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December 31, 2014

RECEIVED

By Alameda County Environmental Health at 10:57 am, Jan 07, 2015

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:

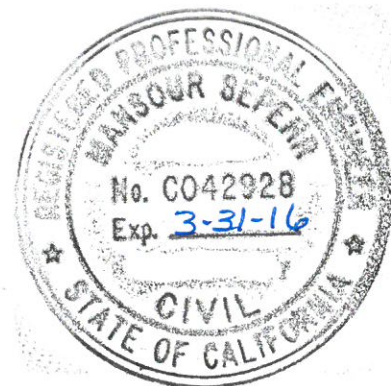
Enclosed for your review is a copy of SOMA's "Fourth Quarter 2014 Groundwater Monitoring Report" for the subject property. It has been uploaded to the State's GeoTracker database and Alameda County's FTP site.

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. Donna Drogos – Alameda County Env. Health



**Fourth Quarter 2014
Groundwater Monitoring Report**

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

December 31, 2014

Project 5081

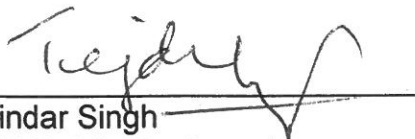
Prepared for

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

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 black 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 Fourth Quarter 2014 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 Fourth Quarter 2014 groundwater monitoring event conducted at the site on November 13, 2014. 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.

1.2 Summary of Field Activities and Laboratory Analysis

1.2.1 Field Activities

On November 13, 2014, four monitoring wells (RS-3, RS-4, MW-1 and MW-2) were measured for depth to groundwater. Additional field measurements and groundwater samples were collected from RS-3, MW-1, and MW-2. 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 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).

However, due to instrument issues, the laboratory was unable to analyze TPH-g by EPA method 8260. These samples were instead analyzed by EPA Method 8015.

2. RESULTS

Results of field measurements and laboratory analyses for the groundwater monitoring event conducted on November 13, 2014 follow below.

2.1 Field Measurements

Monitoring wells MW-1, MW-2, RS-3 and RS-4 were measured for depth to groundwater (Table 1). Depths to groundwater ranged from 6.53 feet in RS-3 to 9.56 feet in RS-4. Groundwater elevations ranged from 665.71 feet in RS-4 to 669.55 feet in RS-3.

Figure 3 displays the groundwater elevation map. The groundwater flows southeasterly at a gradient of 0.065 ft/ft. Since the previous monitoring event (August 2014), the groundwater flow direction has remained southeasterly and the gradient has slightly 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. Detectable concentrations ranged from 1,000 µg/L in MW-2 to 7,400 µg/L in MW-1. Since the previous monitoring event (August 2014), TPH-g concentrations decreased in RS-4, MW-1, and MW-2 and remained below laboratory-reporting limits in RS-3. Figure 4 shows a contour 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 detected in concentrations ranging from 58 µg/L in RS-3 to 7,900 µg/L in MW-1. Since the previous monitoring event (August 2014), TPH-d has decreased in all groundwater samples. 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.

The following BTEX concentrations were observed during this monitoring event:

- All BTEX analytes were below laboratory-reporting limits in RS-3.
- All BTEX analytes except xylenes were below laboratory-reporting limits in RS-4.
- Benzene was detected in MW-1 and MW-2 at 270 µg/L and 120 µg/L, respectively. Since the previous monitoring event (August 2014) benzene has increased slightly in MW-2 and decreased in MW-1. 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.
- Since the previous monitoring event (August 2014) toluene has remained below the laboratory-reporting limit in all wells.
- Ethylbenzene was detected in MW-1 and MW-2 at 360 µg/L and 11 µg/L, respectively. Since the previous monitoring event (August 2014) ethylbenzene has decreased in RS-4, MW-1, and MW-2, and remained below laboratory-reporting limit in RS-4.
- Total xylenes was detected in RS-4 and MW-1 at 36 µg/L and 880 µg/L, respectively. Since the previous monitoring event (August 2014), total xylenes increased in RS-4 and MW-1, decreased in MW-2, and remained below laboratory-reporting limit in RS-3.

Methyl tertiary-butyl ether (MtBE) concentrations ranged from 19 µg/L in RS-3 to 11,000 µg/L in RS-4. Since the previous monitoring event (August 2014), MtBE has increased in RS-4 and MW-2 and decreased in RS-3 and MW-1. Figure 6 shows a contour map of MtBE concentrations in groundwater. The MtBE plume appears to be centered to the southeast of the pump islands in the vicinity of RS-4.

Tertiary-butyl alcohol (TBA) was below laboratory-reporting limit in RS-3. Detectable TBA concentrations ranged from 12,000 µg/L in MW-1 to 22,000 µg/L in MW-2. Since the previous monitoring event (August 2014), TBA decreased in RS-4, MW-1, and MW-2 and remained below laboratory-reporting limits in RS-3. 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) concentrations ranged from 0.60 µg/L in RS-3 to 910 µg/L in RS-4 and MW-1. Since the previous monitoring event (August 2014), TAME has increased in RS-4 and MW-2 and decreased in RS-3 and MW-1. Figure 8 shows a contour map of TAME concentrations in groundwater. The

highest TAME concentrations were detected to the southeast and southwest of the pump islands in the vicinity of RS-4 and MW-1, respectively.

3. CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations based on results of Fourth Quarter 2014 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, total xylenes, and TAME concentrations were detected to the southwest of the pump islands around MW-1. The highest MtBE concentrations were detected to the southeast of the pump islands around RS-4 and the highest TBA concentrations were detected in the vicinity of pump islands around MW-2.
- Since the previous monitoring event in August 2014, TPH-g decreased in RS-4, MW-1, and MW-2; TPH-d decreased in all groundwater samples; benzene increased slightly in MW-2 and decreased in MW-1; MtBE and TAME increased in RS-4 and MW-2 and decreased in RS-3 and MW-1; and TBA decreased in RS-4, MW-1, and MW-2.
- Decreased concentrations indicate that contaminants are being stripped and removed from the subsurface and demonstrates the effectiveness of the extended MPE event.
- SOMA will continue conducting quarterly groundwater monitoring events at the site.
- SOMA submitted a report documenting the details and results of the recent MPE event dated December 12, 2014. The report recommended installing a 4-inch diameter MPE/monitoring well in the vicinity of T-1 to be utilized during the next MPE event and to monitor elevated levels of chemicals in groundwater.

The report also recommended conducting another MPE event at the site utilizing MW-1, MW-2, RS-4 and new well as proposed above as extraction wells in order to further reduce contaminant concentrations in the vicinity of these wells

