed. 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 a 55-gallon drum 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 February 12, 2015 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 7.79 feet in RS-3 to 9.93 feet in RS-4. Groundwater elevations ranged from 665.34 feet in RS-4 to 668.29 feet in RS-3.

Figure 3 displays the groundwater elevation map. The groundwater flows southeasterly at a gradient of 0.049 ft/ft. Since the previous monitoring event (Second Quarter 2015), the groundwater flow direction has remained southeasterly and the gradient has decreased. 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 320 µg/L and 2,000 µg/L, respectively. Since the previous sampling event (June 2015), TPH-g concentrations remained below laboratory-reporting limits in RS-3, MW-2 and MW-3 and increased in MW-1. No comparison can be made for RS-4 due to high reporting limit during the previous sampling event. Figure 4 shows a map of TPH-g concentrations in groundwater.

The TPH-g plume appears to be centered to the southwest of the pump islands in the vicinity of MW-1.

TPH-d was below laboratory-reporting limit in RS-3 and was detected in concentrations ranging from 410 µg/L in MW-3 to 8,100 µg/L in MW-1. Since the previous sampling event (June 2015), TPH-d has increased in RS-4 and MW-1 and decreased in MW-2 and MW-3. 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 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, MW-2, and MW-3 and toluene was below laboratory-reporting limit in all site wells.
- Benzene was detected in MW-1 at 31 µg/L and was below laboratory-reporting limits in other groundwater samples. Since the previous sampling event (June 2015) benzene has increased in MW-1 and remained below laboratory-reporting limit in other groundwater samples. Figure 4 shows a map of benzene concentrations in groundwater. The benzene plume appears to be centered to the southwest of the pump islands in the vicinity of MW-1.
- Ethylbenzene was detected in RS-4 and MW-1 at 1.3 µg/L and 27 µg/L, respectively and was below laboratory-reporting limits in other groundwater samples. Since the previous sampling event (June 2015) ethylbenzene has increased in MW-1, however, no comparison can be made for RS-4 due to higher dilution and reporting limit during the previous sampling event.
- Total xylenes were detected in RS-4 and MW-1 at 1.7 µg/L and 46 µg/L, respectively and were below laboratory-reporting limits in all other groundwater samples. Since the previous sampling event (June 2015), total xylenes have increased in MW-1, however, no comparison can be made for RS-4 due to higher dilution and reporting limit during the previous sampling event.

Methyl tertiary-butyl ether (MtBE) concentrations ranged from 0.57 µg/L in RS-3 to 590 µg/L in MW-3. Since the previous sampling event (June 2015), MtBE has increased in RS-3 and MW-3 and decreased significantly in RS-4, MW-1, and MW-2. Figure 6 shows a contour map of MtBE concentrations in groundwater. The MtBE plume appears to be centered in the vicinity of former UST pit around MW-3.

Tertiary-butyl alcohol (TBA) was below laboratory-reporting limit in RS-3. Detectable TBA concentrations ranged from 41 µg/L in MW-3 to 23,000 µg/L in MW-2. Since the previous sampling event (June 2015), TBA increased in MW-2 and MW-3 and decreased in RS-4 and MW-1. Figure 7 shows a contour map of TBA concentrations in groundwater. The highest TBA concentrations were detected in the vicinity of the pump islands around MW-2.

Tertiary amyl methyl ether (TAME) was below laboratory-reporting limit in RS-3. Detectable TAME concentrations ranged from 18 µg/L in RS-4 to 57 µg/L in MW-1. Since the previous sampling event (June 2015), TAME has increased in MW-3 and decreased in RS-4, MW-1, and MW-2. Figure 8 shows a contour map of TAME concentrations in groundwater. The highest TAME concentrations were detected to the southwest of the pump islands in the vicinity of MW-1.

3. CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations based on results of Third Quarter 2015 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, TPH-d, benzene, ethylbenzene, and total xylenes and TAME concentrations were detected to the southwest of the pump islands around MW-1. The highest MtBE concentrations were detected in the vicinity of former UST cavity around MW-3 and the highest TBA concentrations were detected in the vicinity of pump islands around MW-2.
- Since the previous sampling event in June 2015, TPH-g increased in MW-1; TPH-d increased in RS-4 and MW-1 and decreased in MW-2 and MW-3; benzene increased in MW-1; MtBE increased in RS-3 and MW-3 and decreased significantly in RS-4, MW-1, and MW-2; TBA increased in MW-2 and MW-3 and decreased in RS-4 and MW-1; and TAME increased in MW-3 and decreased in RS-4, MW-1, and MW-2.
- SOMA will continue conducting quarterly groundwater monitoring events at the site.

An extended MPE event was conducted at the site from May 19, 2015 to June 19, 2015 utilizing RS-4, MW-1, MW-2, and MW-3. During this event, approximately 328 pounds of volatile hydrocarbons were removed from the subsurface. Details of field activities and results were documented in "Well installation and MPE report" dated June 30, 2015.

Results of previous investigations have shown elevated levels of MtBE in off-site areas around DPT-4 and DPT-3 in shallow and especially in deeper water bearing zone. SOMA recommended conducting additional site investigation to

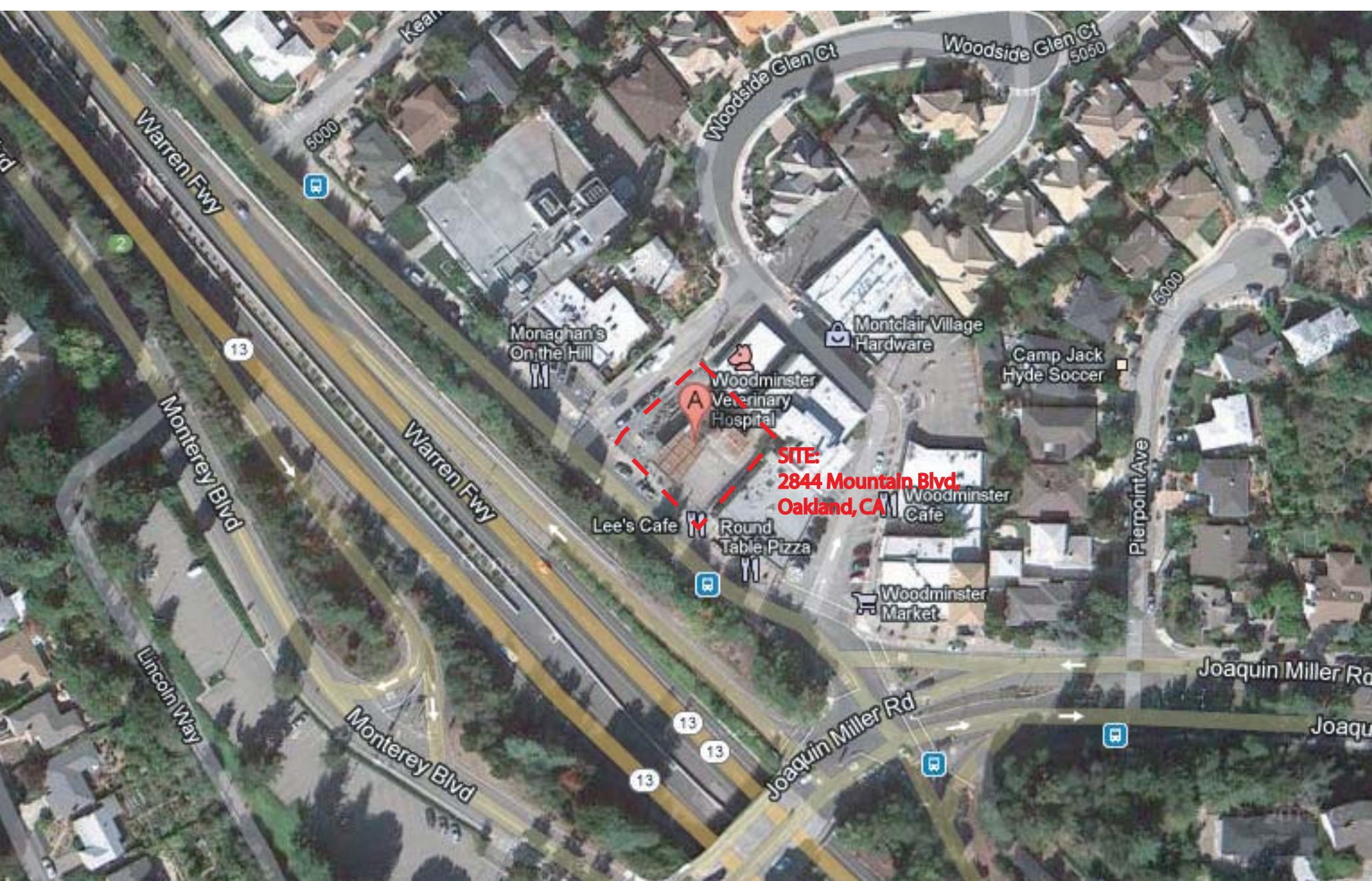
delineate horizontal and vertical extent of MtBE & TBA in the subsurface. Upon completion of delineation, a corrective action will be prepared to address the remediation of these contaminants.

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

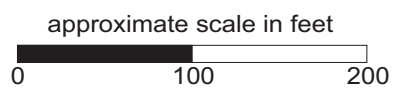
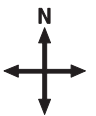
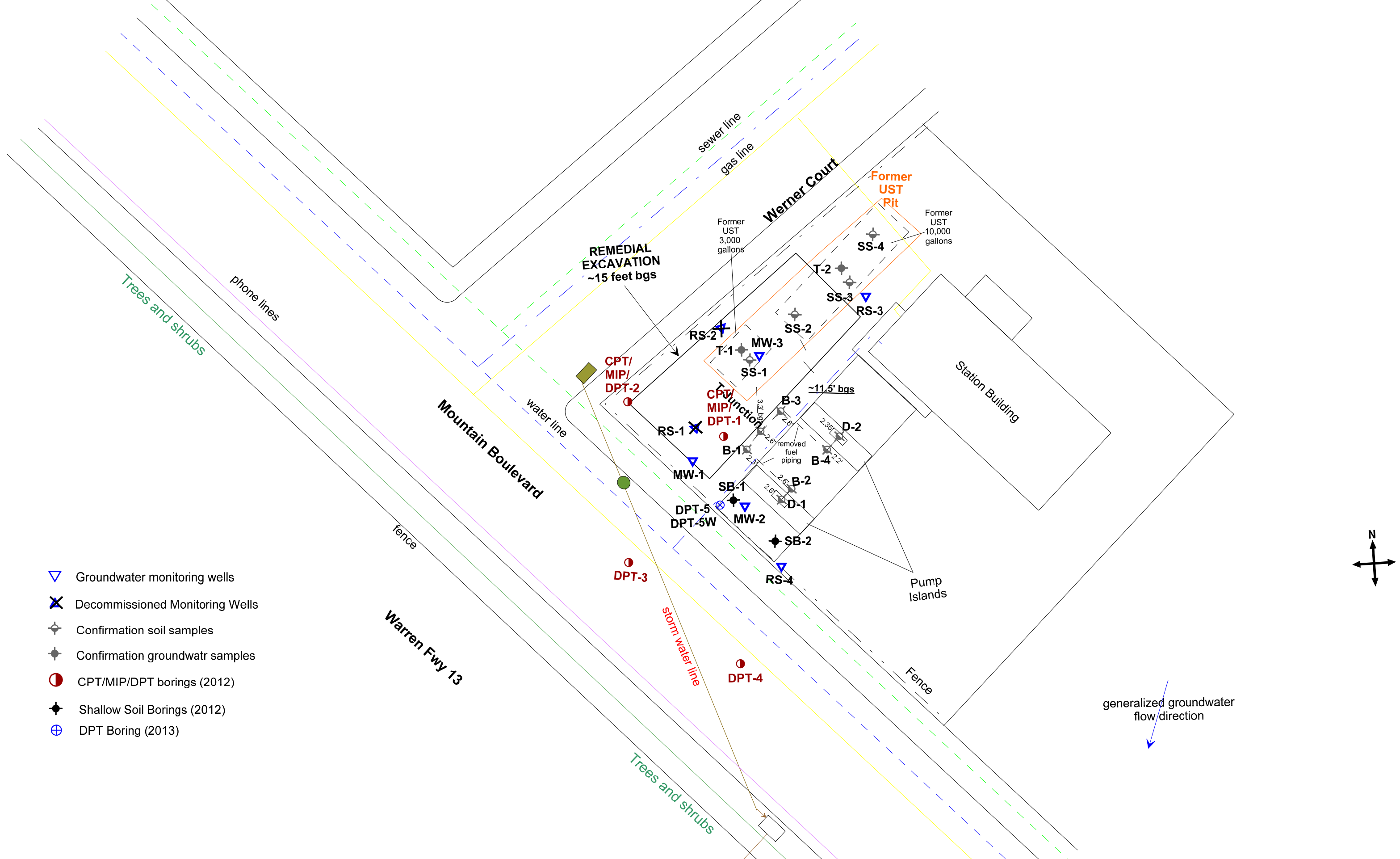


