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**ENVIRONMENTAL ENGINEERING, INC.**  
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April 22, 2013

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

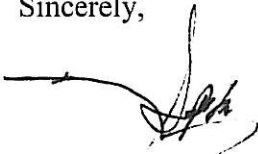
Subject: **File No. 01-0098 (MYM)**  
Site Located at 2844 Mountain Boulevard, Oakland, California

Dear Mr. Musonge:

Enclosed for your review is a copy of SOMA's "First Quarter 2013 Groundwater Monitoring Report" for the subject property. It has been uploaded to the State's GeoTracker database.

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



**First Quarter 2013  
Groundwater Monitoring Report**

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

**April 22, 2013**

**Project 5081**

**Prepared for**

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



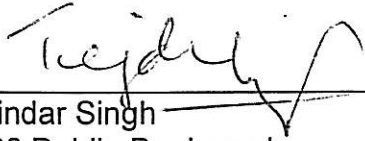
**ENVIRONMENTAL ENGINEERING, INC.**

6620 Owens Drive Suite A Pleasanton CA 94588 Ph: 925.734.6400 F: 925.734-6401 [www.somaenv.com](http://www.somaenv.com)

## 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".



\_\_\_\_\_  
Tejinder Singh  
6400 Dublin Boulevard  
Dublin, California 94568  
Responsible Party

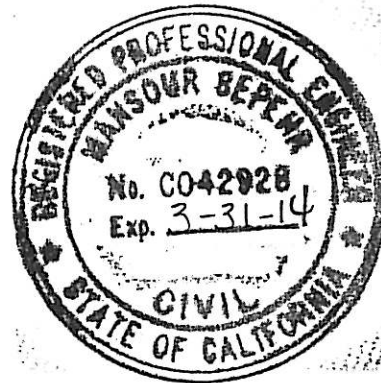
## CERTIFICATION

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 Alameda County Environmental Health Department (ACEH) for the First Quarter 2013 groundwater monitoring event.



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Mansour Sepehr, PhD, PE  
Principal Hydrogeologist



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- Appendix B Field Measurements of Physical and Chemical Parameters of the Groundwater Samples
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# 1. INTRODUCTION

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

This report summarizes results of the First Quarter 2013 groundwater monitoring event conducted at the site on March 29, 2013. 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.

## **1.2 Summary of Field Activities and Laboratory Analysis**

### **1.2.1 Field Activities**

On March 29, 2013, two monitoring wells (RS-3 and RS-4) were measured for depth to groundwater. Additional field measurements and groundwater samples were collected from both wells. Properties measured in the field were pH, temperature, and electrical conductivity (EC). This monitoring event was conducted in accordance with procedures and guidelines of Alameda County Environmental Health Department (ACEHD).

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.

### **1.2.2 Laboratory Analysis**

Curtis and Tompkins Laboratories, a California state-certified laboratory, analyzed groundwater samples for the following: TPH-g, and TPH as diesel (TPH-d); BTEX (benzene, toluene, ethylbenzene, and total xylenes), MtBE, gasoline oxygenates. All samples except TPH-d were analyzed using EPA Method 8260. TPH-d samples were analyzed using EPA Method 8015B.

## **2. RESULTS**

Results of field measurements and laboratory analyses for the groundwater monitoring event conducted on March 29, 2013 follow below.



## 2.1 Field Measurements

Monitoring wells RS-3 and RS-4 were measured for depth to groundwater (Table 1). Depths to groundwater were measured at 6.01 feet in RS-3 and 8.49 feet in RS-4. Groundwater elevations were 666.93 feet in RS-4 and 670.22 feet in RS-3.

Figure 3 displays the groundwater elevation map. The groundwater flow direction and gradient were not calculated for this quarter since there are currently only two wells onsite.

## 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 and was detected at 14,000 µg/L in RS-4. Since the previous monitoring event (August 2012), TPH-g concentration in RS-4 has decreased. Figure 4 shows a map of TPH-g concentrations in groundwater. The TPH-g plume appears to be centered southeast of the pump islands in the vicinity of RS-4.

TPH-d was detected in RS-3 and RS-4 at 90 µg/L and 14,000 µg/L, respectively. Since the previous monitoring event (August 2012), TPH-d has increased in RS-4 and decreased in RS-3. Figure 4 shows a map of TPH-d concentrations in groundwater. TPH-d plume appears to be centered southeast of the pump islands in the vicinity of RS-4.

During analytical testing of TPH-d, groundwater sample from RS-3 exhibited chromatographic pattern that did not resemble standard. For details of analysis and testing of diesel, refer to the laboratory analytical report in Appendix C.

The following BTEX concentrations were observed during this monitoring event:

- All BTEX analytes were below laboratory-reporting limits in RS-3.
- Benzene and toluene were below laboratory reporting-limit and ethylbenzene and total xylenes were detected at 440 µg/L and 1,340 µg/L, respectively, in RS-4.
- Since the previous monitoring event (August 2012), toluene, ethylbenzene and total xylenes have decreased in RS-4.

Methyl tertiary-butyl ether (MtBE) was detected in RS-3 and RS-4 at 3.6 µg/L and 14,000 µg/L, respectively. Since the previous monitoring event (August 2012), MtBE has decreased in RS-3 and RS-4. Figure 5 shows a map of MtBE concentrations in groundwater. The MtBE plume appears to be centered southeast of the pump islands in the vicinity of RS-4.

Tertiary-butyl alcohol (TBA) was below laboratory-reporting limit in RS-3 and was detected at 110,000 µg/L in RS-4. Since the previous monitoring event (August 2012), TBA has increased in RS-4. Figure 5 shows a map of TBA concentrations in groundwater. The highest TBA concentrations were detected in the southeast corner of the pump islands around RS-4.

Tertiary amyl methyl ether (TAME) was below laboratory-reporting limit in RS-3 and was detected at 590 µg/L in RS-4. Since the previous monitoring event (August 2012), TAME has decreased in RS-3 and RS-4. Figure 5 shows a map of TAME concentrations in groundwater. The highest TAME concentrations were detected in the southeast corner of the pump islands around RS-4.

### **3. CONCLUSIONS AND RECOMMENDATIONS**

Conclusions and recommendations based on results of First Quarter 2013 groundwater monitoring are summarized below.

- The groundwater flow direction and gradient were not calculated for this quarter since there are currently only two wells onsite.
- No free/floating product was observed in any monitoring wells during this monitoring event.
- Since the previous monitoring event in August 2012, all contaminant concentrations, except TBA and TPH-d, have decreased in RS-4.
- The highest TPH-g, TPH-d, ethylbenzene, total xylenes, MtBE, TBA and TAME concentrations were detected in the southeast corner of the pump islands around RS-4.
- SOMA recommends conducting quarterly groundwater monitoring events at the site.
- Based on CRWQCB's directive dated April 3, 2013 approving SOMA's December 2012 workplan, SOMA is currently scheduling field activities for a soil boring, replacing two monitoring wells, and MPE pilot testing. A report documenting implementation of the workplan and results will be submitted upon completion of field activities.