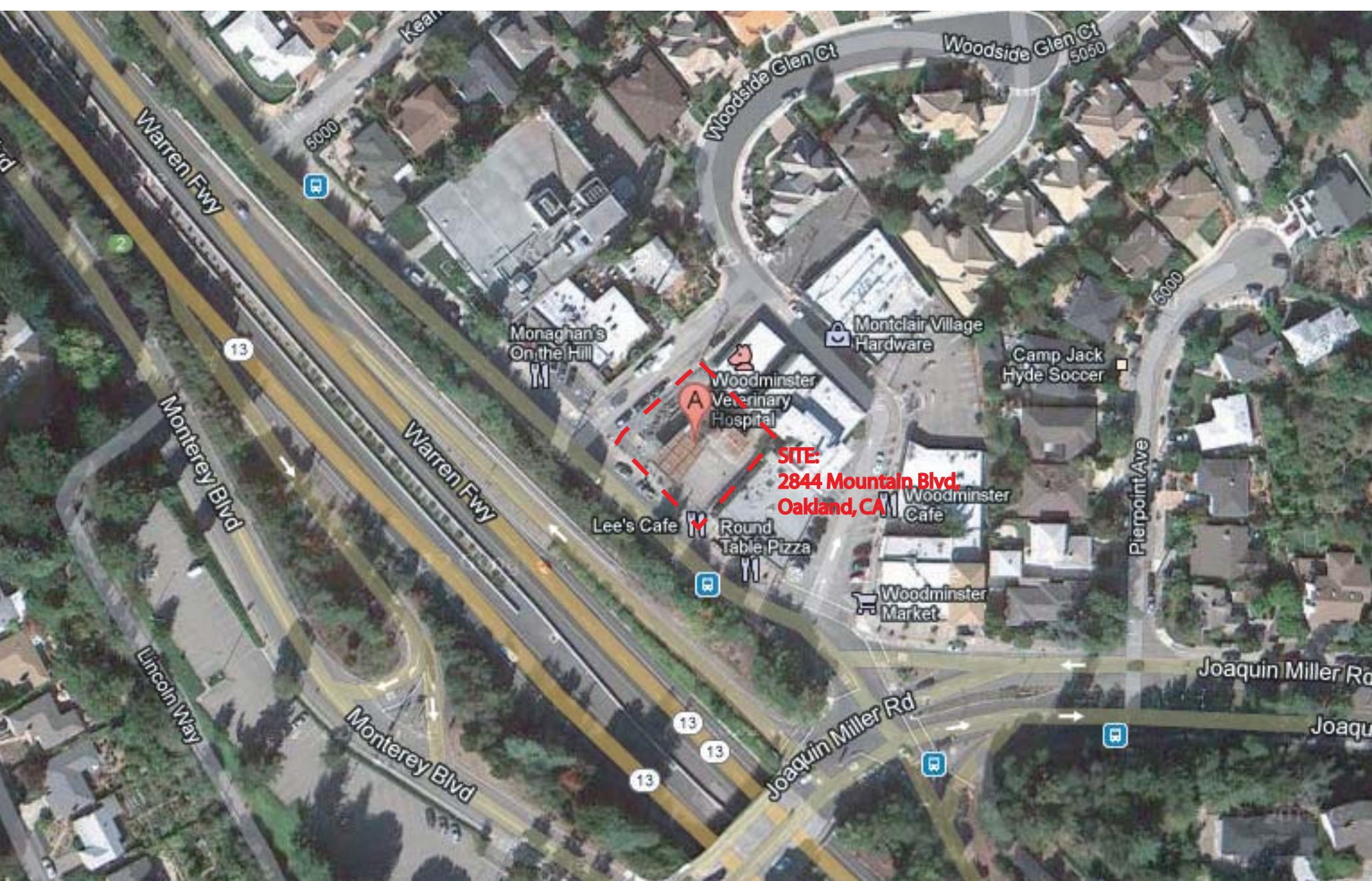
4. REPORT LIMITATIONS

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

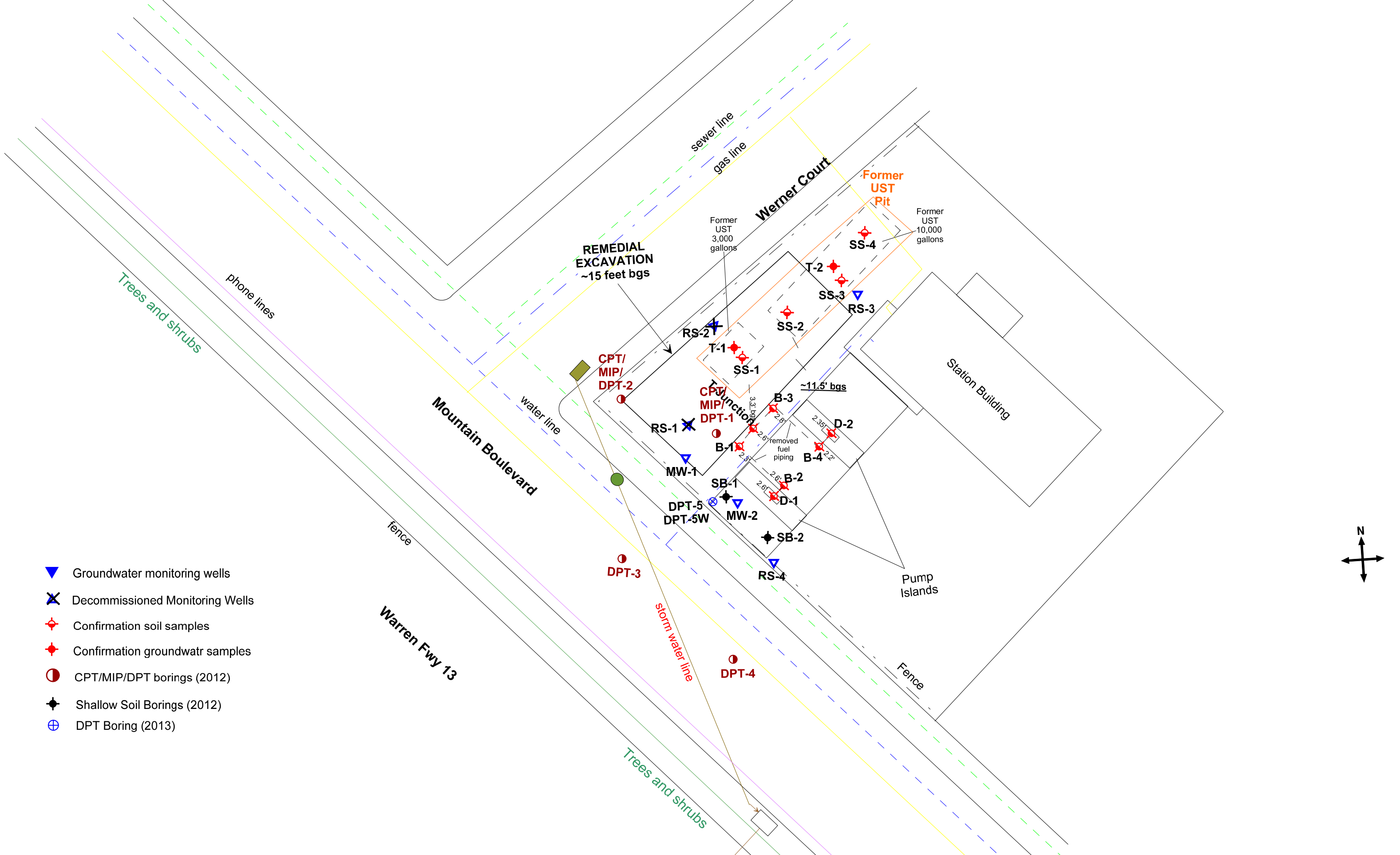


approximate scale in feet



Figure 1: Site Vicinity Map





- Groundwater monitoring wells
- Decommissioned Monitoring Wells
- Confirmation soil samples
- Confirmation groundwater samples
- CPT/MIP/DPT borings (2012)
- Shallow Soil Borings (2012)
- DPT Boring (2013)

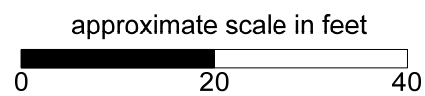


Figure 2: Site Map Showing Locations of Former USTs, Soil Borings, and Groundwater Monitoring Wells

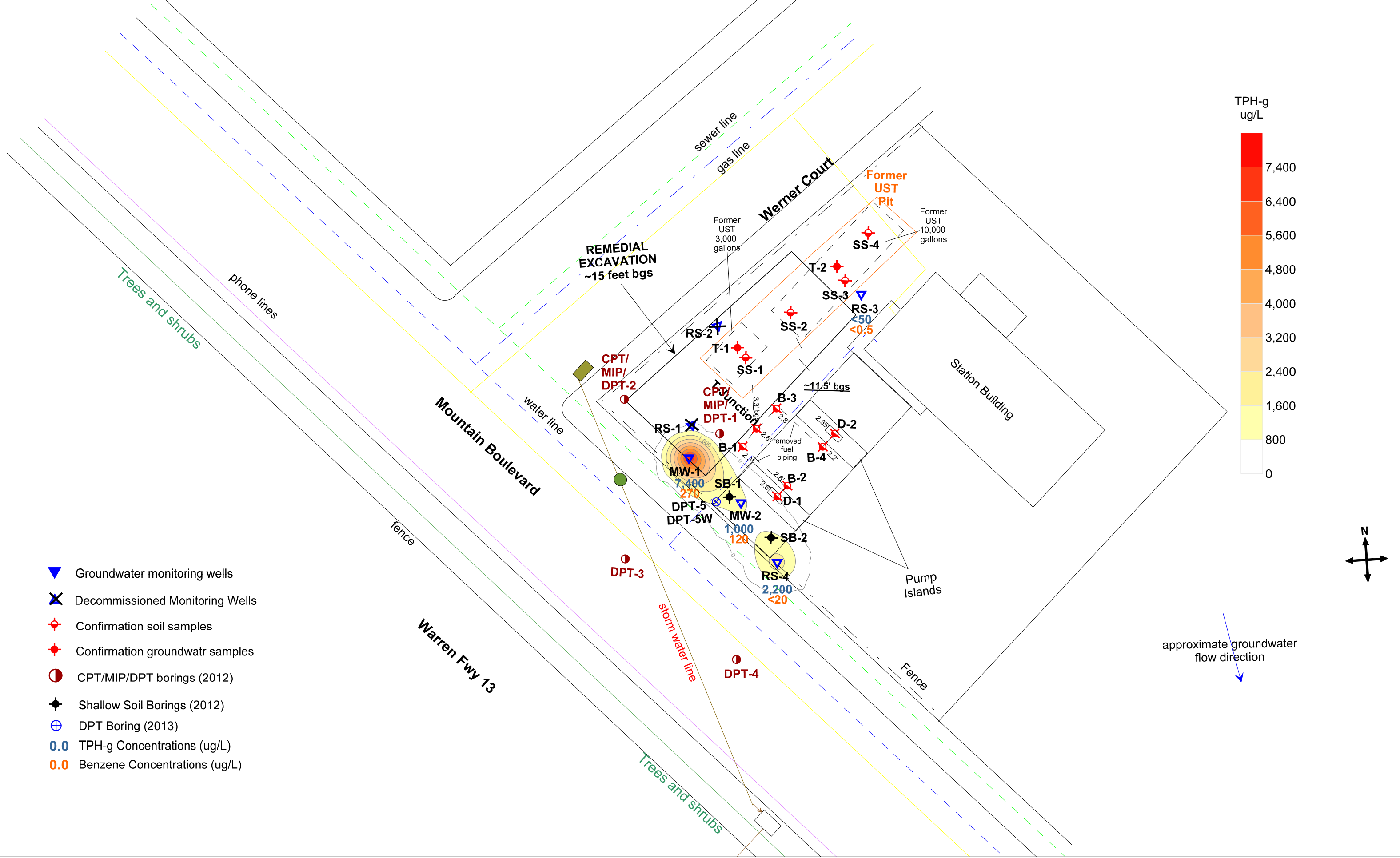
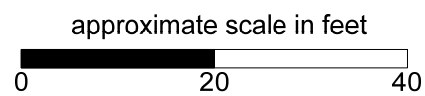
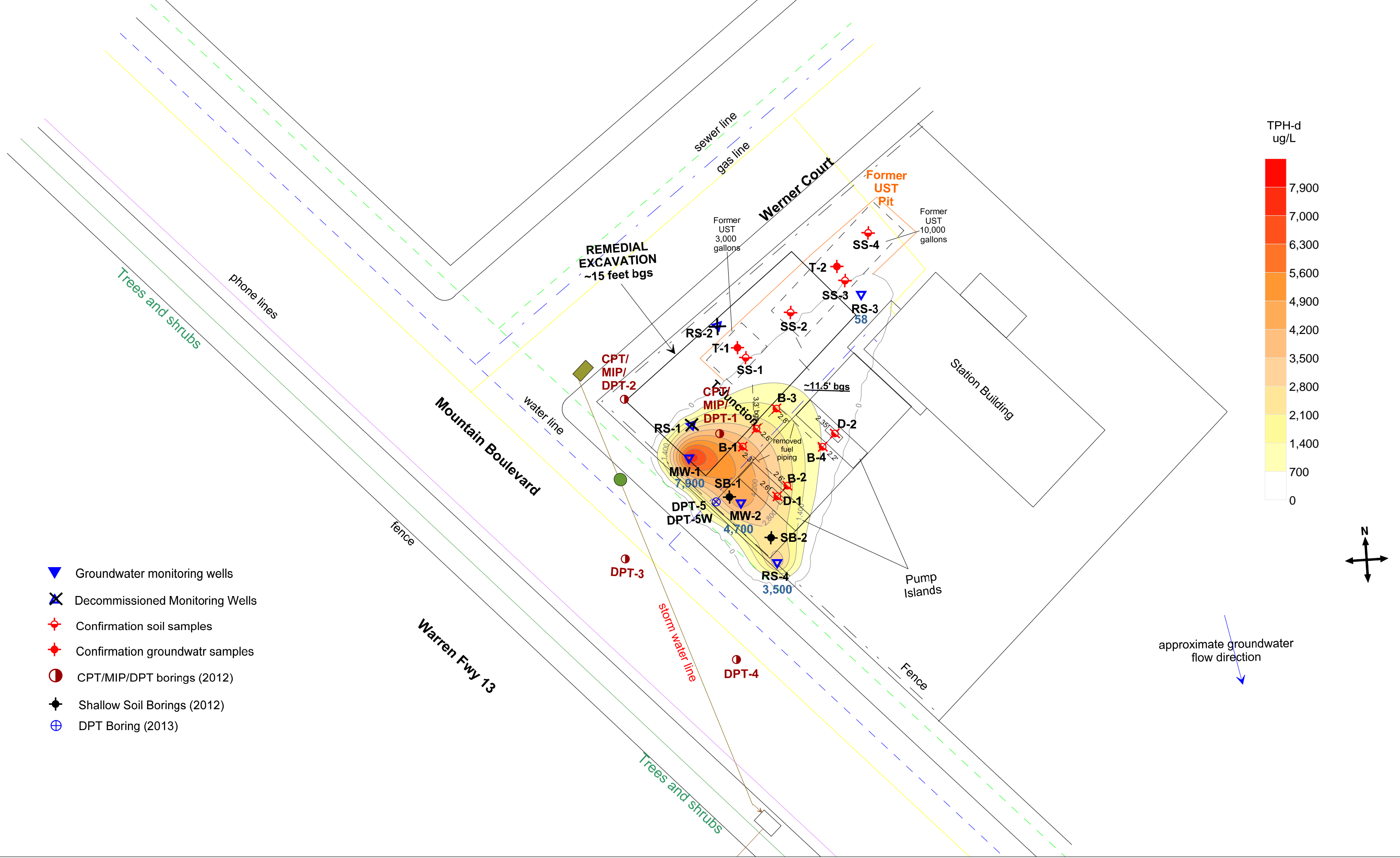


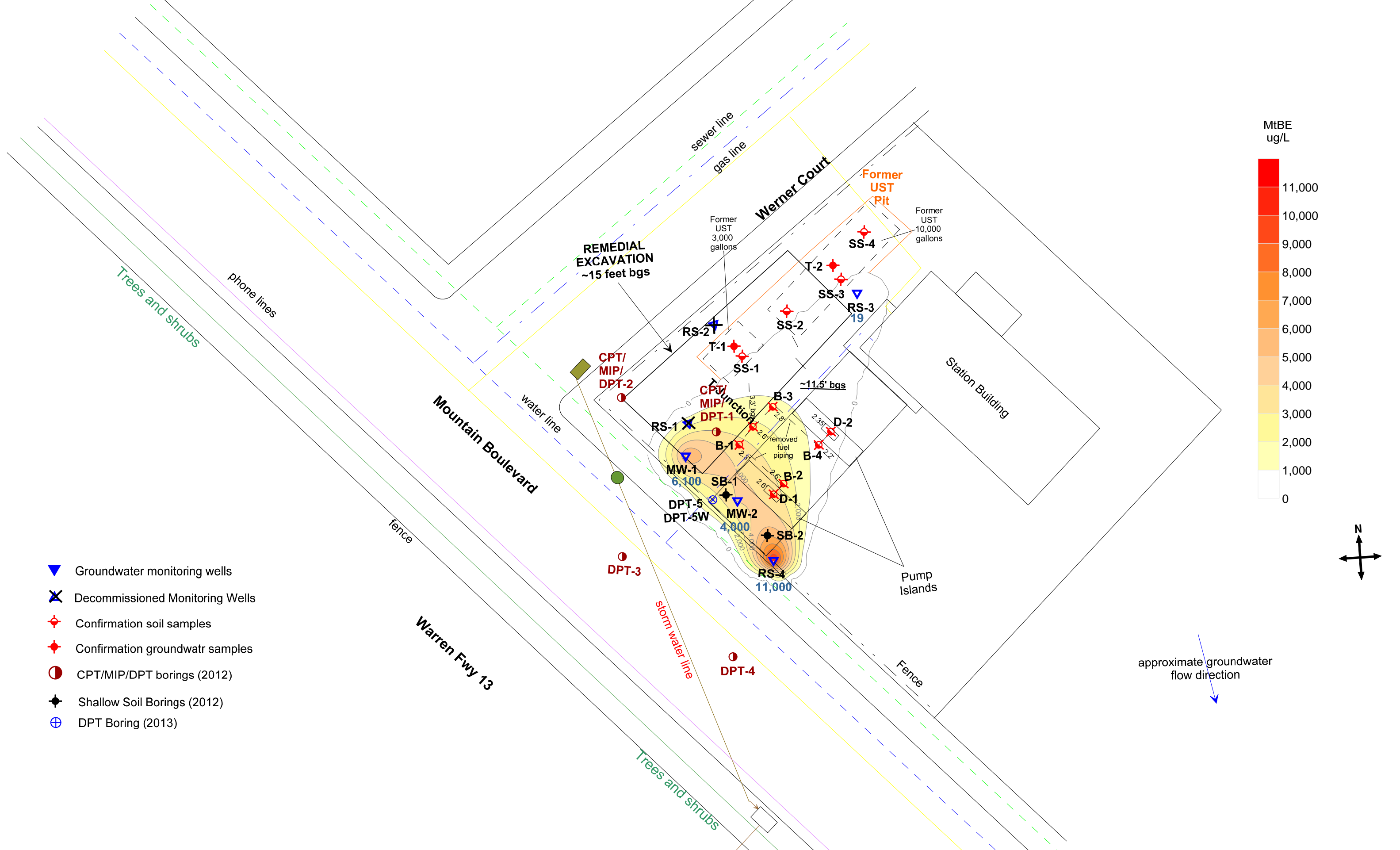
Figure 4: Contour Map Showing TPH-g Concentrations and Map of Benzene Concentrations in Groundwater, November 13, 2014





approximate scale in feet
 0 20 40

Figure 5: Contour Map Showing TPH-d Concentrations in Groundwater, November 13, 2014



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

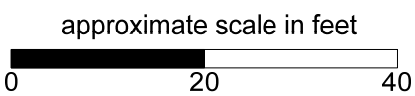
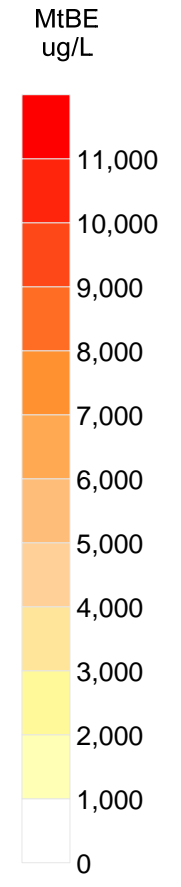


Figure 6: Contour Map Showing MtBE Concentrations in Groundwater, November 13, 2014

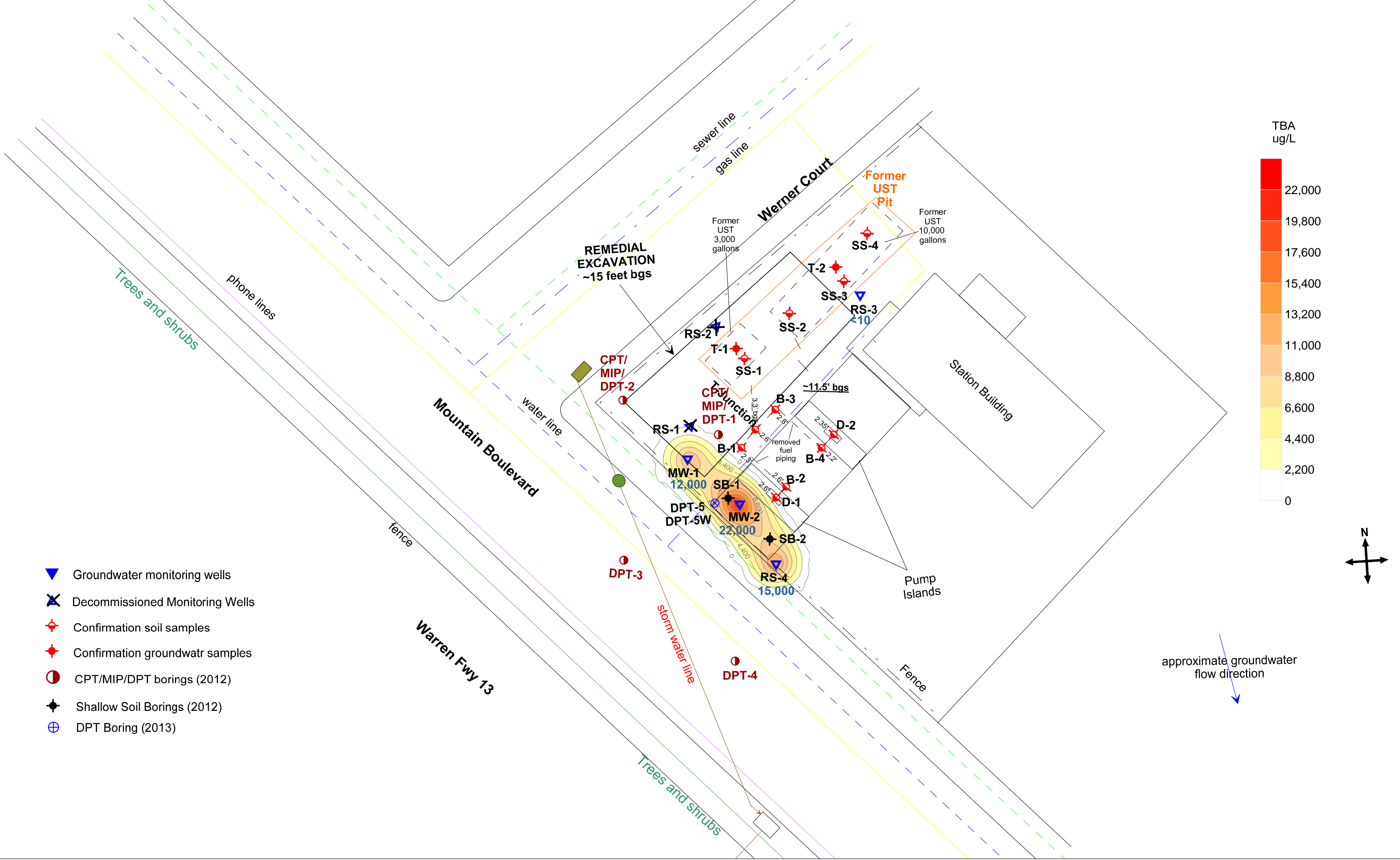
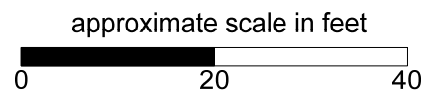


Figure 7: Contour Map Showing TBA Concentrations in Groundwater, November 13, 2014



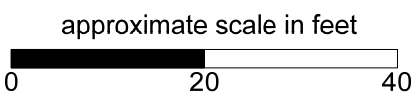
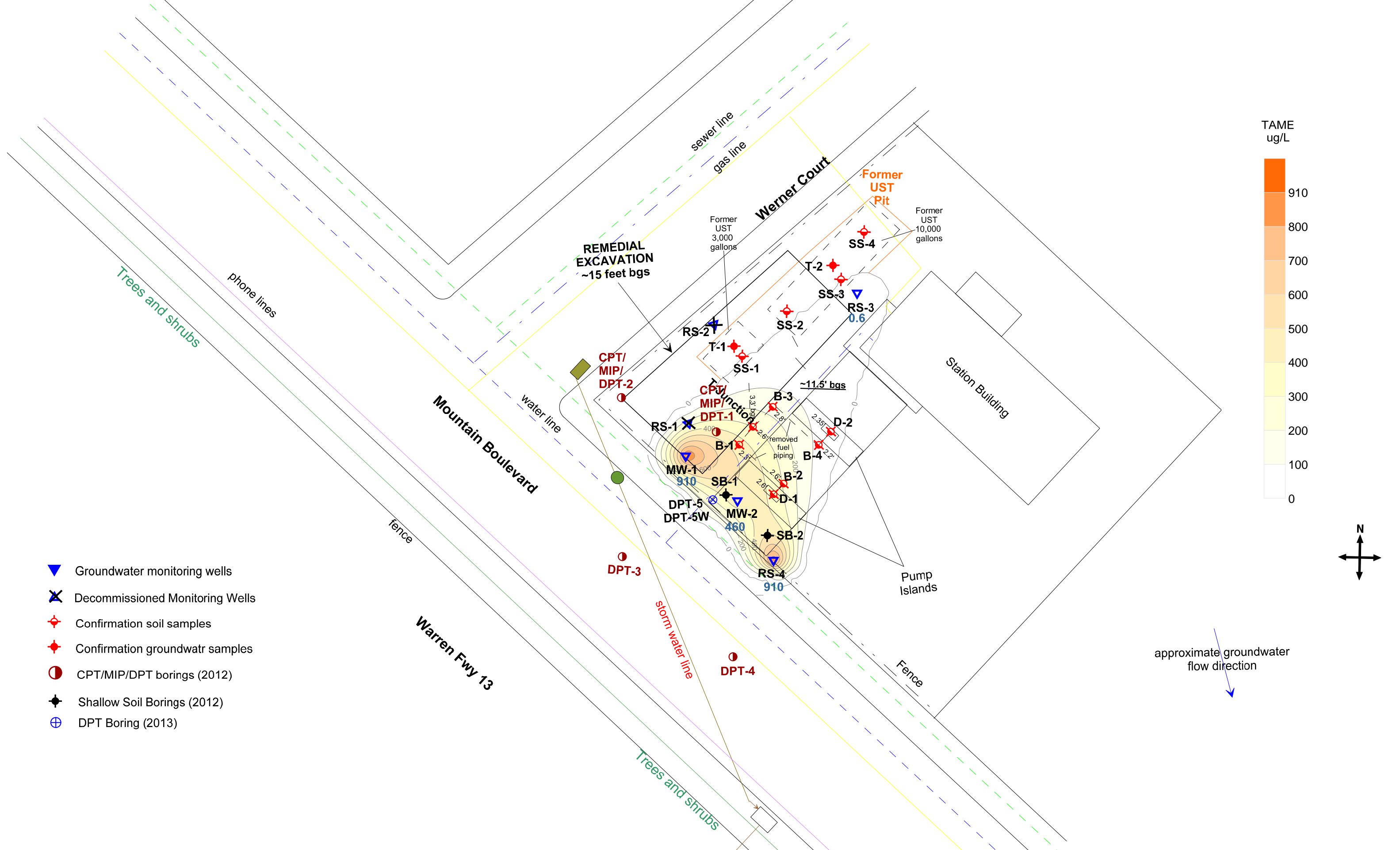


Figure 8: Contour Map Showing TAME Concentrations in Groundwater, November 13, 2014

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			

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.	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			
	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			

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-3 cont.	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		
	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	
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			

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-4 cont.	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	40	<36	40	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	
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
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
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

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

E. Espinoza
6/03/13

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



ENVIRONMENTAL ENGINEERING, INC

Well No.: RS-3
 Casing Diameter: 4 inches
 Depth of Well: 24.99 feet
 Top of Casing Elevation: 676.08 feet
 Depth to Groundwater: 6.53 feet
 Groundwater Elevation: 669.55 feet
 Water Column Height: 18.46 feet
 Purged Volume: 12 gallons

Project No.: 5081
 Address: 2844 Mountain Blvd.
 Oakland, CA
 Date: November 13, 2014
 Sampler: Lizzie Hightower

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)
10:33	Started purging well			
10:34	3	6.26	19.7	839
10:35	6	6.32	20.2	837
10:36	9	6.34	20.6	834
10:37	12	6.34	20.8	834
10:42	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: 9.56 feet
 Groundwater Elevation: 665.71 feet
 Water Column Height: 15.98 feet
 Purged Volume: - gallons
Not purged

Project No.: 5081
 Address: 2844 Mountain Blvd.
 Oakland, CA
 Date: November 13, 2014
 Sampler: Lizzie Hightower

Purging Method: Bailer Pump
 Sampling Method: Bailer Pump

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

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
<u>11:52</u>	<u>Grab</u>	<u>Sample</u>		

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: 7.36 feet
 Groundwater Elevation: 667.56 feet
 Water Column Height: 12.39 feet
 Purged Volume: 12 gallons

Project No.: 5081
 Address: 2844 Mountain Blvd.
 Oakland, CA
 Date: November 13, 2014
 Sampler: Lizzie Hightower

Purging Method: Bailer Pump

Sampling Method: Bailer Pump

Color: Yes No Describe: _____

Sheen: Yes No Describe: _____

Odor: Yes No Describe: Slight Petro

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
11:01	started purging well			
11:02	3	6.06	20.0	892
11:03	6	6.11	21.1	821
11:04	9	6.14	21.4	809
11:05	12	6.19	21.5	815
11:10	sampled			

Notes:



ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-2 Project No.: 5081
 Casing Diameter: 4 inches Address: 2844 Mountain Blvd.
 Depth of Well: 19.74 feet Oakland, CA
 Top of Casing Elevation: 675.02 feet Date: November 13, 2014
 Depth to Groundwater: 8.12 feet Sampler: Lizzie Hightower
 Groundwater Elevation: 666.90 feet
 Water Column Height: 11.62 feet
 Purged Volume: 12 gallons

Purging Method: Bailer Pump

Sampling Method: Bailer Pump

Color: Yes No Describe: Cloudy

Sheen: Yes No Describe: _____

Odor: Yes No Describe: Slight Petro

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
11:26	Started purging well			
11:27	3	6.60	19.7	991
11:28	6	6.83	20.4	968
11:29	9	6.86	20.9	919
11:30	12	6.84	20.9	932
11:35	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

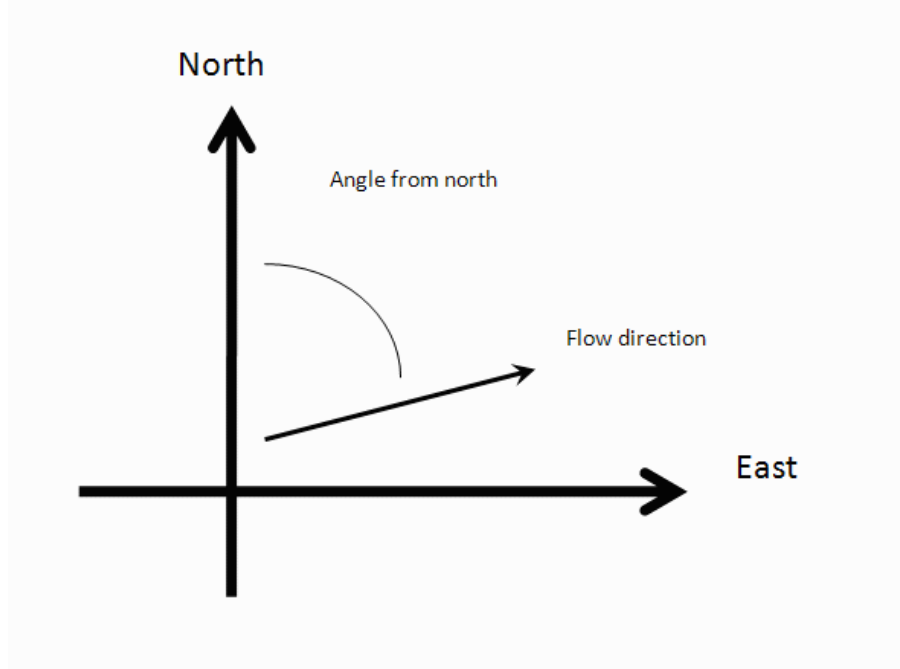
$$\begin{aligned}
 a x_1 + b y_1 + c &= h_1 \\
 a x_2 + b y_2 + c &= h_2 \\
 a x_3 + b y_3 + c &= h_3 \\
 &\dots \\
 a x_{30} + b y_{30} + c &= h_{30}
 \end{aligned}$$

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	669.55	
2) RS-4	6071195.458	2122379.324	665.71	
3) MW-1	6071174.931	2122404.178	667.56	
4) MW-2	6071186.39	2122393.492	666.90	
5)				
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	4
Max. Difference Between Head Values	1.170
Gradient Magnitude (i)	0.06507
Flow direction as degrees from North (positive y axis)	168.6
Coefficient of Determination (R ²)	0.998

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 262548
ANALYTICAL REPORT**

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

<u>Sample ID</u>	<u>Lab ID</u>
RS-3	262548-001
RS-4	262548-002
MW-1	262548-003
MW-2	262548-004

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: 12/01/2014

CASE NARRATIVE

Laboratory number: 262548
Client: SOMA Environmental Engineering Inc.
Project: 5081
Location: 2844 Mountain Blvd., Oakland
Request Date: 11/14/14
Samples Received: 11/14/14

This data package contains sample and QC results for four water samples, requested for the above referenced project on 11/14/14. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):

High surrogate recovery was observed for bromofluorobenzene (FID) in RS-4 (lab # 262548-002). No other analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):

No analytical problems were encountered.

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

No analytical problems were encountered.

COOLER RECEIPT CHECKLIST



Curtis & Tompkins, Ltd.

Login # 262548 Date Received 11/14/14 Number of coolers 2
Client SOMA Environmental Project 5D81

Date Opened 11/14 By (print) SL (sign) [Signature]
Date Logged in 11/14 By (print) ME (sign) [Signature]

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

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
- Foam blocks
- Bags
- None
- Cloth material
- Cardboard
- Styrofoam
- Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: Wet Blue/Gel None Temp(°C) 2.7, 3

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 SL

21. Was the client contacted concerning this sample delivery? _____ YES NO
If YES, Who was called? Puck By T. Babin Date: 11/19 & 11/20

COMMENTS

Must run Gasline by 8:45 at no
charge instructs down for Gas by 8:20

Y = Sample exhibits chromatographic pattern which does not resemble standard

Total Volatile Hydrocarbons			
Lab #:	262548	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	11/13/14
Units:	ug/L	Received:	11/14/14
Batch#:	217914		

Field ID: RS-3 Diln Fac: 1.000
 Type: SAMPLE Analyzed: 11/26/14
 Lab ID: 262548-001

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	114	77-128

Field ID: RS-4 Diln Fac: 1.000
 Type: SAMPLE Analyzed: 11/27/14
 Lab ID: 262548-002

Analyte	Result	RL
Gasoline C7-C12	2,200	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	131 *	77-128

Field ID: MW-1 Diln Fac: 2.000
 Type: SAMPLE Analyzed: 11/27/14
 Lab ID: 262548-003

Analyte	Result	RL
Gasoline C7-C12	7,400	100

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	117	77-128

*= Value outside of QC limits; see narrative
 ND= Not Detected
 RL= Reporting Limit

Total Volatile Hydrocarbons			
Lab #:	262548	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	11/13/14
Units:	ug/L	Received:	11/14/14
Batch#:	217914		

Field ID: MW-2 Diln Fac: 1.000
 Type: SAMPLE Analyzed: 11/27/14
 Lab ID: 262548-004

Analyte	Result	RL
Gasoline C7-C12	1,000	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	115	77-128

Type: BLANK Diln Fac: 1.000
 Lab ID: QC767538 Analyzed: 11/26/14

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	124	77-128

*= Value outside of QC limits; see narrative
 ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Total Volatile Hydrocarbons			
Lab #:	262548	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC767537	Batch#:	217914
Matrix:	Water	Analyzed:	11/26/14
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	993.2	99	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	111	77-128

Batch QC Report

Total Volatile Hydrocarbons			
Lab #:	262548	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	217914
MSS Lab ID:	262741-001	Sampled:	11/19/14
Matrix:	Water	Received:	11/20/14
Units:	ug/L	Analyzed:	11/27/14
Diln Fac:	1.000		

Type: MS Lab ID: QC767581

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	49.16	2,000	1,920	94	74-120

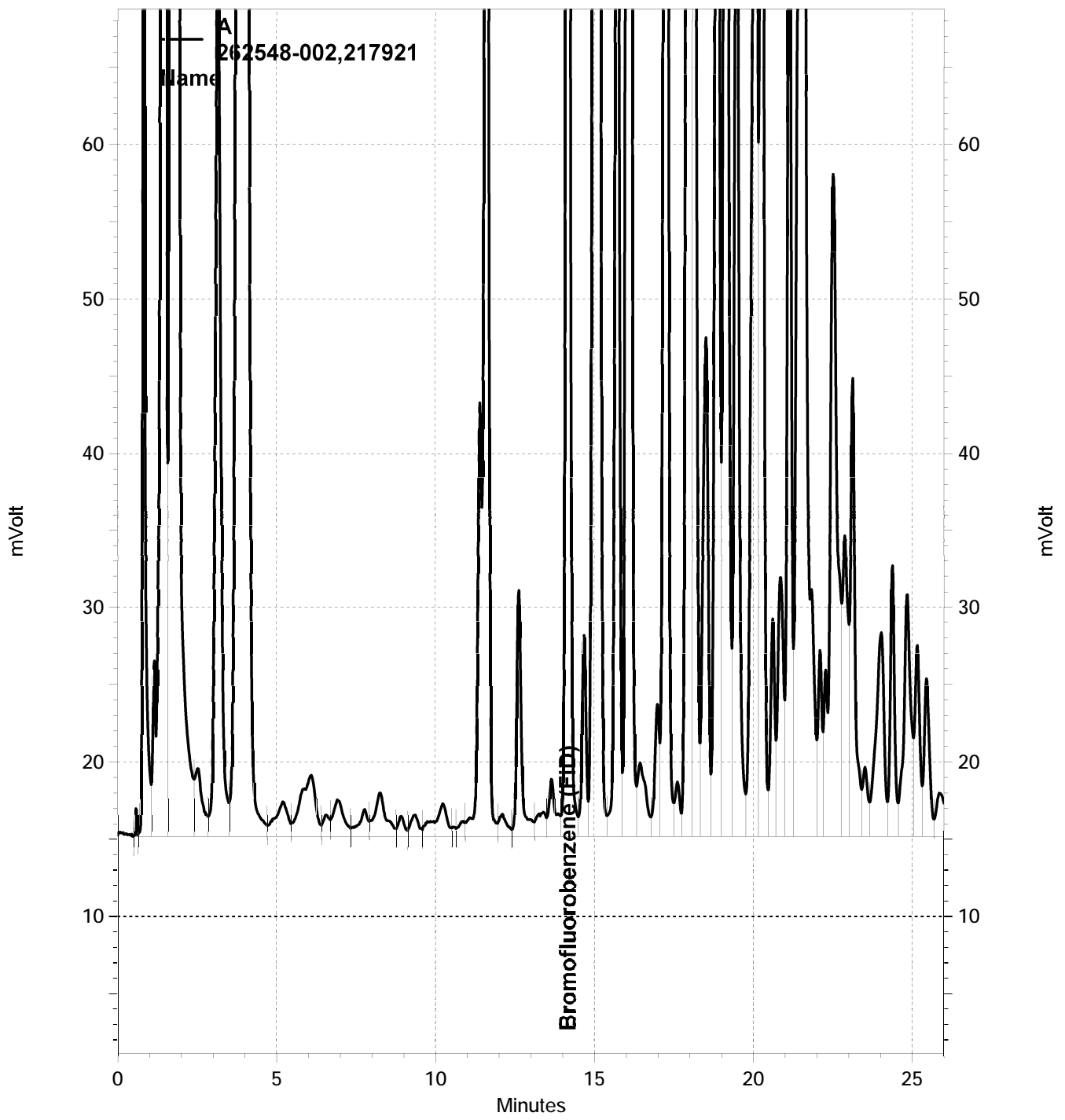
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	124	77-128

Type: MSD Lab ID: QC767582

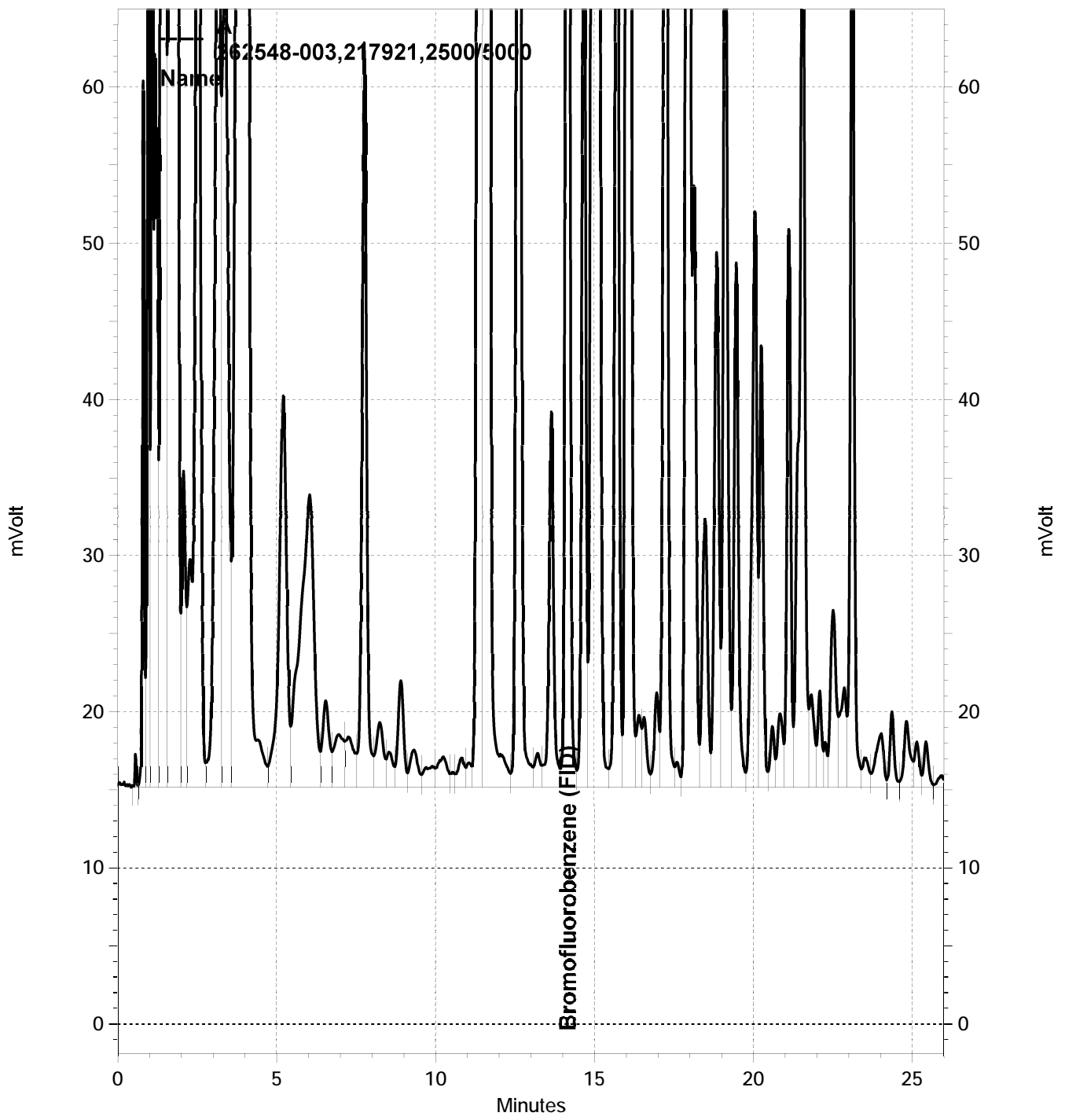
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,950	95	74-120	2	27

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	124	77-128

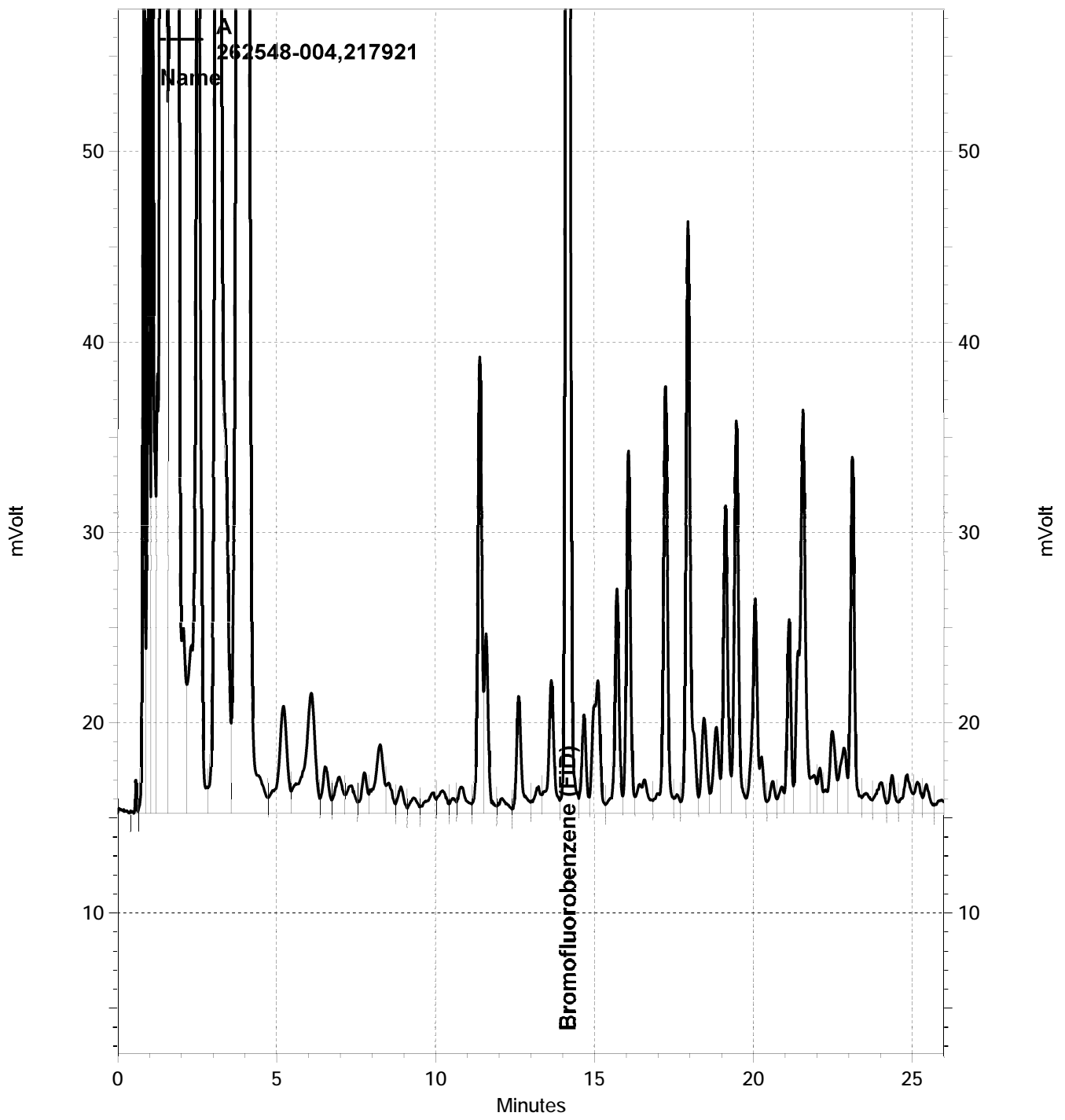
RPD= Relative Percent Difference



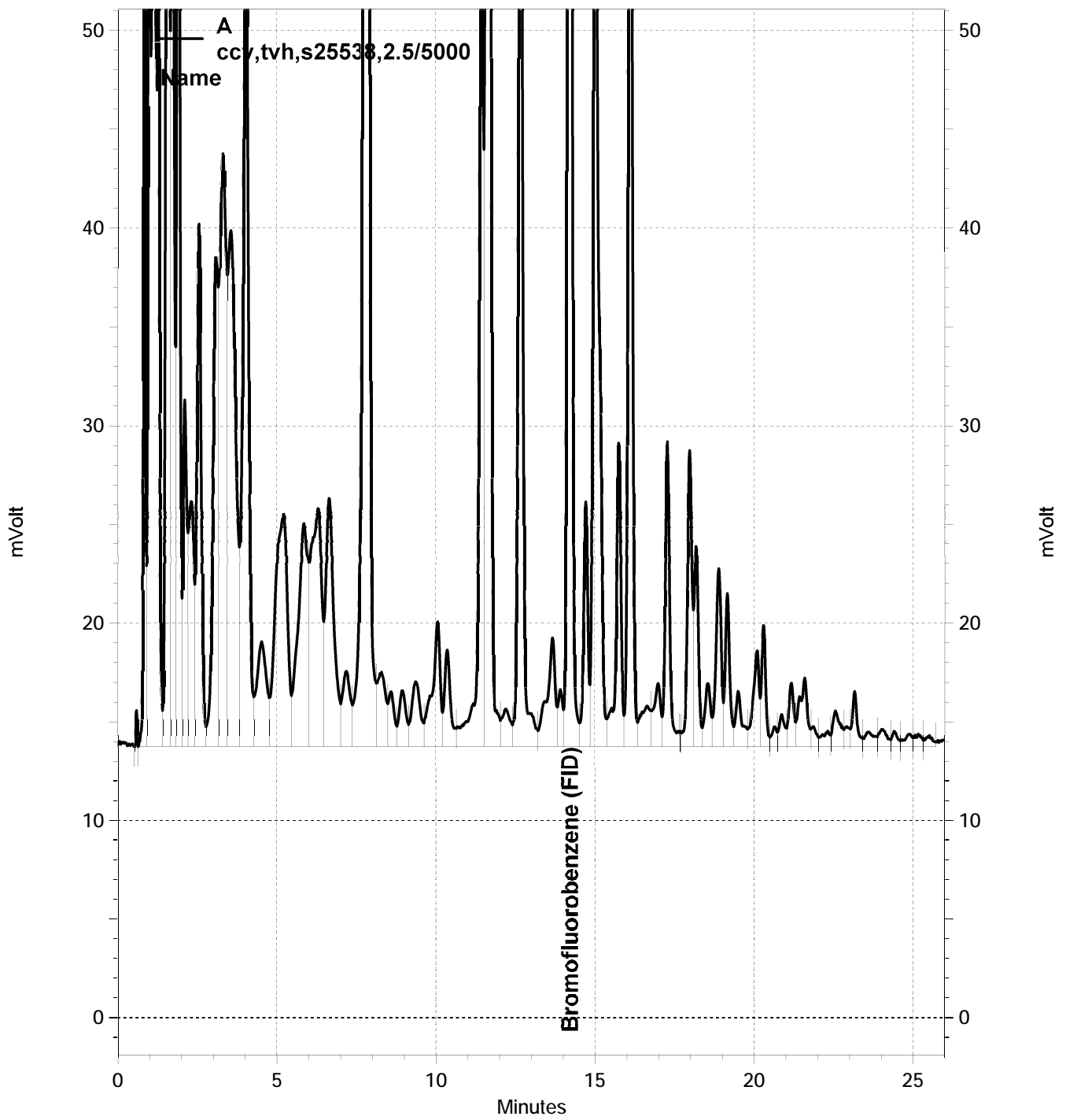
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Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	262548	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5081	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	217602
Units:	ug/L	Prepared:	11/18/14
Diln Fac:	1.000	Analyzed:	11/19/14

Type: BS Cleanup Method: EPA 3630C
 Lab ID: QC766324

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,275	91	61-120

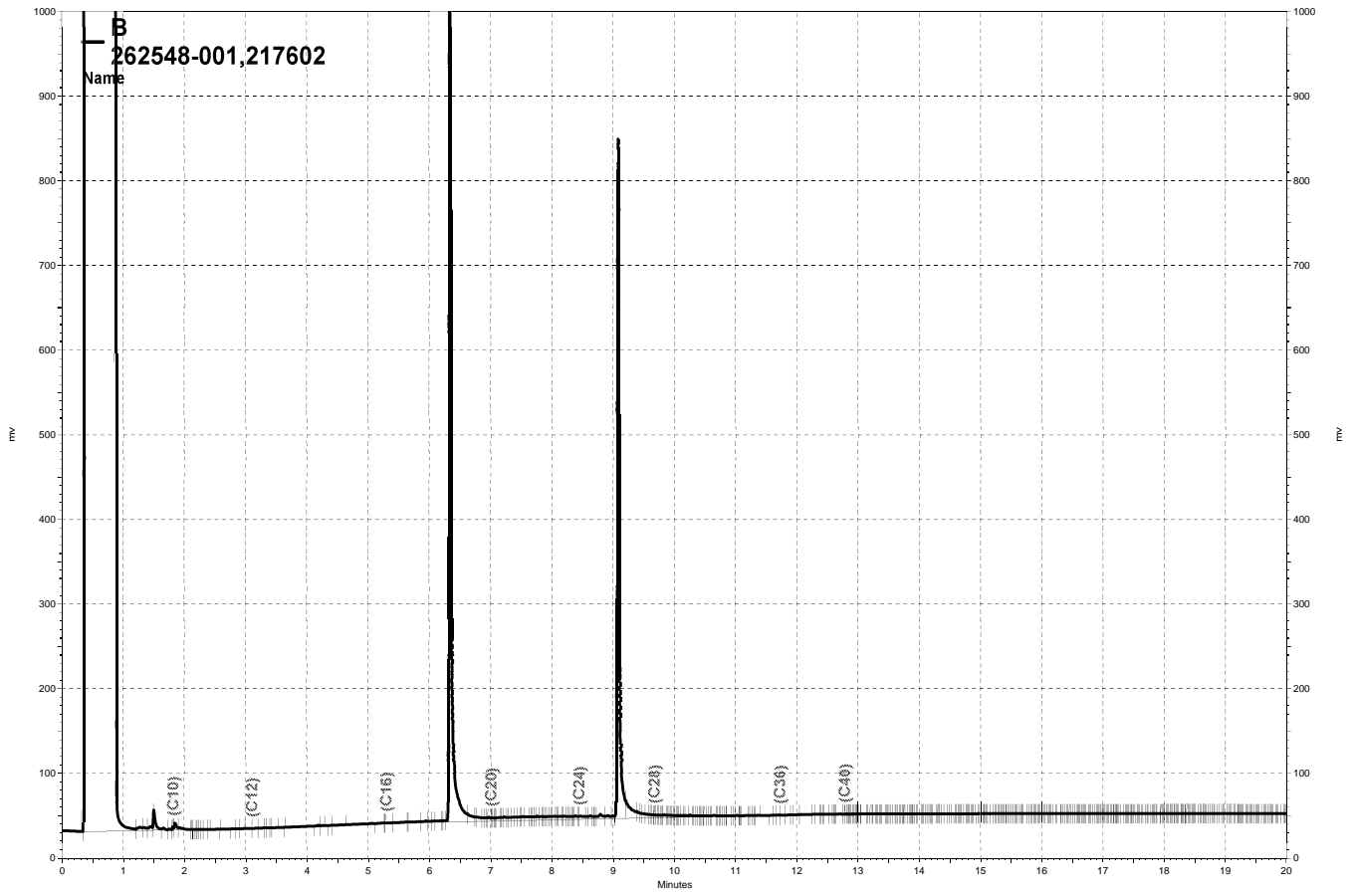
Surrogate	%REC	Limits
o-Terphenyl	113	66-129

Type: BSD Cleanup Method: EPA 3630C
 Lab ID: QC766325

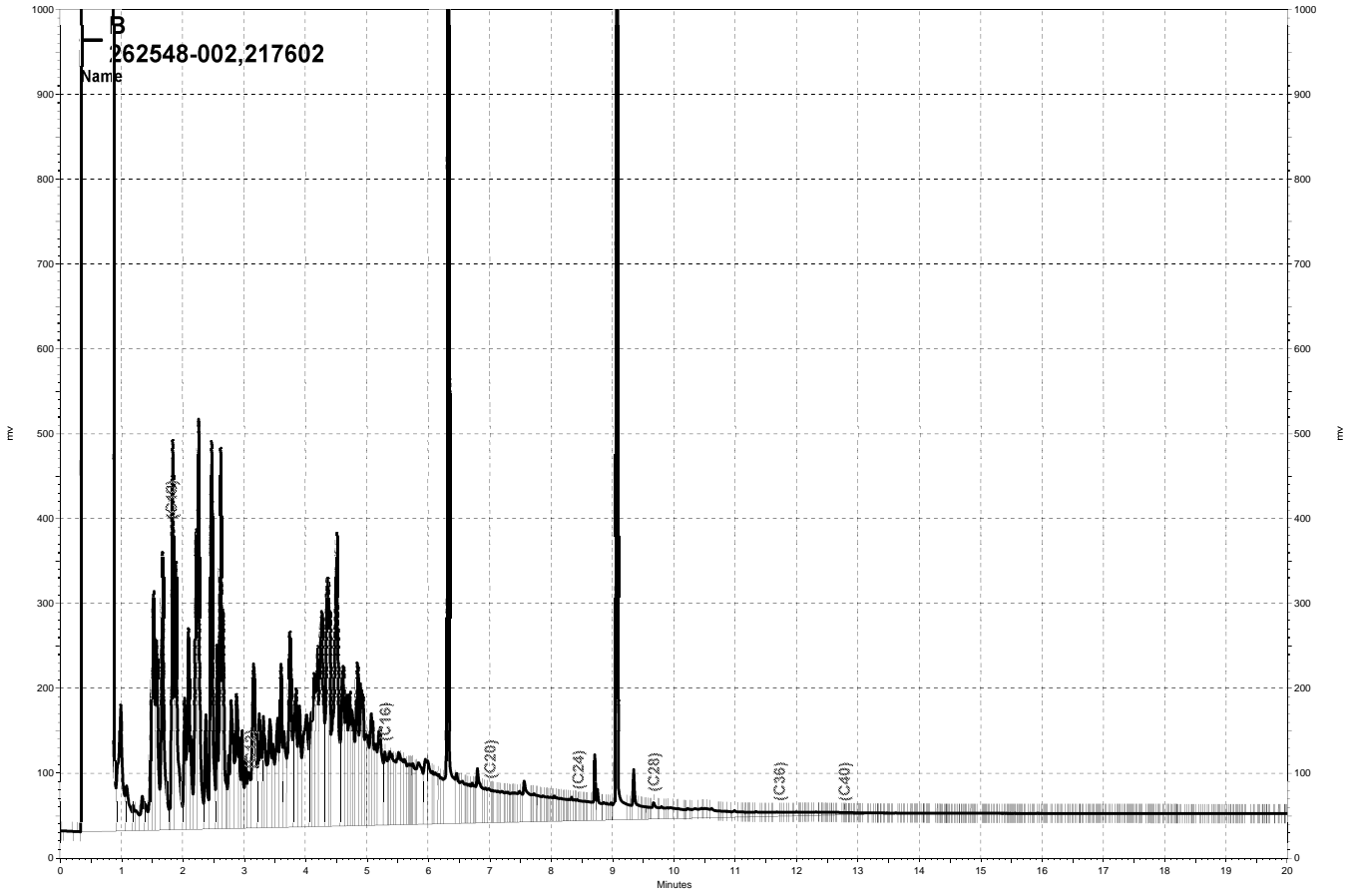
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	1,991	80	61-120	13	45

Surrogate	%REC	Limits
o-Terphenyl	91	66-129

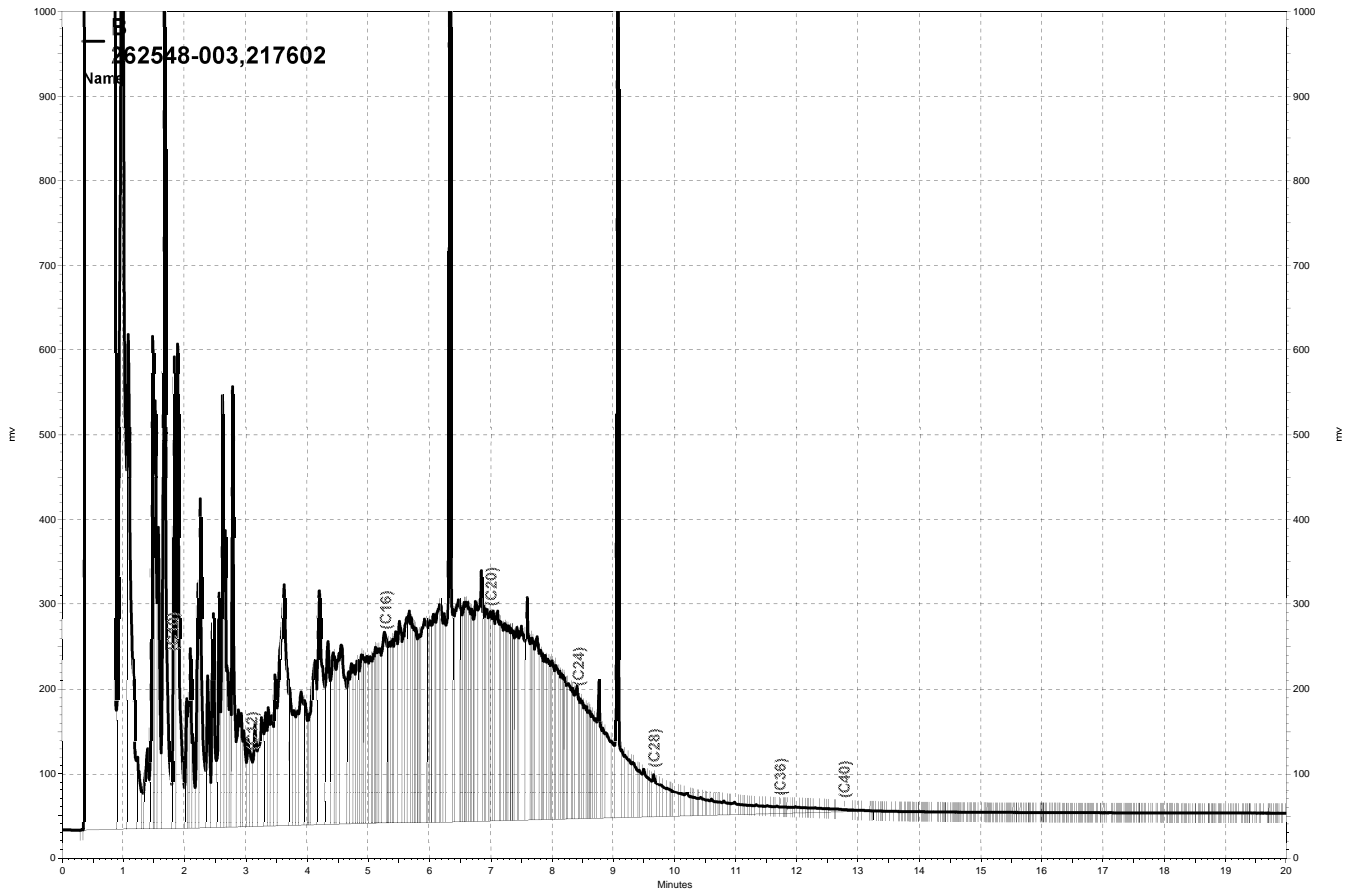
RPD= Relative Percent Difference



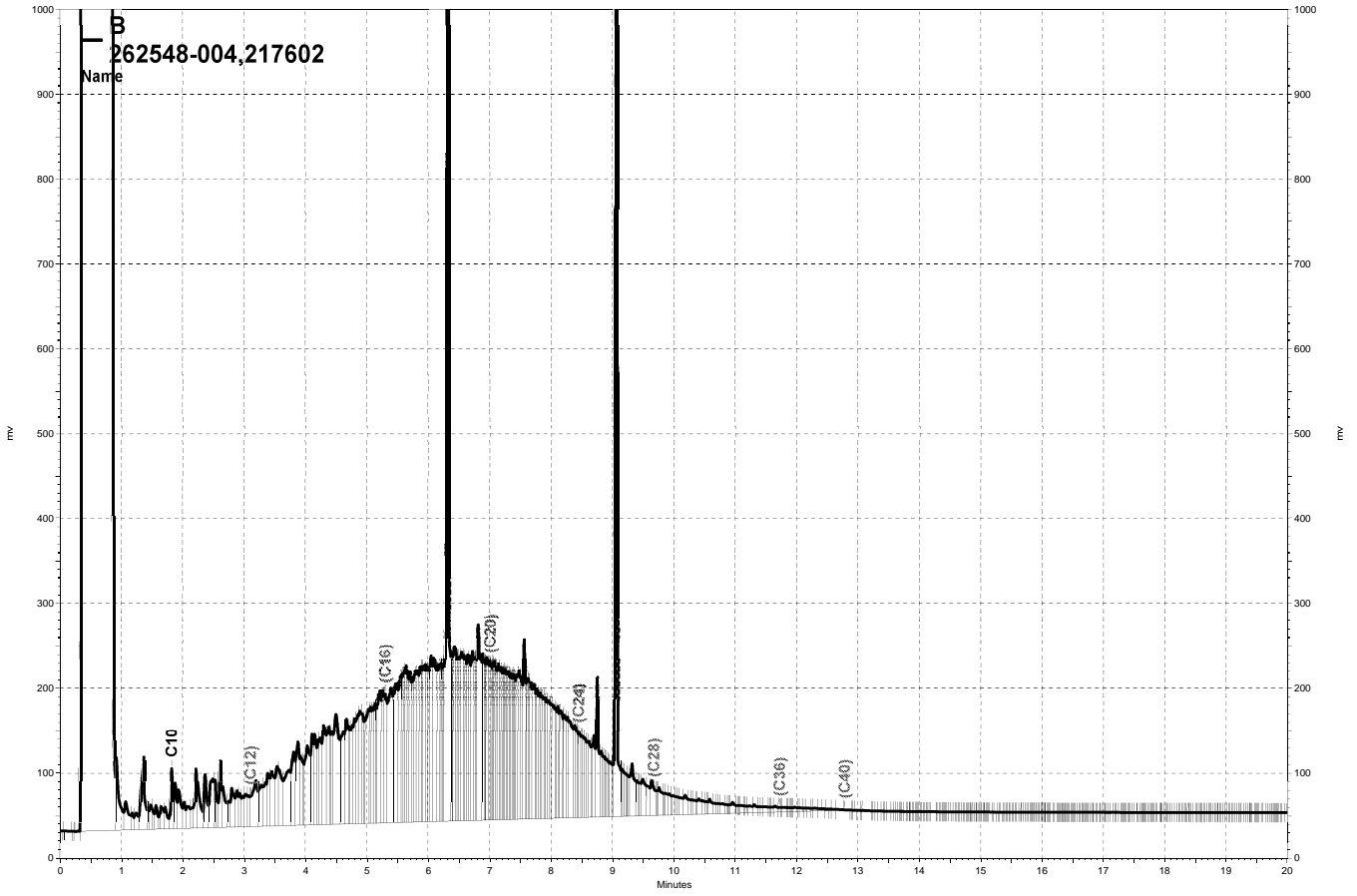
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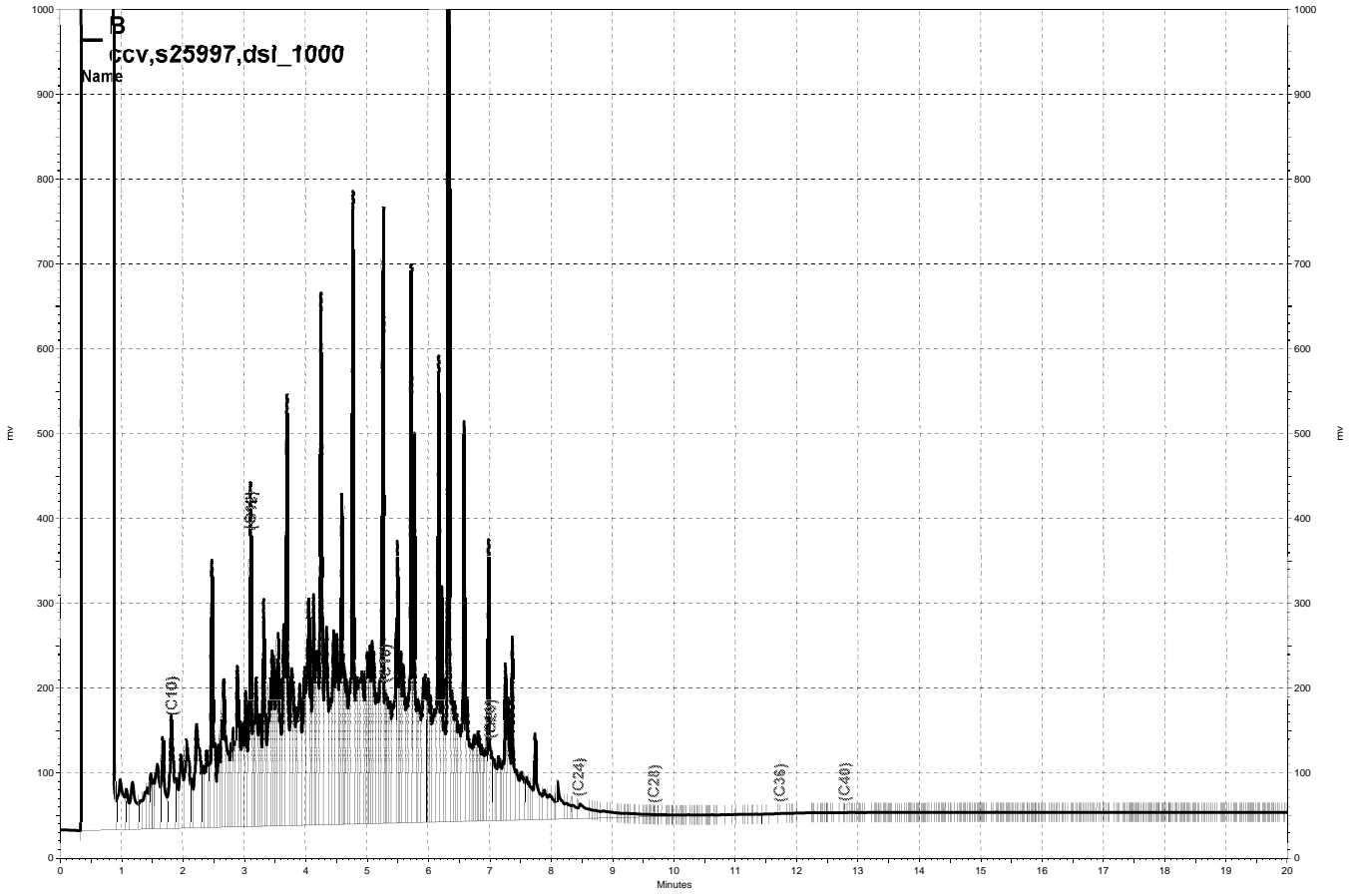
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BTXE & Oxygenates			
Lab #:	262548	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Field ID:	RS-3	Diln Fac:	1.000
Lab ID:	262548-001	Sampled:	11/13/14
Matrix:	Water	Received:	11/14/14
Units:	ug/L		

Analyte	Result	RL	Batch#	Analyzed
tert-Butyl Alcohol (TBA)	ND	10	217928	11/27/14
MTBE	19	0.5	217879	11/26/14
Isopropyl Ether (DIPE)	ND	0.5	217879	11/26/14
Ethyl tert-Butyl Ether (ETBE)	ND	0.5	217879	11/26/14
1,2-Dichloroethane	ND	0.5	217879	11/26/14
Benzene	ND	0.5	217879	11/26/14
Methyl tert-Amyl Ether (TAME)	0.6	0.5	217879	11/26/14
Toluene	ND	0.5	217879	11/26/14
1,2-Dibromoethane	ND	0.5	217879	11/26/14
Ethylbenzene	ND	0.5	217879	11/26/14
m,p-Xylenes	ND	0.5	217879	11/26/14
o-Xylene	ND	0.5	217879	11/26/14

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	108	77-136	217879	11/26/14
1,2-Dichloroethane-d4	100	75-139	217879	11/26/14
Toluene-d8	101	80-120	217879	11/26/14
Bromofluorobenzene	103	80-120	217879	11/26/14

ND= Not Detected
 RL= Reporting Limit

BTXE & Oxygenates			
Lab #:	262548	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:	262548-002	Sampled:	11/13/14
Matrix:	Water	Received:	11/14/14

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
tert-Butyl Alcohol (TBA)	15,000	2,500	250.0	217928	11/27/14
MTBE	11,000	130	250.0	217928	11/27/14
Isopropyl Ether (DIPE)	ND	20	40.00	217879	11/26/14
Ethyl tert-Butyl Ether (ETBE)	ND	20	40.00	217879	11/26/14
1,2-Dichloroethane	ND	20	40.00	217879	11/26/14
Benzene	ND	20	40.00	217879	11/26/14
Methyl tert-Amyl Ether (TAME)	910	20	40.00	217879	11/26/14
Toluene	ND	20	40.00	217879	11/26/14
1,2-Dibromoethane	ND	20	40.00	217879	11/26/14
Ethylbenzene	ND	20	40.00	217879	11/26/14
m,p-Xylenes	36	20	40.00	217879	11/26/14
o-Xylene	ND	20	40.00	217879	11/26/14

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	111	77-136	40.00	217879	11/26/14
1,2-Dichloroethane-d4	104	75-139	40.00	217879	11/26/14
Toluene-d8	102	80-120	40.00	217879	11/26/14
Bromofluorobenzene	105	80-120	40.00	217879	11/26/14

ND= Not Detected
 RL= Reporting Limit

BTXE & Oxygenates			
Lab #:	262548	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Field ID:	MW-1	Diln Fac:	125.0
Lab ID:	262548-003	Sampled:	11/13/14
Matrix:	Water	Received:	11/14/14
Units:	ug/L		

Analyte	Result	RL	Batch#	Analyzed
tert-Butyl Alcohol (TBA)	12,000	1,300	217928	11/27/14
MTBE	6,100	63	217928	11/27/14
Isopropyl Ether (DIPE)	ND	63	217879	11/26/14
Ethyl tert-Butyl Ether (ETBE)	ND	63	217879	11/26/14
1,2-Dichloroethane	ND	63	217879	11/26/14
Benzene	270	63	217879	11/26/14
Methyl tert-Amyl Ether (TAME)	910	63	217879	11/26/14
Toluene	ND	63	217879	11/26/14
1,2-Dibromoethane	ND	63	217879	11/26/14
Ethylbenzene	360	63	217879	11/26/14
m,p-Xylenes	750	63	217879	11/26/14
o-Xylene	130	63	217879	11/26/14

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	109	77-136	217879	11/26/14
1,2-Dichloroethane-d4	103	75-139	217879	11/26/14
Toluene-d8	103	80-120	217879	11/26/14
Bromofluorobenzene	106	80-120	217879	11/26/14

ND= Not Detected
 RL= Reporting Limit

BTXE & Oxygenates			
Lab #:	262548	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Field ID:	MW-2	Units:	ug/L
Lab ID:	262548-004	Sampled:	11/13/14
Matrix:	Water	Received:	11/14/14

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
tert-Butyl Alcohol (TBA)	22,000	830	83.33	217928	11/27/14
MTBE	4,000	42	83.33	217928	11/27/14
Isopropyl Ether (DIPE)	ND	8.3	16.67	217879	11/26/14
Ethyl tert-Butyl Ether (ETBE)	ND	8.3	16.67	217879	11/26/14
1,2-Dichloroethane	ND	8.3	16.67	217879	11/26/14
Benzene	120	8.3	16.67	217879	11/26/14
Methyl tert-Amyl Ether (TAME)	460	8.3	16.67	217879	11/26/14
Toluene	ND	8.3	16.67	217879	11/26/14
1,2-Dibromoethane	ND	8.3	16.67	217879	11/26/14
Ethylbenzene	11	8.3	16.67	217879	11/26/14
m,p-Xylenes	ND	8.3	16.67	217879	11/26/14
o-Xylene	ND	8.3	16.67	217879	11/26/14

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	110	77-136	16.67	217879	11/26/14
1,2-Dichloroethane-d4	106	75-139	16.67	217879	11/26/14
Toluene-d8	102	80-120	16.67	217879	11/26/14
Bromofluorobenzene	103	80-120	16.67	217879	11/26/14

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

BTXE & Oxygenates			
Lab #:	262548	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:	QC767394	Batch#:	217879
Matrix:	Water	Analyzed:	11/25/14
Units:	ug/L		

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	20
MTBE	ND	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
Toluene	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	106	77-136
1,2-Dichloroethane-d4	100	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	104	80-120

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

BTXE & Oxygenates			
Lab #:	262548	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	217879
Units:	ug/L	Analyzed:	11/25/14
Diln Fac:	1.000		

Type: BS Lab ID: QC767395

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	62.50	67.82	109	37-151
MTBE	12.50	12.29	98	64-121
Isopropyl Ether (DIPE)	12.50	13.04	104	56-124
Ethyl tert-Butyl Ether (ETBE)	12.50	12.78	102	61-122
1,2-Dichloroethane	12.50	11.43	91	77-137
Benzene	12.50	12.20	98	80-124
Methyl tert-Amyl Ether (TAME)	12.50	12.51	100	65-120
Toluene	12.50	11.93	95	80-122
1,2-Dibromoethane	12.50	11.32	91	80-120
Ethylbenzene	12.50	11.60	93	80-124
m,p-Xylenes	25.00	23.54	94	80-122
o-Xylene	12.50	11.49	92	77-120

Surrogate	%REC	Limits
Dibromofluoromethane	105	77-136
1,2-Dichloroethane-d4	99	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	100	80-120

Type: BSD Lab ID: QC767396

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	62.50	62.82	101	37-151	8	30
MTBE	12.50	12.73	102	64-121	4	20
Isopropyl Ether (DIPE)	12.50	13.18	105	56-124	1	20
Ethyl tert-Butyl Ether (ETBE)	12.50	13.20	106	61-122	3	22
1,2-Dichloroethane	12.50	11.50	92	77-137	1	20
Benzene	12.50	12.14	97	80-124	1	20
Methyl tert-Amyl Ether (TAME)	12.50	13.05	104	65-120	4	22
Toluene	12.50	12.24	98	80-122	3	20
1,2-Dibromoethane	12.50	11.72	94	80-120	3	20
Ethylbenzene	12.50	12.09	97	80-124	4	20
m,p-Xylenes	25.00	24.79	99	80-122	5	20
o-Xylene	12.50	12.30	98	77-120	7	20

Surrogate	%REC	Limits
Dibromofluoromethane	103	77-136
1,2-Dichloroethane-d4	95	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	99	80-120

RPD= Relative Percent Difference

Batch QC Report

BTXE & Oxygenates			
Lab #:	262548	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	217928
Units:	ug/L	Analyzed:	11/27/14
Diln Fac:	1.000		

Type: BS Lab ID: QC767592

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	62.50	47.41	76	37-151
MTBE	12.50	12.57	101	64-121
Isopropyl Ether (DIPE)	12.50	13.12	105	56-124
Ethyl tert-Butyl Ether (ETBE)	12.50	12.75	102	61-122
1,2-Dichloroethane	12.50	13.17	105	77-137
Benzene	12.50	13.15	105	80-124
Methyl tert-Amyl Ether (TAME)	12.50	12.08	97	65-120
Toluene	12.50	13.28	106	80-122
1,2-Dibromoethane	12.50	12.71	102	80-120
Ethylbenzene	12.50	13.58	109	80-124
m,p-Xylenes	25.00	27.53	110	80-122
o-Xylene	12.50	13.84	111	77-120

Surrogate	%REC	Limits
Dibromofluoromethane	101	77-136
1,2-Dichloroethane-d4	103	75-139
Toluene-d8	100	80-120
Bromofluorobenzene	100	80-120

Type: BSD Lab ID: QC767593

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	62.50	49.06	78	37-151	3	30
MTBE	12.50	12.15	97	64-121	3	20
Isopropyl Ether (DIPE)	12.50	12.61	101	56-124	4	20
Ethyl tert-Butyl Ether (ETBE)	12.50	12.33	99	61-122	3	22
1,2-Dichloroethane	12.50	12.87	103	77-137	2	20
Benzene	12.50	12.59	101	80-124	4	20
Methyl tert-Amyl Ether (TAME)	12.50	12.05	96	65-120	0	22
Toluene	12.50	12.47	100	80-122	6	20
1,2-Dibromoethane	12.50	12.46	100	80-120	2	20
Ethylbenzene	12.50	12.67	101	80-124	7	20
m,p-Xylenes	25.00	25.61	102	80-122	7	20
o-Xylene	12.50	12.97	104	77-120	7	20

Surrogate	%REC	Limits
Dibromofluoromethane	100	77-136
1,2-Dichloroethane-d4	103	75-139
Toluene-d8	100	80-120
Bromofluorobenzene	99	80-120

RPD= Relative Percent Difference

Batch QC Report

BTXE & Oxygenates			
Lab #:	262548	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:	QC767594	Batch#:	217928
Matrix:	Water	Analyzed:	11/27/14
Units:	ug/L		

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	10
MTBE	ND	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
Toluene	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	103	77-136
1,2-Dichloroethane-d4	105	75-139
Toluene-d8	99	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected
 RL= Reporting Limit