Figure 1: Site Vicinity Map





- ▼ Groundwater monitoring wells
- ✕ Decommissioned Monitoring Wells
- ⊕ Confirmation soil samples
- ⊕ Confirmation groundwatr samples
- CPT/MIP/DPT borings (2012)
- ◆ Shallow Soil Borings (2012)
- ⊕ DPT Boring (2013)

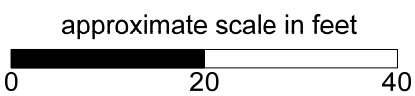


Figure 2: Site Map Showing Locations of Former USTs, Soil Borings, and Groundwater Monitoring Wells

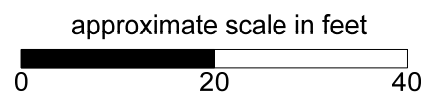
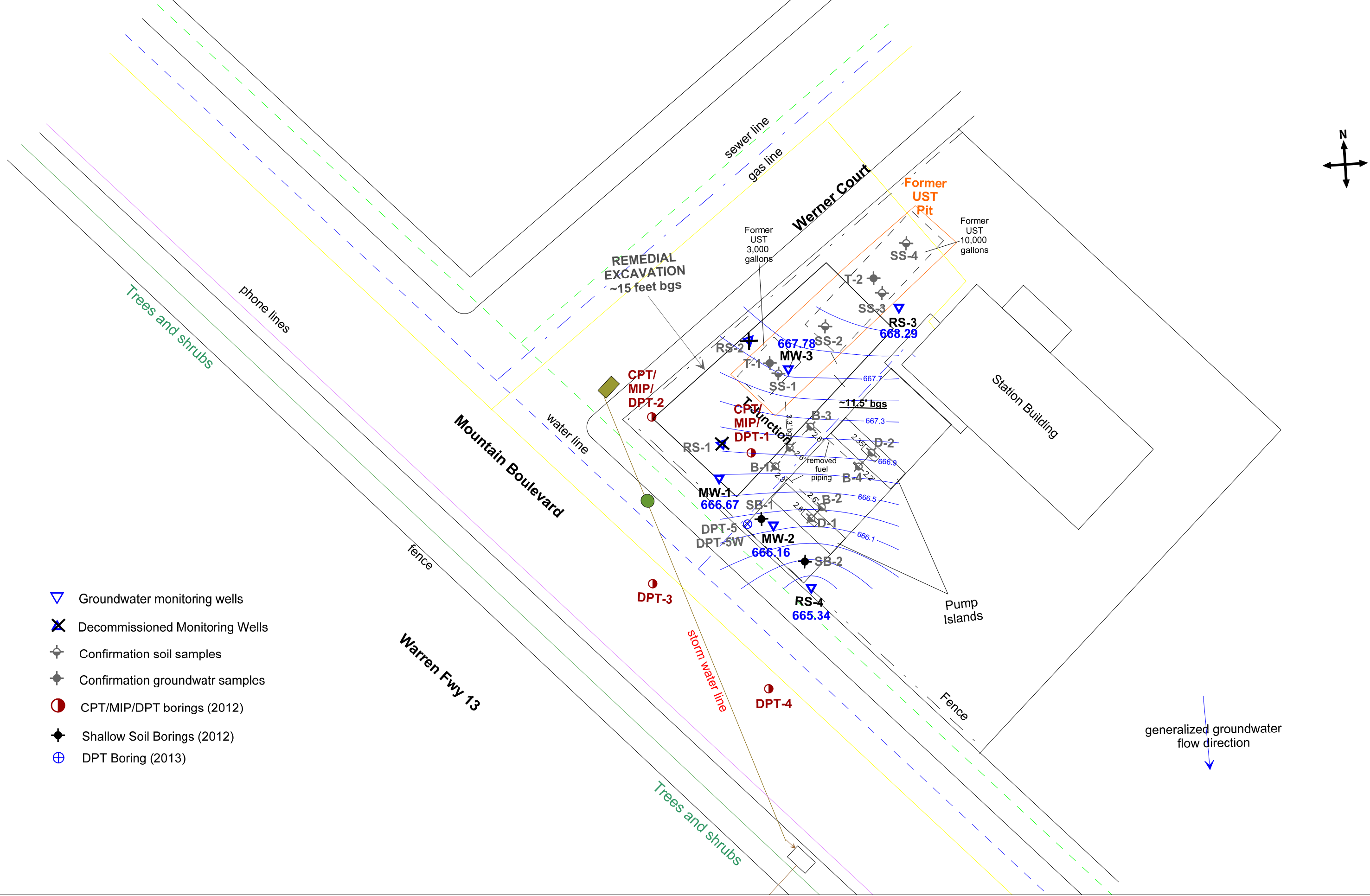


Figure 3: Groundwater Elevation Contour Map in feet, August 12, 2015

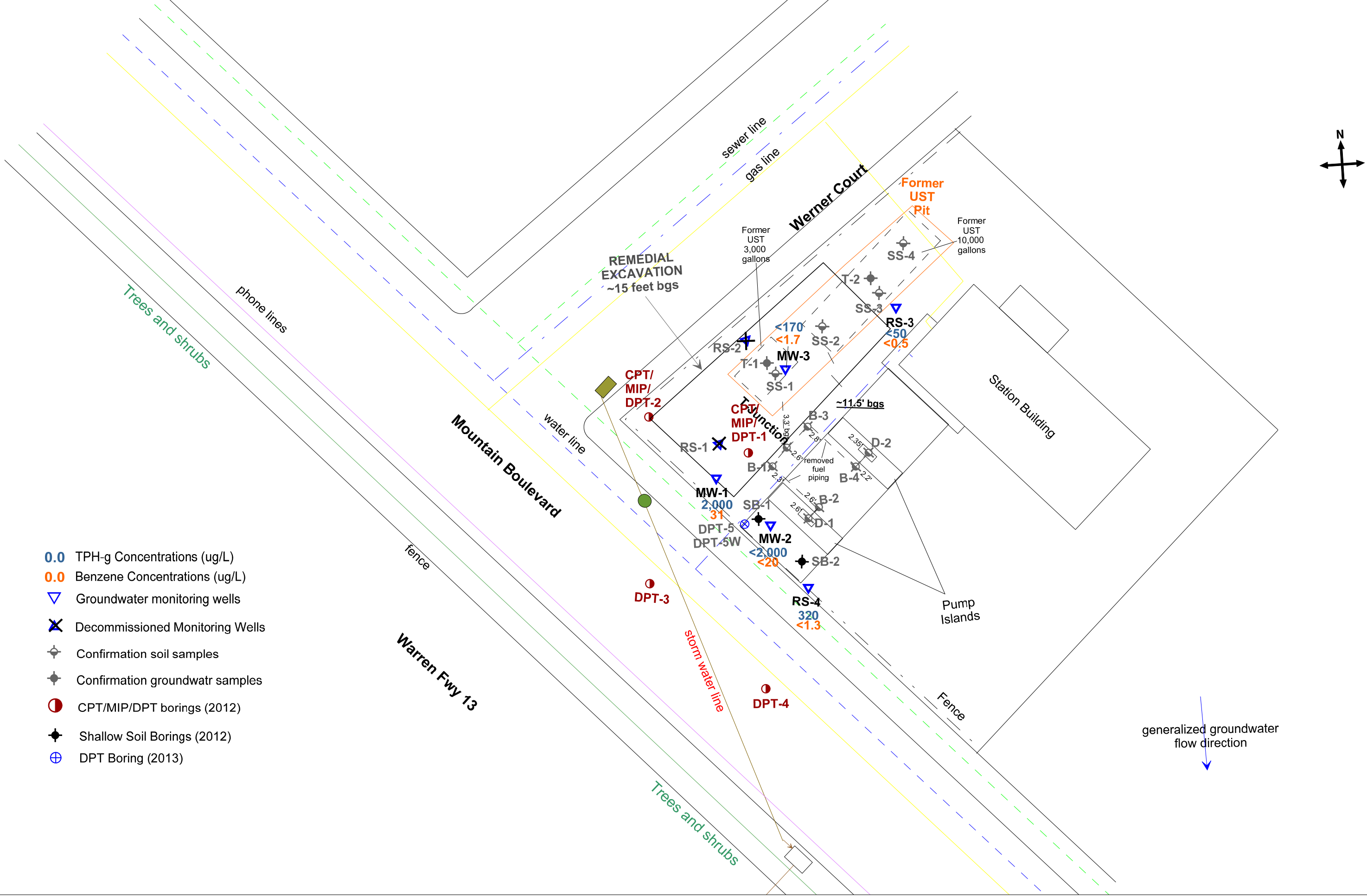
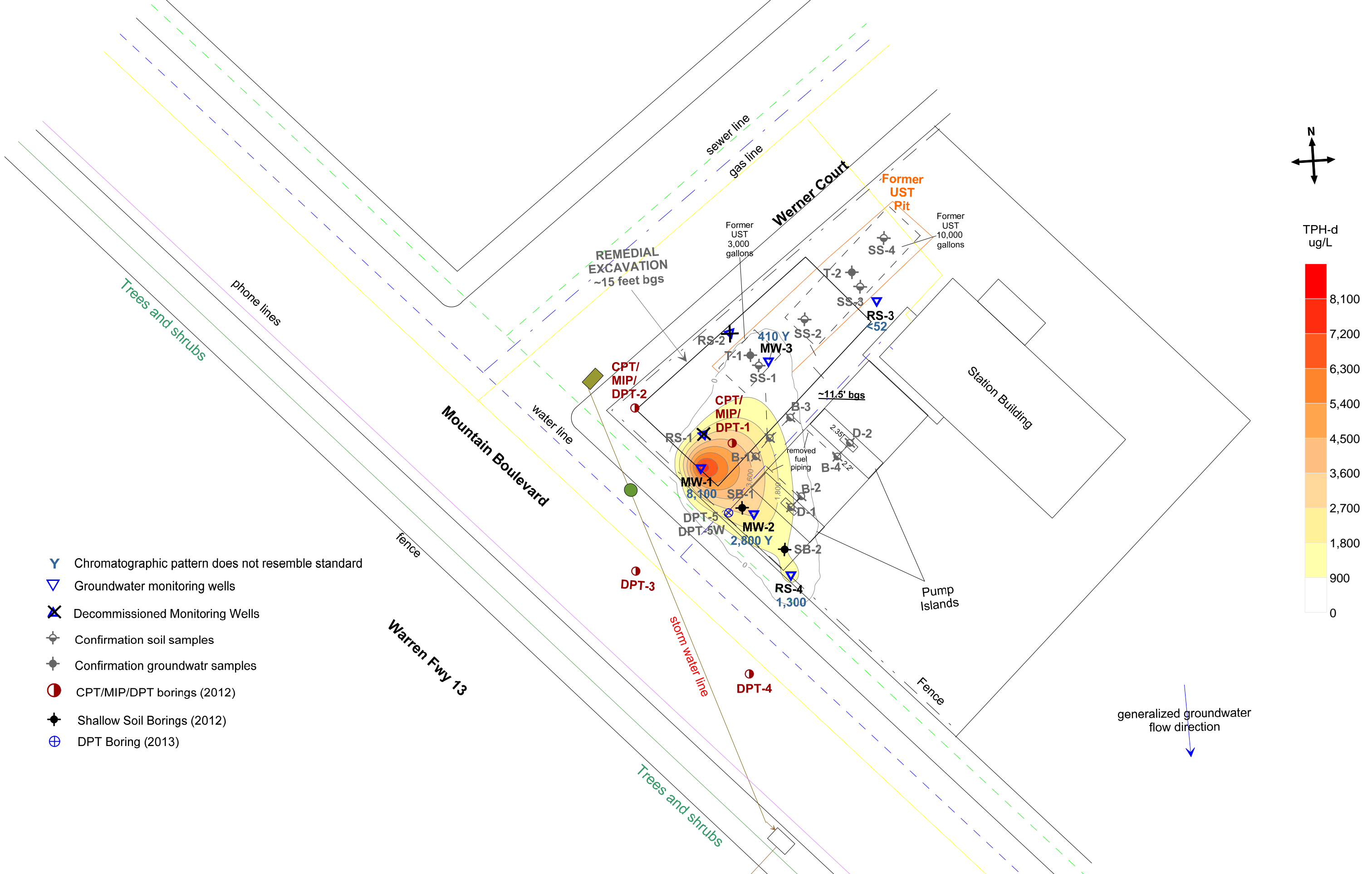
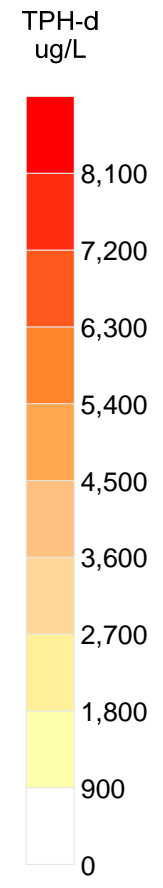
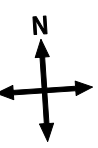