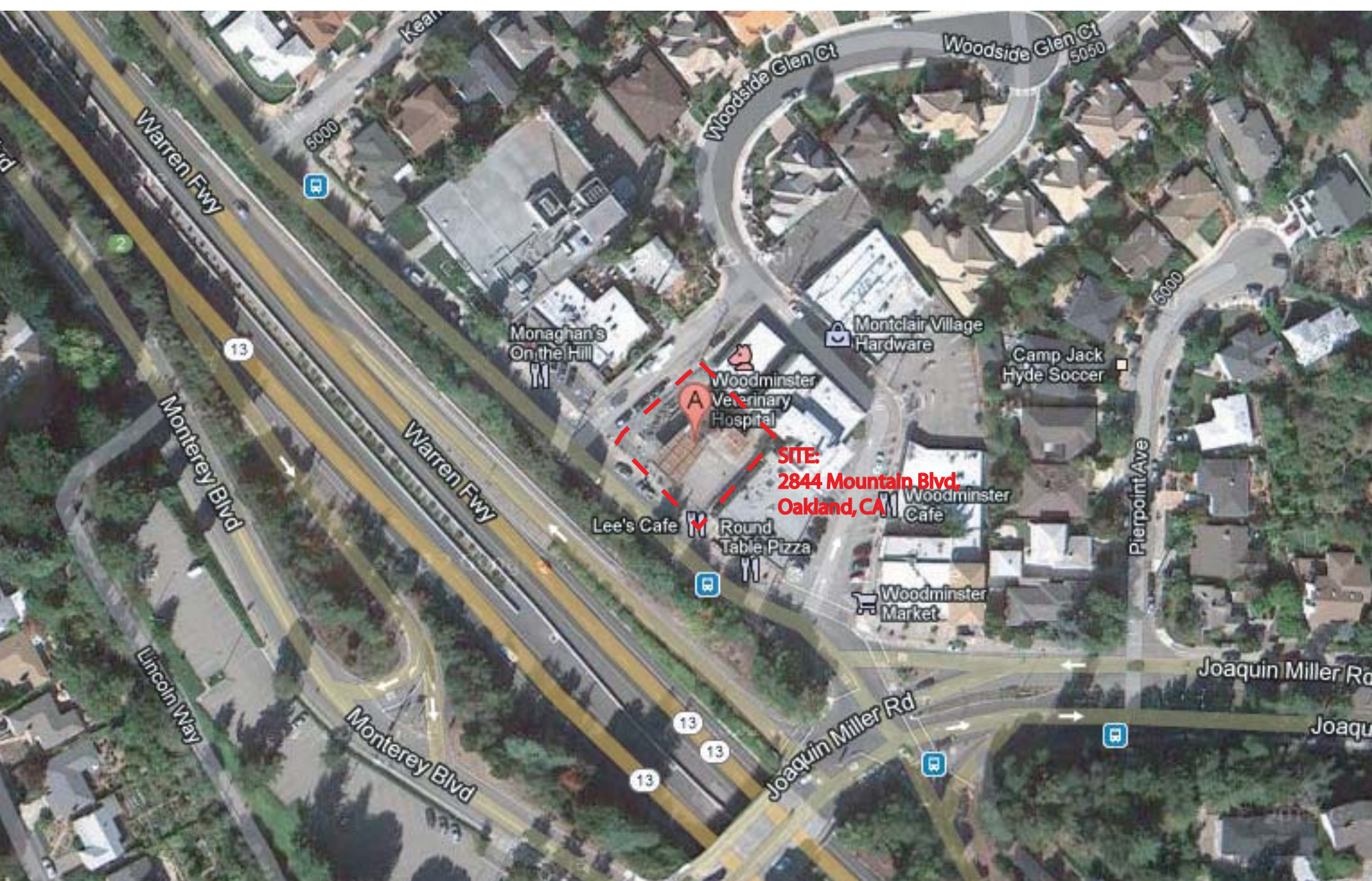
### **4. REPORT LIMITATIONS**

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

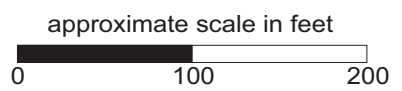
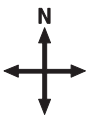


Figure 1: Site Vicinity Map



- ▲ Groundwater monitoring wells installed in 1990
- ✕ Decommissioned Monitoring Wells
- ◆ Confirmation soil samples
- ◆ Confirmation groundwater samples
- CPT/MIP/DPT borings (2012)
- ◆ Shallow Soil Borings (2012)

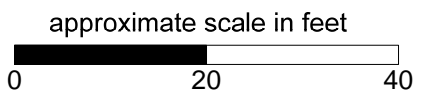
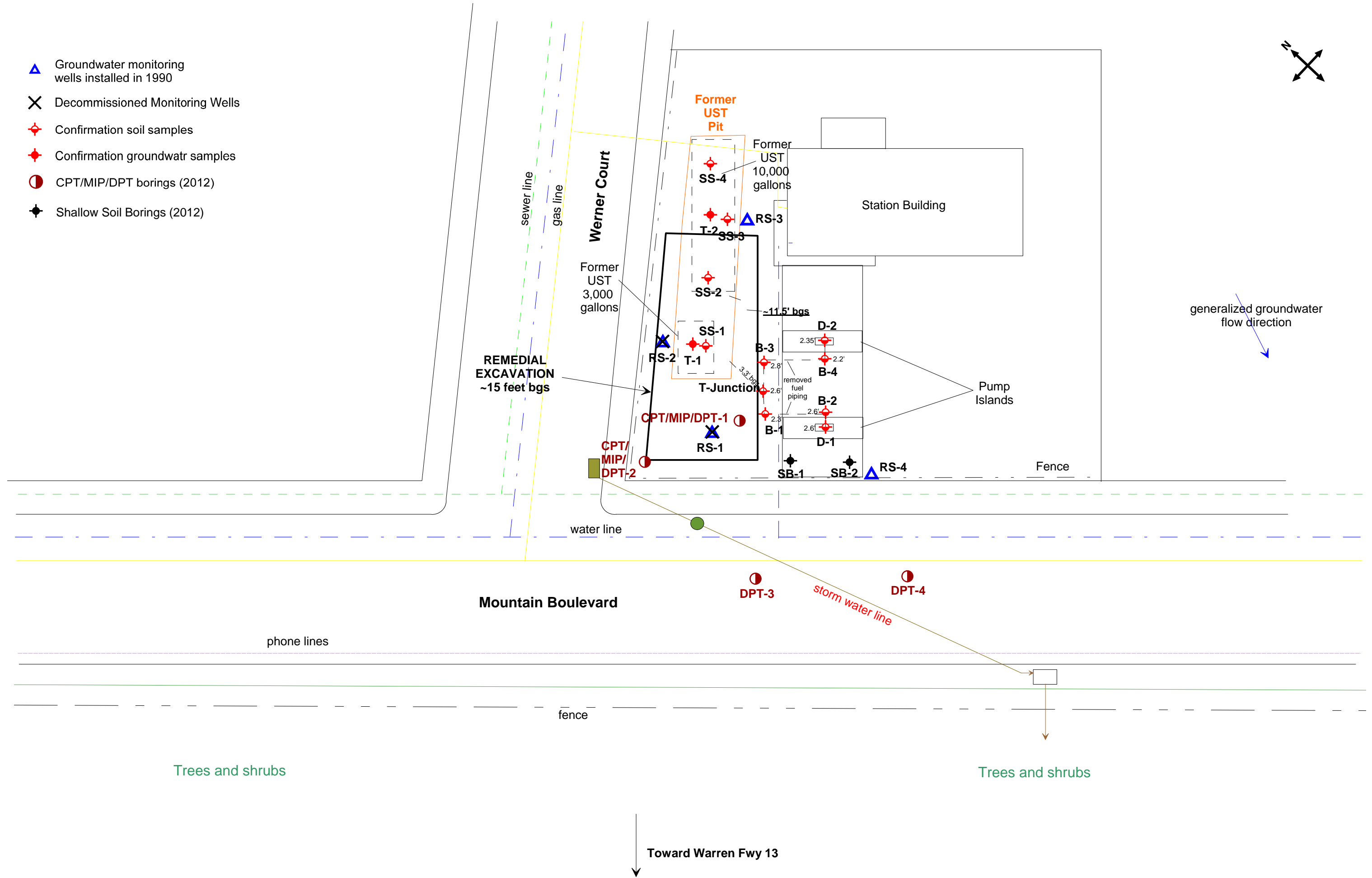


Figure 2: Site Map Showing Locations of Former USTs, Soil Borings, and Groundwater Monitoring Wells

- ▲ Groundwater monitoring wells installed in 1990
- ✕ Decommissioned Monitoring Wells
- ◆ Confirmation soil samples
- ◆ Confirmation groundwater samples
- CPT/MIP/DPT borings (2012)
- ◆ Shallow Soil Borings (2012)

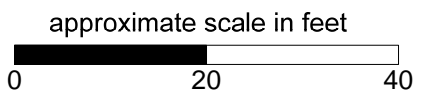
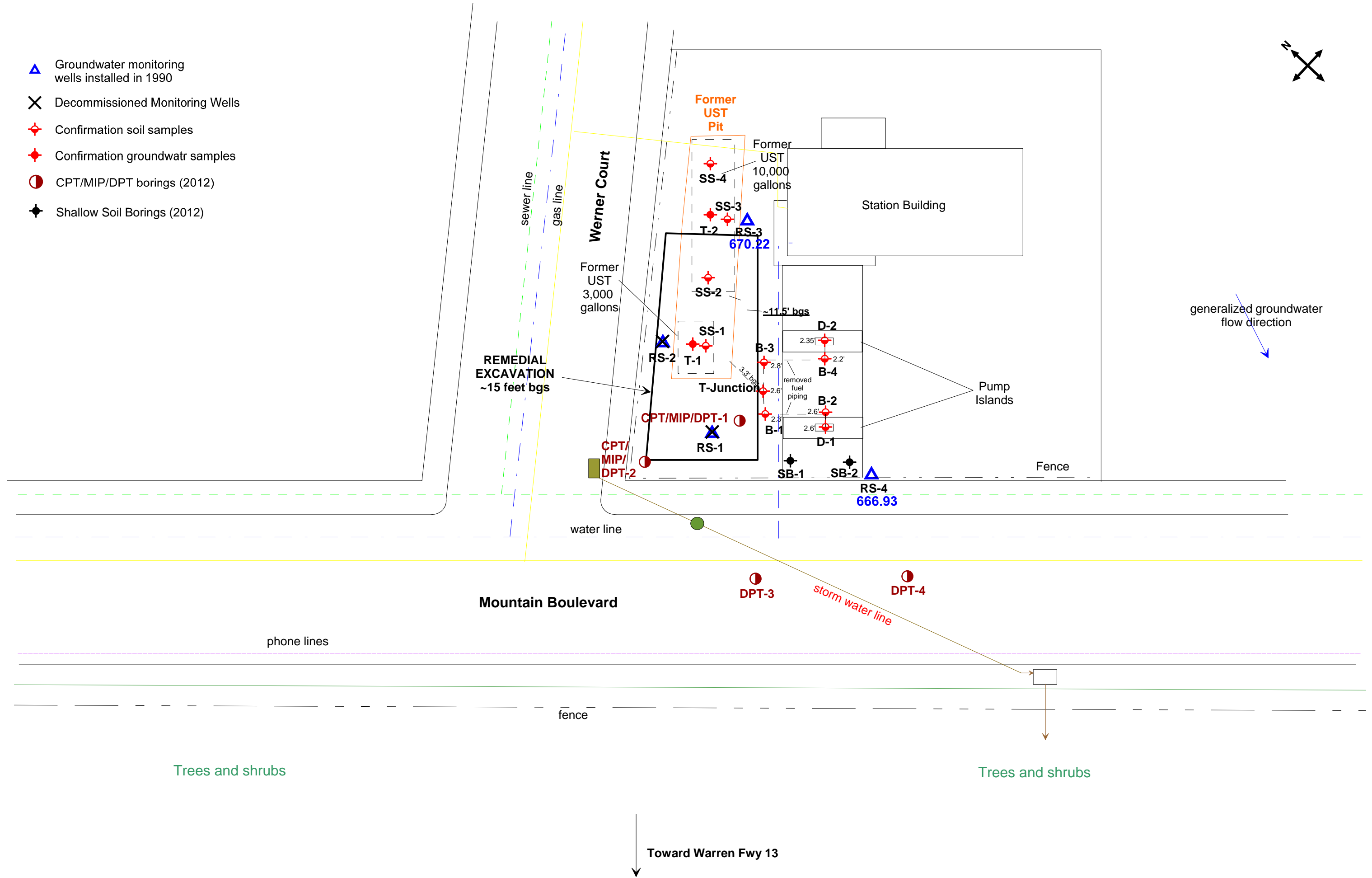


Figure 3: Groundwater Elevation Map in Feet, March 29, 2013

- ▲ Groundwater monitoring wells installed in 1990
- ✕ Decommissioned Monitoring Wells
- ◆ Confirmation soil samples
- ◆ Confirmation groundwater samples
- CPT/MIP/DPT borings (2012)
- ◆ Shallow Soil Borings (2012)
- 0.0 TPH-g Concentrations (ug/L)
- 0.0 TPH-d Concentrations (ug/L)

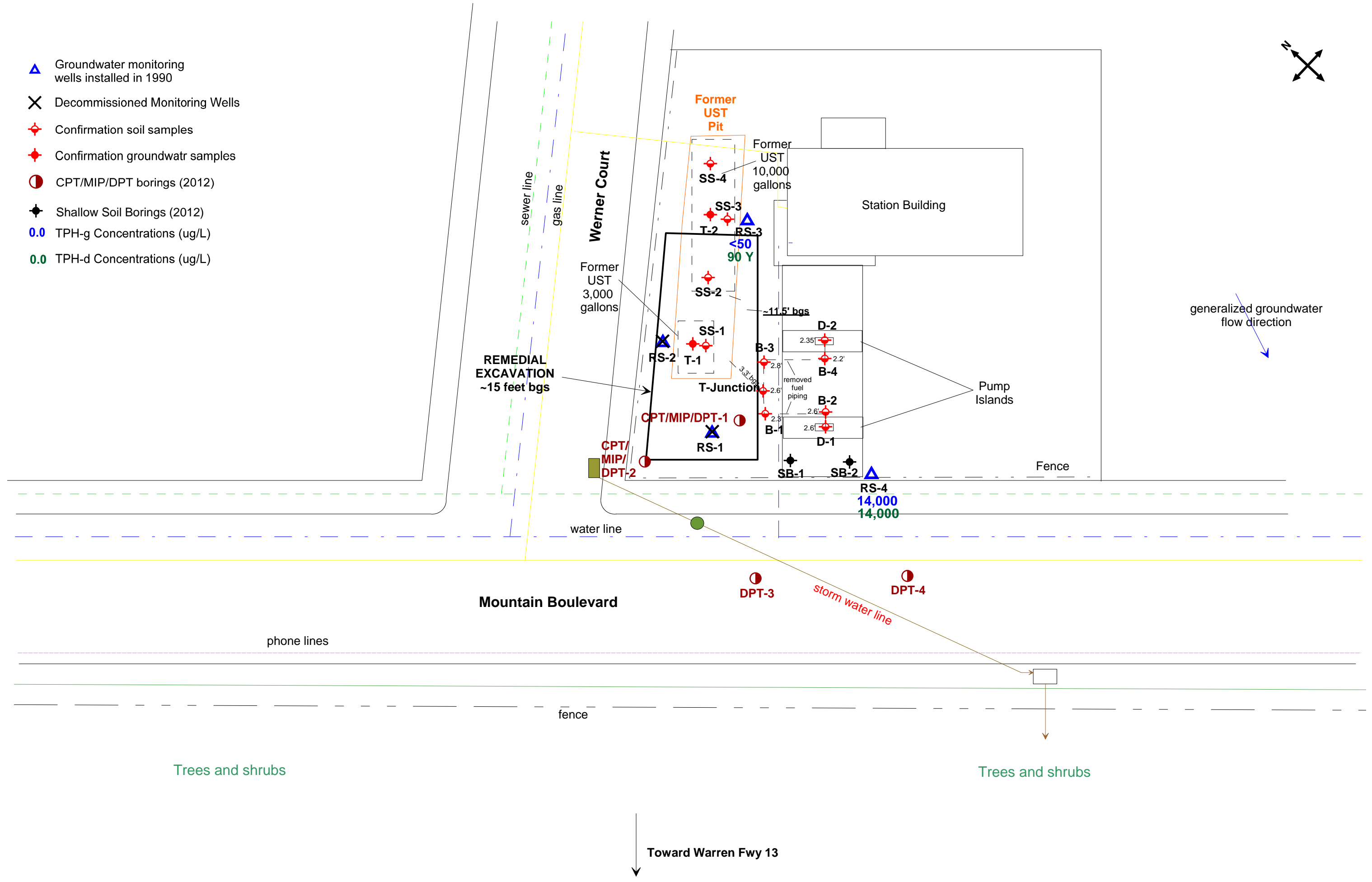


Figure 4: Map Showing TPH-g and TPH-d Concentrations in Groundwater, March 29, 2013



- ▲ Groundwater monitoring wells installed in 1990
- ✕ Decommissioned Monitoring Wells
- ◆ Confirmation soil samples
- ◆ Confirmation groundwater samples
- CPT/MIP/DPT borings (2012)
- ◆ Shallow Soil Borings (2012)
- 0.0 MtBE Concentrations (ug/L)
- 0.0 TBA Concentrations (ug/L)
- 0.0 TAME Concentrations (ug/L)

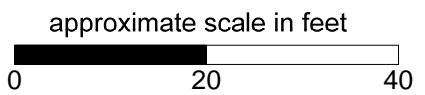
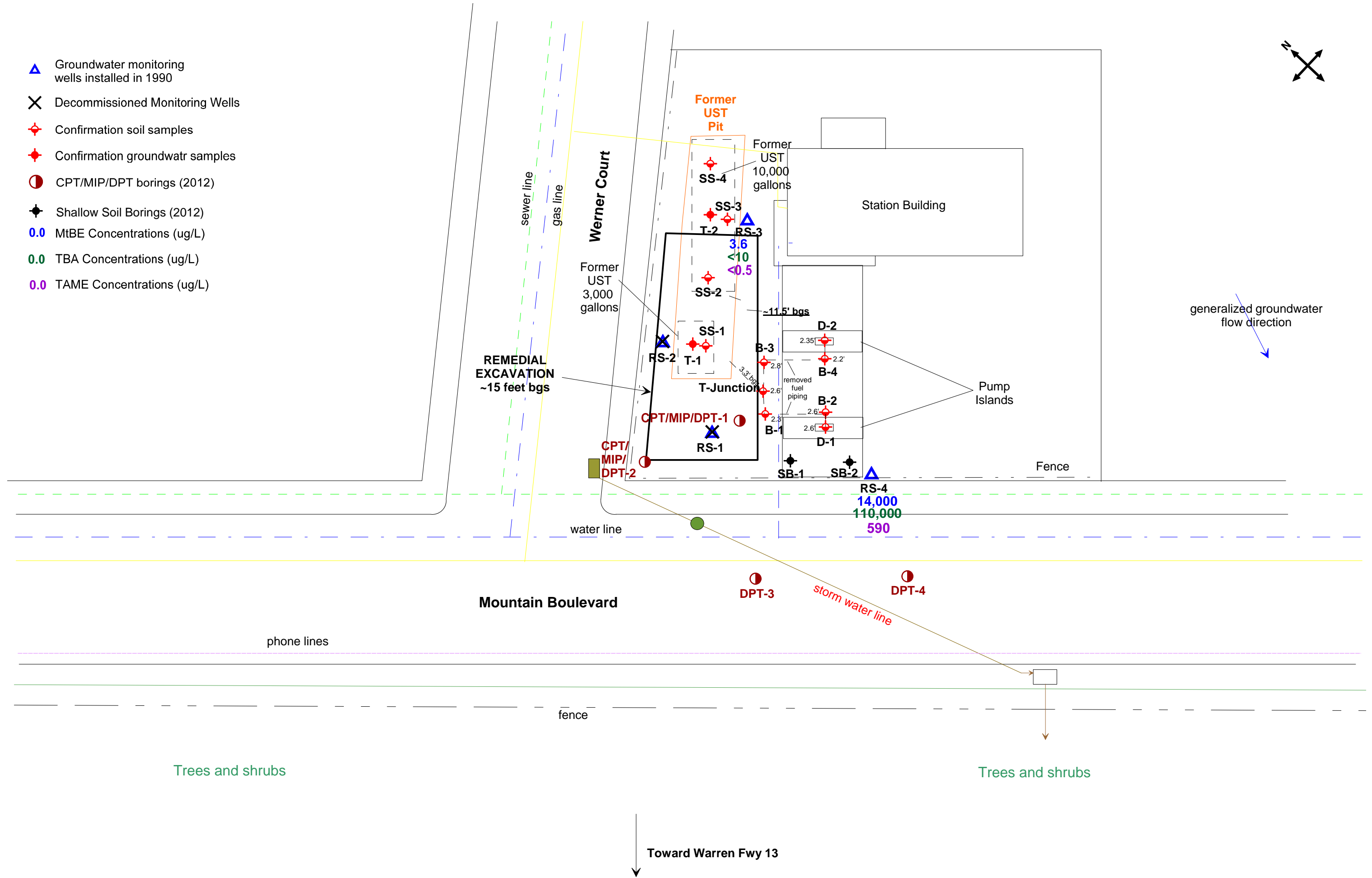


Figure 5: Map Showing MtBE, TBA, and TAME Concentrations in Groundwater, March 29, 2013

# 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	May-90	675.63	7.20	7.20	0.00	668.43	2,700			370	420	40	320				
	May-91	675.63	8.35	8.35	0.00	667.28	1,300			580	130	62	240				
	Oct-91	675.63	10.22	10.22	0.00	665.41	1,100			140	100	45	210				
	Jan-92	675.63	8.06	8.06	0.00	667.57	1,700			9.9	31	9.7	170				
	Jan-93	675.63	5.30	5.30	0.00	670.33	3,700			650	9.2	51	170				
	Aug-93	675.63	8.56	8.56	0.00	667.07	900			14	0.6	2.1	8				
	Nov-93	675.63	8.44	8.44	0.00	667.19	1,400			9.6	ND	0.9	5				
	Jan-94	675.63	6.88	6.88	0.00	668.75	4,200			95	3.1	58	130				
	May-94	675.63	7.87	7.87	0.00	667.76	7,500			270	11	37	96				
	Aug-94	675.63			16.28	16.28	659.35	130			12	0.5	2.6	5			
	Nov-94	675.63	8.02	8.02	0.00	667.61	270			4.7	0.7	0.6	15				
	Feb-95	675.63	6.51	6.51	0.00	669.12	12,000			81	2.3	1	12				
	Jun-95	675.63	7.34	7.34	0.00	668.29	37,000			460	ND	ND	ND	63,000			
	Nov-95	675.63	8.71	8.71	0.00	666.92	ND			660	16	140	330	31,000			
	Feb-96	675.63	6.95	6.95	0.00	668.68	66,000			110	ND	12	21	84,000			
	9/18/1996	675.63	8.44	8.52	0.08	667.17	1 INCH FLOATING PRODUCT										
	12/11/1996	675.63	6.42	6.62	0.20	669.17	79,000			4,000	37,000	8,000	45,000	220,000			
	2/21/1997	675.63	6.88	6.92	0.04	668.74	1/2 INCH FLOATING PRODUCT										
	5/28/1997	675.63	7.88	7.96	0.08	667.73	156,000			9,400	51,000	7,000	45,000	112,000			
	9/2/1997	675.63	8.34	8.38	0.04	667.28	1/2 INCH FLOATING PRODUCT										
	11/24/1997	675.63	6.98	7.00	0.02	668.65	1/4 INCH FLOATING PRODUCT										
	2/25/1998	675.63	3.51	3.52	0.01	672.12	1/8 INCH FLOATING PRODUCT										
	5/27/1998	675.63	7.31	7.31	0.00	668.32	40,000			2,200	4,000	2,300	19,000	350,000			
	9/16/1998	675.63	8.10	8.10	0.00	667.53	62,000			2,400	2,300	2,100	14,000	250,000			
	11/23/1998	675.63	7.10	7.10	0.00	668.53	99,000			2,600	5,800	2,500	18,000	130,000			
	2/23/1999	675.67	4.82	4.87	0.05	670.84	5/8 INCH FLOATING PRODUCT										
	5/5/1999	675.67	6.86	6.90	0.04	668.80	FLOATING PRODUCT										
8/24/1999	675.67	7.87	7.90	0.03	667.80	FLOATING PRODUCT											
2/8/2012	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	
5/4/2012	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	
8/6/2012	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	
<b>Well Destroyed October 1, 2012</b>																	
RS-2	May-90	689.00	7.06	7.06	0.00	681.94	23,000			7,200	4,800	300	3,300				
	May-91	689.00	7.14	7.14	0.00	681.86	26,000			14,000	1,800	750	2,900				
	Oct-91	688.89	8.84	8.84	0.00	680.05	13,000			4,300	910	300	2,300				
	Jan-92	688.89	7.34	7.34	0.00	681.55	8,300			1,800	920	140	1,700				
	Jan-93	688.89	4.10	4.10	0.00	684.79	41,000			7,000	210	1,200	4,200				
	Aug-93	688.89	7.32	7.32	0.00	681.57	19,000			5,300	62	810	1,600				
	Nov-93	688.89	7.34	7.34	0.00	681.55	9,300			2,400	3.90	46	800				
	Jan-94	688.89	5.52	5.52	0.00	683.37	30,000			4,900	ND	880	2,600				
	May-94	675.25	6.40	6.40	0.00	668.85	120,000			3,300	330	ND	2,200				
	Aug-94	675.25			0.00	675.25	510			7.30	3.80	3.50	32				
	Nov-94	675.25	9.82	9.82	0.00	665.43	620			6.60	3.90	1.10	47				
	Feb-95	675.25	4.81	4.81	0.00	670.44	22,000			228	80	2	463				
	Jun-95	675.25	5.80	5.80	0.00	669.45	49,000			1,300	160	200	1,600	71,000			
	Nov-95	675.25	7.64	7.64	0.00	667.61	ND			670	25	150	360	65,000			

**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.	Feb-96	675.25	4.69	4.69	0.00	670.56	75,000			1,400	170	59	460	71,000		
	9/18/1996	675.25	7.34	7.34	0.00	667.91	6,300			2,000	48	350	570	160,000		
	12/11/1996	675.25	5.08	5.08	0.00	670.17	16,000			2,000	840	200	3,200	180,000		
	2/21/1997	675.25	5.42	5.42	0.00	669.83	22,000			2,100	1,300	600	5,100	56,000		
	5/28/1997	675.25	6.40	6.40	0.00	668.85	156,000			4,200	89	1,000	6,900	390,000		
	9/2/1997	675.25	6.93	6.93	0.00	668.32	<50			1,300	25	360	1,400	180,000		
	11/24/1997	675.25	5.93	5.93	0.00	669.32	<50			600	ND	ND	ND	610,000		
	2/25/1998	675.25	4.59	4.59	0.00	670.66	11,000			1,100	<50	320	2,400	330,000		
	5/27/1998	675.25	5.61	5.61	0.00	669.64	13,000			2,000	150	600	2,700	380,000		
	9/16/1998	675.25	6.84	6.84	0.00	668.41	11,000			1,600	20	1,600	1,600	280,000		
	11/23/1998	675.25	6.24	6.24	0.00	669.01	12,000			1,200	84	<5	960	140,000		
	2/23/1999	675.28	4.62	4.62	0.00	670.66	8,800			1,500	650	640	1,500	450,000		
	5/5/1999	675.28	7.55	7.55	0.00	667.73	29,000			2,000	1,300	500	3,700	270,000		
	8/24/1999	675.28	6.62	6.62	0.00	668.66	12,000			1,900	20	370	980	340,000		
	2/8/2012	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
	5/4/2012	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
	8/6/2012	675.28	6.33	6.33	0.00	668.95	11,000	10,000	NA	810	<25	210	473	3,300	18,000	580
	<b>Well Destroyed October 1, 2012</b>															
RS-3	May-90	670.00	6.00	6.00	0.00	664.00	330			2	1	1	150			
	May-91	670.00	6.76	6.76	0.00	663.24	ND			0.40	ND	0.80	8			
	Oct-91	670.00	8.98	8.98	0.00	661.02	ND			ND	ND	ND	ND			
	Jan-92	670.00	6.81	6.81	0.00	663.19	ND			2.20	7.20	0.60	4			
	Jan-93	670.00	4.05	4.05	0.00	665.95	ND			ND	ND	ND	ND			
	Aug-93	670.00	7.19	7.19	0.00	662.81	ND			30	6	2.40	5			
	Nov-93	670.00	7.12	7.12	0.00	662.88	ND			4.80	0.40	0.60	2			
	Jan-94	670.00	5.42	5.42	0.00	664.58	330			25	3.20	3.90	12			
	May-94	676.20	5.78	5.78	0.00	670.42	670			34	4	28	70			
	Aug-94	676.20	5.86	5.86	0.00	670.34	ND			ND	ND	ND	ND			
	Nov-94	676.20	5.08	5.08	0.00	671.12	69			2.50	3.10	1	4			
	Feb-95	676.20	4.51	4.51	0.00	671.69	ND			0.30	0.40	ND	1			
	Jun-95	676.20	5.29	5.29	0.00	670.91	ND			ND	ND	ND	ND	66		
	Nov-95	676.20	7.10	7.10	0.00	669.10	ND			ND	ND	ND	ND	44		
	Feb-96	676.20	4.48	4.48	0.00	671.72	120			ND	ND	ND	ND	110		
	9/18/1996	676.20	6.92	6.92	0.00	669.28	1,000			13	8.60	10	17	33		
	12/11/1996	676.20	4.90	4.90	0.00	671.30	85			20	2	<0.5	14	4,700		
	2/21/1997	676.20	4.94	4.94	0.00	671.26	120			5	2	2	6	850		
	5/28/1997	676.20	7.92	7.92	0.00	668.28	<50			6	<0.5	<0.5	<2	2,400		
	9/2/1997	676.20	6.60	6.60	0.00	669.60	<50			0.90	<0.5	<0.5	<2	8,600		
11/24/1997	676.20	5.89	5.89	0.00	670.31	140			13	2	1	12	3,600			
2/25/1998	676.20	4.29	4.29	0.00	671.91	<50			<0.5	<0.5	<0.5	4	850			
5/27/1998	676.20	5.01	5.01	0.00	671.19	<50			7	<0.5	<0.5	11	940			
9/16/1998	676.20	6.21	6.21	0.00	669.99	<50			2	2	2	10	670			
11/24/1998	676.20	5.58	5.58	0.00	670.62	85			9	23	<0.5	19	180			

**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.	2/24/1999	676.23	4.30	4.30	0.00	671.93	<50			<0.5	0.90	<0.5	<1.0	150		
	5/5/1999	676.23	4.92	4.92	0.00	671.31	<50			1	2	1	6	130		
	8/24/1999	676.23	6.64	6.64	0.00	669.59	80			0.80	<0.5	0.60	<1	300		
	2/8/2012	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
	5/4/2012	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
	8/6/2012	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
	<b>3/29/2013</b>	<b>676.23</b>	<b>6.01</b>	<b>6.01</b>	<b>0.00</b>	<b>670.22</b>	<b>&lt;50</b>	<b>90<sup>Y</sup></b>	<b>NA</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>3.6</b>	<b>&lt;10</b>	<b>&lt;0.5</b>
RS-4	May-90	675.38	8.34	8.34	0.00	667.04	440			9	11	9	49			
	May-91	675.38	9.50	9.50	0.00	665.88	ND			8	4	3	5			
	Oct-91	675.38	10.82	10.82	0.00	664.56	830			280	120	24	170			
	Jan-92	675.38	9.31	9.31	0.00	666.07	620			34	8.30	2.10	21			
	Jan-93	675.38	6.89	6.89	0.00	668.49	150			32	1.70	5.80	13			
	Aug-93	675.38	9.68	9.68	0.00	665.70	ND			0.90	0.70	ND	0			
	Nov-93	675.38	9.83	9.83	0.00	665.55	ND			ND	ND	ND	ND			
	Jan-94	675.38	8.17	8.17	0.00	667.21	ND			1.70	ND	0.81	2			
	May-94	675.38	8.69	8.69	0.00	666.69	ND			ND	ND	ND	1			
	Aug-94	675.38	9.04	9.04	0.00	666.34	420			6.50	4.10	1.90	40			
	Nov-94	675.38	8.00	8.00	0.00	667.38	130			4.10	0.70	1.70	8			
	Feb-95	675.38	7.93	7.93	0.00	667.45	ND			6	1.20	3.50	13			
	Jun-95	675.38	8.61	8.61	0.00	666.77	ND			ND	ND	ND	ND	69		
	Nov-95	675.38	10.43	10.43	0.00	664.95	ND			ND	ND	ND	ND	47		
	Feb-96	675.38	7.44	7.44	0.00	667.94	960			ND	ND	0.60	ND	80		
	9/18/1996	675.38	9.58	9.58	0.00	665.80	<50			<0.5	<0.5	<0.5	<2	200		
	12/11/1996	675.38	7.50	7.50	0.00	667.88	75			<0.5	0.60	<0.5	<0.5	104		
	2/21/1997	675.38	8.26	8.26	0.00	667.12	<50			1	1	<0.5	1	190		
	5/28/1997	675.38	8.92	8.92	0.00	666.46	<50			6	<0.5	<0.5	<2	110		
	9/2/1997	675.38	9.39	9.39	0.00	665.99	100			3	<0.5	<0.5	<2	39		
	11/24/1997	675.38	8.22	8.22	0.00	667.16	41			<0.5	2	<0.5	<2	210		
	2/25/1998	675.38	7.19	7.19	0.00	668.19	<50			3	<0.5	<0.5	<1	5,600		
	5/27/1998	675.38	8.40	8.40	0.00	666.98	<50			<0.5	<0.5	<0.5	<1	2,400		
9/16/1998	675.38	9.26	9.26	0.00	666.12	<50			<0.5	<0.5	<0.5	<1	230			
11/24/1998	675.38	8.50	8.50	0.00	666.88	<50			2	<0.5	<0.5	<1	100			
2/24/1999	675.42	7.20	7.20	0.00	668.22	<50			2	3	0.80	5	670			
5/5/1999	675.42	8.37	8.37	0.00	667.05	100			<0.5	<0.5	<0.5	<1	440			
8/24/1999	675.42	8.36	8.36	0.00	667.06	<50			<0.5	<0.5	<0.5	<1	<500			
2/8/2012	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	
5/4/2012	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	
8/6/2012	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	
<b>3/29/2013</b>	<b>675.42</b>	<b>8.49</b>	<b>8.49</b>	<b>0.00</b>	<b>666.93</b>	<b>14,000</b>	<b>14,000</b>	<b>NA</b>	<b>&lt;100</b>	<b>&lt;100</b>	<b>440</b>	<b>1,340</b>	<b>14,000</b>	<b>110,000</b>	<b>590</b>	
ESLs (µg/L)	Ground-water						100	100	100	1.00	40	30	20	5.00	12	NL
	Vapor Intrusion						Use soil gas	Use soil gas	Use soil gas	540	380,000	170,000	160,000	24,000	Use soil gas	NL

**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
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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)

ESL: Environmental Screening Level by California Regional Water Quality Control Board San Francisco Bay Region Interim Final revised May 2008 (Table-F1a, groundwater is a current or potential drinking water source)

NL: Not Listed

# 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

## Field Measurements of Physical and Chemical Parameters of the Groundwater Samples



ENVIRONMENTAL ENGINEERING, INC

Well No.: RS-3  
 Casing Diameter: 4 inches  
 Depth of Well: 24.49 feet  
 Top of Casing Elevation: 676.23 feet  
 Depth to Groundwater: 6.01 feet  
 Groundwater Elevation: 670.22 feet  
 Water Column Height: 18.48 feet  
 Purged Volume: 15 gallons

Project No.: 5081  
 Address: 2844 Mountain Blvd.  
 Oakland, CA  
 Date: March 29, 2013  
 Sampler: Lizzie Hightower

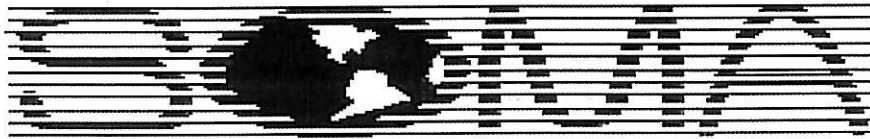
Purging Method: Bailer  Pump   
 Sampling Method: Bailer  Pump

Color: Yes  No  Describe: Cloudy  
 Sheen: Yes  No  Describe: \_\_\_\_\_  
 Odor: Yes  No  Describe: \_\_\_\_\_

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
09:59	Started purging well			
10:00	3	7.04	16.9	1180
10:01	6	7.19	16.6	780
10:02	9	7.28	16.3	780
10:04	15	7.15	16.1	760
10:09	Sampled			

Notes:



ENVIRONMENTAL ENGINEERING, INC

Well No.: RS-4 Project No.: 5081  
 Casing Diameter: 4 inches Address: 2844 Mountain Blvd.  
 Depth of Well: 25.54 feet Oakland, CA  
 Top of Casing Elevation: 675.42 feet Date: March 29, 2018  
 Depth to Groundwater: 8.49 feet Sampler: Lizzie Hightower  
 Groundwater Elevation: 666.93 feet  
 Water Column Height: 17.05 feet  
 Purged Volume: 12.5 gallons

Purging Method: Bailer  Pump   
 Sampling Method: Bailer  Pump

Color: Yes  No  Describe: Slightly Cloudy  
 Sheen: Yes  No  Describe: Rainbow Sheen  
 Odor: Yes  No  Describe: Petroleum Odor

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
10:32	Started purging well			
10:33	2.5	7.00	18.2	1240
10:34	5	6.87	18.2	1220
10:35	7.5	6.84	18.0	1190
10:36	10	6.81	18.1	1170
10:37	12.5	6.80	18.1	1180
Notes: 10:42	Sampled			

# 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 244143  
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	244143-001
RS-4	244143-002

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  
(510) 204-2226

Date: 04/04/2013

NELAP # 01107CA

**CASE NARRATIVE**

Laboratory number: 244143  
Client: SOMA Environmental Engineering Inc.  
Project: 5081  
Location: 2844 Mountain Blvd., Oakland  
Request Date: 03/29/13  
Samples Received: 03/29/13

This data package contains sample and QC results for two water samples, requested for the above referenced project on 03/29/13. 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

## Analyses

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

LOGIN # 244143

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			
			Soil	Water	Waste		HCL	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	ICE
	<u>RS-3</u>	<u>3/29/13 10:09</u>		*		3 VOAs, 2- 500mL Amber	*			*
	<u>RS-4</u>	<u>3/29/13 10:42</u>		*		3 VOAs, 2- 500mL Amber	*			*

TPH-g, BTEX, MtBE 8260B	Gasoline Oxygenates 8260B	TPH-d 8015															
*	*	*															
*	*	*															

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

RELINQUISHED BY:  
E. A. [Signature] 3/29/13  
14:15 DATE/TIME

RECEIVED BY:  
Pat [Signature] 3/29/13  
14:15 DATE/TIME

COOLER RECEIPT CHECKLIST



Curtis & Tompkins, Ltd.

Login # 244143 Date Received 3/29/13 Number of coolers 1
Client SDMA Project 5081

Date Opened 3/29/13 By (print) EL (sign) E. L. ...
Date Logged in ↓ By (print) ↓ (sign) ↓

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, 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) 4.1

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.



Total Extractable Hydrocarbons			
Lab #:	244143	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5081	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/29/13
Units:	ug/L	Received:	03/29/13
Diln Fac:	1.000	Prepared:	04/01/13
Batch#:	196921	Analyzed:	04/03/13

Field ID: RS-3                                  Lab ID: 244143-001  
 Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	90 Y	49

Surrogate	%REC	Limits
o-Terphenyl	93	62-133

Field ID: RS-4                                  Lab ID: 244143-002  
 Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	14,000	52

Surrogate	%REC	Limits
o-Terphenyl	94	62-133

Type: BLANK                                  Lab ID: QC682310

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	81	62-133

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

## Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	244143	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5081	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC682311	Batch#:	196921
Matrix:	Water	Prepared:	04/01/13
Units:	ug/L	Analyzed:	04/03/13

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,284	91	59-120

Surrogate	%REC	Limits
o-Terphenyl	99	62-133

## Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	244143	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5081	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	196921
MSS Lab ID:	244145-001	Sampled:	03/29/13
Matrix:	Water	Received:	03/29/13
Units:	ug/L	Prepared:	04/01/13
Diln Fac:	1.000	Analyzed:	04/03/13

Type: MS Cleanup Method: EPA 3630C  
 Lab ID: QC682312

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	15.45	2,451	1,917	78	61-120

Surrogate	%REC	Limits
o-Terphenyl	84	62-133

Type: MSD Cleanup Method: EPA 3630C  
 Lab ID: QC682313

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,451	2,204	89	61-120	14	43

Surrogate	%REC	Limits
o-Terphenyl	98	62-133

RPD= Relative Percent Difference

Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	244143	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5081	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	196921
MSS Lab ID:	244146-002	Sampled:	03/28/13
Matrix:	Water	Received:	03/29/13
Units:	ug/L	Prepared:	04/01/13
Diln Fac:	1.000	Analyzed:	04/03/13

Type: MS Cleanup Method: EPA 3630C  
 Lab ID: QC682314

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	<9.639	2,451	2,068	84	61-120

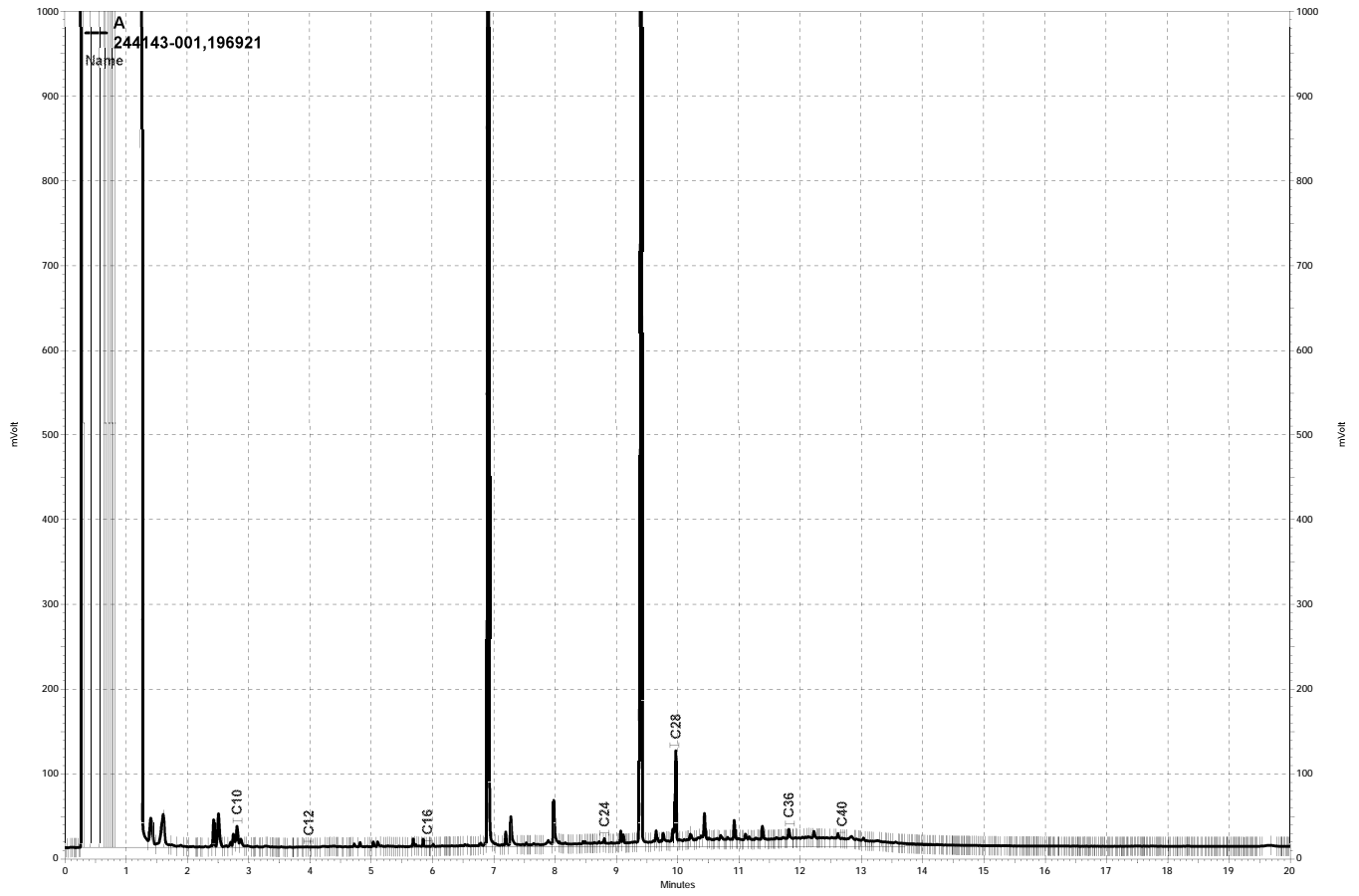
Surrogate	%REC	Limits
o-Terphenyl	91	62-133

Type: MSD Cleanup Method: EPA 3630C  
 Lab ID: QC682315

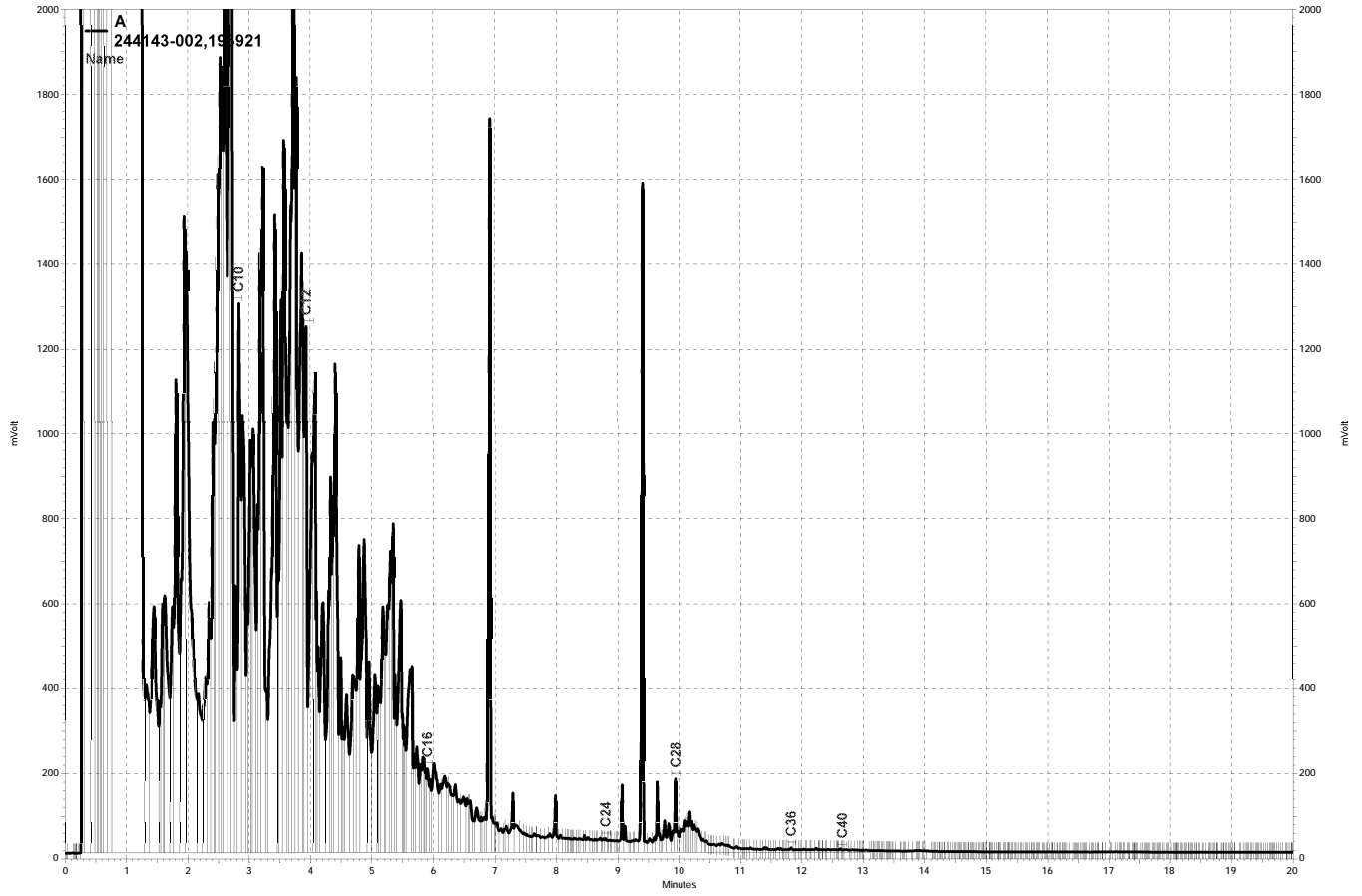
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,451	2,030	83	61-120	2	43

Surrogate	%REC	Limits
o-Terphenyl	91	62-133

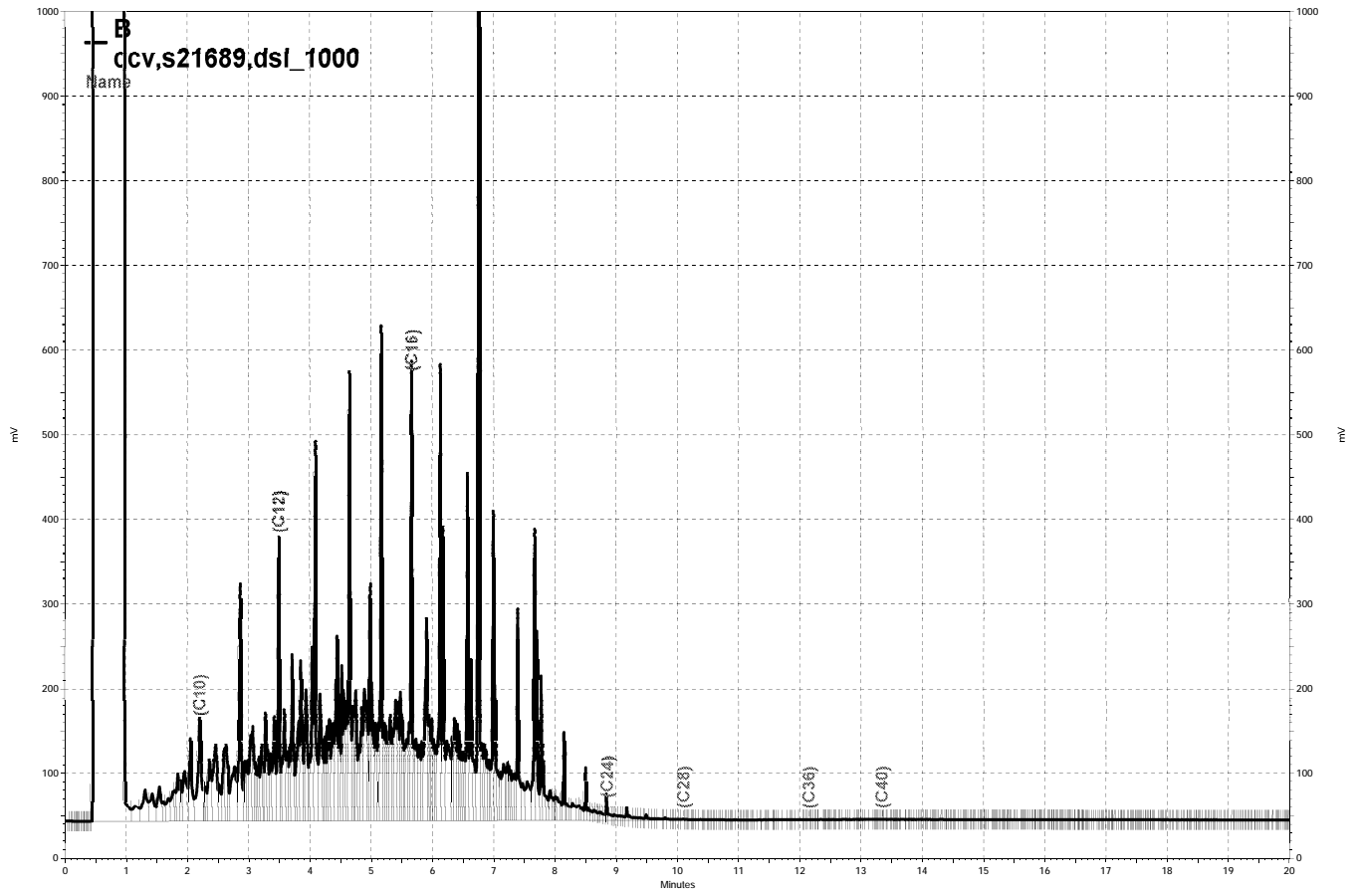
RPD= Relative Percent Difference



— \\Lims\gdrive\ezchrom\Projects\GC26\Data\093a013, A



— \\Lims\gdrive\ezchrom\Projects\GC26\Data\093a014, A



— \\Lims\gdrive\ezchrom\Projects\GC14B\Data\093b004, B

### Purgeable Organics by GC/MS

Lab #: 244143	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: 244143-001	Sampled: 03/29/13
Matrix: Water	Received: 03/29/13
Units: ug/L	

Analyte	Result	RL	Batch#	Analyzed
Gasoline C7-C12	ND	50	196930	04/02/13
tert-Butyl Alcohol (TBA)	ND	10	196966	04/03/13
Isopropyl Ether (DIPE)	ND	0.50	196966	04/03/13
Ethyl tert-Butyl Ether (ETBE)	ND	0.50	196966	04/03/13
Methyl tert-Amyl Ether (TAME)	ND	0.50	196966	04/03/13
MTBE	3.6	0.50	196966	04/03/13
Benzene	ND	0.50	196966	04/03/13
Toluene	ND	0.50	196966	04/03/13
1,2-Dibromoethane	ND	0.50	196966	04/03/13
Ethylbenzene	ND	0.50	196966	04/03/13
m,p-Xylenes	ND	0.50	196966	04/03/13
o-Xylene	ND	0.50	196966	04/03/13

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	122	77-134	196966	04/03/13
1,2-Dichloroethane-d4	116	72-140	196966	04/03/13
Toluene-d8	102	80-120	196966	04/03/13
Bromofluorobenzene	89	80-120	196966	04/03/13

ND= Not Detected  
 RL= Reporting Limit



### Purgeable Organics by GC/MS

Lab #: 244143	Location: 2844 Mountain Blvd., Oakland
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 5081	Analysis: EPA 8260B
Field ID: RS-4	Batch#: 196971
Lab ID: 244143-002	Sampled: 03/29/13
Matrix: Water	Received: 03/29/13
Units: ug/L	Analyzed: 04/03/13
Diln Fac: 200.0	

Analyte	Result	RL
Gasoline C7-C12	14,000	10,000
tert-Butyl Alcohol (TBA)	110,000	2,000
Isopropyl Ether (DIPE)	ND	100
Ethyl tert-Butyl Ether (ETBE)	ND	100
Methyl tert-Amyl Ether (TAME)	590	100
MTBE	14,000	100
Benzene	ND	100
Toluene	ND	100
1,2-Dibromoethane	ND	100
Ethylbenzene	440	100
m,p-Xylenes	1,200	100
o-Xylene	140	100

Surrogate	%REC	Limits
Dibromofluoromethane	103	77-134
1,2-Dichloroethane-d4	97	72-140
Toluene-d8	93	80-120
Bromofluorobenzene	97	80-120

ND= Not Detected  
 RL= Reporting Limit

## Batch QC Report

Purgeable Organics by GC/MS			
Lab #:	244143	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:	QC682351	Batch#:	196930
Matrix:	Water	Analyzed:	04/02/13
Units:	ug/L		

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

Surrogate	%REC	Limits
Dibromofluoromethane	103	77-134
1,2-Dichloroethane-d4	97	72-140
Toluene-d8	92	80-120
Bromofluorobenzene	93	80-120

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



**Batch QC Report**

Purgeable Organics by GC/MS			
Lab #:	244143	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	196966
Units:	ug/L	Analyzed:	04/03/13
Diln Fac:	1.000		

Type: BS Lab ID: QC682517

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	62.50	51.84	83	37-144
Isopropyl Ether (DIPE)	12.50	13.49	108	52-123
Ethyl tert-Butyl Ether (ETBE)	12.50	12.06	96	57-120
Methyl tert-Amyl Ether (TAME)	12.50	10.22	82	59-120
MTBE	12.50	11.29	90	58-120
Benzene	12.50	14.04	112	78-125
Toluene	12.50	13.03	104	79-123
1,2-Dibromoethane	12.50	10.66	85	78-120
Ethylbenzene	12.50	12.47	100	80-126
m,p-Xylenes	25.00	24.59	98	80-123
o-Xylene	12.50	9.824	79	75-120

Surrogate	%REC	Limits
Dibromofluoromethane	113	77-134
1,2-Dichloroethane-d4	112	72-140
Toluene-d8	99	80-120
Bromofluorobenzene	89	80-120

Type: BSD Lab ID: QC682518

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	62.50	60.37	97	37-144	15	31
Isopropyl Ether (DIPE)	12.50	13.87	111	52-123	3	20
Ethyl tert-Butyl Ether (ETBE)	12.50	12.50	100	57-120	4	23
Methyl tert-Amyl Ether (TAME)	12.50	10.23	82	59-120	0	22
MTBE	12.50	12.10	97	58-120	7	23
Benzene	12.50	14.05	112	78-125	0	20
Toluene	12.50	13.32	107	79-123	2	20
1,2-Dibromoethane	12.50	11.14	89	78-120	4	20
Ethylbenzene	12.50	12.59	101	80-126	1	20
m,p-Xylenes	25.00	24.82	99	80-123	1	20
o-Xylene	12.50	10.04	80	75-120	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	116	77-134
1,2-Dichloroethane-d4	111	72-140
Toluene-d8	100	80-120
Bromofluorobenzene	90	80-120

RPD= Relative Percent Difference

**Batch QC Report**

<b>Purgeable Organics by GC/MS</b>			
Lab #:	244143	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:	QC682519	Batch#:	196966
Matrix:	Water	Analyzed:	04/03/13
Units:	ug/L		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
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
MTBE	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

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	124	77-134
1,2-Dichloroethane-d4	113	72-140
Toluene-d8	102	80-120
Bromofluorobenzene	94	80-120

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

**Batch QC Report**

Purgeable Organics by GC/MS			
Lab #:	244143	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	196971
Units:	ug/L	Analyzed:	04/03/13
Diln Fac:	1.000		

Type: BS Lab ID: QC682535

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	62.50	68.27	109	37-144
Isopropyl Ether (DIPE)	12.50	13.68	109	52-123
Ethyl tert-Butyl Ether (ETBE)	12.50	13.72	110	57-120
Methyl tert-Amyl Ether (TAME)	12.50	12.80	102	59-120
MTBE	12.50	15.01	120	58-120
Benzene	12.50	14.43	115	78-125
Toluene	12.50	13.51	108	79-123
1,2-Dibromoethane	12.50	13.07	105	78-120
Ethylbenzene	12.50	13.41	107	80-126
m,p-Xylenes	25.00	27.69	111	80-123
o-Xylene	12.50	12.66	101	75-120

Surrogate	%REC	Limits
Dibromofluoromethane	102	77-134
1,2-Dichloroethane-d4	99	72-140
Toluene-d8	96	80-120
Bromofluorobenzene	100	80-120

Type: BSD Lab ID: QC682536

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	62.50	70.54	113	37-144	3	31
Isopropyl Ether (DIPE)	12.50	14.11	113	52-123	3	20
Ethyl tert-Butyl Ether (ETBE)	12.50	14.39	115	57-120	5	23
Methyl tert-Amyl Ether (TAME)	12.50	13.15	105	59-120	3	22
MTBE	12.50	14.63	117	58-120	3	23
Benzene	12.50	14.66	117	78-125	2	20
Toluene	12.50	14.60	117	79-123	8	20
1,2-Dibromoethane	12.50	13.19	106	78-120	1	20
Ethylbenzene	12.50	13.50	108	80-126	1	20
m,p-Xylenes	25.00	27.75	111	80-123	0	20
o-Xylene	12.50	13.34	107	75-120	5	20

Surrogate	%REC	Limits
Dibromofluoromethane	102	77-134
1,2-Dichloroethane-d4	96	72-140
Toluene-d8	94	80-120
Bromofluorobenzene	96	80-120

RPD= Relative Percent Difference

**Batch QC Report**

<b>Purgeable Organics by GC/MS</b>			
Lab #:	244143	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:	QC682537	Batch#:	196971
Matrix:	Water	Analyzed:	04/03/13
Units:	ug/L		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
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
MTBE	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

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	106	77-134
1,2-Dichloroethane-d4	100	72-140
Toluene-d8	92	80-120
Bromofluorobenzene	95	80-120

ND= Not Detected  
 RL= Reporting Limit

## Batch QC Report

Purgeable Organics by GC/MS			
Lab #:	244143	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	196971
Units:	ug/L	Analyzed:	04/03/13
Diln Fac:	1.000		

Type: BS Lab ID: QC682538

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	966.7	97	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	98	77-134
1,2-Dichloroethane-d4	99	72-140
Toluene-d8	97	80-120
Bromofluorobenzene	95	80-120

Type: BSD Lab ID: QC682539

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1,000	920.5	92	80-120	5	20

Surrogate	%REC	Limits
Dibromofluoromethane	105	77-134
1,2-Dichloroethane-d4	95	72-140
Toluene-d8	95	80-120
Bromofluorobenzene	96	80-120

RPD= Relative Percent Difference



Date : 03-APR-2013 15:58

Client ID: DYNA P&T

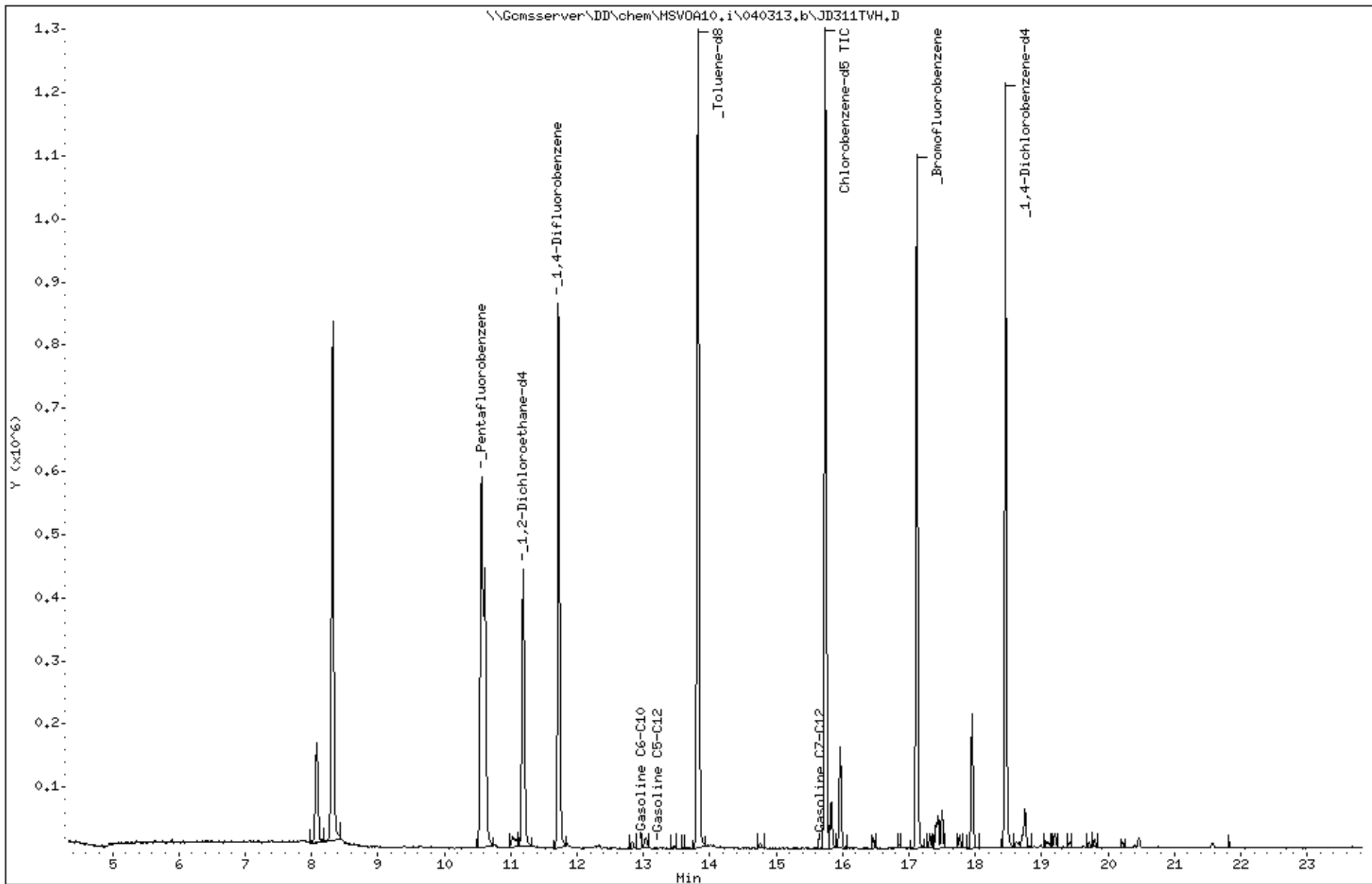
Sample Info: s,244143-002

Instrument: MSV0A10.i

Operator: VOA

Column diameter: 2.00

Column phase:



Date : 02-APR-2013 16:55

Client ID: DYNA P&T

Sample Info: CCV/BS,QC682352

Instrument: MSV0A10.i

Operator: VOA

Column diameter: 2.00

Column phase:

