

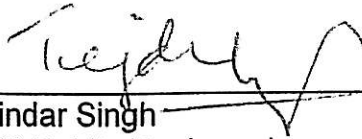
RECEIVED

By Alameda County Environmental Health at 4:34 pm, Apr 01, 2014

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

**First Quarter 2014
Groundwater Monitoring Report**

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

April 1, 2014

Project 5081

Prepared for

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



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April 1, 2014

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

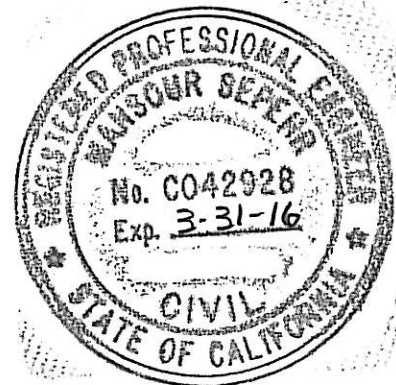
Dear Mr. Musonge:

Enclosed for your review is a copy of SOMA's "First Quarter 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

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 First Quarter 2014 groundwater monitoring event.



Mansour Sepehr, PhD, PE
Principal Hydrogeologist

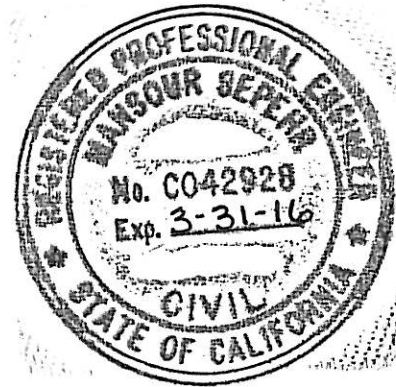


TABLE OF CONTENTS

CERTIFICATION	i
TABLE OF CONTENTS.....	ii
LIST OF FIGURES	iii
LIST OF TABLES.....	iii
LIST OF APPENDICES	iii
1. INTRODUCTION	1
1.1 Previous Activities	1
1.2 Summary of Field Activities and Laboratory Analysis	2
1.2.1 Field Activities	2
1.2.2 Laboratory Analysis	3
2. RESULTS	3
2.1 Field Measurements	3
2.2 Laboratory Analysis	3
3. CONCLUSIONS AND RECOMMENDATIONS.....	5
4. REPORT LIMITATIONS	5

LIST OF FIGURES

- Figure 1 Site Vicinity Map
- Figure 2 Site Map Showing Locations of Former USTs, Soil Borings, and Groundwater Monitoring Wells
- Figure 3 Groundwater Elevation Contour Map in feet, March 10, 2014
- Figure 4 Map Showing TPH-g and Benzene Concentrations in Groundwater, March 10, 2014
- Figure 5 Contour Map Showing TPH-d Concentrations in Groundwater, March 10, 2014
- Figure 6 Contour Map Showing MtBE Concentrations in Groundwater, March 10, 2014
- Figure 7 Contour Map Showing TBA Concentrations in Groundwater, March 10, 2014
- Figure 8 Contour Map Showing TAME Concentrations in Groundwater, March 10, 2014

LIST OF TABLES

- Table 1 Historical Groundwater Analytical Results

LIST OF APPENDICES

- Appendix A Standard Operating Procedures for Conducting Groundwater Monitoring Activities
- Appendix B Tables of Elevations and Coordinates on Wells, Field Measurements of Physical and Chemical Parameters of the Groundwater Samples and Groundwater Gradient Calculations
- Appendix C Laboratory Report and Chain of Custody Form
- Appendix D Non-Hazardous Waste Manifest

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 2014 groundwater monitoring event conducted at the site on March 10, 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.

As approved by SFRWQCB, a multi-phase extraction (MPE) event was conducted at the site from December 2 to December 16, 2013. Details and results of this event are documented in a separate pilot testing report.

1.2 Summary of Field Activities and Laboratory Analysis

1.2.1 Field Activities

On March 10, 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. 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. Two drums generated during previous monitoring events (Third and Fourth Quarter 2013) were transported to an appropriate disposal facility on February 17, 2014. Appendix D includes the non-hazardous waste manifest.

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 10, 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 5.51 feet in MW-1 to 7.65 feet in RS-4. Groundwater elevations ranged from 667.62 feet in RS-4 to 670.40 feet in RS-3.

Figure 3 displays the groundwater elevation map. The groundwater flows southeasterly at a gradient of 0.057 ft/ft. Since the previous monitoring event (December 2013), the groundwater flow direction has remained southeasterly and the gradient has decreased. Groundwater gradient calculations are included in Appendix B.

2.2 Laboratory Analysis

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

TPH-g was below laboratory-reporting limit in RS-3, RS-4, and MW-1 and was detected in MW-2 at 14,000 µg/L. Since the previous monitoring event (December 2013), TPH-g concentration in MW-2 has increased, while concentration in MW-1 has decreased and remained below laboratory-reporting limits in RS-3 and RS-4. Figure 4 shows a map of TPH-g concentrations in groundwater.

TPH-d was below the laboratory-reporting limit in RS-3 and detected in concentrations ranging from 3,700 µg/L in RS-4 to 11,000 µg/L in MW-1 and MW-2. Since the previous monitoring event (December 2013), TPH-d has increased in MW-2 and decreased in RS-3, RS-4 and MW-1. Figure 5 shows a contour map of TPH-d concentrations in groundwater. TPH-d plume appears to be centered south of the pump islands in the vicinity of MW-1 and MW-2.

The following BTEX concentrations were observed during this monitoring event:

- All BTEX analytes were below laboratory-reporting limits in RS-3 and RS-4.
- Benzene was detected in MW-1 and MW-2 at 720 µg/L and 210 µg/L, respectively. Since the previous monitoring event (December 2013) benzene has decreased in MW-1 and increased in MW-2. 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.
- Toluene was below laboratory-reporting limit in MW-1 and MW-2. Since the previous monitoring event (December 2013) toluene has decreased in MW-1 and remained below the laboratory-reporting limit in other wells.
- Ethylbenzene was detected in MW-1 and MW-2 at 890 µg/L and 360 µg/L, respectively. Since the previous monitoring event (December 2013) ethylbenzene has decreased in MW-1, and increased in MW-2.
- Total xylenes was detected in MW-1 and MW-2 at 1,970 µg/L and 700 µg/L, respectively. Since the previous monitoring event (December 2013), total xylenes decreased in MW-1 and RS-4 and increased in MW-2.

Methyl tertiary-butyl ether (MtBE) concentrations ranged from 14 µg/L in RS-3 to 25,000 µg/L in MW-1. Since the previous monitoring event (December 2013), MtBE has decreased in RS-3, RS-4, MW-1 and MW-2. Figure 6 shows a contour map of MtBE concentrations in groundwater. The MtBE plume appears to be centered to the southwest of the pump islands in the vicinity of MW-1.

Tertiary-butyl alcohol (TBA) concentrations ranged from 320 µg/L in RS-3 to 40,000 µg/L in MW-2. Since the previous monitoring event (December 2013), TBA has increased in RS-4 and decreased in RS-3, MW-1 and MW-2. 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 0.61 µg/L in RS-3 to 2,600 µg/L in MW-1. Since the previous monitoring event (December 2013), TAME has decreased in RS-3, RS-4 and MW-1 and stayed the same in MW-2. Figure 8 shows a contour map of TAME concentrations in groundwater. The highest TAME concentrations were detected to the southwest of the pump islands in the vicinity of MW-1.

3. CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations based on results of First 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.
- Since the previous monitoring event in December 2013, TPH-g in MW-2 increased, decreased in MW-1 and remained below laboratory-reporting limits in RS-3 and RS-4; TPH-d increased in MW-2 and decreased in RS-3, RS-4 and MW-1; benzene increased in MW-2 and decreased in MW-1; MtBE decreased in RS-3, RS-4, MW-1 and MW-2; TBA increased in RS-4 and decreased in RS-3, MW-1 and MW-2; and TAME decreased in RS-3, RS-4 and MW-1 and remained the same in MW-2.
- The highest TPH-g, benzene, toluene, ethylbenzene, total xylenes, MtBE, and TAME concentrations were detected to the southwest of the pump islands around MW-1. The highest TBA concentrations were detected in the vicinity of pump islands around MW-2. The highest TPH-d concentrations were detected south of the pump islands around MW-1 and MW-2.
- SOMA will continue conducting quarterly groundwater monitoring events at the site.

SOMA submitted a report documenting installation of soil borings and monitoring wells dated September 13, 2013. The report recommended installing a groundwater monitoring well in close proximity of boring SS-1 in order to monitor elevated levels of chemicals in groundwater.

Based on SFBRWQCB's approval dated April 3, 2013, SOMA conducted a multi-phase extraction (MPE) pilot test at the site from December 2 through December 16, 2013. During the pilot test, 497 pounds of PHCs were removed from the subsurface with an average mass removal rate of 36 lbs/day. Details of the pilot test were included in SOMA's 'Multi-Phase Extraction Pilot Testing Report' dated January 21, 2014. Based on the effectiveness of the pilot test, SOMA proposes to conduct two to three 30-day MPE events at the site in order to mitigate remaining contaminant mass from the subsurface.

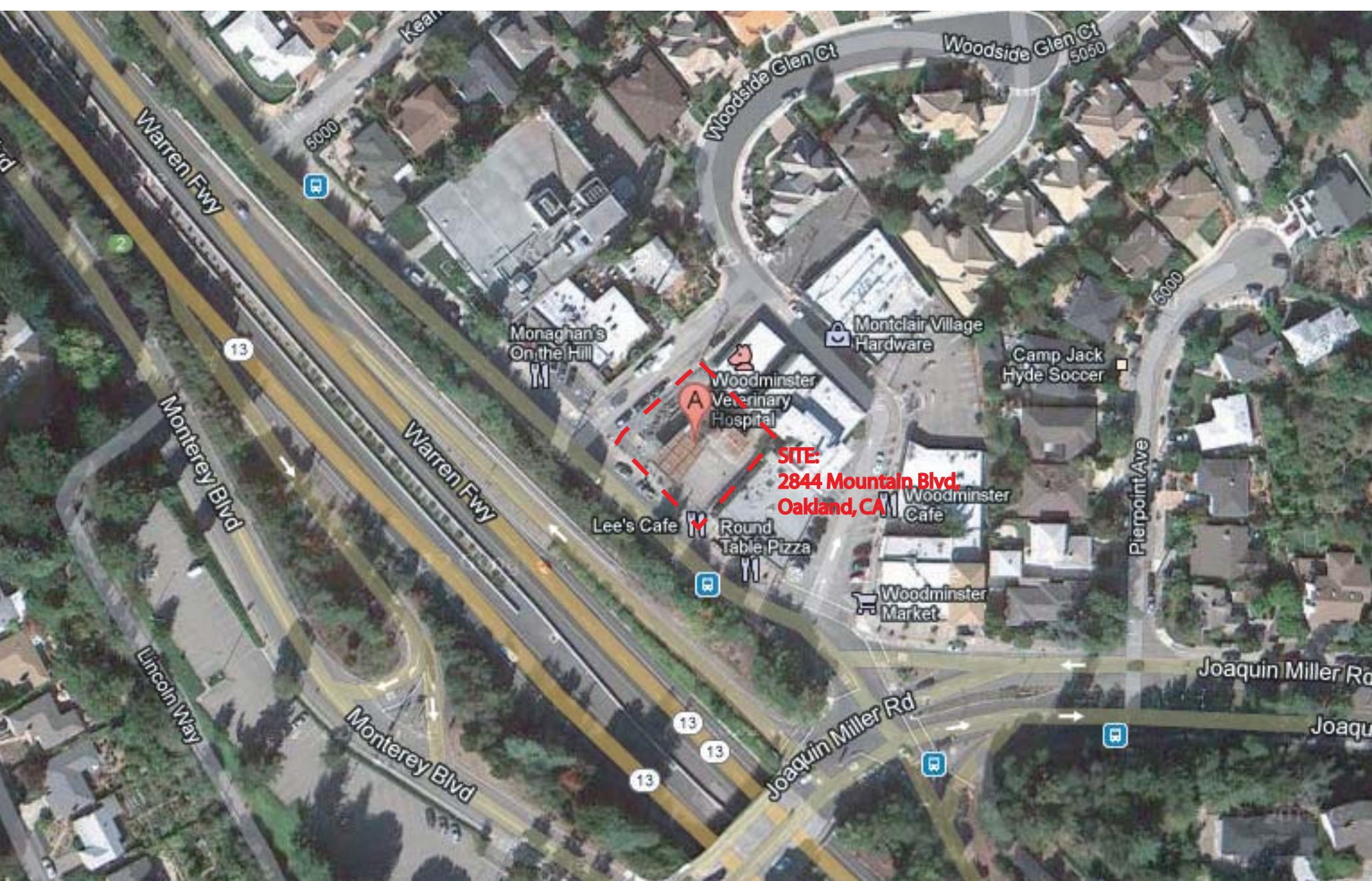
4. REPORT LIMITATIONS

This report is the summary of work done by SOMA, including observations and descriptions of site conditions. It includes analytical results produced by Curtis

and Tompkins, Laboratories for the current groundwater monitoring event. Quantities and locations of wells were selected to provide the required information, but may not be completely representative of entire site conditions. All conclusions and recommendations are based on results of laboratory analysis. Conclusions beyond those specifically stated in this document should not be inferred from this report.

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

Figures



Source: Google (R) 2012

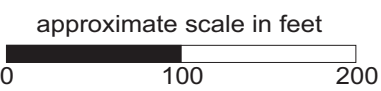
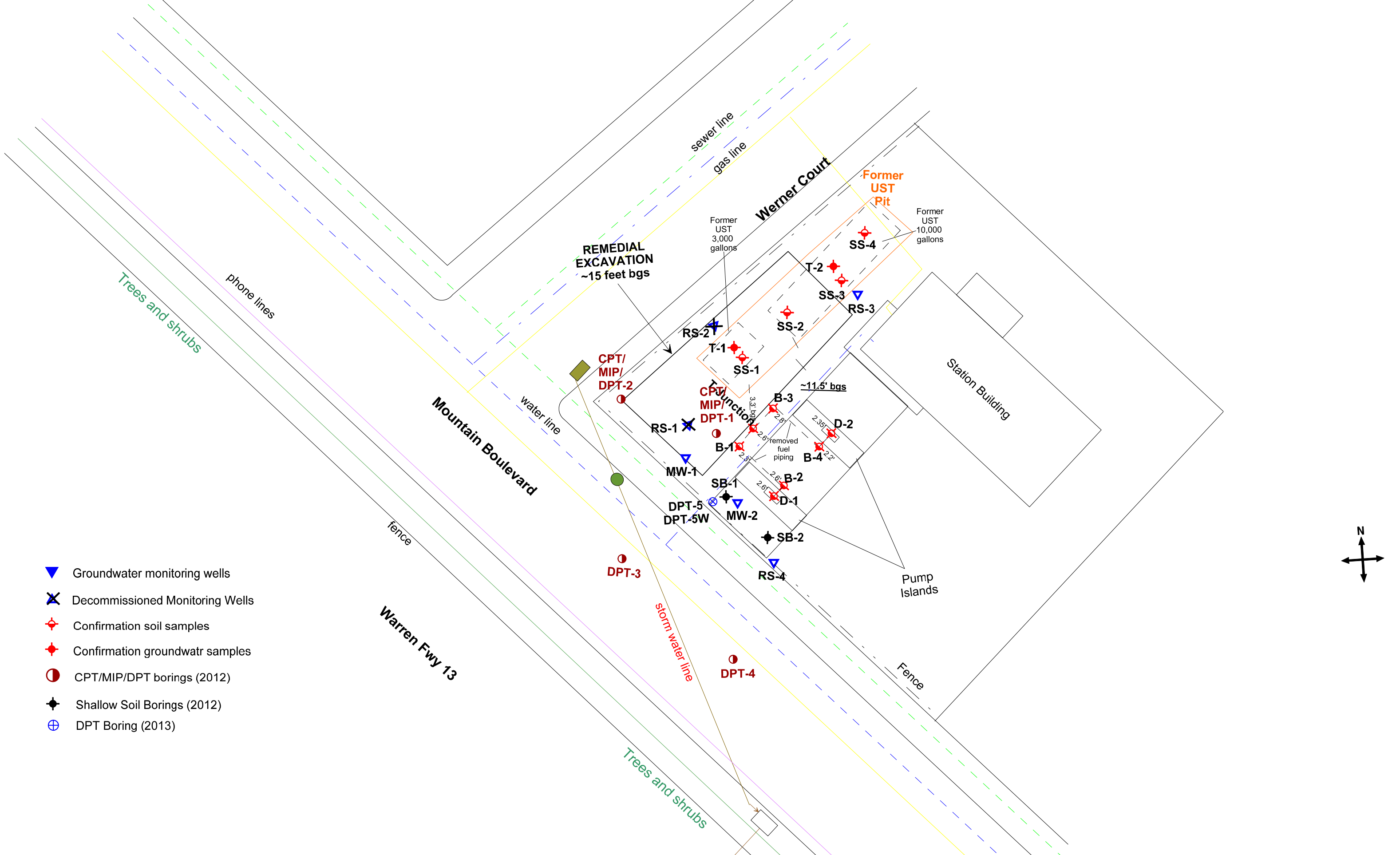


Figure 1: Site Vicinity Map





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

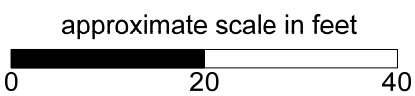


Figure 2: Site Map Showing Locations of Former USTs, Soil Borings, and Groundwater Monitoring Wells

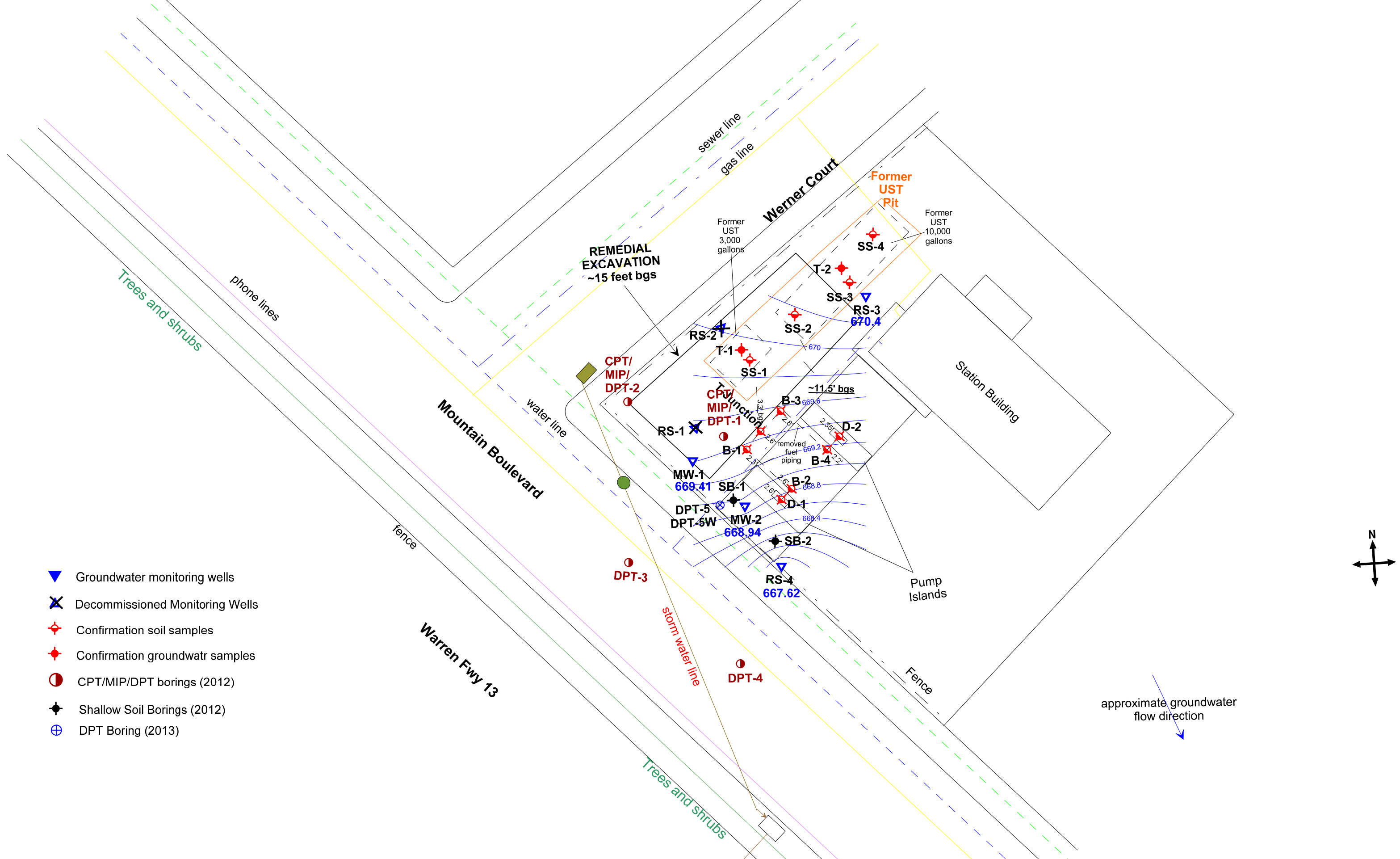
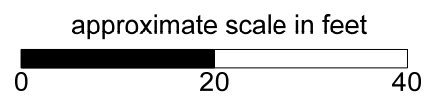
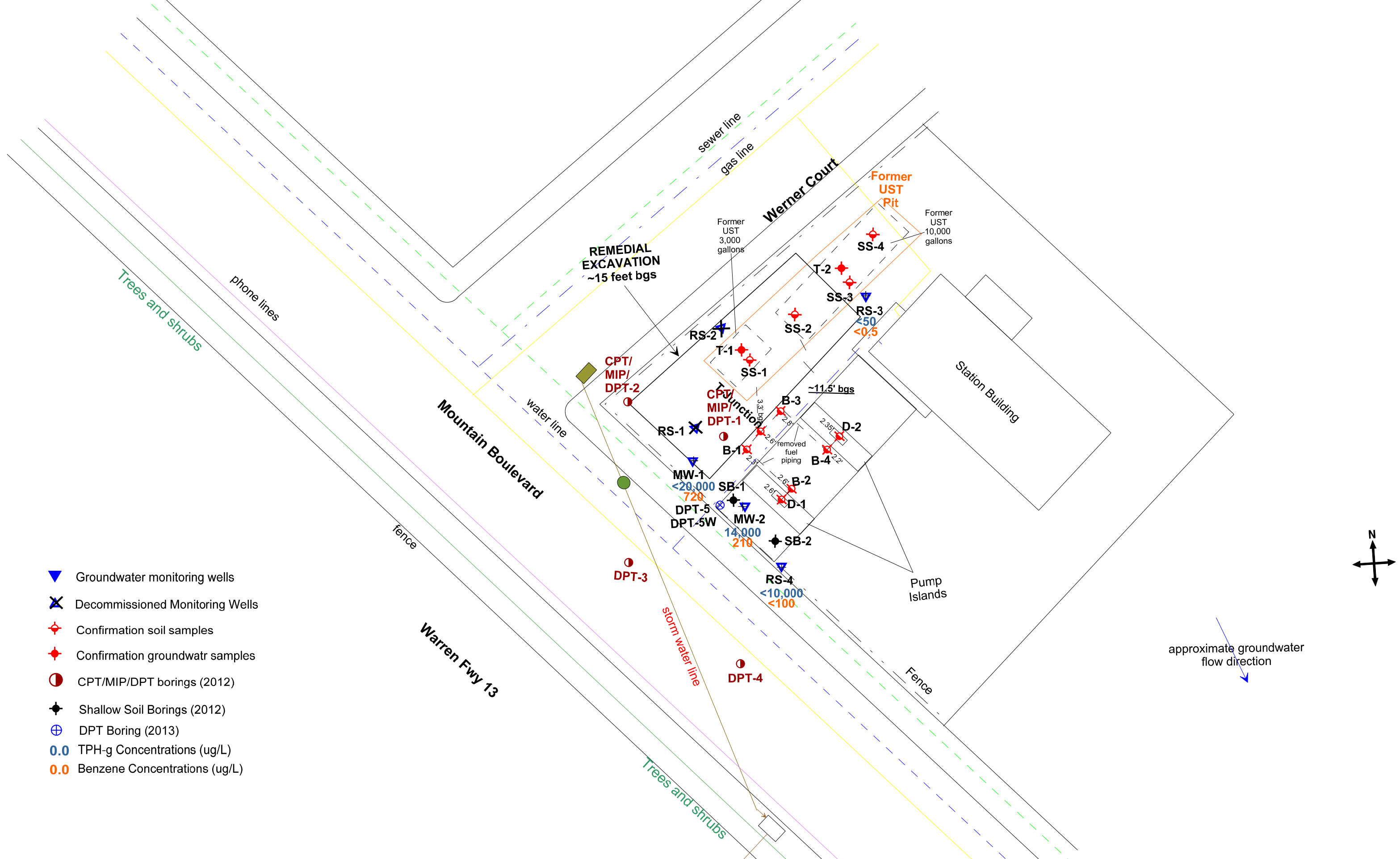