Figure 4: Map Showing TPH-g and Benzene Concentrations in Groundwater, August 12, 2015



- Y Chromatographic pattern does not resemble standard
- ▽ Groundwater monitoring wells
- ✕ Decommissioned Monitoring Wells
- ⊕ Confirmation soil samples
- ⊕ Confirmation groundwatr samples
- CPT/MIP/DPT borings (2012)
- ◆ Shallow Soil Borings (2012)
- ⊕ DPT Boring (2013)



generalized groundwater flow direction

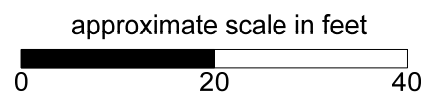
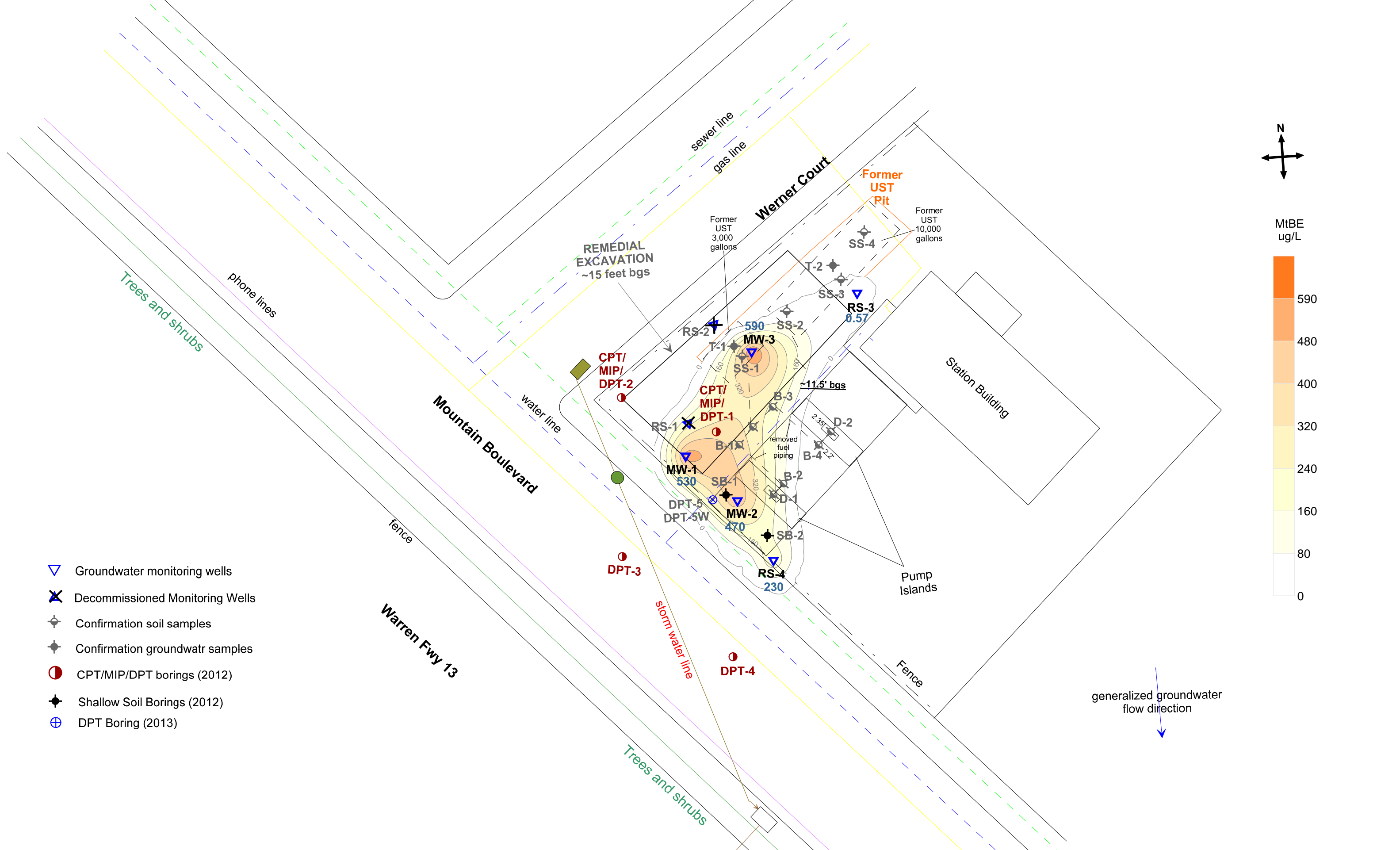
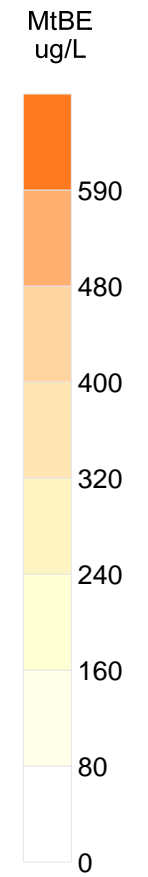
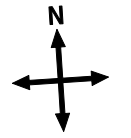


Figure 5: Contour Map Showing TPH-d Concentrations in Groundwater, August 12, 2015



- ▽ Groundwater monitoring wells
- ✕ Decommissioned Monitoring Wells
- ⊕ Confirmation soil samples
- ⊕ Confirmation groundwatr samples
- CPT/MIP/DPT borings (2012)
- ◆ Shallow Soil Borings (2012)
- ⊕ DPT Boring (2013)



generalized groundwater flow direction

approximate scale in feet

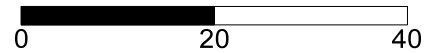


Figure 6: Contour Map Showing MtBE Concentrations in Groundwater, August 12, 2015

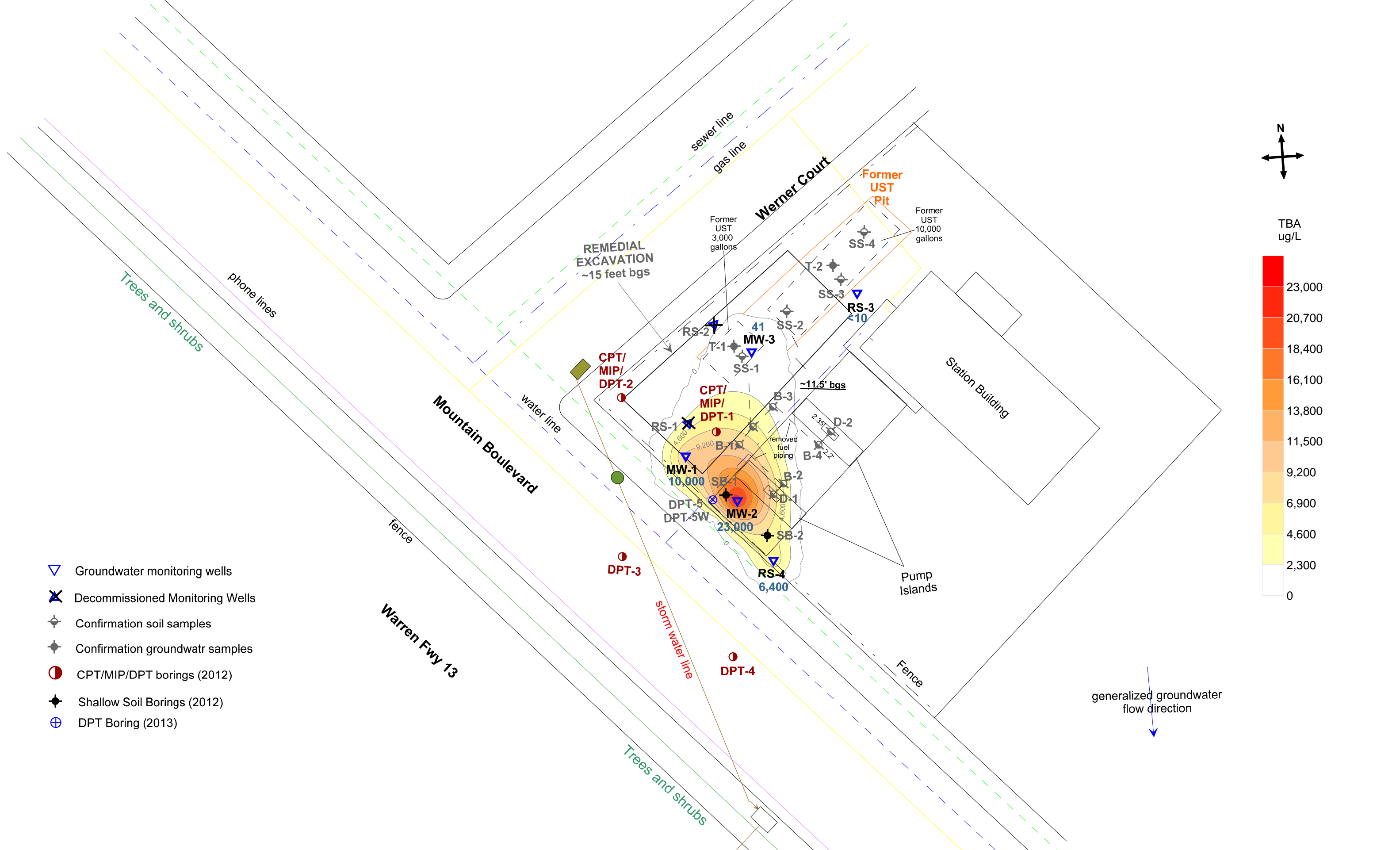
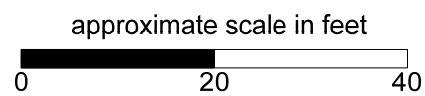


Figure 7: Contour Map Showing TBA Concentrations in Groundwater, August 12, 2015



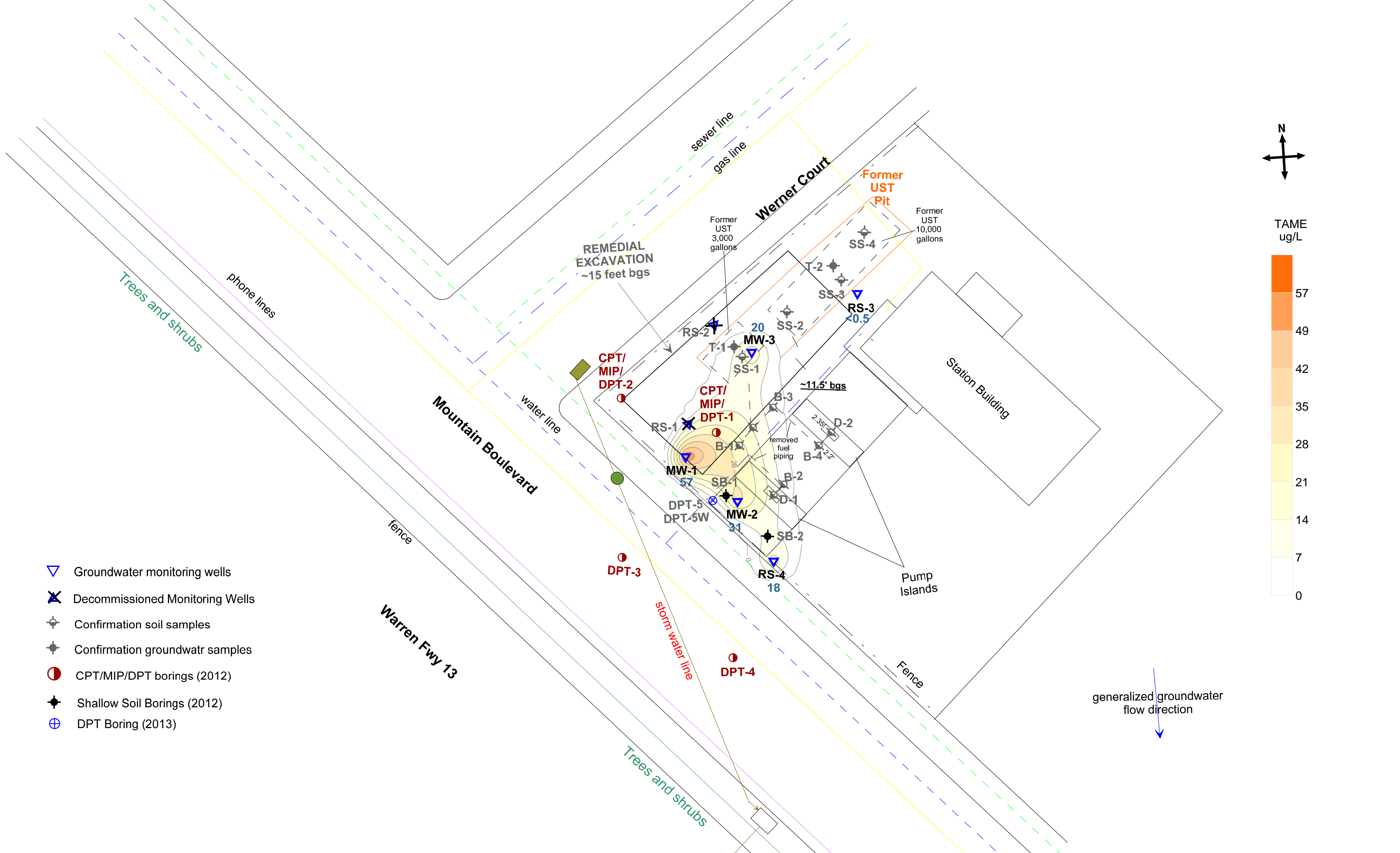
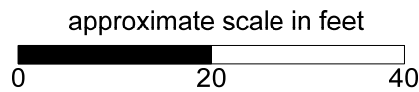


Figure 8: Contour Map Showing TAME Concentrations in Groundwater, August 12, 2015



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	-	-	-

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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	
post-MPE	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
	6/22/15	676.08	8.87	8.87	0.00	667.21	<50	<50	NA	<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
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	-	-
	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	-	-	

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2844 Mountain Boulevard, Oakland, CA

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RS-4 cont.	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	
Post-MPE	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
	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
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
	8/12/15	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	
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
	8/12/15	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	

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
MW-3 Post-MPE	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
	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
ESLs (µg/L)	Ground-water						100	100	100	1.00	40	30	20	5.00	12	NL
	Vapor Intrusion						NV	NV	NV	27	95,000	310	37,000	9,900	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

December 2013 (Table-F1a, groundwater is a current or potential drinking water source)

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



ENVIRONMENTAL ENGINEERING, INC

Well No.: PS-3 Project No.: 5081
 Casing Diameter: 4 inches Address: 2844 Mountain Blvd.
 Depth of Well: 24.99 feet Oakland, CA
 Top of Casing Elevation: 676.08 feet Date: August 12, 2015
 Depth to Groundwater: 7.79 feet Sampler: Lizzie Hightower
 Groundwater Elevation: 668.29 feet
 Water Column Height: 17.20 feet
 Purged Volume: 12 gallons

Purging Method: Bailer Pump

Sampling Method: Bailer Pump

Color: Yes No Describe: _____

Sheen: Yes No Describe: _____

Odor: Yes No Describe: _____

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
14:38	Started purging well			
14:39	3	7.06	21.9	760
14:40	6	6.96	21.3	745
14:41	9	6.93	21.2	725
14:42	12	6.95	21.4	721
14:47	Sampled			

Notes:



ENVIRONMENTAL ENGINEERING, INC

Well No.: RS-4
 Casing Diameter: 4 inches
 Depth of Well: 25.54 feet
 Top of Casing Elevation: 675.27 feet
 Depth to Groundwater: 9.93 feet
 Groundwater Elevation: 665.34 feet
 Water Column Height: 15.61 feet
 Purged Volume: — gallons

Project No.: 5081
 Address: 2844 Mountain Blvd.
 Oakland, CA
 Date: August 12, 2015
 Sampler: Lizzie Hightower

Not purged

Purging Method: Bailer Pump

Sampling Method: Bailer Pump

Color: Yes No

Describe: _____

Sheen: Yes No

Describe: _____

Odor: Yes No

Describe: Petro odor

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
12:40	Grab sample			

Notes:



ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-1
 Casing Diameter: 4 inches
 Depth of Well: 19.75 feet
 Top of Casing Elevation: 674.92 feet
 Depth to Groundwater: 8.25 feet
 Groundwater Elevation: 666.67 feet
 Water Column Height: 11.50 feet
 Purged Volume: 12 gallons

Project No.: 5081
 Address: 2844 Mountain Blvd.
 Oakland, CA
 Date: August 12, 2015
 Sampler: Lizzie Hightower

Purging Method: Bailer Pump

Sampling Method: Bailer Pump

Color: Yes No Describe: _____

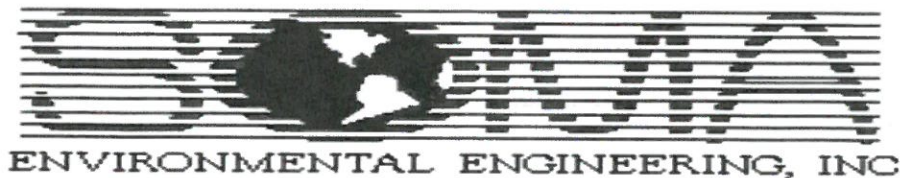
Sheen: Yes No Describe: _____

Odor: Yes No Describe: Petro odor

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
15:25	Started purging well			
15:26	3	6.92	21.4	680
15:27	6	6.89	21.3	675
15:28	9	6.86	21.5	675
15:29	12	6.84	21.9	688
15:34	Sampled			

Notes:



Well No.: MW-2
 Casing Diameter: 4 inches
 Depth of Well: 19.74 feet
 Top of Casing Elevation: 675.02 feet
 Depth to Groundwater: 8.86 feet
 Groundwater Elevation: 666.16 feet
 Water Column Height: 11.88 feet
 Purged Volume: 12 gallons

Project No.: 5081
 Address: 2844 Mountain Blvd.
 Oakland, CA
 Date: August 12, 2015
 Sampler: Lizzie Hightower

Purging Method: Bailer Pump
 Sampling Method: Bailer Pump

Color: Yes No Describe: _____
 Sheen: Yes No Describe: _____
 Odor: Yes No Describe: Petro odor

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
15:47	Started purging well			
15:48	3	7.28	21.5	793
15:49	6	7.15	21.1	779
15:50	9	7.17	21.2	772
15:51	12	7.20	21.4	755
15:56	sampled			

Notes:



ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-3
 Casing Diameter: 4 inches
 Depth of Well: 24.73 feet
 Top of Casing Elevation: 675.58 feet
 Depth to Groundwater: 7.80 feet
 Groundwater Elevation: 667.78 feet
 Water Column Height: 16.93 feet
 Purged Volume: 12 gallons

Project No.: 5081
 Address: 2844 Mountain Blvd.
 Oakland, CA
 Date: August 12, 2015
 Sampler: Lizzie Hightower

Purging Method: Bailer Pump

Sampling Method: Bailer Pump

Color: Yes No

Describe: cloudy

Sheen: Yes No

Describe: _____

Odor: Yes No

Describe: Musty

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
15:03	started purging well			
15:04	3	7.73	22.4	783
15:05	6	7.70	22.1	790
15:06	9	7.68	22.1	778
15:07	12	7.65	22.2	765
15:12	sampled			

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

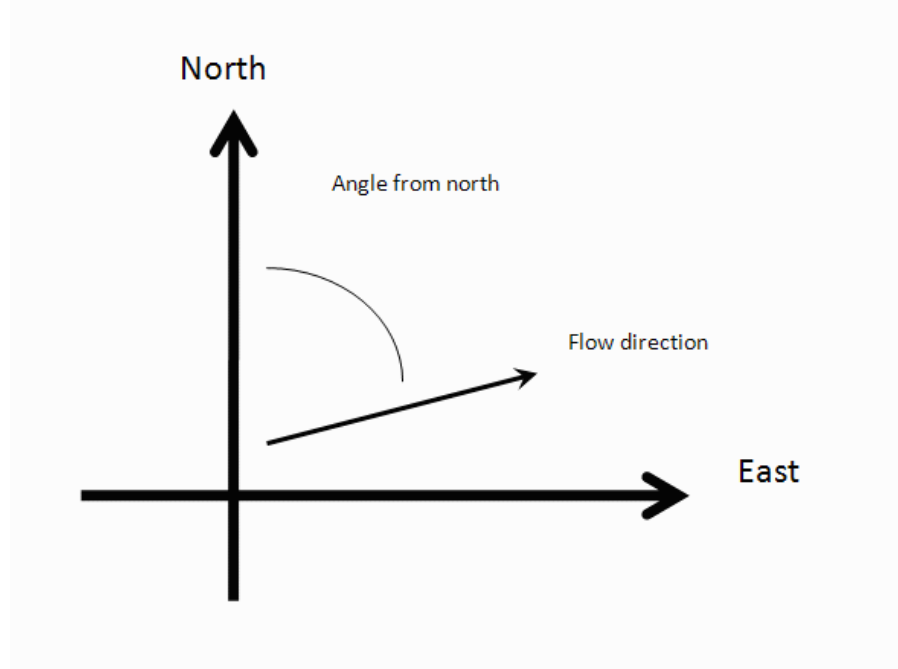
$$\begin{aligned}
 a x_1 + b y_1 + c &= h_1 \\
 a x_2 + b y_2 + c &= h_2 \\
 a x_3 + b y_3 + c &= h_3 \\
 &\dots \\
 a x_{30} + b y_{30} + c &= h_{30}
 \end{aligned}$$

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

$i = 1, 2, 3, \dots, 30$

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

Site Name

Date

Calculation basis

Coordinates

I.D.	x-coordinate	y-coordinate	head	ft
1) RS-3	6071215.111	2122442.671	668.29	
2) RS-4	6071195.458	2122379.324	665.34	
3) MW-1	6071174.931	2122404.178	666.67	
4) MW-2	6071186.39	2122393.492	666.16	
5) MW-3	6071190.453	2122428.874	667.78	
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	0.8992
Gradient Magnitude (i)	0.04854
Flow direction as degrees from North (positive y axis)	172.5
Coefficient of Determination (R^2)	0.999

WCMS

Last updated on 1/10/2013

Appendix C

Laboratory Report and Chain of Custody Form



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

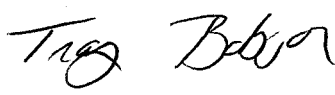
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 269015
ANALYTICAL REPORT

SOMA Environmental Engineering Inc.	Project : 5081
6620 Owens Dr.	Location : 2844 Mountain Blvd., Oakland
Pleasanton, CA 94588	Level : II

<u>Sample ID</u>	<u>Lab ID</u>
RS-3	269015-001
RS-4	269015-002
MW-1	269015-003
MW-2	269015-004
MW-3	269015-005

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

Date: 08/24/2015

CASE NARRATIVE

Laboratory number: 269015
Client: SOMA Environmental Engineering Inc.
Project: 5081
Location: 2844 Mountain Blvd., Oakland
Request Date: 08/14/15
Samples Received: 08/14/15

This data package contains sample and QC results for five water samples, requested for the above referenced project on 08/14/15. The samples were received cold and intact.

TPH-Extractables by GC (EPA 8015B):

No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):

No analytical problems were encountered.

CHAIN OF CUSTODY

Curtis & Tompkins, Ltd

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

Analyses

LOGIN # 269015

Sampler: Lizzie Hightower

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			# of Containers	Preservative				TPH-g, BTEX, MIBE 8260B	Gasoline Oxygenates 8260B	TPH-d 8015
			Soil	Water	Waste		HCL	H ₂ SO ₄	HNO ₃	ICE			
	RS-3	8/12/15 14:47		*		3 VOAs, 2-500 mL Ambers	*			*	*	*	*
	RS-4	12:40		*		3 VOAs, 2-500 mL Ambers	*			*	*	*	*
	MW-1	15:25		*		3 VOAs, 2-500 mL Ambers	*			*	*	*	*
	MW-2	15:56		*		3 VOAs, 2-500 mL Ambers	*			*	*	*	*
	MW-3	15:12		*		3 VOAs, 2-500 mL Ambers	*			*	*	*	*

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

RELINQUISHED BY:		RECEIVED BY:	
	8/14/15 08:30 DATE/TIME		8/14/15 12:35 DATE/TIME
	8/14/15 16:45 DATE/TIME		8/14/15 16:45 DATE/TIME
DATE/TIME		DATE/TIME	

instead could be

COOLER RECEIPT CHECKLIST



Curtis & Tompkins, Ltd.