Figure 3: Groundwater Elevation Contour Map in feet, March 10, 2014





- ▼ Groundwater monitoring wells
- ✕ Decommissioned Monitoring Wells
- ⊕ Confirmation soil samples
- ⊕ Confirmation groundwater samples
- CPT/MIP/DPT borings (2012)
- ◆ Shallow Soil Borings (2012)
- ⊕ DPT Boring (2013)
- 0.0 TPH-g Concentrations (ug/L)
- 0.0 Benzene Concentrations (ug/L)

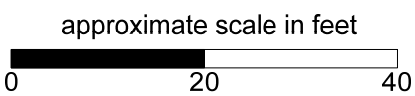


Figure 4: Map Showing TPH-g and Benzene Concentrations in Groundwater, March 10, 2014

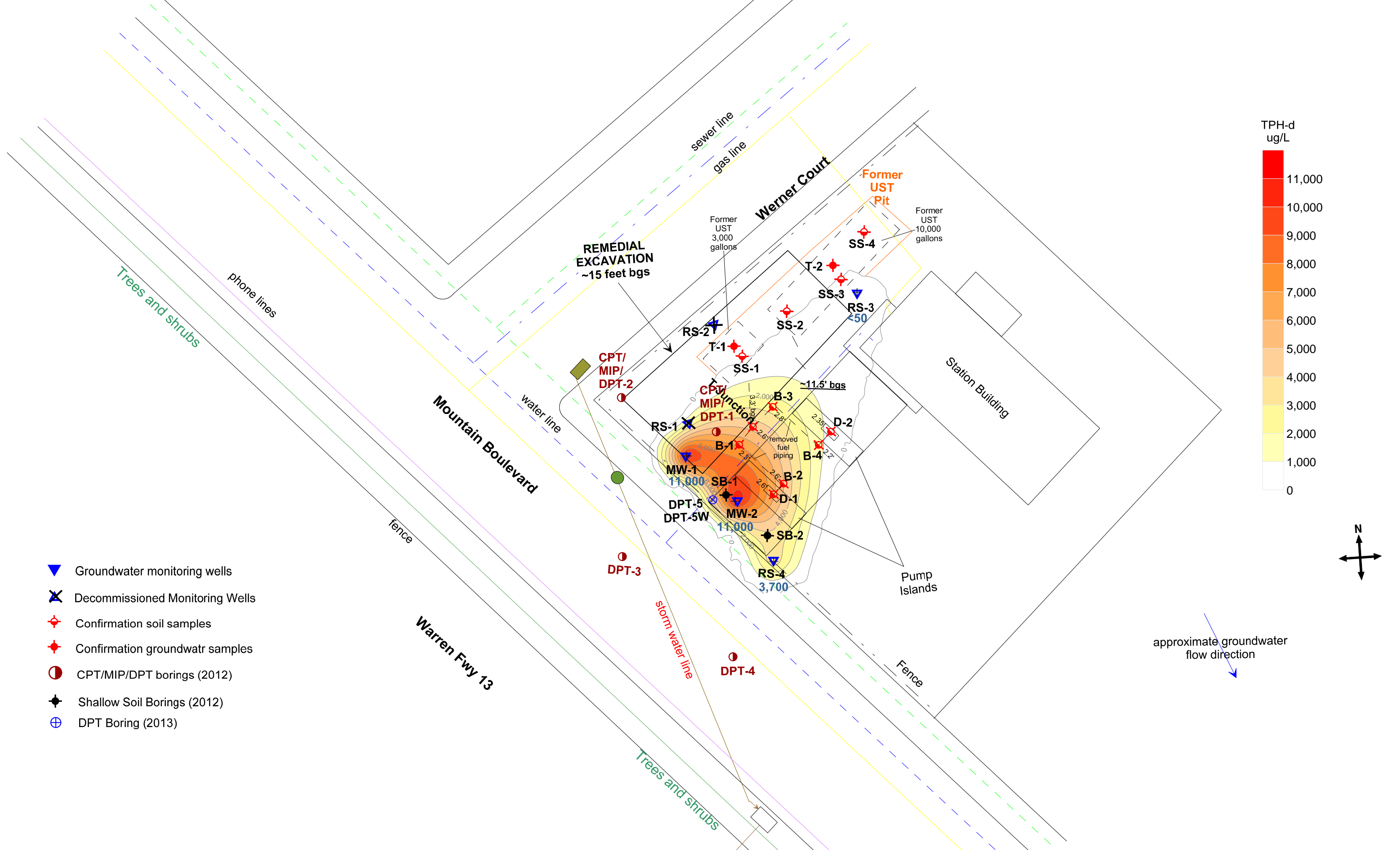
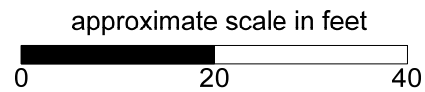


Figure 5: Contour Map Showing TPH-d Concentrations in Groundwater, March 10, 2014



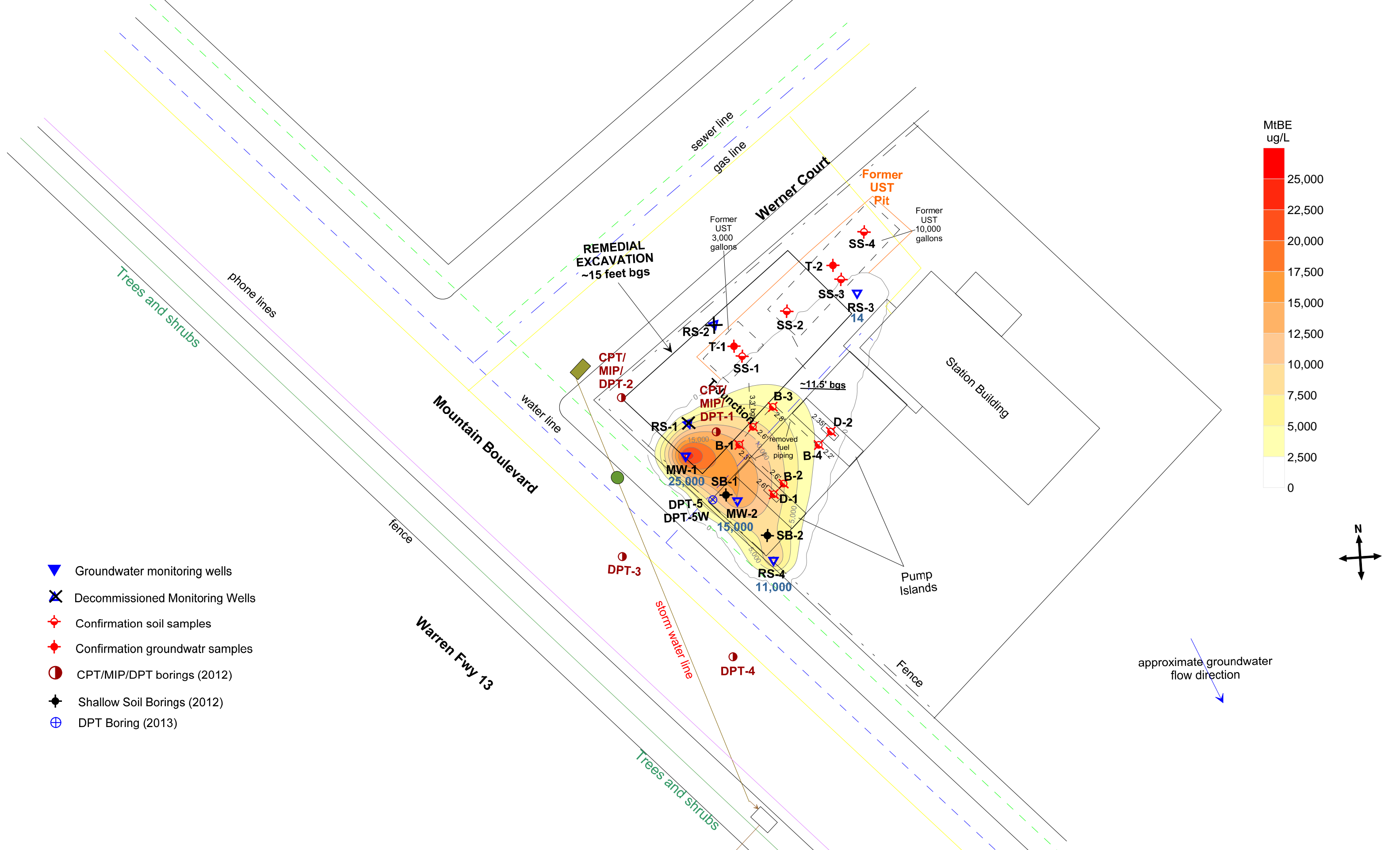
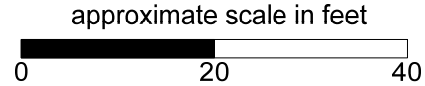


Figure 6: Contour Map Showing MtBE Concentrations in Groundwater, March 10, 2014



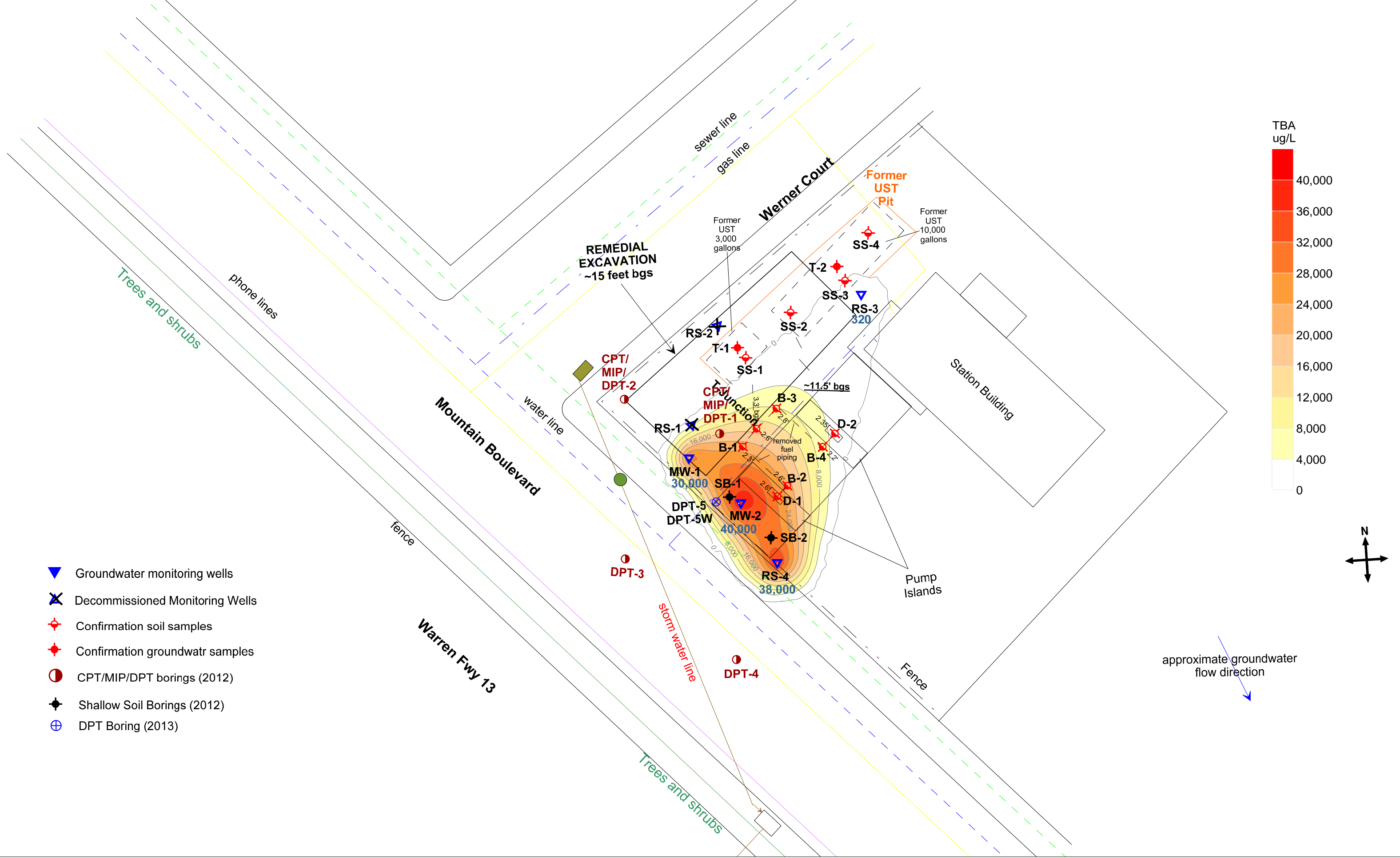
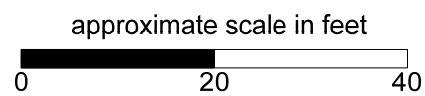


Figure 7: Contour Map Showing TBA Concentrations in Groundwater, March 10, 2014



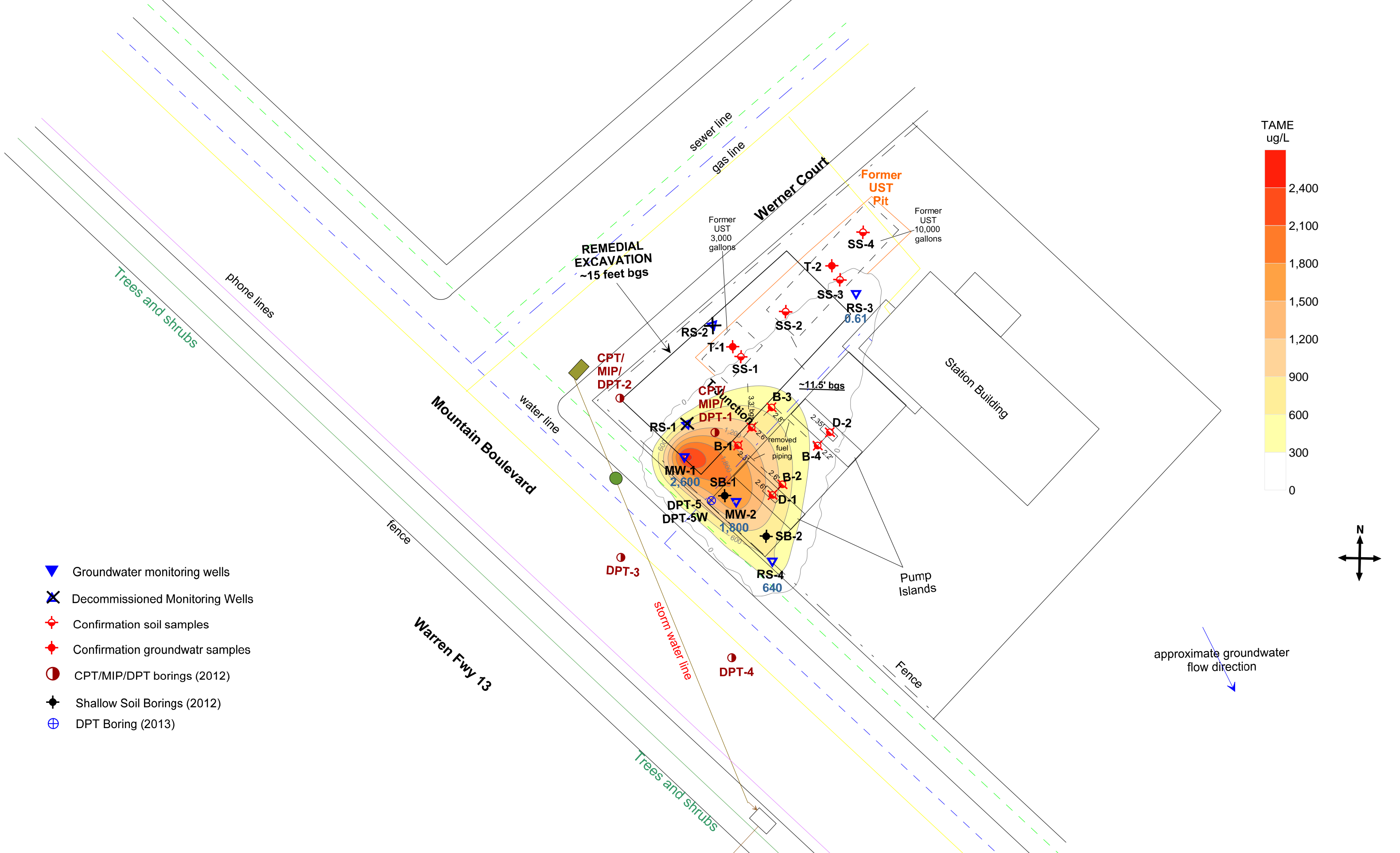
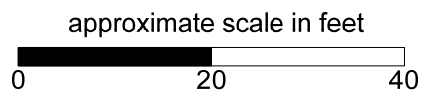


Figure 8: Contour Map Showing TAME Concentrations in Groundwater, March 10, 2014



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	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	0.00	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		
Well Destroyed October 1, 2012																	
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					

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.	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			
	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		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		810	<25	210	473	3,300	18,000	580	
Well Destroyed October 1, 2012																	
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			

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.	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		
	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
	3/29/2013	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
	6/6/2013	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
	9/4/2013	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
12/30/2013	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	
3/10/2014	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	
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			

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.	2/25/1998	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
	3/29/2013	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
	6/6/2013	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
	9/4/2013	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
	12/30/2013	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
	3/10/2014	675.27	7.65	7.65	0.00	667.62	<10,000	3,700	NA	<100	<100	<100	<100	11,000	38,000	640
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
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
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)

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

**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



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: 5.68 feet
 Groundwater Elevation: 670.40 feet
 Water Column Height: 19.31 feet
 Purged Volume: 12 gallons

Project No.: 5081
 Address: 2844 Mountain Blvd.
 Oakland, CA
 Date: March 10, 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)
10:57	Started purging well			
10:58	3	6.92	18.6	838
10:59	6	7.00	17.9	824
11:00	9	7.04	17.6	826
11:01	12	7.06	17.4	825
11:06	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: 675.27 feet Date: March 10, 2014
 Depth to Groundwater: 7.65 feet Sampler: Lizzie Hightower
 Groundwater Elevation: 667.62 feet
 Water Column Height: 17.89 feet
 Purged Volume: - gallons

Not purged

Purging Method: Bailer Pump
 Sampling Method: Bailer Pump

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

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
<u>12:20</u>	<u>Grab sample</u>			

Notes: Cap left on well from MPE event. Unable to remove because it is too tight. Only able to take a grab sample through the hole in the cap.



ENVIRONMENTAL ENGINEERING, INC

Well No.:	<u>MW-1</u>	Project No.:	5081
Casing Diameter:	<u>4</u> inches	Address:	2844 Mountain Blvd.
Depth of Well:	<u>19.75</u> feet		Oakland, CA
Top of Casing Elevation:	<u>674.92</u> feet	Date:	March <u>10</u> , 2014
Depth to Groundwater:	<u>5.51</u> feet	Sampler:	Lizzie Hightower
Groundwater Elevation:	<u>669.41</u> feet		
Water Column Height:	<u>14.24</u> feet		
Purged Volume:	<u>12</u> gallons		

Purging Method:	Bailer <input type="checkbox"/>	Pump <input checked="" type="checkbox"/>
Sampling Method:	Bailer <input checked="" type="checkbox"/>	Pump <input type="checkbox"/>

Color:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Describe:	_____
Sheen:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Describe:	_____
Odor:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Describe:	<u>Petro odor</u>

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
10:25	Started purging well			
10:26	3	6.72	17.9	907
10:27	6	6.75	18.1	908
10:28	9	6.78	18.2	906
10:29	12	6.81	18.2	907
10:34	Sampled			

Notes:



ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-2
 Casing Diameter: 4 inches
 Depth of Well: 19.74 feet
 Top of Casing Elevation: 675.02 feet
 Depth to Groundwater: 6.08 feet
 Groundwater Elevation: 668.94 feet
 Water Column Height: 13.64 feet
 Purged Volume: 12 gallons

Project No.: 5081
 Address: 2844 Mountain Blvd.
 Oakland, CA
 Date: March 10, 2014
 Sampler: Lizzie Hightower

Purging Method: Bailer Pump

Sampling Method: Bailer Pump

Color: Yes No Describe: Cloudy

Sheen: Yes No Describe: _____

Odor: Yes No Describe: Petro Odor

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
11:51	Started purging well			
11:52	3	7.08	18.7	1110
11:52	6	7.10	18.8	1114
11:54	9	7.09	18.8	1113
11:55	12	7.12	18.7	1117
12:00	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

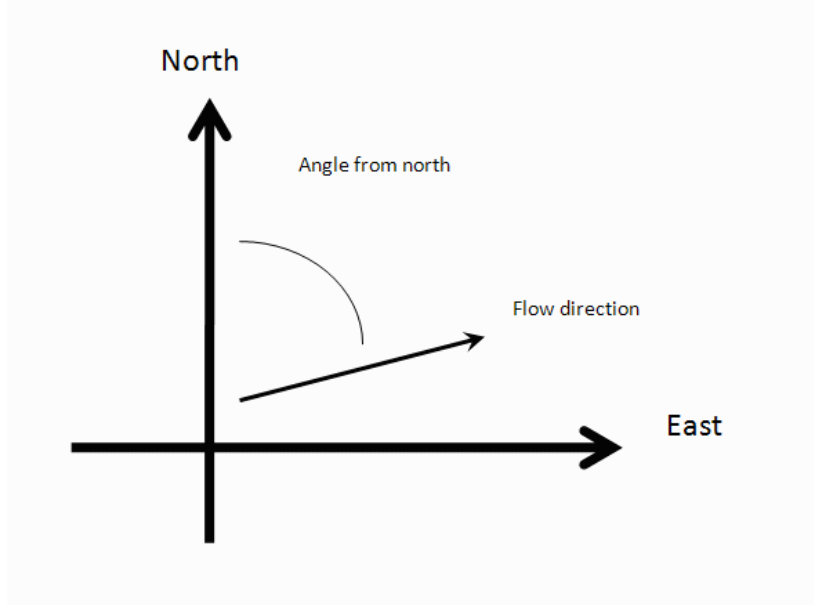
$$\begin{aligned}
 a x_1 + b y_1 + c &= h_1 \\
 a x_2 + b y_2 + c &= h_2 \\
 a x_3 + b y_3 + c &= h_3 \\
 &\dots \\
 a x_{30} + b y_{30} + c &= h_{30}
 \end{aligned}$$

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	670.40
2) RS-4	6071195.458	2122379.324	667.62
3) MW-1	6071174.931	2122404.178	669.41
4) MW-2	6071186.39	2122393.492	668.94
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)		

<http://www.epa.gov/athens/learn2model/part-two/onsite/gradient4plus-ns.html>

Results

Number of Points Used in Calculation	4
Max. Difference Between Head Values	0.8473
Gradient Magnitude (i)	0.05669
Flow direction as degrees from North (positive y axis)	152.4
Coefficient of Determination (R ²)	0.977

WCMS

Last updated on Thursday, January 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 254304
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	254304-001
RS-4	254304-002
MW-1	254304-003
MW-2	254304-004

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: 03/19/2014

CASE NARRATIVE

Laboratory number: 254304
Client: SOMA Environmental Engineering Inc.
Project: 5081
Location: 2844 Mountain Blvd., Oakland
Request Date: 03/11/14
Samples Received: 03/11/14

This data package contains sample and QC results for four water samples, requested for the above referenced project on 03/11/14. The samples were received cold and intact.

TPH-Extractables by GC (EPA 8015B):

No analytical problems were encountered.

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

No analytical problems were encountered.

CHAIN OF CUSTODY

Curtis & Tompkins, Ltd

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

LOGIN # 254304

Sampler: **Lizzie Hightower**

Analyses

Project No: **5081**

Report To: **Joyce Bobek**

Project Name: **2844 Mountain Blvd., Oakland**

Company: **SOMA Environmental**

Turnaround Time: **Standard**

Telephone: **925-734-6400**

Fax: **925-734-6401**

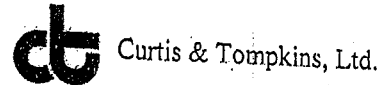
Lab No.	Sample ID.	Sampling Date Time	Matrix			# of Containers	Preservative				TPH-g, BTEX, MtBE 8260B	Gasoline Oxygenates 8260B	TPH-d 8015																												
			Soil	Water	Waste		HCL	H ₂ SO ₄	HNO ₃	ICE																															
1	RS-3	3/10/14 11:06		*		3 VOAs, 2-500 mL Ambers	*				*																														
2	RS-4	↓ 12:20		*		3 VOAs, 2-500 mL Ambers	*				*																														
3	MW-1	↓ 11:34		*		3 VOAs, 2-500 mL Ambers	*				*																														
4	MW-2	↓ 12:00		*		3 VOAs, 2-500 mL Ambers	*				*																														

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

RELINQUISHED BY:		RECEIVED BY:	
<i>Lizzie Hightower</i>	<i>Joyce Bobek</i>	<i>Joyce Bobek</i>	<i>Joyce Bobek</i>
DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME
	3/11/14 8:35	3/11/14 8:35	3/11/14 8:35
	3/11/14 12:00	<i>Joyce Bobek</i>	3/11/14 12:00
	DATE/TIME	<i>Joyce Bobek</i>	DATE/TIME
	DATE/TIME		DATE/TIME

intact cold RC

COOLER RECEIPT CHECKLIST



Login # 254304 Date Received 3/11/14 Number of coolers 1
Client SOMA ENVIRONMENTAL Project 2844 MOUNTAIN BLVD., OAKLAND
Date Opened 3/11/14 By (print) NR (5081) (sign) Lina Rankin
Date Logged in [blank] By (print) [blank] (sign) [blank]

1. Did cooler come with a shipping slip (airbill, etc) Shipping info 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)

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

Total Extractable Hydrocarbons			
Lab #:	254304	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5081	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/10/14
Units:	ug/L	Received:	03/11/14
Diln Fac:	1.000	Prepared:	03/12/14
Batch#:	208898	Analyzed:	03/13/14

Field ID: RS-3 Lab ID: 254304-001
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	99	66-129

Field ID: RS-4 Lab ID: 254304-002
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	3,700	50

Surrogate	%REC	Limits
o-Terphenyl	103	66-129

Field ID: MW-1 Lab ID: 254304-003
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	11,000	50

Surrogate	%REC	Limits
o-Terphenyl	104	66-129

Field ID: MW-2 Lab ID: 254304-004
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	11,000	50

Surrogate	%REC	Limits
o-Terphenyl	105	66-129

Type: BLANK Lab ID: QC731404

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	101	66-129

ND= Not Detected
RL= Reporting Limit
Page 1 of 1

Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	254304	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5081	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	208898
Units:	ug/L	Prepared:	03/12/14
Diln Fac:	1.000	Analyzed:	03/13/14

Type: BS Cleanup Method: EPA 3630C
 Lab ID: QC731405

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,631	65	61-120

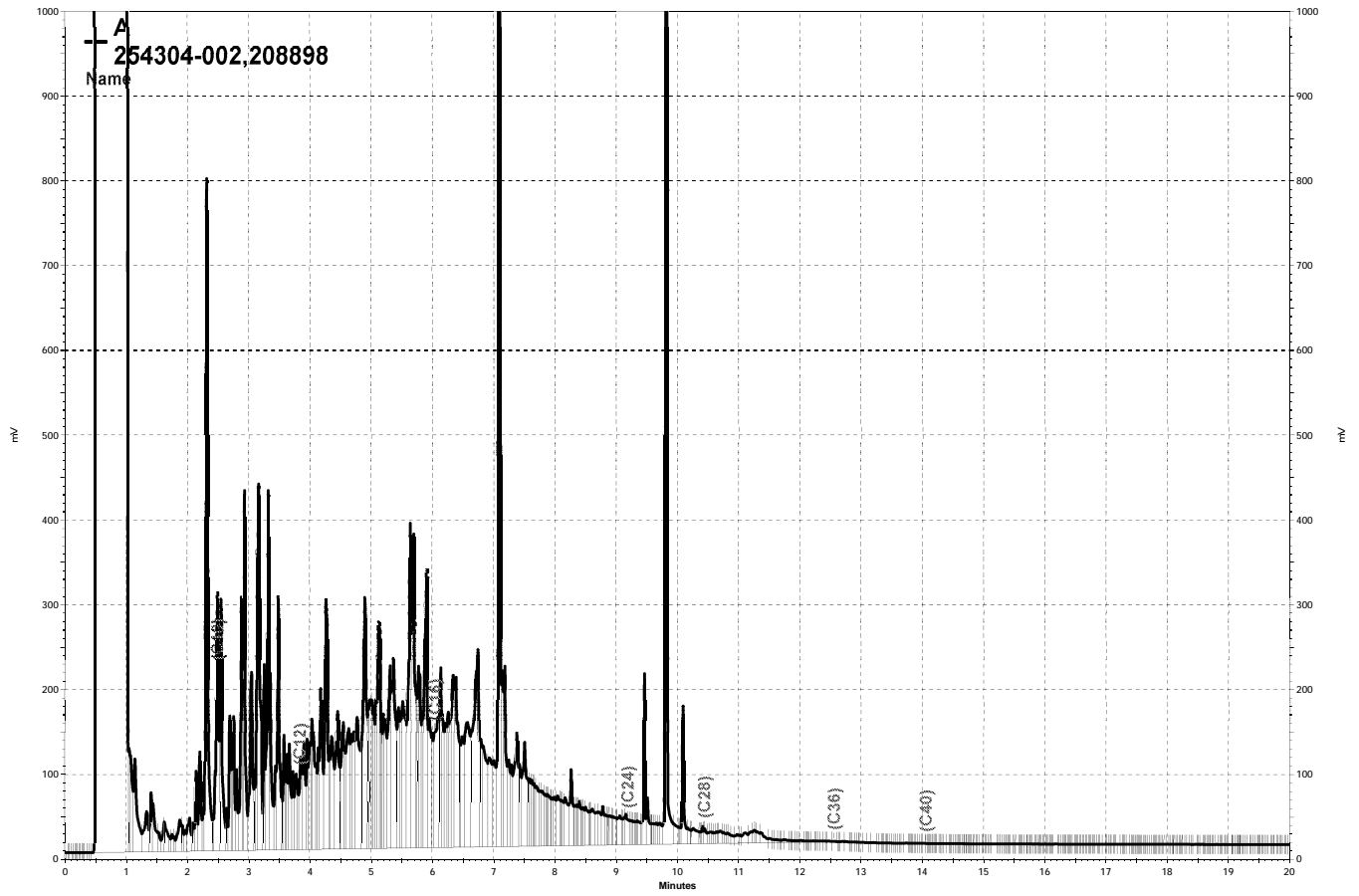
Surrogate	%REC	Limits
o-Terphenyl	98	66-129

Type: BSD Cleanup Method: EPA 3630C
 Lab ID: QC731406

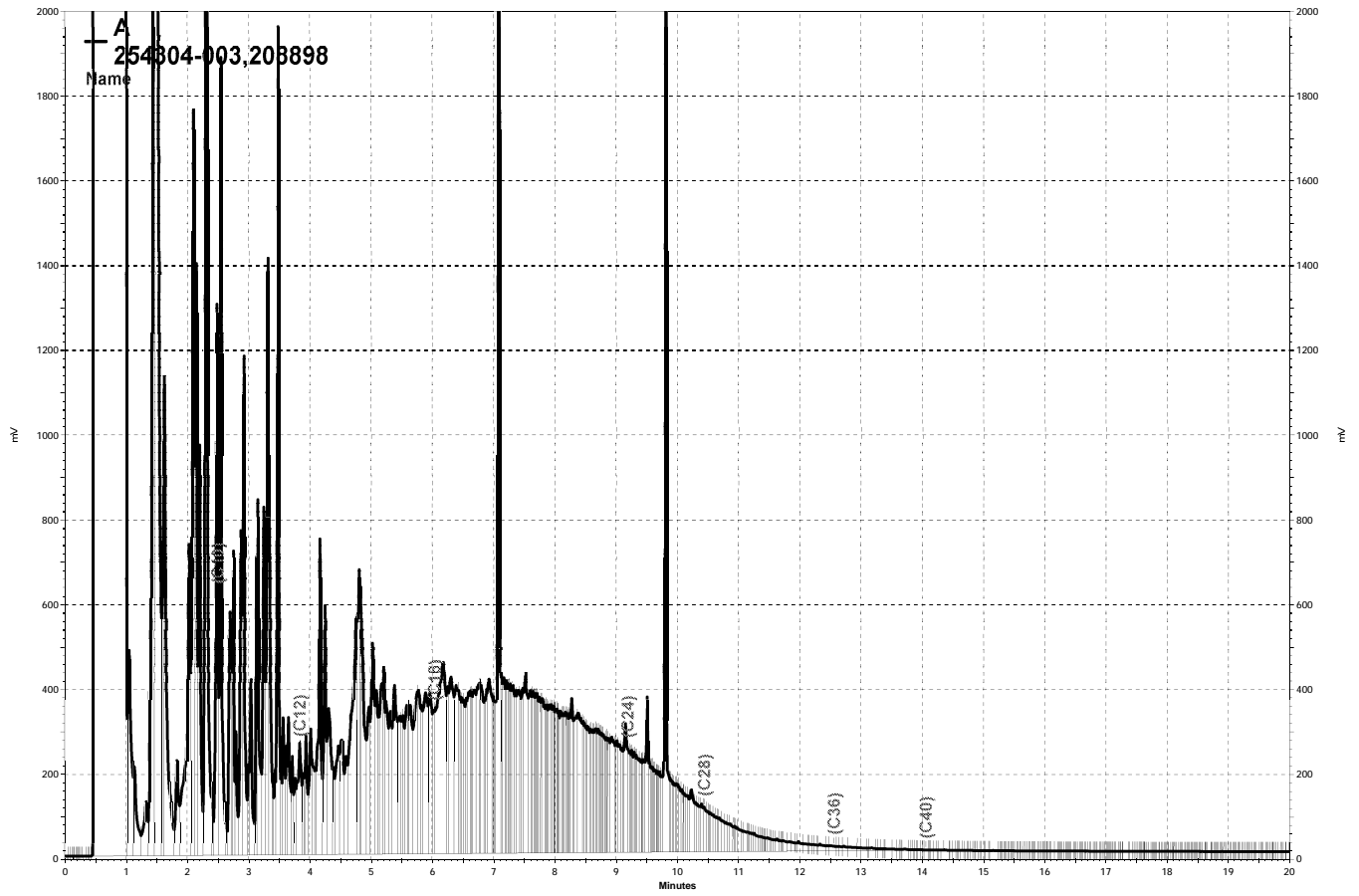
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	1,695	68	61-120	4	45

Surrogate	%REC	Limits
o-Terphenyl	100	66-129

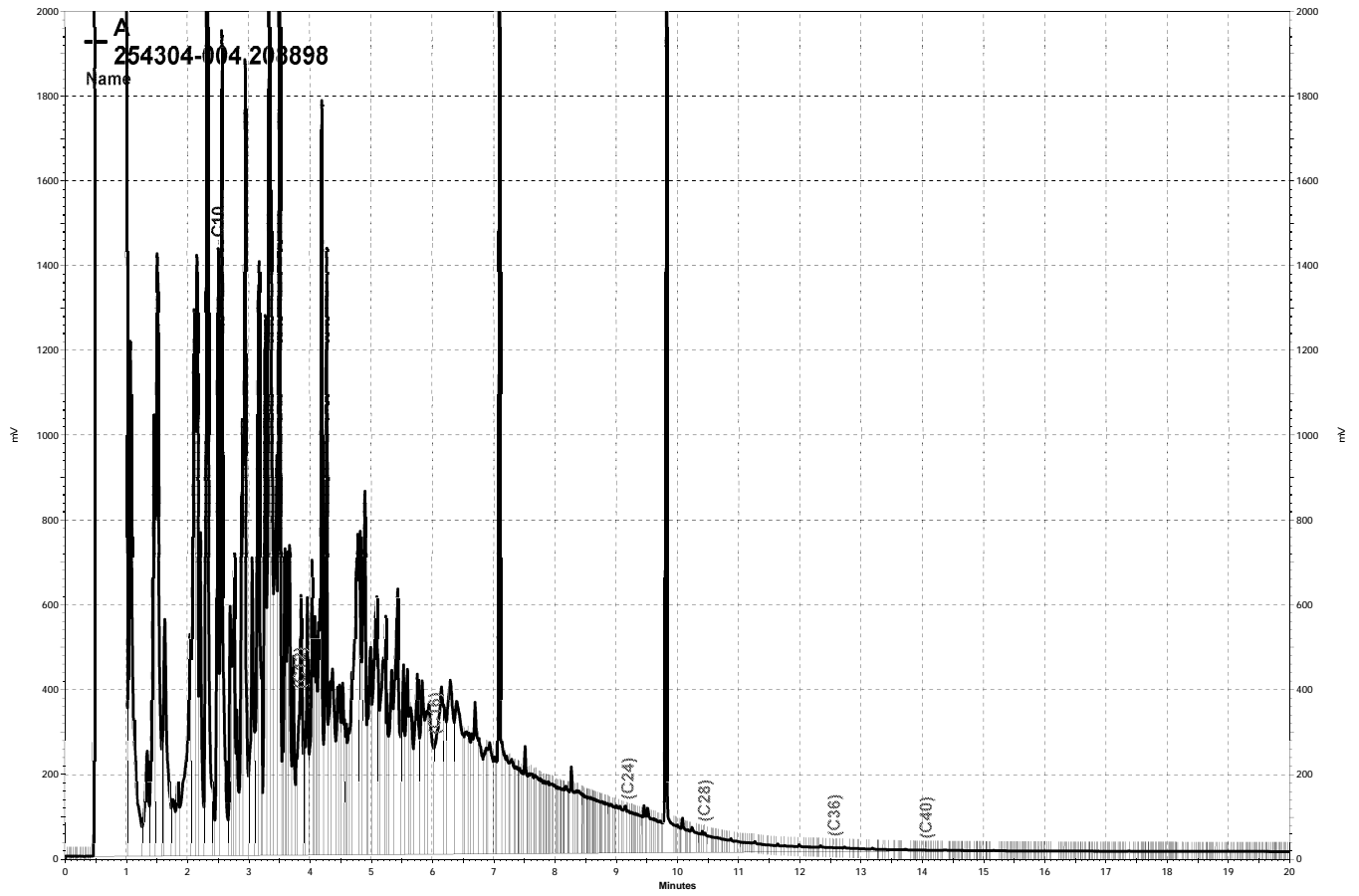
RPD= Relative Percent Difference



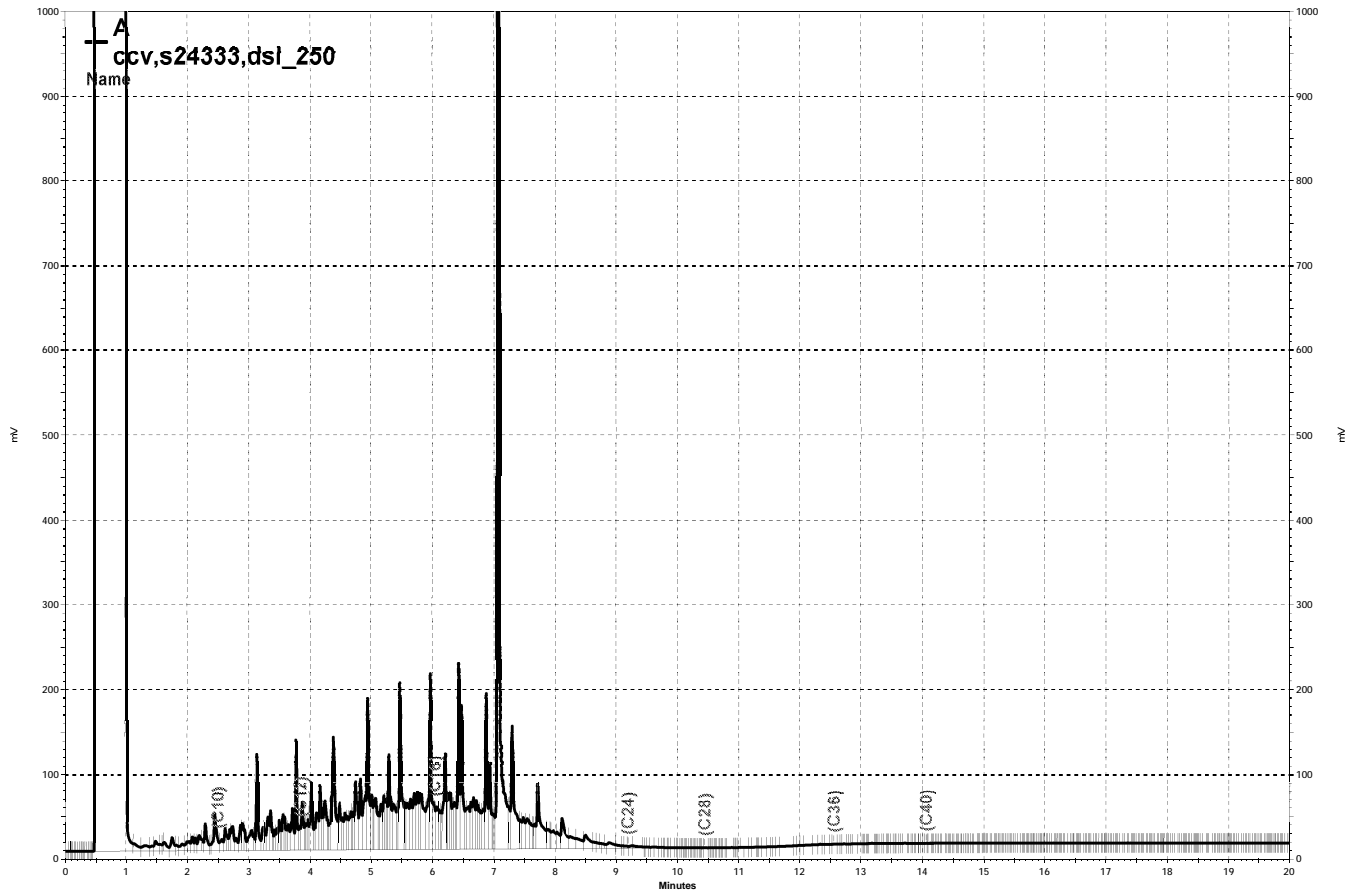
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— \\Lims\gdrive\ezchrom\Projects\GC17A\Data\072a023, A



— \\Lims\gdrive\ezchrom\Projects\GC17A\Data\072a004, A

Purgeable Organics by GC/MS

Lab #: 254304	Location: 2844 Mountain Blvd., Oakland
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 5081	Analysis: EPA 8260B
Field ID: RS-3	Batch#: 208888
Lab ID: 254304-001	Sampled: 03/10/14
Matrix: Water	Received: 03/11/14
Units: ug/L	Analyzed: 03/12/14
Diln Fac: 1.000	

Analyte	Result	RL
Gasoline C7-C12	ND	50
tert-Butyl Alcohol (TBA)	320	10
Isopropyl Ether (DIPE)	ND	0.50
Ethyl tert-Butyl Ether (ETBE)	ND	0.50
Methyl tert-Amyl Ether (TAME)	0.61	0.50
MTBE	14	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	96	77-136
1,2-Dichloroethane-d4	87	75-139
Toluene-d8	98	80-120
Bromofluorobenzene	90	80-120

ND= Not Detected
 RL= Reporting Limit

Purgeable Organics by GC/MS

Lab #: 254304	Location: 2844 Mountain Blvd., Oakland
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 5081	Analysis: EPA 8260B
Field ID: RS-4	Batch#: 208888
Lab ID: 254304-002	Sampled: 03/10/14
Matrix: Water	Received: 03/11/14
Units: ug/L	Analyzed: 03/12/14
Diln Fac: 200.0	

Analyte	Result	RL
Gasoline C7-C12	ND	10,000
tert-Butyl Alcohol (TBA)	38,000	2,000
Isopropyl Ether (DIPE)	ND	100
Ethyl tert-Butyl Ether (ETBE)	ND	100
Methyl tert-Amyl Ether (TAME)	640	100
MTBE	11,000	100
Benzene	ND	100
Toluene	ND	100
Ethylbenzene	ND	100
m,p-Xylenes	ND	100
o-Xylene	ND	100

Surrogate	%REC	Limits
Dibromofluoromethane	97	77-136
1,2-Dichloroethane-d4	89	75-139
Toluene-d8	98	80-120
Bromofluorobenzene	92	80-120

ND= Not Detected
 RL= Reporting Limit

Purgeable Organics by GC/MS

Lab #:	254304	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Field ID:	MW-1	Batch#:	209074
Lab ID:	254304-003	Sampled:	03/10/14
Matrix:	Water	Received:	03/11/14
Units:	ug/L	Analyzed:	03/18/14
Diln Fac:	400.0		

Analyte	Result	RL
Gasoline C7-C12	ND	20,000
tert-Butyl Alcohol (TBA)	30,000	4,000
Isopropyl Ether (DIPE)	ND	200
Ethyl tert-Butyl Ether (ETBE)	ND	200
Methyl tert-Amyl Ether (TAME)	2,600	200
MTBE	25,000	200
Benzene	720	200
Toluene	ND	200
Ethylbenzene	890	200
m,p-Xylenes	1,700	200
o-Xylene	270	200

Surrogate	%REC	Limits
Dibromofluoromethane	109	77-136
1,2-Dichloroethane-d4	102	75-139
Toluene-d8	104	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected
 RL= Reporting Limit

Purgeable Organics by GC/MS

Lab #:	254304	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Field ID:	MW-2	Batch#:	208888
Lab ID:	254304-004	Sampled:	03/10/14
Matrix:	Water	Received:	03/11/14
Units:	ug/L	Analyzed:	03/12/14
Diln Fac:	250.0		

Analyte	Result	RL
Gasoline C7-C12	14,000	13,000
tert-Butyl Alcohol (TBA)	40,000	2,500
Isopropyl Ether (DIPE)	ND	130
Ethyl tert-Butyl Ether (ETBE)	ND	130
Methyl tert-Amyl Ether (TAME)	1,800	130
MTBE	15,000	130
Benzene	210	130
Toluene	ND	130
Ethylbenzene	360	130
m,p-Xylenes	570	130
o-Xylene	130	130

Surrogate	%REC	Limits
Dibromofluoromethane	95	77-136
1,2-Dichloroethane-d4	87	75-139
Toluene-d8	97	80-120
Bromofluorobenzene	90	80-120

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Purgeable Organics by GC/MS			
Lab #:	254304	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	208888
Units:	ug/L	Analyzed:	03/12/14
Diln Fac:	1.000		

Type: BS Lab ID: QC731350

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	125.0	93.57	75	37-151
Isopropyl Ether (DIPE)	25.00	21.57	86	56-124
Ethyl tert-Butyl Ether (ETBE)	25.00	20.45	82	61-122
Methyl tert-Amyl Ether (TAME)	25.00	19.62	78	65-120
MTBE	25.00	19.47	78	64-121
Benzene	25.00	24.23	97	80-124
Toluene	25.00	25.77	103	80-122
Ethylbenzene	25.00	25.02	100	80-124
m,p-Xylenes	50.00	51.05	102	80-122
o-Xylene	25.00	26.59	106	77-120

Surrogate	%REC	Limits
Dibromofluoromethane	95	77-136
1,2-Dichloroethane-d4	80	75-139
Toluene-d8	95	80-120
Bromofluorobenzene	94	80-120

Type: BSD Lab ID: QC731351

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	125.0	107.3	86	37-151	14	30
Isopropyl Ether (DIPE)	25.00	22.69	91	56-124	5	20
Ethyl tert-Butyl Ether (ETBE)	25.00	21.50	86	61-122	5	22
Methyl tert-Amyl Ether (TAME)	25.00	21.42	86	65-120	9	22
MTBE	25.00	21.57	86	64-121	10	20
Benzene	25.00	25.88	104	80-124	7	20
Toluene	25.00	27.73	111	80-122	7	20
Ethylbenzene	25.00	27.26	109	80-124	9	20
m,p-Xylenes	50.00	55.24	110	80-122	8	20
o-Xylene	25.00	28.70	115	77-120	8	20

Surrogate	%REC	Limits
Dibromofluoromethane	94	77-136
1,2-Dichloroethane-d4	82	75-139
Toluene-d8	97	80-120
Bromofluorobenzene	93	80-120

RPD= Relative Percent Difference

Batch QC Report

Purgeable Organics by GC/MS			
Lab #:	254304	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:	QC731352	Batch#:	208888
Matrix:	Water	Analyzed:	03/12/14
Units:	ug/L		

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

Surrogate	%REC	Limits
Dibromofluoromethane	97	77-136
1,2-Dichloroethane-d4	88	75-139
Toluene-d8	97	80-120
Bromofluorobenzene	93	80-120

ND= Not Detected

RL= Reporting Limit

Batch QC Report

Purgeable Organics by GC/MS			
Lab #:	254304	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	208888
Units:	ug/L	Analyzed:	03/12/14
Diln Fac:	1.000		

Type: BS Lab ID: QC731353

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	955.6	96	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	96	77-136
1,2-Dichloroethane-d4	86	75-139
Toluene-d8	97	80-120
Bromofluorobenzene	95	80-120

Type: BSD Lab ID: QC731354

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1,000	982.6	98	80-120	3	20

Surrogate	%REC	Limits
Dibromofluoromethane	95	77-136
1,2-Dichloroethane-d4	85	75-139
Toluene-d8	97	80-120
Bromofluorobenzene	92	80-120

RPD= Relative Percent Difference

Batch QC Report

Purgeable Organics by GC/MS			
Lab #:	254304	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	209074
Units:	ug/L	Analyzed:	03/18/14
Diln Fac:	1.000		

Type: BS Lab ID: QC732132

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	125.0	104.5	84	37-151
Isopropyl Ether (DIPE)	25.00	26.18	105	56-124
Ethyl tert-Butyl Ether (ETBE)	25.00	23.57	94	61-122
Methyl tert-Amyl Ether (TAME)	25.00	21.19	85	65-120
MTBE	25.00	21.78	87	64-121
Benzene	25.00	26.90	108	80-124
Toluene	25.00	25.98	104	80-122
Ethylbenzene	25.00	26.08	104	80-124
m,p-Xylenes	50.00	52.78	106	80-122
o-Xylene	25.00	26.46	106	77-120

Surrogate	%REC	Limits
Dibromofluoromethane	103	77-136
1,2-Dichloroethane-d4	94	75-139
Toluene-d8	101	80-120
Bromofluorobenzene	102	80-120

Type: BSD Lab ID: QC732133

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	125.0	106.5	85	37-151	2	30
Isopropyl Ether (DIPE)	25.00	26.71	107	56-124	2	20
Ethyl tert-Butyl Ether (ETBE)	25.00	23.85	95	61-122	1	22
Methyl tert-Amyl Ether (TAME)	25.00	21.19	85	65-120	0	22
MTBE	25.00	22.15	89	64-121	2	20
Benzene	25.00	27.38	110	80-124	2	20
Toluene	25.00	27.55	110	80-122	6	20
Ethylbenzene	25.00	27.20	109	80-124	4	20
m,p-Xylenes	50.00	54.67	109	80-122	4	20
o-Xylene	25.00	27.54	110	77-120	4	20

Surrogate	%REC	Limits
Dibromofluoromethane	104	77-136
1,2-Dichloroethane-d4	94	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	101	80-120

RPD= Relative Percent Difference

Batch QC Report

Purgeable Organics by GC/MS			
Lab #:	254304	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:	QC732134	Batch#:	209074
Matrix:	Water	Analyzed:	03/18/14
Units:	ug/L		

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

Surrogate	%REC	Limits
Dibromofluoromethane	106	77-136
1,2-Dichloroethane-d4	101	75-139
Toluene-d8	101	80-120
Bromofluorobenzene	101	80-120

ND= Not Detected
 RL= Reporting Limit

Batch QC Report
Purgeable Organics by GC/MS

Lab #:	254304	Location:	2844 Mountain Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5081	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	209074
Units:	ug/L	Analyzed:	03/18/14
Diln Fac:	1.000		

Type: BS Lab ID: QC732178

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,001	100	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	105	77-136
1,2-Dichloroethane-d4	96	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	102	80-120

Type: BSD Lab ID: QC732179

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1,000	870.3	87	80-120	14	20

Surrogate	%REC	Limits
Dibromofluoromethane	104	77-136
1,2-Dichloroethane-d4	96	75-139
Toluene-d8	100	80-120
Bromofluorobenzene	91	80-120

RPD= Relative Percent Difference

Date : 12-MAR-2014 21:37

Client ID: DYNA P&T

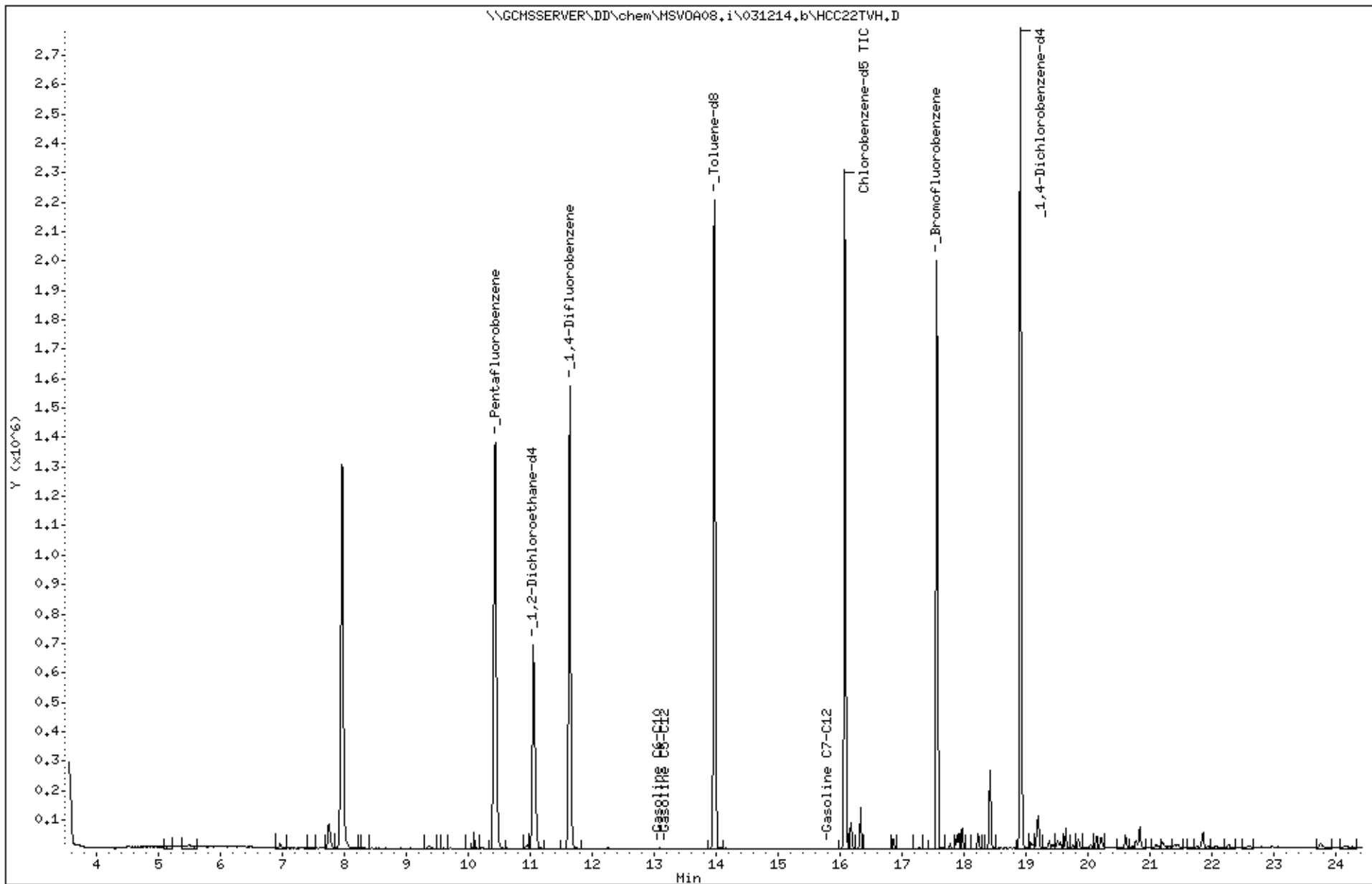
Sample Info: S,254304-004

Instrument: MSV0A08.i

Operator: VOC

Column diameter: 2.00

Column phase:



Date : 12-MAR-2014 14:01

Client ID: DYNA P&T

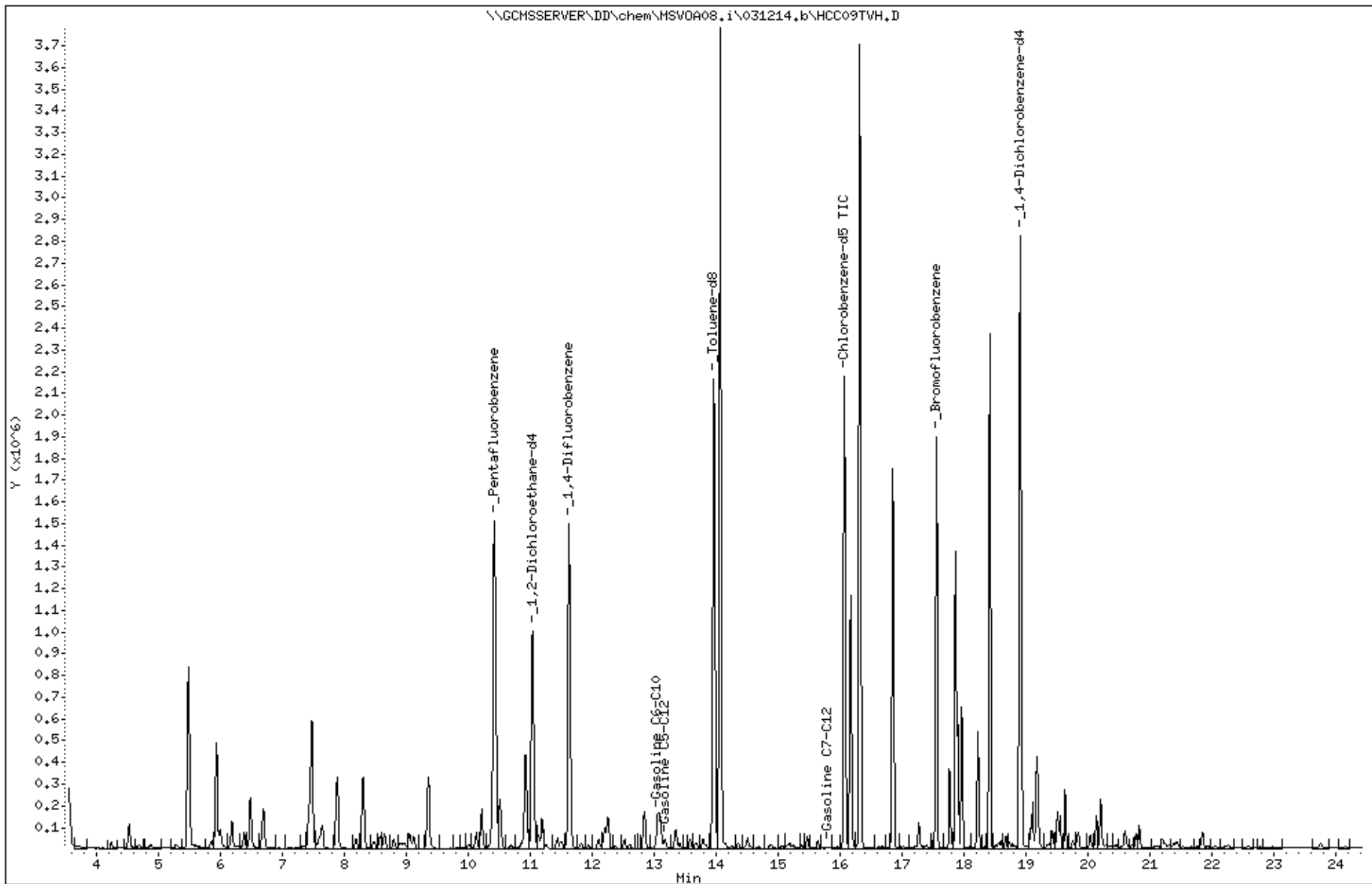
Sample Info: CCV/BS, QC731350, 208888, S24352, 0, 01/100

Instrument: MSV0A08.i

Operator: VOC

Column diameter: 2.00

Column phase:



Appendix D

Non-Hazardous Waste Manifest

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.		Manifest Document No. 5014-014	2. Page 1 of 1
3. Generator's Name and Mailing Address DESERT PETROLEUM 2844 MOUNTAIN BLVD. OAKLAND, CA		SUMA ENV			
4. Generator's Phone ()		6. US EPA ID Number		A. State Transporter's ID	
INSTRAT INC				B. Transporter (Phone) (707) 374-3834	
7. Transporter 2 Company Name		8. US EPA ID Number		C. State Transporter's ID	
				D. Transporter 2 Phone	
9. Designated Facility Name and Site Address INSTRAT, INC. 1106 CAIRPORT RD. RIO VISTA, CA 94571		10. US EPA ID Number		E. State Facility's ID	
				F. Facility's Phone (707) 874-8884	
11. WASTE DESCRIPTION			12. Containers		13. Total Quantity
			No.	Type	14. Unit Wt./Vol.
a. NON-HAZ MONITORING WELL WATER			2	DRM	90 GAL
b.					
c.					
d.					
G. Additional Descriptions for Materials Listed Above			H. Handling Codes for Wastes Listed Above		
15. Special Handling Instructions and Additional Information					
16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.					
Printed/Typed Name				Signature	
17. Transporter 1 Acknowledgement of Receipt of Materials				Date	
Printed/Typed Name Patrick McLaughlin				Signature <i>[Signature]</i>	
				Date 2/17/14	
18. Transporter 2 Acknowledgement of Receipt of Materials				Date	
Printed/Typed Name				Signature	
19. Discrepancy Indication Space					
20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.					
Printed/Typed Name MICHAEL WHITEHEAD				Signature <i>[Signature]</i>	
				Date 2/17/14	

NON-HAZARDOUS WASTE GENERATOR

TRANSPORTER

FACILITY