Login # 269015 Date Received 8/14/15 Number of coolers 1
Client SMA Project SDEI

Date Opened 8/14 By (print) FBJ (sign) [Signature]
Date Logged in [Signature] By (print) FBJ (sign) [Signature]

1. Did cooler come with a shipping slip (airbill, etc) YES NO
Shipping info

2A. Were custody seals present? ... YES (circle) on cooler on samples NO
How many Name Date

2B. Were custody seals intact upon arrival? YES NO N/A

3. Were custody papers dry and intact when received? YES NO

4. Were custody papers filled out properly (ink, signed, etc)? YES NO

5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO

6. Indicate the packing in cooler: (if other, describe)

- Bubble Wrap, Cloth material, Foam blocks, Cardboard, Bags, Styrofoam, None, Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C
Type of ice used: Wet Blue/Gel None Temp(°C) 2.50

- Samples Received on ice & cold without a temperature blank; temp. taken with IR gun
Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? YES NO
If YES, what time were they transferred to freezer?

9. Did all bottles arrive unbroken/unopened? YES NO

10. Are there any missing / extra samples? YES NO

11. Are samples in the appropriate containers for indicated tests? YES NO

12. Are sample labels present, in good condition and complete? YES NO

13. Do the sample labels agree with custody papers? YES NO

14. Was sufficient amount of sample sent for tests requested? YES NO

15. Are the samples appropriately preserved? YES NO N/A

16. Did you check preservatives for all bottles for each sample? YES NO N/A

17. Did you document your preservative check? YES NO N/A

18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO N/A

19. Did you change the hold time in LIMS for preserved terracores? YES NO N/A

20. Are bubbles > 6mm absent in VOA samples? YES NO N/A

21. Was the client contacted concerning this sample delivery? YES NO

If YES, Who was called? By Date:

COMMENTS

Blank lines for handwritten comments.



Detections Summary for 269015

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 : 269015-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
MTBE	0.57		0.50	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B

Client Sample ID : RS-4 Laboratory Sample ID : 269015-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	1,300		51	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	320		130	ug/L	As Recd	2.500	EPA 8260B	EPA 5030B
tert-Butyl Alcohol (TBA)	6,400		130	ug/L	As Recd	12.50	EPA 8260B	EPA 5030B
Methyl tert-Amyl Ether (TAME)	18		1.3	ug/L	As Recd	2.500	EPA 8260B	EPA 5030B
MTBE	230		1.3	ug/L	As Recd	2.500	EPA 8260B	EPA 5030B
Ethylbenzene	1.3		1.3	ug/L	As Recd	2.500	EPA 8260B	EPA 5030B
m,p-Xylenes	1.7		1.3	ug/L	As Recd	2.500	EPA 8260B	EPA 5030B

Client Sample ID : MW-1 Laboratory Sample ID : 269015-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	8,100		51	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Gasoline C7-C12	2,000		830	ug/L	As Recd	16.67	EPA 8260B	EPA 5030B
tert-Butyl Alcohol (TBA)	10,000		170	ug/L	As Recd	16.67	EPA 8260B	EPA 5030B
Methyl tert-Amyl Ether (TAME)	57		8.3	ug/L	As Recd	16.67	EPA 8260B	EPA 5030B
MTBE	530		8.3	ug/L	As Recd	16.67	EPA 8260B	EPA 5030B
Benzene	31		8.3	ug/L	As Recd	16.67	EPA 8260B	EPA 5030B
Ethylbenzene	27		8.3	ug/L	As Recd	16.67	EPA 8260B	EPA 5030B
m,p-Xylenes	46		8.3	ug/L	As Recd	16.67	EPA 8260B	EPA 5030B

Client Sample ID : MW-2 Laboratory Sample ID : 269015-004

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	2,800	Y	52	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
tert-Butyl Alcohol (TBA)	23,000		400	ug/L	As Recd	40.00	EPA 8260B	EPA 5030B
Methyl tert-Amyl Ether (TAME)	31		20	ug/L	As Recd	40.00	EPA 8260B	EPA 5030B
MTBE	470		20	ug/L	As Recd	40.00	EPA 8260B	EPA 5030B

Client Sample ID : MW-3

Laboratory Sample ID :

269015-005

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	410	Y	52	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
tert-Butyl Alcohol (TBA)	41		33	ug/L	As Recd	3.333	EPA 8260B	EPA 5030B
Methyl tert-Amyl Ether (TAME)	20		1.7	ug/L	As Recd	3.333	EPA 8260B	EPA 5030B
MTBE	590		5.0	ug/L	As Recd	10.00	EPA 8260B	EPA 5030B

Y = Sample exhibits chromatographic pattern which does not resemble standard

Total Extractable Hydrocarbons			
Lab #:	269015	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5081	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	08/12/15
Units:	ug/L	Received:	08/14/15
Diln Fac:	1.000		

Field ID:	RS-3	Batch#:	226251
Type:	SAMPLE	Prepared:	08/18/15
Lab ID:	269015-001	Analyzed:	08/19/15

Analyte	Result	RL
Diesel C10-C24	ND	52

Surrogate	%REC	Limits
o-Terphenyl	91	67-136

Field ID:	RS-4	Batch#:	226251
Type:	SAMPLE	Prepared:	08/18/15
Lab ID:	269015-002	Analyzed:	08/19/15

Analyte	Result	RL
Diesel C10-C24	1,300	51

Surrogate	%REC	Limits
o-Terphenyl	95	67-136

Field ID:	MW-1	Batch#:	226251
Type:	SAMPLE	Prepared:	08/18/15
Lab ID:	269015-003	Analyzed:	08/19/15

Analyte	Result	RL
Diesel C10-C24	8,100	51

Surrogate	%REC	Limits
o-Terphenyl	105	67-136

Field ID:	MW-2	Batch#:	226285
Type:	SAMPLE	Prepared:	08/19/15
Lab ID:	269015-004	Analyzed:	08/20/15

Analyte	Result	RL
Diesel C10-C24	2,800 Y	52

Surrogate	%REC	Limits
o-Terphenyl	104	67-136

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

Total Extractable Hydrocarbons			
Lab #:	269015	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5081	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	08/12/15
Units:	ug/L	Received:	08/14/15
Diln Fac:	1.000		

Field ID:	MW-3	Batch#:	226285
Type:	SAMPLE	Prepared:	08/19/15
Lab ID:	269015-005	Analyzed:	08/20/15

Analyte	Result	RL
Diesel C10-C24	410 Y	52

Surrogate	%REC	Limits
o-Terphenyl	103	67-136

Type:	BLANK	Prepared:	08/18/15
Lab ID:	QC800012	Analyzed:	08/19/15
Batch#:	226251		

Analyte	Result	RL
Diesel C10-C24	ND	100

Surrogate	%REC	Limits
o-Terphenyl	124	67-136

Type:	BLANK	Prepared:	08/19/15
Lab ID:	QC800139	Analyzed:	08/20/15
Batch#:	226285		

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	100	67-136

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

Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	269015	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5081	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	226251
Units:	ug/L	Prepared:	08/18/15
Diln Fac:	1.000	Analyzed:	08/19/15

Type: BS Lab ID: QC800013

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,523	101	60-121

Surrogate	%REC	Limits
o-Terphenyl	116	67-136

Type: BSD Lab ID: QC800014

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,638	106	60-121	4	32

Surrogate	%REC	Limits
o-Terphenyl	119	67-136

RPD= Relative Percent Difference

Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	269015	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5081	Analysis:	EPA 8015B
Matrix:	Water	Diln Fac:	1.000
Units:	ug/L	Batch#:	226285

Type: BS Prepared: 08/19/15
 Lab ID: QC800140 Analyzed: 08/20/15

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,411	96	60-121

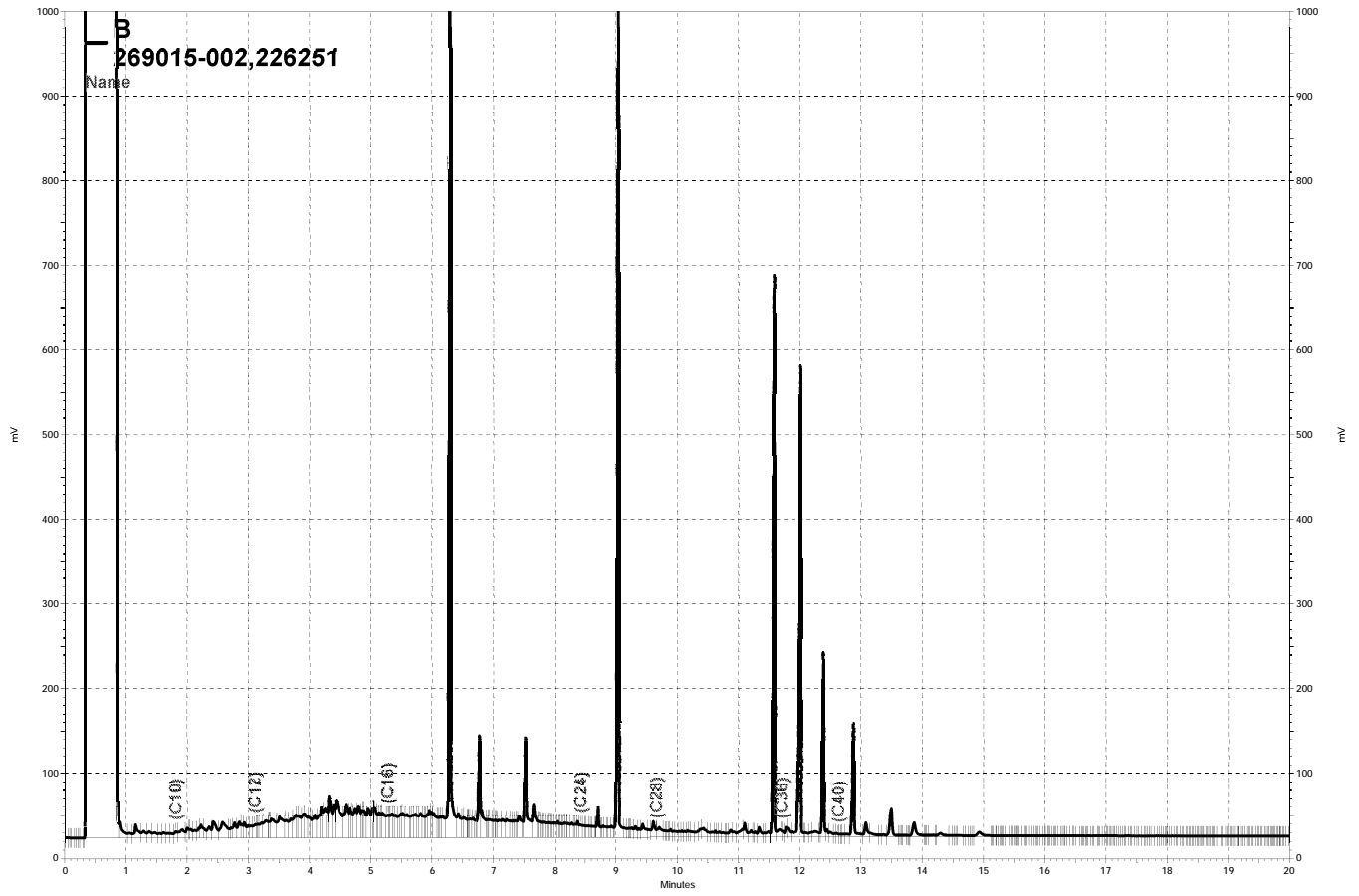
Surrogate	%REC	Limits
o-Terphenyl	121	67-136

Type: BSD Prepared: 08/20/15
 Lab ID: QC800141 Analyzed: 08/21/15

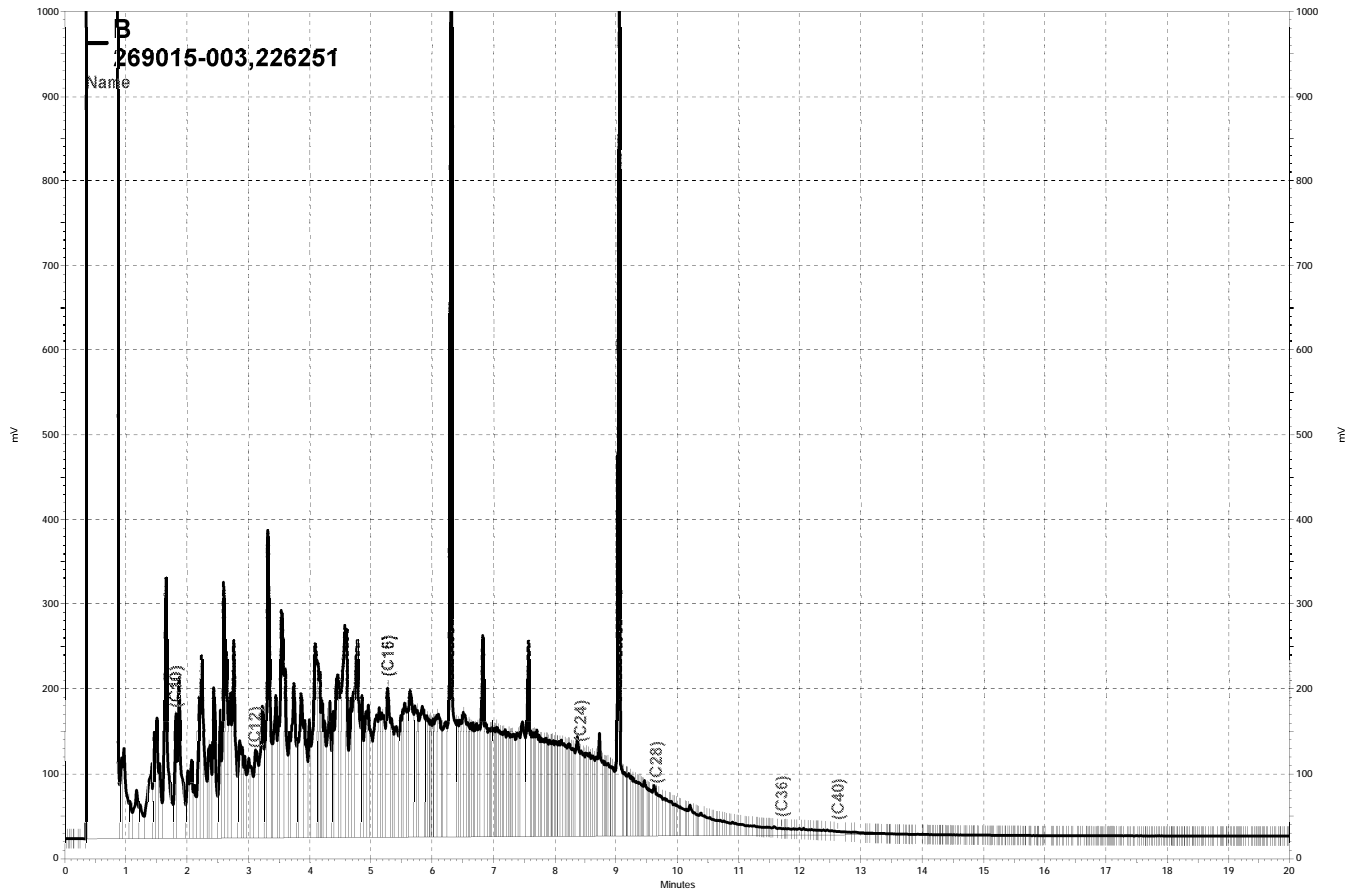
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,624	105	60-121	8	32

Surrogate	%REC	Limits
o-Terphenyl	121	67-136

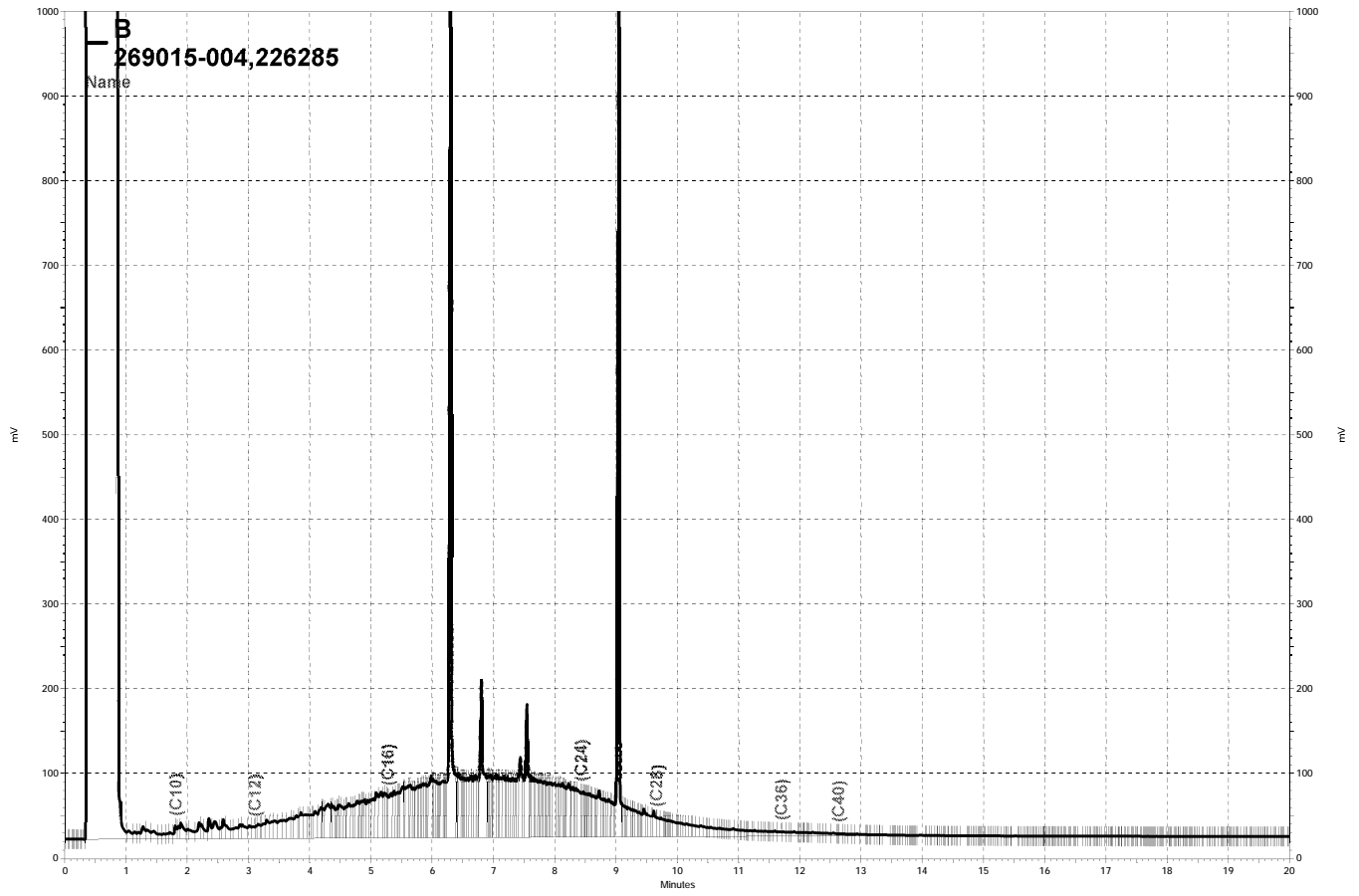
RPD= Relative Percent Difference



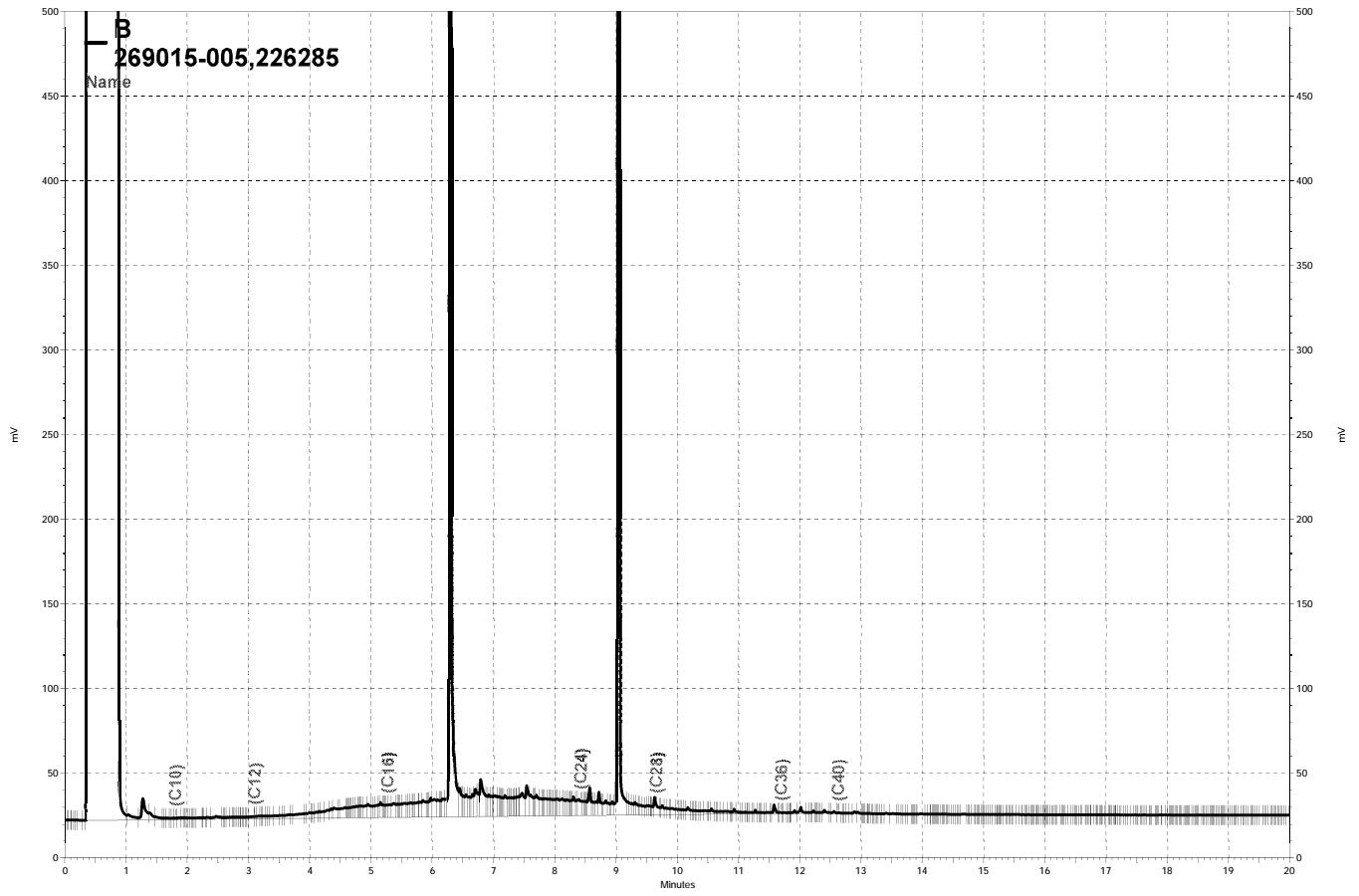
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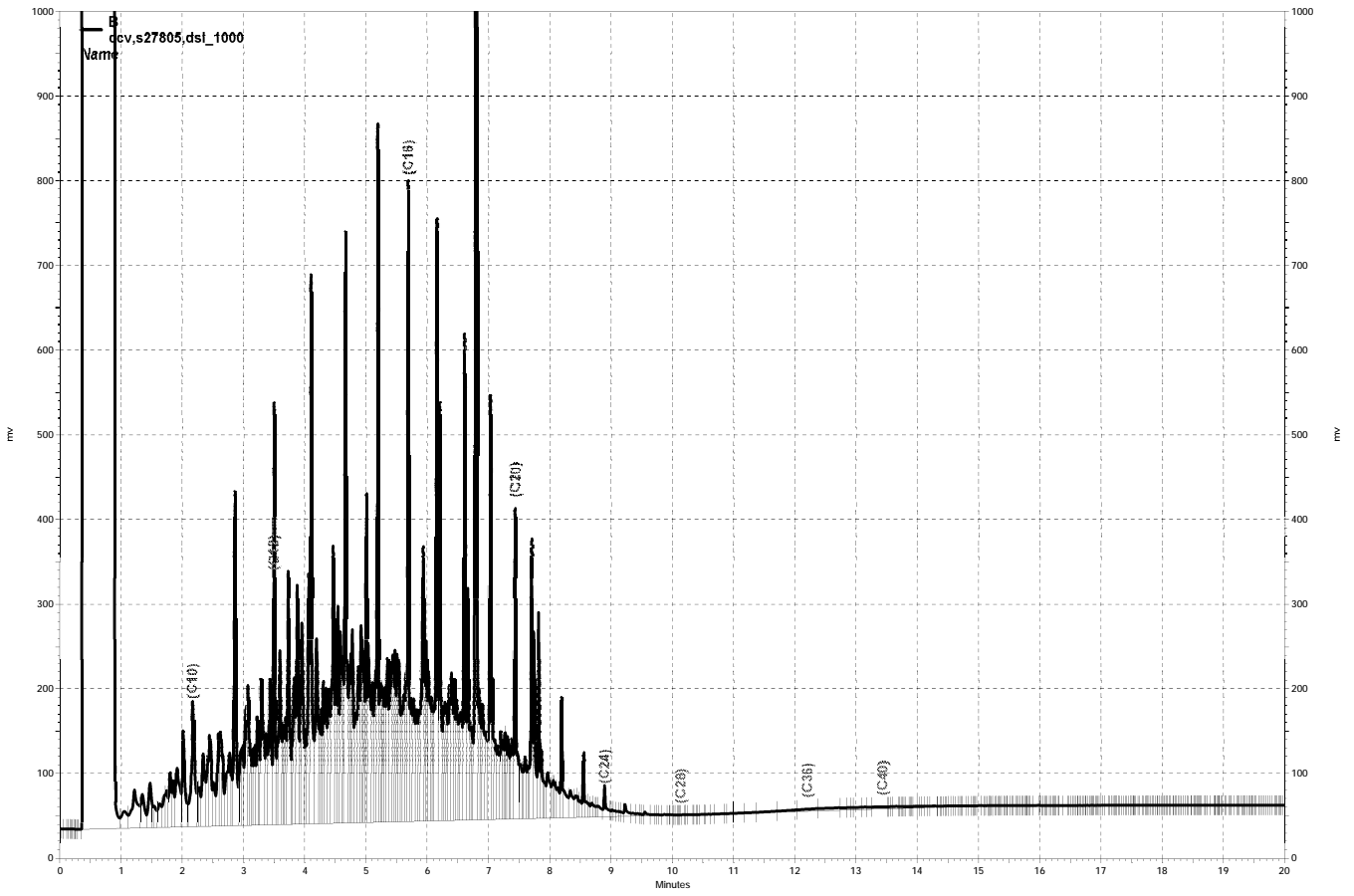
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— \\Lims\gdrive\ezchrom\Projects\GC15B\Data\232b004, B

Purgeable Organics by GC/MS

Lab #: 269015	Location: 2844 Mountain Blvd., Oakland
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 5081	Analysis: EPA 8260B
Field ID: RS-3	Batch#: 226179
Lab ID: 269015-001	Sampled: 08/12/15
Matrix: Water	Received: 08/14/15
Units: ug/L	Analyzed: 08/17/15
Diln Fac: 1.000	

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	0.57	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	111	80-128
1,2-Dichloroethane-d4	119	75-139
Toluene-d8	104	80-120
Bromofluorobenzene	109	80-120

ND= Not Detected
 RL= Reporting Limit

Purgeable Organics by GC/MS

Lab #: 269015	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: 269015-002	Sampled: 08/12/15
Matrix: Water	Received: 08/14/15

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
Gasoline C7-C12	320	130	2.500	226179	08/17/15
tert-Butyl Alcohol (TBA)	6,400	130	12.50	226273	08/20/15
Isopropyl Ether (DIPE)	ND	1.3	2.500	226179	08/17/15
Ethyl tert-Butyl Ether (ETBE)	ND	1.3	2.500	226179	08/17/15
Methyl tert-Amyl Ether (TAME)	18	1.3	2.500	226179	08/17/15
Ethanol	ND	2,500	2.500	226179	08/17/15
MTBE	230	1.3	2.500	226179	08/17/15
1,2-Dichloroethane	ND	1.3	2.500	226179	08/17/15
Benzene	ND	1.3	2.500	226179	08/17/15
Toluene	ND	1.3	2.500	226179	08/17/15
1,2-Dibromoethane	ND	1.3	2.500	226179	08/17/15
Ethylbenzene	1.3	1.3	2.500	226179	08/17/15
m,p-Xylenes	1.7	1.3	2.500	226179	08/17/15
o-Xylene	ND	1.3	2.500	226179	08/17/15

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	111	80-128	2.500	226179	08/17/15
1,2-Dichloroethane-d4	112	75-139	2.500	226179	08/17/15
Toluene-d8	103	80-120	2.500	226179	08/17/15
Bromofluorobenzene	105	80-120	2.500	226179	08/17/15

ND= Not Detected
 RL= Reporting Limit

Purgeable Organics by GC/MS

Lab #: 269015	Location: 2844 Mountain Blvd., Oakland
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 5081	Analysis: EPA 8260B
Field ID: MW-1	Batch#: 226229
Lab ID: 269015-003	Sampled: 08/12/15
Matrix: Water	Received: 08/14/15
Units: ug/L	Analyzed: 08/18/15
Diln Fac: 16.67	

Analyte	Result	RL
Gasoline C7-C12	2,000	830
tert-Butyl Alcohol (TBA)	10,000	170
Isopropyl Ether (DIPE)	ND	8.3
Ethyl tert-Butyl Ether (ETBE)	ND	8.3
Methyl tert-Amyl Ether (TAME)	57	8.3
Ethanol	ND	17,000
MTBE	530	8.3
1,2-Dichloroethane	ND	8.3
Benzene	31	8.3
Toluene	ND	8.3
1,2-Dibromoethane	ND	8.3
Ethylbenzene	27	8.3
m,p-Xylenes	46	8.3
o-Xylene	ND	8.3

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

ND= Not Detected
 RL= Reporting Limit

Purgeable Organics by GC/MS

Lab #: 269015	Location: 2844 Mountain Blvd., Oakland
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 5081	Analysis: EPA 8260B
Field ID: MW-2	Batch#: 226229
Lab ID: 269015-004	Sampled: 08/12/15
Matrix: Water	Received: 08/14/15
Units: ug/L	Analyzed: 08/18/15
Diln Fac: 40.00	

Analyte	Result	RL
Gasoline C7-C12	ND	2,000
tert-Butyl Alcohol (TBA)	23,000	400
Isopropyl Ether (DIPE)	ND	20
Ethyl tert-Butyl Ether (ETBE)	ND	20
Methyl tert-Amyl Ether (TAME)	31	20
Ethanol	ND	40,000
MTBE	470	20
1,2-Dichloroethane	ND	20
Benzene	ND	20
Toluene	ND	20
1,2-Dibromoethane	ND	20
Ethylbenzene	ND	20
m,p-Xylenes	ND	20
o-Xylene	ND	20

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-128
1,2-Dichloroethane-d4	103	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	109	80-120

ND= Not Detected
 RL= Reporting Limit

Purgeable Organics by GC/MS

Lab #: 269015	Location: 2844 Mountain Blvd., Oakland
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 5081	Analysis: EPA 8260B
Field ID: MW-3	Units: ug/L
Lab ID: 269015-005	Sampled: 08/12/15
Matrix: Water	Received: 08/14/15

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
Gasoline C7-C12	ND	170	3.333	226229	08/18/15
tert-Butyl Alcohol (TBA)	41	33	3.333	226229	08/18/15
Isopropyl Ether (DIPE)	ND	1.7	3.333	226229	08/18/15
Ethyl tert-Butyl Ether (ETBE)	ND	1.7	3.333	226229	08/18/15
Methyl tert-Amyl Ether (TAME)	20	1.7	3.333	226229	08/18/15
Ethanol	ND	3,300	3.333	226229	08/18/15
MTBE	590	5.0	10.00	226273	08/20/15
1,2-Dichloroethane	ND	1.7	3.333	226229	08/18/15
Benzene	ND	1.7	3.333	226229	08/18/15
Toluene	ND	1.7	3.333	226229	08/18/15
1,2-Dibromoethane	ND	1.7	3.333	226229	08/18/15
Ethylbenzene	ND	1.7	3.333	226229	08/18/15
m,p-Xylenes	ND	1.7	3.333	226229	08/18/15
o-Xylene	ND	1.7	3.333	226229	08/18/15

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	103	80-128	3.333	226229	08/18/15
1,2-Dichloroethane-d4	101	75-139	3.333	226229	08/18/15
Toluene-d8	102	80-120	3.333	226229	08/18/15
Bromofluorobenzene	110	80-120	3.333	226229	08/18/15

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Purgeable Organics by GC/MS			
Lab #:	269015	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	226179
Units:	ug/L	Analyzed:	08/17/15
Diln Fac:	1.000		

Type: BS Lab ID: QC799707

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	62.50	59.70	96	32-155
Isopropyl Ether (DIPE)	12.50	12.79	102	57-128
Ethyl tert-Butyl Ether (ETBE)	12.50	12.26	98	62-120
Methyl tert-Amyl Ether (TAME)	12.50	11.25	90	69-120
MTBE	12.50	11.60	93	65-120
1,2-Dichloroethane	12.50	12.36	99	74-133
Benzene	12.50	13.05	104	80-123
Toluene	12.50	12.96	104	80-121
1,2-Dibromoethane	12.50	11.32	91	80-120
Ethylbenzene	12.50	12.50	100	80-123
m,p-Xylenes	25.00	26.00	104	80-126
o-Xylene	12.50	12.38	99	80-126

Surrogate	%REC	Limits
Dibromofluoromethane	105	80-128
1,2-Dichloroethane-d4	108	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	97	80-120

Type: BSD Lab ID: QC799708

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	62.50	62.54	100	32-155	5	33
Isopropyl Ether (DIPE)	12.50	12.87	103	57-128	1	20
Ethyl tert-Butyl Ether (ETBE)	12.50	12.52	100	62-120	2	20
Methyl tert-Amyl Ether (TAME)	12.50	11.84	95	69-120	5	20
MTBE	12.50	12.50	100	65-120	7	22
1,2-Dichloroethane	12.50	13.03	104	74-133	5	20
Benzene	12.50	12.46	100	80-123	5	20
Toluene	12.50	12.54	100	80-121	3	20
1,2-Dibromoethane	12.50	11.85	95	80-120	5	20
Ethylbenzene	12.50	12.32	99	80-123	1	21
m,p-Xylenes	25.00	24.40	98	80-126	6	21
o-Xylene	12.50	12.24	98	80-126	1	20

Surrogate	%REC	Limits
Dibromofluoromethane	106	80-128
1,2-Dichloroethane-d4	110	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	98	80-120

RPD= Relative Percent Difference

Batch QC Report

Purgeable Organics by GC/MS			
Lab #:	269015	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	226179
Units:	ug/L	Analyzed:	08/17/15
Diln Fac:	1.000		

Type: BS Lab ID: QC799709

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,003	100	76-120

Surrogate	%REC	Limits
Dibromofluoromethane	105	80-128
1,2-Dichloroethane-d4	109	75-139
Toluene-d8	97	80-120
Bromofluorobenzene	100	80-120

Type: BSD Lab ID: QC799710

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1,000	954.8	95	76-120	5	20

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-128
1,2-Dichloroethane-d4	105	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	98	80-120

RPD= Relative Percent Difference

Batch QC Report

Purgeable Organics by GC/MS			
Lab #:	269015	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:	QC799711	Batch#:	226179
Matrix:	Water	Analyzed:	08/17/15
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	106	80-128
1,2-Dichloroethane-d4	114	75-139
Toluene-d8	101	80-120
Bromofluorobenzene	107	80-120

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Purgeable Organics by GC/MS			
Lab #:	269015	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	226229
Units:	ug/L	Analyzed:	08/18/15
Diln Fac:	1.000		

Type: BS Lab ID: QC799913

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	62.50	56.25	90	32-155
Isopropyl Ether (DIPE)	12.50	13.08	105	57-128
Ethyl tert-Butyl Ether (ETBE)	12.50	12.87	103	62-120
Methyl tert-Amyl Ether (TAME)	12.50	12.35	99	69-120
MTBE	12.50	12.56	100	65-120
1,2-Dichloroethane	12.50	12.99	104	74-133
Benzene	12.50	14.02	112	80-123
Toluene	12.50	13.34	107	80-121
1,2-Dibromoethane	12.50	12.57	101	80-120
Ethylbenzene	12.50	13.64	109	80-123
m,p-Xylenes	25.00	27.52	110	80-126
o-Xylene	12.50	13.74	110	80-126

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

Type: BSD Lab ID: QC799914

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	62.50	55.92	89	32-155	1	33
Isopropyl Ether (DIPE)	12.50	12.46	100	57-128	5	20
Ethyl tert-Butyl Ether (ETBE)	12.50	12.58	101	62-120	2	20
Methyl tert-Amyl Ether (TAME)	12.50	11.78	94	69-120	5	20
MTBE	12.50	12.35	99	65-120	2	22
1,2-Dichloroethane	12.50	12.30	98	74-133	5	20
Benzene	12.50	13.09	105	80-123	7	20
Toluene	12.50	12.46	100	80-121	7	20
1,2-Dibromoethane	12.50	12.09	97	80-120	4	20
Ethylbenzene	12.50	12.82	103	80-123	6	21
m,p-Xylenes	25.00	26.10	104	80-126	5	21
o-Xylene	12.50	12.91	103	80-126	6	20

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-128
1,2-Dichloroethane-d4	99	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	98	80-120

RPD= Relative Percent Difference

Batch QC Report

Purgeable Organics by GC/MS			
Lab #:	269015	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	226229
Units:	ug/L	Analyzed:	08/18/15
Diln Fac:	1.000		

Type: BS Lab ID: QC799915

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,097	110	76-120

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-128
1,2-Dichloroethane-d4	101	75-139
Toluene-d8	103	80-120
Bromofluorobenzene	100	80-120

Type: BSD Lab ID: QC799916

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1,000	1,027	103	76-120	7	20

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

RPD= Relative Percent Difference

Batch QC Report

Purgeable Organics by GC/MS			
Lab #:	269015	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:	QC799917	Batch#:	226229
Matrix:	Water	Analyzed:	08/18/15
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	106	80-128
1,2-Dichloroethane-d4	102	75-139
Toluene-d8	103	80-120
Bromofluorobenzene	108	80-120

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Purgeable Organics by GC/MS			
Lab #:	269015	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	226273
Units:	ug/L	Analyzed:	08/19/15
Diln Fac:	1.000		

Type: BS Lab ID: QC800093

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	75.00	66.74	89	32-155
Isopropyl Ether (DIPE)	15.00	13.95	93	57-128
Ethyl tert-Butyl Ether (ETBE)	15.00	13.59	91	62-120
Methyl tert-Amyl Ether (TAME)	15.00	12.49	83	69-120
MTBE	15.00	13.68	91	65-120
1,2-Dichloroethane	15.00	12.85	86	74-133
Benzene	15.00	14.24	95	80-123
Toluene	15.00	13.56	90	80-121
1,2-Dibromoethane	15.00	12.65	84	80-120
Ethylbenzene	15.00	12.91	86	80-123
m,p-Xylenes	30.00	25.37	85	80-126
o-Xylene	15.00	12.82	85	80-126

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-128
1,2-Dichloroethane-d4	100	75-139
Toluene-d8	96	80-120
Bromofluorobenzene	100	80-120

Type: BSD Lab ID: QC800094

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	75.00	73.57	98	32-155	10	33
Isopropyl Ether (DIPE)	15.00	14.01	93	57-128	0	20
Ethyl tert-Butyl Ether (ETBE)	15.00	14.01	93	62-120	3	20
Methyl tert-Amyl Ether (TAME)	15.00	13.24	88	69-120	6	20
MTBE	15.00	14.31	95	65-120	5	22
1,2-Dichloroethane	15.00	13.50	90	74-133	5	20
Benzene	15.00	14.27	95	80-123	0	20
Toluene	15.00	13.86	92	80-121	2	20
1,2-Dibromoethane	15.00	13.10	87	80-120	3	20
Ethylbenzene	15.00	13.27	88	80-123	3	21
m,p-Xylenes	30.00	26.83	89	80-126	6	21
o-Xylene	15.00	13.24	88	80-126	3	20

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

RPD= Relative Percent Difference

Batch QC Report

Purgeable Organics by GC/MS			
Lab #:	269015	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:	QC800095	Batch#:	226273
Matrix:	Water	Analyzed:	08/19/15
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	107	80-128
1,2-Dichloroethane-d4	111	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	107	80-120

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

Date : 17-AUG-2015 23:23

Client ID: DYNA P&T

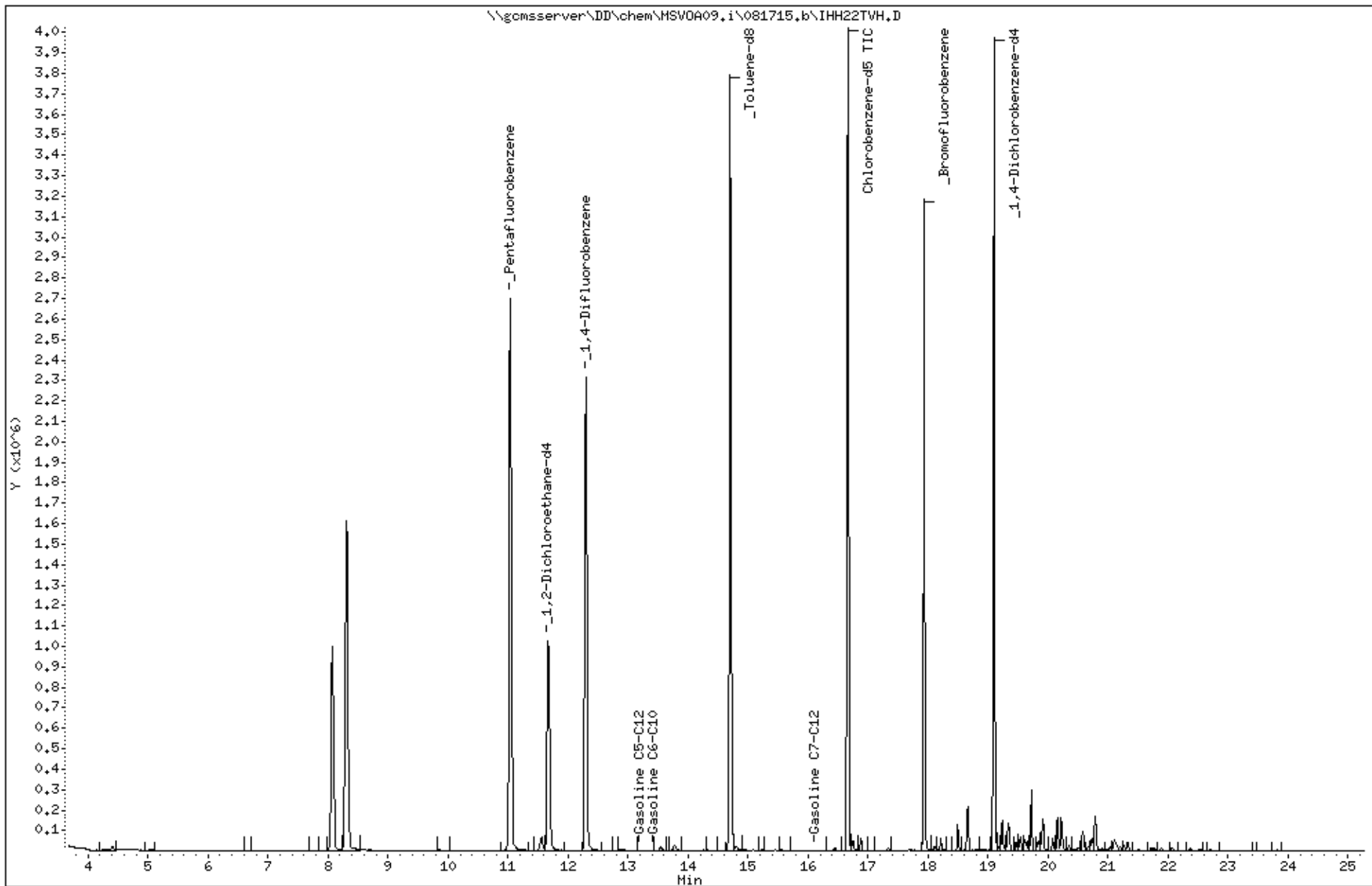
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Instrument: MSV0A09.i

Operator: VOC

Column diameter: 2.00

Column phase:



Date : 18-AUG-2015 22:41

Client ID: DYNA P&T

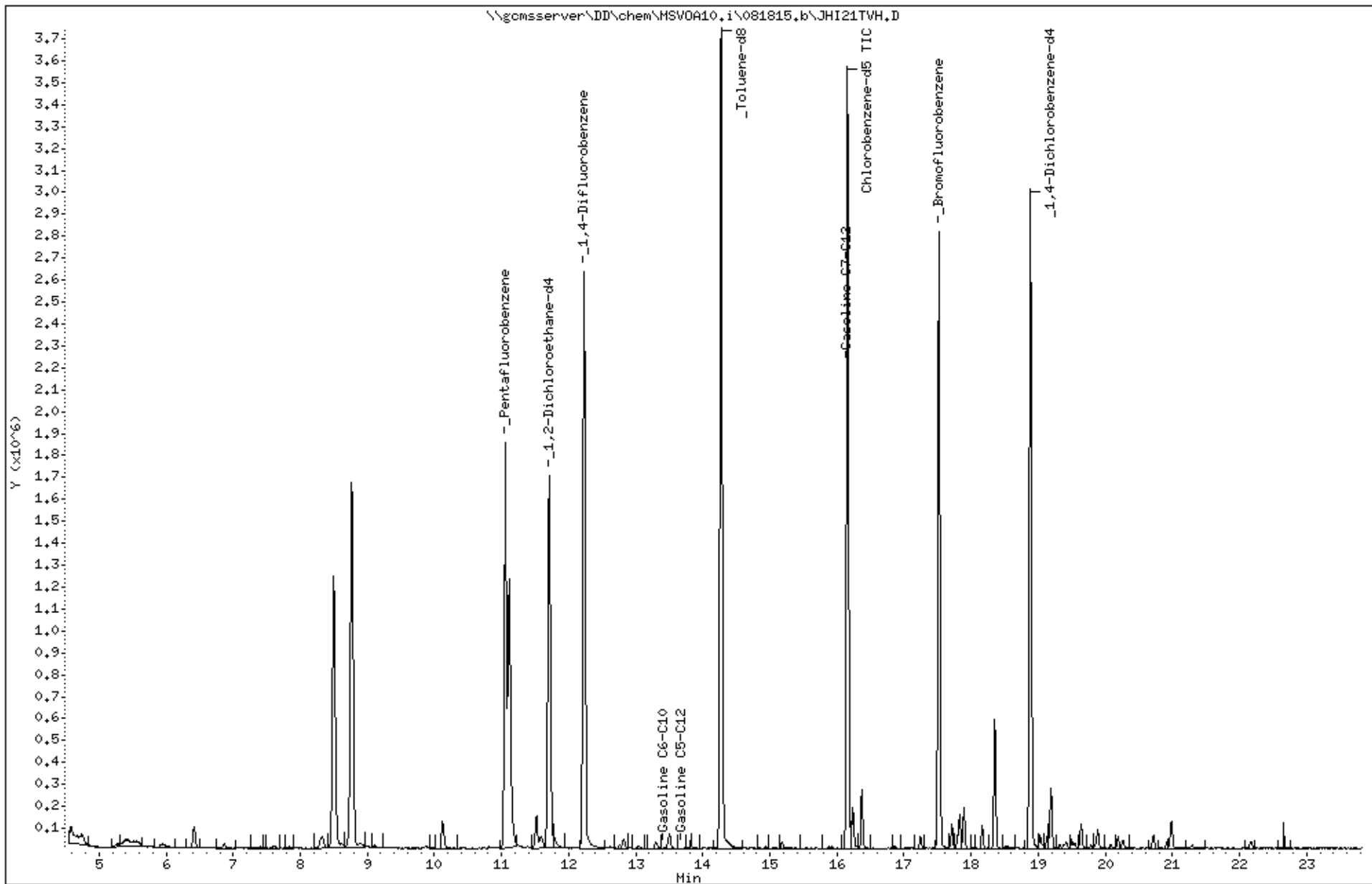
Sample Info: s,269015-003

Instrument: MSV0A10.i

Operator: VOA

Column diameter: 2.00

Column phase:



Date : 17-AUG-2015 15:22

Client ID: DYNA P&T

Sample Info: ccv/bs,qc799709,226179,s27677,.01/100

Instrument: MSV0A09.i

Operator: VOC

Column diameter: 2.00

Column phase:

