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Alameda County  
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May 6, 2009



Mr. Paresh Khatri  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

Subject: Texaco Gasoline Service Station (Formerly Freedom ARCO Station)  
Site Address: 15101 Freedom Avenue, San Leandro, California  
**STID 4473/RO0000473**

Dear Mr. Khatri:

SOMA's "Second Quarter 2009 Groundwater Monitoring Report" for the subject property has been uploaded to the State's GeoTracker database and Alameda County's FTP site for your review.

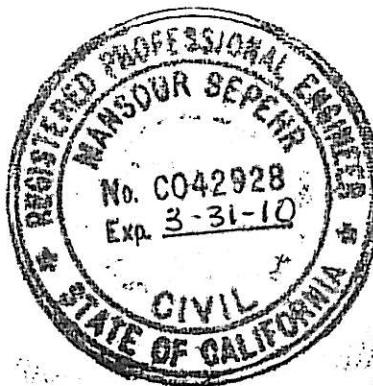
Thank you for your time in reviewing our report. Please do not hesitate to call me at (925) 734-6400, if you have questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Mansour Sepehr".

Mansour Sepehr, Ph.D.,PE  
Principal Hydrogeologist

cc: Mr. Mohammad Pazdel w/report enclosure



**Second Quarter 2009  
Groundwater Monitoring Report**

**Texaco Gasoline Service Station  
15101 Freedom Avenue  
San Leandro, California**

**May 6, 2009**

**Project 2551**

**Prepared for**

**Mr. Mohammad Pazdel  
1770 Pistacia Court  
Fairfield, California**



ENVIRONMENTAL ENGINEERING, INC.

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## CERTIFICATION

SOMA Environmental Engineering, Inc. has prepared this report on behalf of Mr. Mohammad Pazdel, property owner of 15101 Freedom Avenue, San Leandro, California, to comply with Alameda County Health Care Services requirements for the Second Quarter 2009 groundwater monitoring event.



Mansour Sepehr, PhD, PE  
Principal Hydrogeologist



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Appendix C: Laboratory Report and Chain of Custody Form for the Second Quarter 2009 Monitoring Event

## **1. INTRODUCTION**

SOMA Environmental Engineering, Inc. (SOMA) has prepared this report on behalf of Mr. Mohammad Pazdel, property owner of 15101 Freedom Avenue, San Leandro, California. The site is located in an area of primarily residential properties and adjacent commercial areas (Figure 1).

This report summarizes results of the Second Quarter 2009 groundwater monitoring event conducted on April 13 and 14, 2009. It includes physical and chemical properties measured in the field and laboratory analysis results for each groundwater sample.

### **1.1 Field Activities**

On April 13 and 14, 2009, SOMA's field crew conducted a groundwater monitoring event in accordance with procedures and guidelines of Alameda County Health Care Services (ACHCS) and the California Regional Water Quality Control Board (CRWQCB). Figure 2 shows well locations.

On April 13, 2009, five on-site monitoring wells (MW-1 to MW-5), and four off-site wells (MW-6 to MW-9) in the First Water Bearing Zone (WBZ), and three on-site monitoring wells (MW-1D, MW-3D, and MW-4D) in the Second WBZ were measured for depth to groundwater. On April 13 and 14, 2009, additional field measurements and grab groundwater samples were collected from all monitoring wells. Properties measured include pH, temperature, and electrical conductivity (EC). A natural attenuation study was conducted during this event to determine whether petroleum hydrocarbons in groundwater are biodegrading. Dissolved oxygen (DO) and oxidation reduction potential (ORP) measurements were taken for all wells.

Purged groundwater from each well was temporarily stored on-site in two filled 55-gallon drums. Four drums, generated during First and Second Quarter 2009 groundwater monitoring events, are stored on-site pending off-haul to an appropriate disposal facility.

### **1.2 Laboratory Analysis**

Curtis & Tompkins, Ltd., a California state-certified laboratory, analyzed groundwater samples for total petroleum hydrocarbons as gasoline (TPH-g), benzene, toluene, ethylbenzene, total xylenes (collectively termed BTEX), methyl tertiary-butyl ether (MtBE), gasoline oxygenates, ethanol and lead scavengers. Samples were prepared using EPA Method 5030B and analyzed using EPA Method 8260B.

## **2. RESULTS**

Following are results of field measurements and laboratory analysis for the April 13 and 14, 2009 groundwater monitoring event.

### **2.1 Field Measurements, First WBZ Wells**

Table 1 presents calculated groundwater elevations and depths to groundwater for each monitoring well. Depths to groundwater ranged from 10.89 feet in MW-9 to 22.52 feet in MW-1. Corresponding groundwater elevations ranged from 29.37 feet in MW-9 to 31.94 feet in MW-1.

Figure 3 displays the contour map of groundwater elevations. Groundwater flows southwesterly across the site at a gradient of 0.005 feet/feet. The groundwater flow direction and gradient have remained consistent with the previous monitoring event (First Quarter 2009).

Upon equalization with the surrounding aquifer at each well location, when the purge cycle was terminated, DO concentrations in the First WBZ ranged from 0.13 mg/L in MW-4 to 0.50 mg/L in MW-9. ORP showed negative redox potentials in all First WBZ monitoring wells. Negative redox potentials indicate that contaminants in groundwater are conducive to anaerobic biodegradation.

Field measurements taken during this monitoring event are included in Appendix B.

### **2.2 Laboratory Analysis, First WBZ Wells**

Appendix C includes the laboratory report and chain-of-custody form for this monitoring event.

Table 1 presents TPH-g, BTEX, and MtBE analysis results for the current and historical groundwater monitoring events.

TPH-g concentrations were below the laboratory-reporting limit in MW-8 and MW-9. Detectable TPH-g concentrations ranged from 480 µg/L in MW-2 to 49,000 µg/L in MW-3. The TPH-g concentration in MW-3 was significantly higher than in the other site wells. However, TPH-g has decreased in MW-3 since the previous monitoring event (First Quarter 2009).

Figure 4 displays the contour map of TPH-g concentrations in groundwater. As illustrated, the highest TPH-g impact is in the vicinity of the dispenser islands and former underground storage tanks (USTs). Since the previous monitoring event (First Quarter 2009), detectable TPH-g concentrations have decreased in all wells, except MW-2 and MW-4.

The following BTEX concentrations were observed:

- In MW-8 and MW-9, all BTEX analytes were below laboratory-reporting limits.
- In MW-2 and MW-7, benzene and toluene were below laboratory-reporting limits and ethylbenzene and total xylenes were at low levels.
- In MW-1 and MW-6, toluene was below the laboratory-reporting limit.
- The highest BTEX concentrations were detected in MW-3, at 2,900 µg/L, 170 µg/L, 2,100 µg/L, and 8,100 µg/L, respectively.

Figure 5 displays the contour map of benzene concentrations in groundwater. The highest benzene impact is in the vicinity of the dispenser islands and former USTs. Since the previous monitoring event (First Quarter 2009), detectable benzene concentrations have decreased in all on-site wells except MW-3, where benzene concentration was significantly higher than in the other site wells. Benzene appears to have only minimally impacted off-site well MW-6 and was non-detectable in remaining off-site wells.

Levels of MtBE below the laboratory-reporting limit were observed at MW-2, MW-8 and MW-9. Detectable MtBE concentrations ranged from 2.5 µg/L at MW-1 to 490 µg/L at MW-3. Figure 6 displays the contour map of MtBE concentrations in the groundwater. The highest MtBE impact was in the vicinity of the dispenser islands and former USTs, around MW-3 and MW-4. Since the previous monitoring event (First Quarter 2009) MtBE concentrations have increased at MW-1, MW-3, MW-6, and MW-7 and decreased at MW-4 and MW-5.

As shown in Table 1, since the previous monitoring event (First Quarter 2009), TPH-g has decreased and benzene and MtBE concentrations have increased in the more impacted well MW-3.

Table 2 shows analysis results for gasoline oxygenate and lead scavenger concentrations for the current as well as historical events.

The following gasoline oxygenate and lead scavenger concentrations were observed:

- In MW-2, MW-3, MW-6, and MW-8, concentrations of all gasoline oxygenates and lead scavengers were below laboratory-reporting limits.
- Tertiary-butyl alcohol (TBA) was detected in MW-1, MW-4 and MW-5 at 15 µg/L, 1,100 µg/L and 280 µg/L, respectively, and was below the laboratory-reporting limit in all other First WBZ wells.

Figure 7 shows the contour map of TBA concentrations in groundwater. The most TBA-impacted regions were in the vicinity of the dispenser

islands and in the southern section of the site, around MW-4 and MW-5. Due to the high mobility rate of TBA in groundwater, the TBA plume appears to have migrated with the flow of groundwater from the UST cavity and pump islands toward MW-4.

- Methyl tertiary-amyl ether (TAME) was detected at low levels in MW-4 and MW-7, and was below the laboratory-reporting limit in remaining wells.
- 1,2-dichloroethane (1,2-DCA) was detected in MW-9 at low levels and was below the laboratory-reporting limit in remaining wells. Figure 8 displays the map showing concentrations of TAME and 1,2-DCA in First WBZ wells.
- Isopropyl ether (DIPE), ethyl tertiary-butyl ether (ETBE), 1,2-dibromoethane (EDB), and ethanol concentrations were below laboratory-reporting limit in all groundwater samples. Analysis results for ethanol are shown in Appendix C.

### **2.3 Field Measurements, Second WBZ Wells**

Table 1 presents calculated groundwater elevations and depths to groundwater for each monitoring well. Depths to groundwater ranged from 21.34 feet in MW-4D to 23.06 feet in MW-1D. Corresponding groundwater elevations ranged from 31.36 feet in MW-1D to 31.78 feet in MW-4D.

Figure 9 displays the contour map of groundwater elevations in the Second WBZ. Groundwater flows northwesterly at a gradient of 0.004 feet/feet. During the previous monitoring event (First Quarter 2009), groundwater flow direction was southwesterly.

Upon equalization with the surrounding aquifer at each well location, when the purge cycle was terminated, DO concentrations in the Second WBZ ranged from 0.07 mg/L in MW-4D to 0.19 mg/L in MW-1D. ORP showed negative potential in all wells. Negative redox potentials indicate that contaminants in the groundwater are conducive to anaerobic biodegradation.

Field measurements taken during this monitoring event are included in Appendix B.

### **2.4 Laboratory Analysis for Second WBZ Wells**

Appendix C includes the laboratory report and chain-of-custody form for this monitoring event.

Table 1 presents TPH-g, BTEX, and MtBE analysis results for the current and historical groundwater monitoring events.

Similar to the previous monitoring event (First Quarter 2009), TPH-g and BTEX analytes were below laboratory-reporting limits in all Second WBZ wells.

MtBE was below the laboratory-reporting limit in MW-1D, and was detected in MW-3D and MW-4D at 44 µg/L and 2.2 µg/L, respectively.

Table 2 shows analysis results for gasoline oxygenate and lead scavenger concentrations for the current as well as historical events.

The following gasoline oxygenate and lead scavenger concentrations were observed:

- TBA, DIPE, ETBE, 1,2-DCA, EDB, and ethanol constituents were below laboratory-reporting limits in all groundwater samples from the Second WBZ. (Analysis results for ethanol are included in Appendix C.)
- TAME was detected at low level in MW-3D and was below the laboratory-reporting limit in MW-1D and MW-4D.

Figure 10 displays concentrations of MtBE and TAME in Second WBZ wells.

### 3. CONCLUSIONS AND RECOMMENDATIONS

Second Quarter 2009 groundwater monitoring results are summarized below.

- Groundwater flow direction has remained southwesterly in the First WBZ and was northwesterly in the Second WBZ.
- The hydrocarbon source area remains in the vicinity of the former UST cavity, near MW-3, where a previous release of petroleum hydrocarbons occurred.
- The southerly migration of impacted groundwater from the source area of the former UST cavity is evidenced by high MtBE and TBA concentrations at MW-4 and MW-5. However, in general, the contaminant region appears to be centrally located in the vicinity of the former UST cavity and pump islands, especially at MW-3.
- Based on quarterly groundwater monitoring results, in general, BTEX, MtBE and gasoline oxygenates have remained at low or non-detectable levels in off-site wells.
- TPH-g concentrations in MW-6 at 7,200 µg/L and MW-7 at 2,300 µg/L decreased since the previous quarter monitoring event (First Quarter 2009); TPH-g was below the laboratory-reporting limit in MW-8 and MW-9.
- In the Second WBZ, MtBE was detected in MW-3D and MW-4D and TAME in MW-3D, at low levels. All other contaminants were below laboratory-reporting limits in Second WBZ wells.

Based on results of this monitoring event, SOMA recommends the following action items:

- Continue quarterly groundwater monitoring to increase understanding of seasonal variations in groundwater quality conditions.
- Based on continued low to non-detectable levels of all tested constituents in off-site wells MW-7 to MW-9, modify the existing quarterly sampling schedule to annual sampling for these off-site wells.

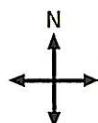
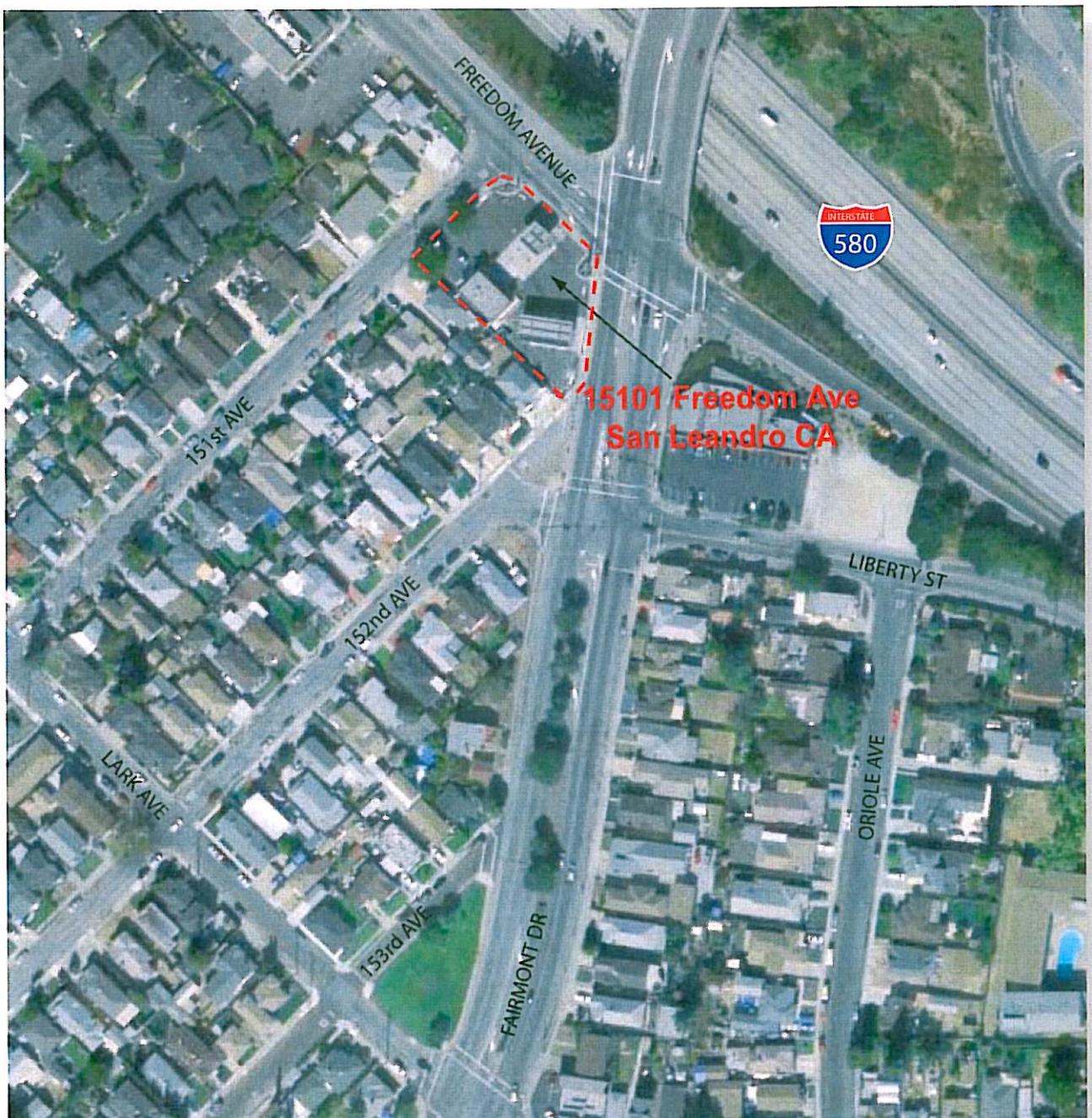
Based on ACEHS approval, SOMA is currently in the process of implementing the 'Revised Workplan' dated February 10, 2009.

#### **4. REPORT LIMITATIONS**

This report is the summary of work done by SOMA, including observations and descriptions of site conditions. It includes analysis results produced by Curtis & Tompkins, Ltd. for the current groundwater-monitoring event. Quantities and locations of wells were selected to provide the required information, but may not be representative of entire site conditions. All conclusions and recommendations are based on laboratory analysis results. 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 practices in the environmental engineering and consulting field at the time of this sampling.

# **Figures**



approximate scale in feet  
0 150 300

Figure 1: Site vicinity map.



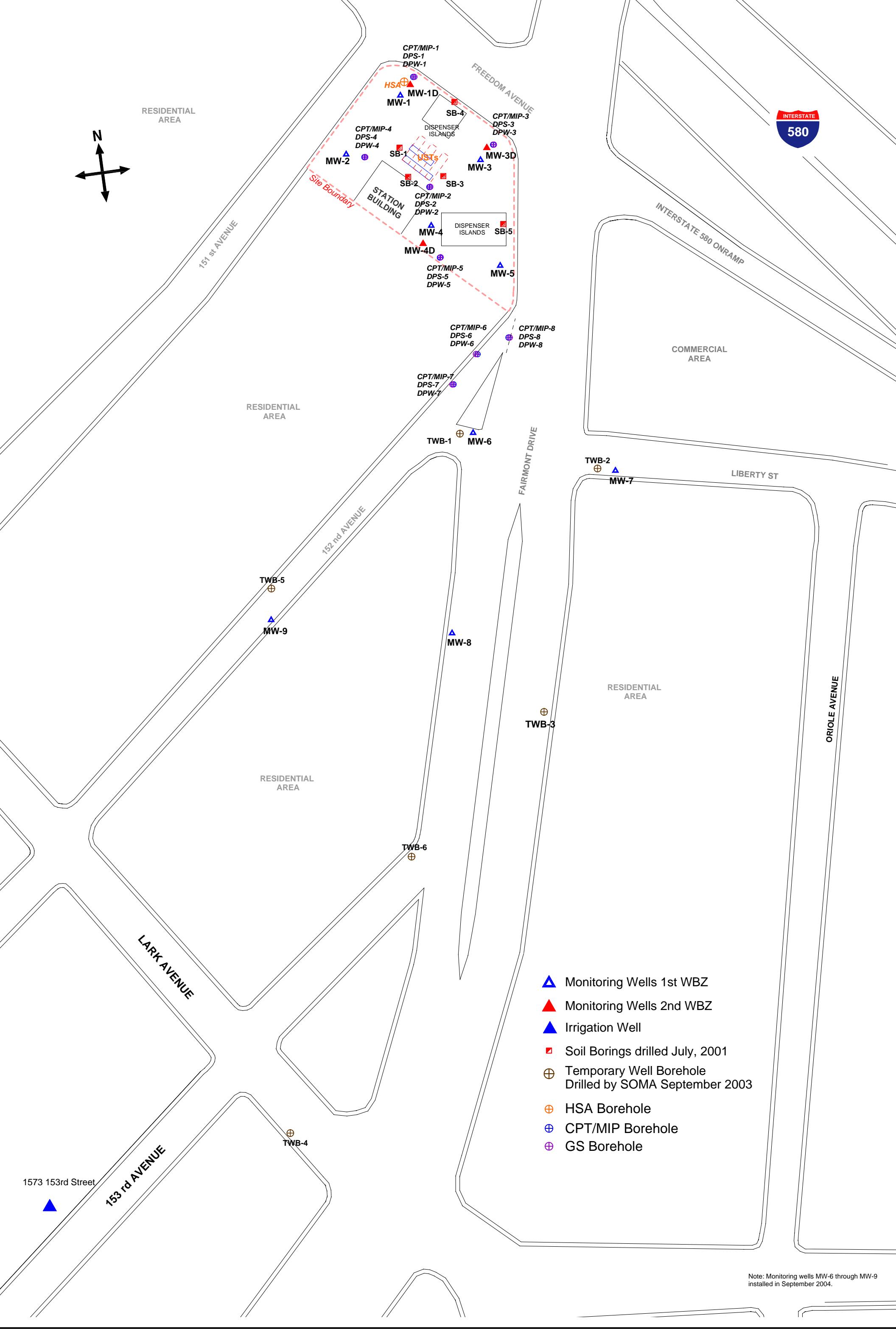
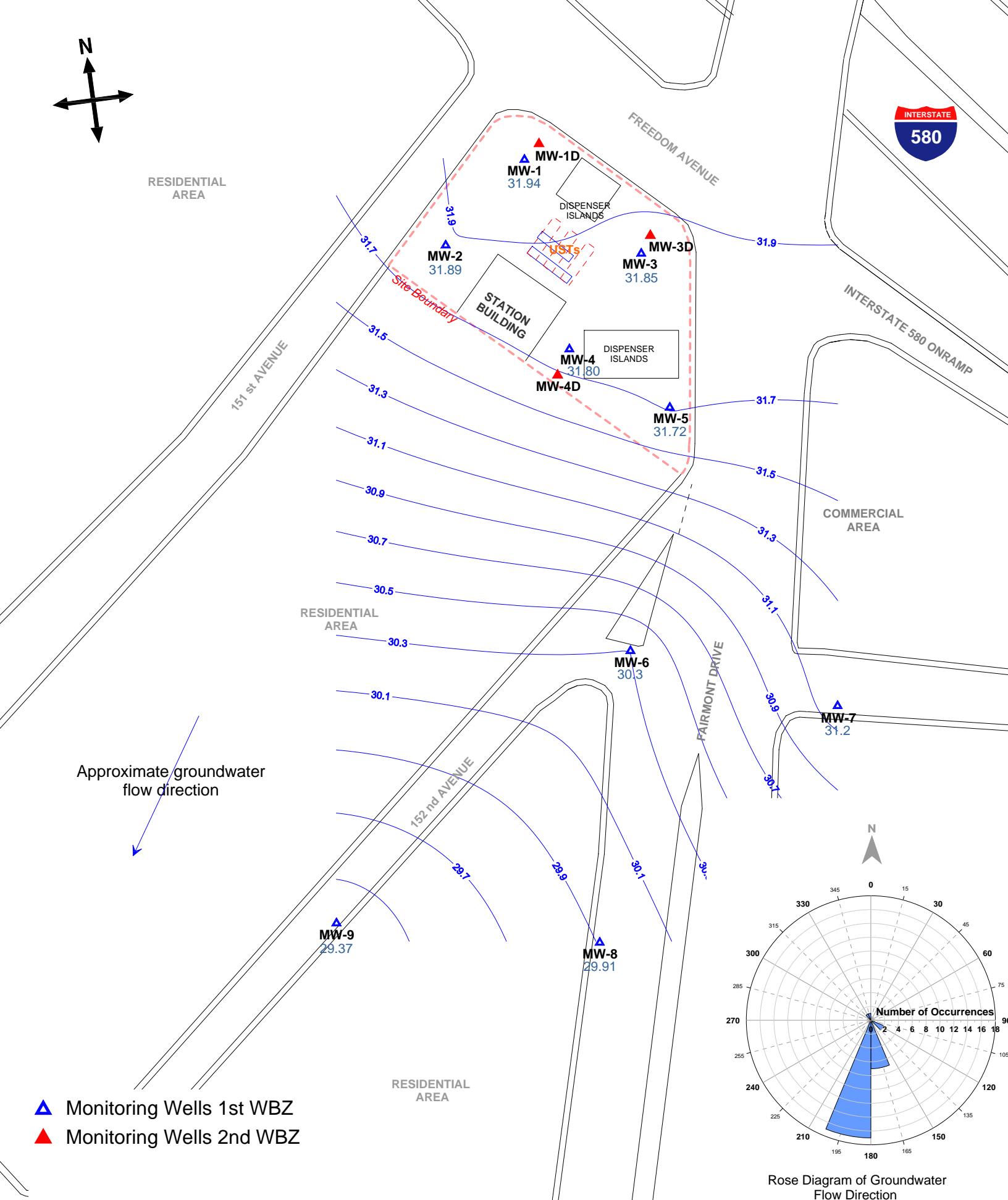
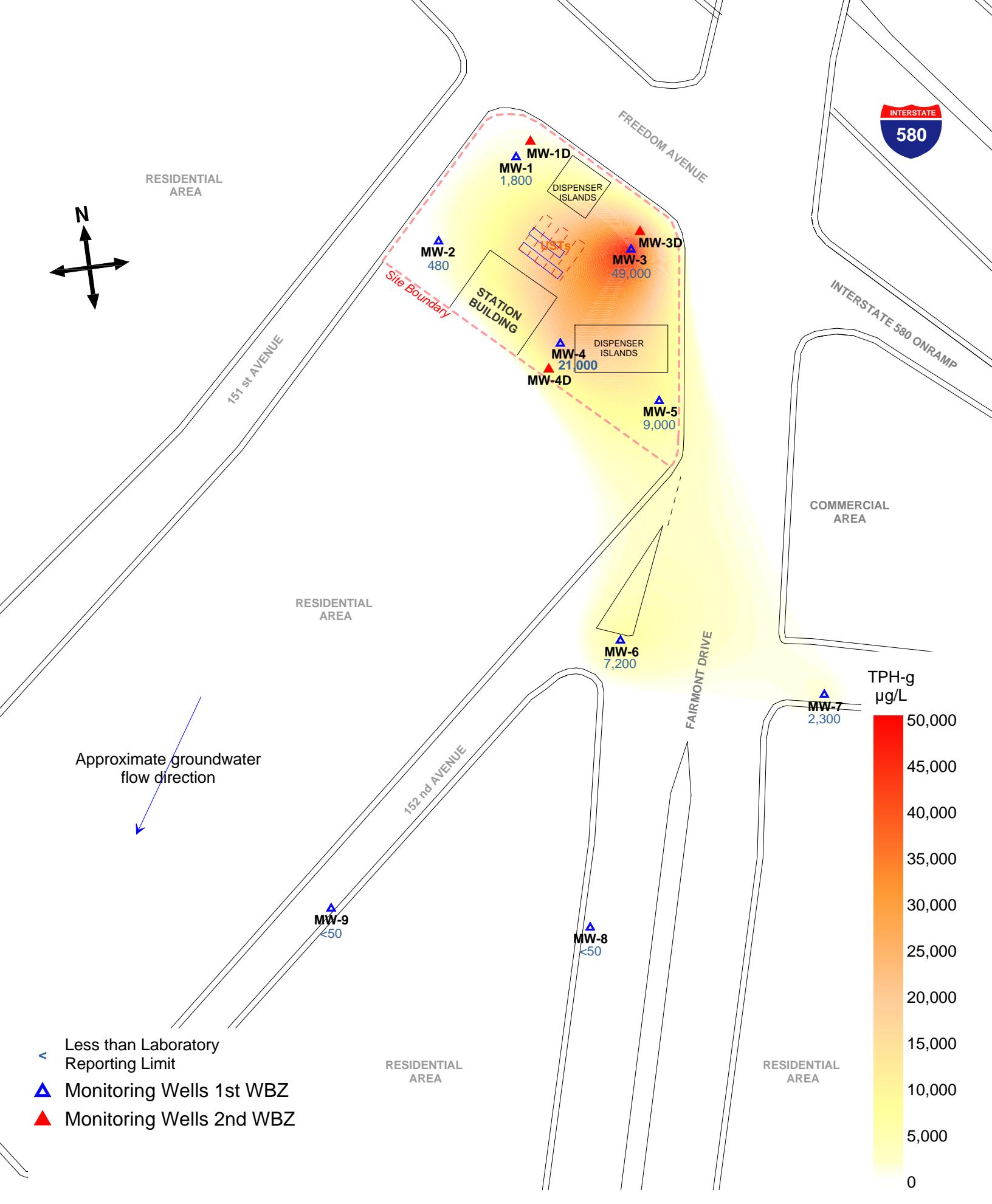


Figure 2: Site map showing locations of groundwater monitoring wells and soil borings



approximate scale in feet  
 0 70 140

Figure 3: Groundwater elevation contour map in feet,  
First WBZ. April 13, 2009



approximate scale in feet

0 70 140

Figure 4: Contour map of TPH-g concentrations in groundwater, First WBZ. April 13 and 14, 2009

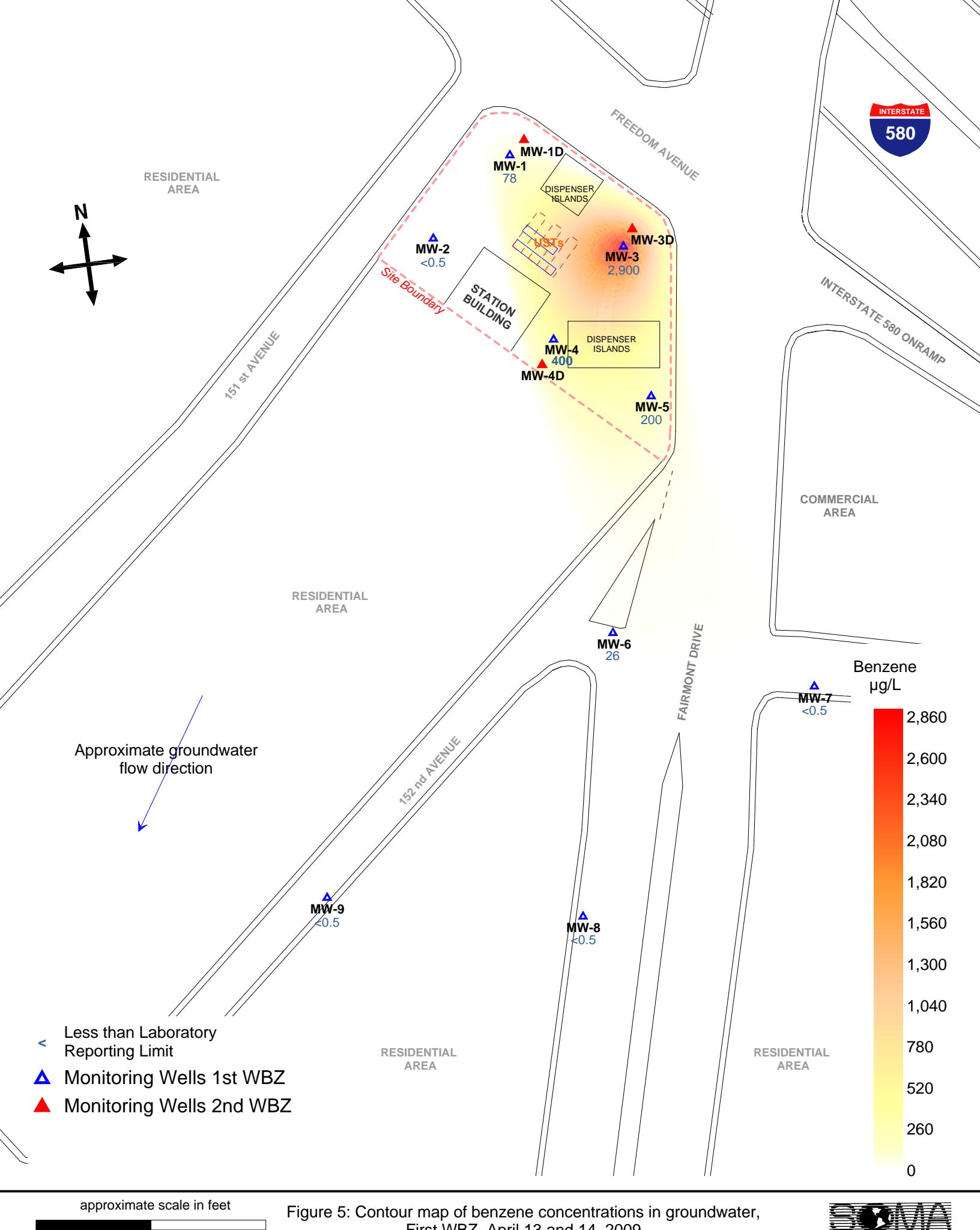
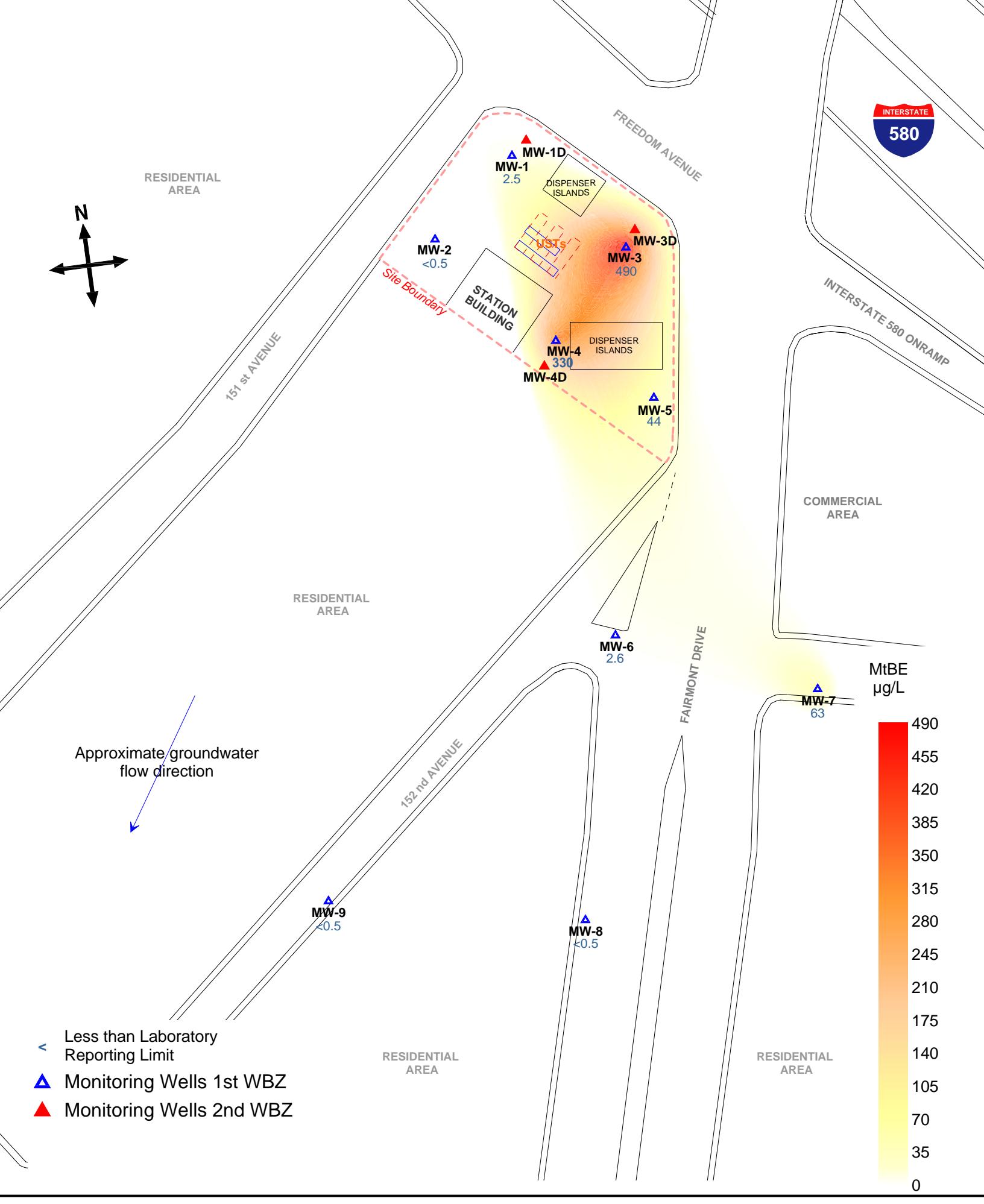


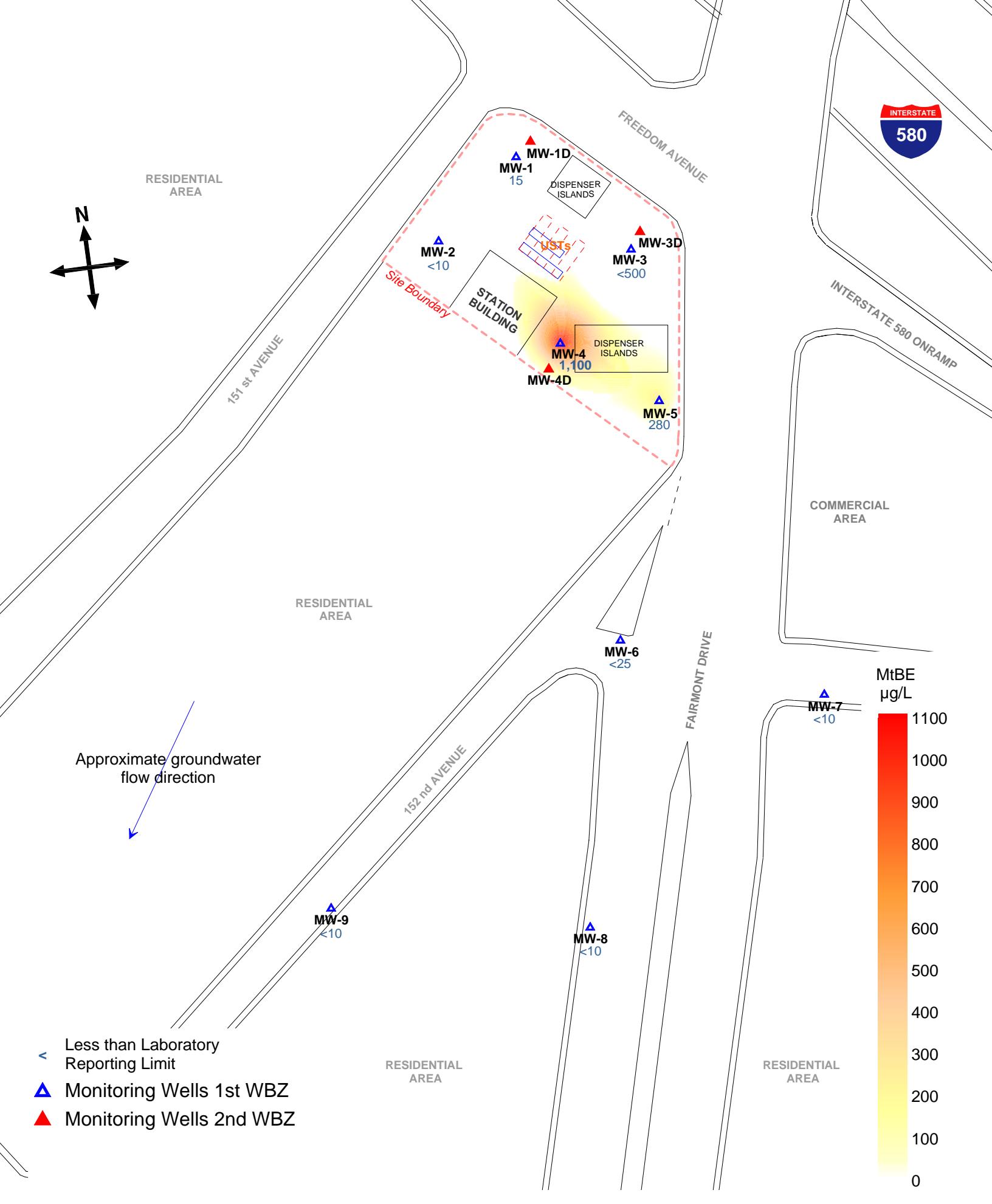
Figure 5: Contour map of benzene concentrations in groundwater, First WBZ. April 13 and 14, 2009



approximate scale in feet

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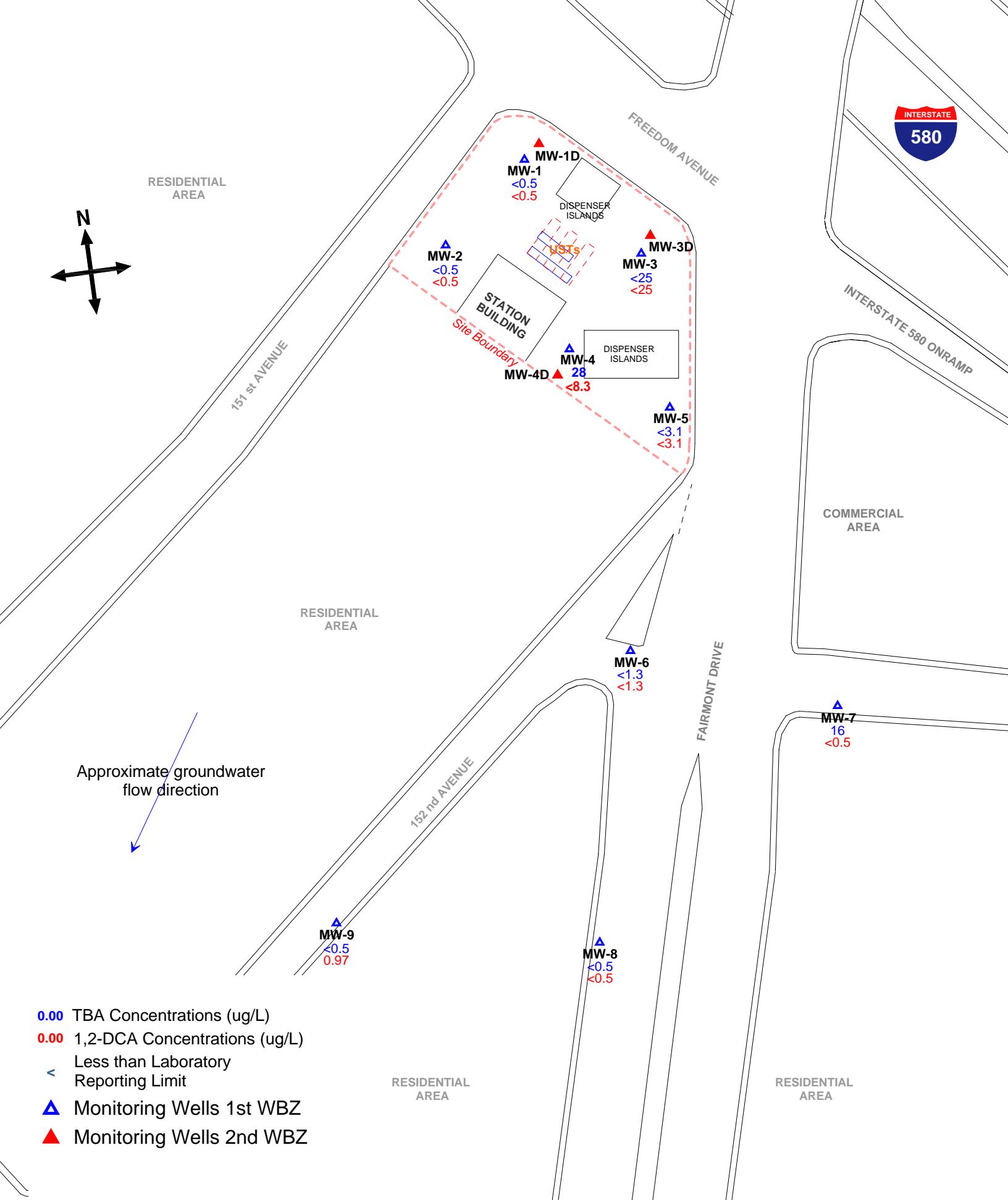
Figure 6: Contour map of MtBE concentrations in groundwater (EPA Method 8260B), First WBZ. April 13 and 14, 2009



approximate scale in feet

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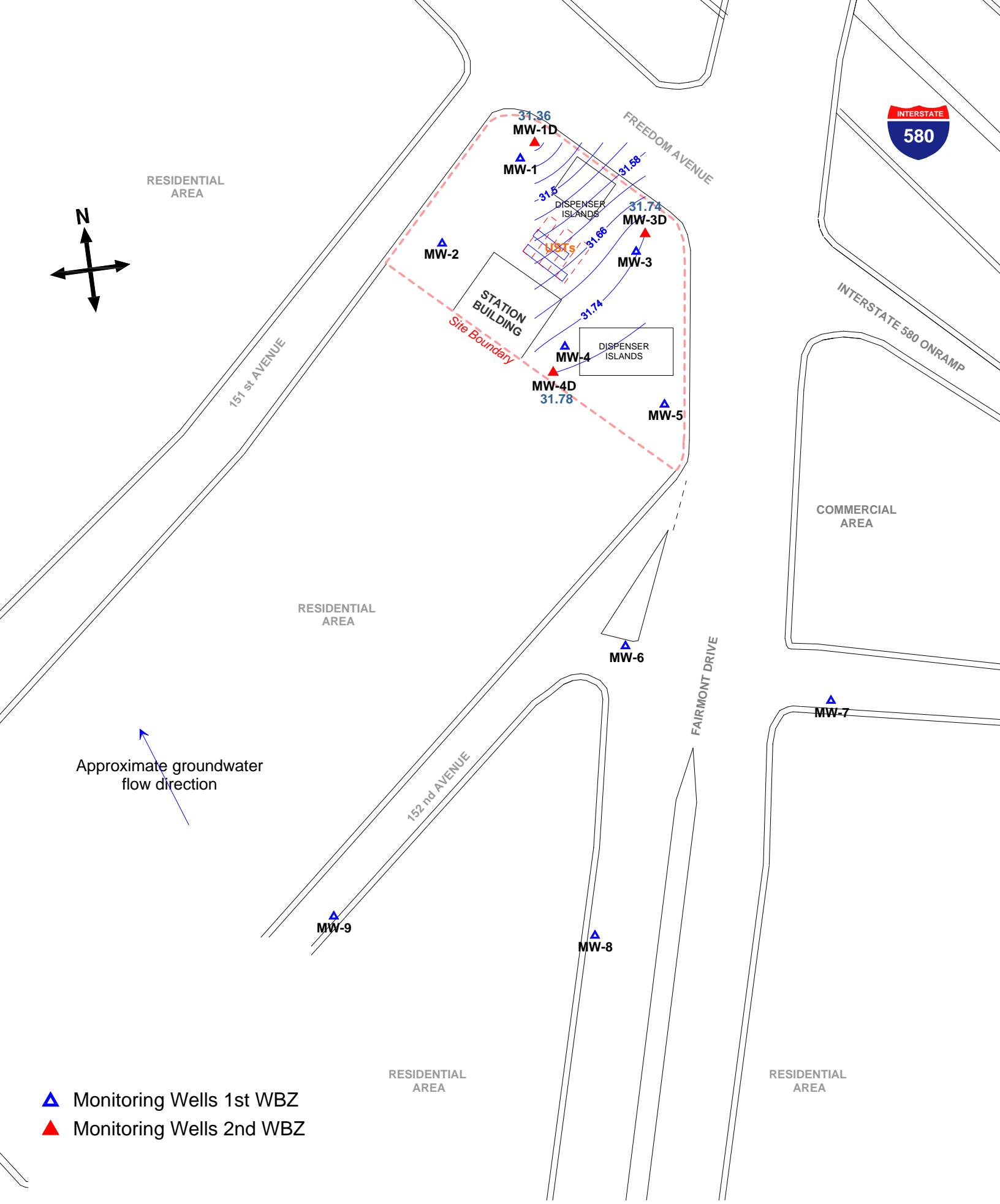
Figure 7: Contour map of TBA concentrations in groundwater  
(EPA Method 8260B), First WBZ. April 13 and 14, 2009



approximate scale in feet

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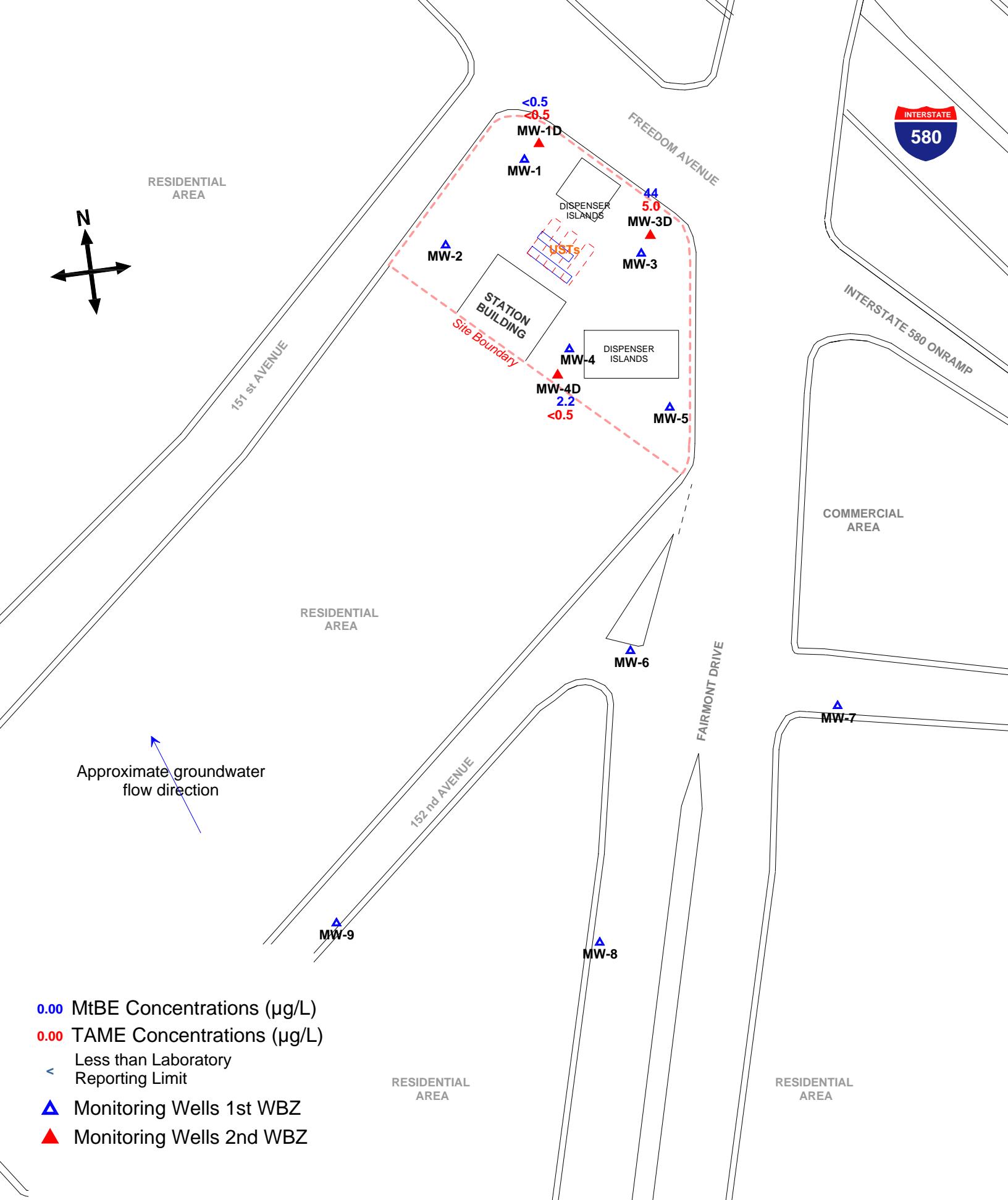
Figure 8: Map showing concentrations of TAME and 1,2-DCA in First WBZ. April 13 and 14, 2009



approximate scale in feet

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Figure 9: Groundwater elevation contour map in feet, Second WBZ  
April 13, 2009



approximate scale in feet  
 0 70 140

Figure 10: Map showing concentrations of MtBE and TAME, Second WBZ. April 13 and 14, 2009

# **Tables**

**Table 1**  
**Historical Groundwater Elevation Data and Analytical Results**  
**15101 Freedom Avenue, San Leandro, CA**

Monitoring Well	Date	Casing Elevation <sup>1</sup> (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g ( $\mu\text{g/L}$ )	Benzene ( $\mu\text{g/L}$ )	Toluene ( $\mu\text{g/L}$ )	Ethyl-benzene ( $\mu\text{g/L}$ )	Total Xylenes ( $\mu\text{g/L}$ )	MtBE 8260B <sup>2</sup> ( $\mu\text{g/L}$ )
1st WBZ										
MW-1	5/10/2002	51.71	22.85	28.86	5,700	360	4.5	340	450	2
	8/8/2002	51.71	23.31	28.40	9,100	590	2.6	830	362	<1.3
	11/8/2002	51.71	23.58	28.13	7,900	570	3.1	680	392	< 1.0
	2/21/2003	51.71	22.62	29.09	2,900	160	1.6 C	170	211	<0.5
	5/28/2003	51.71	22.43	29.28	1,700	55	<0.5	90	115	2.00
	8/12/2003	51.71	21.30	30.41	2,600	2.5	<0.5	190	130	<0.5
	10/9/2003	51.71	23.49	28.22	9,200	560.0	2.7 C	670	648	<1.0
	1/15/2004	51.71	22.43	29.28	5,500	190	<1.0	220	124.4	<0.5
	5/25/2004	51.71	22.94	28.77	8,000	400	1.50	420	393	3.40
	9/21/2004	54.46	23.49	30.97	9,300	580	9.30	690	683	4.60
	12/14/2004	54.46	23.01	31.45	7,360	337	<4.3	731	633	<4.3
	3/11/2005	54.46	21.48	32.98	2,510	45.2	<0.5	23.2	39.63	2.80
	6/15/2005	54.46	22.42	32.04	1,690	36.3	<2.0	59.5	28.73	2.01
	8/26/2005	54.46	23.00	31.46	7,310	318	<8.60	475	316	5.15
	11/11/2005	54.46	21.40	33.06	9,640	341	<8.6	467	329.7	6.04

**Table 1**  
**Historical Groundwater Elevation Data and Analytical Results**  
**15101 Freedom Avenue, San Leandro, CA**

Monitoring Well	Date	Casing Elevation <sup>1</sup> (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g ( $\mu\text{g/L}$ )	Benzene ( $\mu\text{g/L}$ )	Toluene ( $\mu\text{g/L}$ )	Ethyl-benzene ( $\mu\text{g/L}$ )	Total Xylenes ( $\mu\text{g/L}$ )	MtBE 8260B <sup>2</sup> ( $\mu\text{g/L}$ )
MW-1 cont	2/9/2006	54.46	21.81	32.65	775	14	<2.0	12.6	10.32	4.01
	5/9/2006	54.46	21.68	32.78	444	7.80	<2.0	12.1	6.31	1.75
	8/10/2006	54.46	22.79	31.67	5,090	324	<8.60	108	59.9	8.24
	10/26/2006	54.46	23.19	31.27	6,950	556	<4.0	190	136.09	8.61
	1/25/2007	54.46	22.82	31.64	2,640	196	<2.0	105	25.5	7.92
	4/26/2007	54.46	22.67	31.79	861	95.5	<2.0	17	6.36	4.00
	7/25/2007	54.46	23.25	31.21	4,520	412	<4.0	182	77.9	7.48
	10/23/2007	54.46	23.42	31.04	3,900	117	<2.0	87.1	23.87	4.54
	1/22/2008	54.46	22.59	31.87	2,260	81.3	<2.0	17.5	<2.0	4.23
	4/16/2008	54.46	22.89	31.57	2,320	248	<2.0	54.1	37.3	<0.5
	7/3/2008	54.46	23.33	31.13	5,240	414	<2.0	168	94	6.56
	10/15/2008	54.46	23.76	30.70	4,500 <sup>Y</sup>	260	<1.0	150	130	3.40
	1/7/2009	54.46	23.25	31.21	4,800	140	<1.3	48	32	1.70
	4/14/2009	54.46	22.52	31.94	1,800 <sup>Y</sup>	78	<0.5	35	18	2.50
MW-2	5/10/2002	49.66	22.83	26.83 *	3,100	67	8	250	215	56
	8/8/2002	49.66	21.41	28.25	2,700	4.6	<0.5	310	140	<0.5
	11/8/2002	49.66	21.79	27.87	3,400	4.6	< 0.5	310	160	< 0.5
	2/21/2003	49.66	20.51	29.15	890	1.7 C	0.80 C	68	38.92 C	<0.5
	5/28/2003	49.66	20.33	29.33	2,700	5.2 C	<0.5	120	140	1.2
	8/12/2003	49.66	23.18	26.48*	8,500	640	<2.5	560	659	<0.8
	10/9/2003	49.66	21.71	27.95	3100 H	4.3 C	<0.5	210	160	<0.5
	1/15/2004	49.66	20.31	29.35	660 H	1.5 C	<0.5	8.9	25	<0.5
	5/25/2004	49.66	21.09	28.57	4,500	5.1 C	<0.5	190	230	0.70
	9/21/2004	52.41	21.71	30.70	370	0.76 C	<0.5	25	16	0.50
	12/14/2004	52.41	21.20	31.21	880	1.0	<0.5	66	52	<0.5

**Table 1**  
**Historical Groundwater Elevation Data and Analytical Results**  
**15101 Freedom Avenue, San Leandro, CA**

Monitoring Well	Date	Casing Elevation <sup>1</sup> (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g ( $\mu\text{g/L}$ )	Benzene ( $\mu\text{g/L}$ )	Toluene ( $\mu\text{g/L}$ )	Ethyl-benzene ( $\mu\text{g/L}$ )	Total Xylenes ( $\mu\text{g/L}$ )	MtBE 8260B <sup>2</sup> ( $\mu\text{g/L}$ )
<b>MW-2 cont.</b>	3/11/2005	52.41	19.15	33.26	564	<0.5	<0.5	21	11.9	<0.5
	6/15/2005	52.41	20.30	32.11	2,040	1.2	<2.0	78.2	22	<0.5
	8/26/2005	52.41	20.97	31.44	1,500	0.930	<2.00	87.6	21	0.86
	11/11/2005	52.41	25.30	27.11	2,140	1.08	<2.0	104	29	0.79
	2/9/2006	52.41	19.41	33.00	1,410	<0.5	<2.0	99.6	21.4	0.72
	5/9/2006	52.41	19.41	33.00	1,100	<0.5	<2.0	86.5	17	<0.5
	8/10/2006	52.41	20.8	31.61	3,180	2.87	<2.0	88.9	24.8	<0.50
	10/26/2006	52.41	21.22	31.19	1,200	<0.5	<2.0	23.5	4.79	0.6
	1/25/2007	52.41	20.89	31.52	623	0.64	<2.0	42.4	4.37	0.66
	4/26/2007	52.41	20.65	31.76	169	<0.5	<2.0	15.2	2.3	<0.5
	7/25/2007	52.41	21.43	30.98	276	0.78	<2.0	22.1	4.04	<0.5
	10/23/2007	52.41	21.59	30.82	535	<0.5	<2.0	18	5.11	<0.5
	1/22/2008	52.31	20.45	31.86	132	<0.5	<2.0	12.2	<2.0	<0.5
	4/15/2008	52.41	20.89	31.52	852	<0.5	<2.0	27.2	4.78	<0.5
	7/2/2008	52.41	21.5	30.91	98.3	<0.5	<2.0	2.76	<2.0	<0.5
<b>MW-3</b>	10/15/2008	52.41	22.06	30.35	1,400 <sup>Y</sup>	<0.5	<0.5	60	17	<0.5
	1/7/2009	52.41	21.35	31.06	93	<0.5	<0.5	2.1	0.74	<0.5
<b>MW-3</b>	4/13/2009	52.41	20.52	31.89	480 <sup>Y</sup>	<0.5	<0.5	20	5.5	<0.5
	5/10/2002	51.16	22.28	28.88	44,000	6,000	900	1,500	6,200	2,400
	8/8/2002	51.16	22.88	28.28	40,000	5,800	1,100	1,600	6,500	1,300
	11/8/2002	51.16	23.19	27.97	47,000	5,300	1,200	2,200	8,600	1,000
	2/21/2003	51.16	22.02	29.14	39,000	5,500	1,500	2,000	8,600	1,300
	5/28/2003	51.16	21.89	29.27	52,000	7,300	3,000	2,800	12,700	2,100
	8/12/2003	51.16	22.66	28.50	31,000	6,100	860	1,500	6,900	1,200
	10/9/2003	51.16	23.06	28.10	41,000	6,100	1,100	2,200	10,200	960

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**Historical Groundwater Elevation Data and Analytical Results**  
**15101 Freedom Avenue, San Leandro, CA**

Monitoring Well	Date	Casing Elevation <sup>1</sup> (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g ( $\mu\text{g/L}$ )	Benzene ( $\mu\text{g/L}$ )	Toluene ( $\mu\text{g/L}$ )	Ethyl-benzene ( $\mu\text{g/L}$ )	Total Xylenes ( $\mu\text{g/L}$ )	MtBE 8260B <sup>2</sup> ( $\mu\text{g/L}$ )
<b>MW-3 cont.</b>	1/15/2004	51.16	21.85	29.31	51,000	4,100	1,100	2,000	8,400	590
	5/25/2004	51.16	22.55	28.61	65,000	4,300	1,300	2,500	10,500	720
	9/21/2004	53.91	23.08	30.83	42,000	4,900	890	2,200	8,700	480
	12/14/2004	53.91	22.52	31.39	35,151	4,066	972	2,942	13,032	491
	3/11/2005	53.91	20.90	33.01	42,600	3,040	1,100	1,530	6,670	968
	6/15/2005	53.91	21.85	32.06	84,100	5,110	2,160	3,030	8,800	2,670
	8/26/2005	53.91	22.49	31.42	43,500	3,630	1,080	2,500	6,830	1,440
	11/11/2005	53.91	22.81	31.10	47,700	4,240	520	2,170	6,320	1,390
	2/9/2006	53.91	21.12	32.79	44,500	5,070	1,360	1,920	4,840	3,280
	5/9/2006	53.91	21.09	32.82	48,100	2,510	1,140	1,950	5,030	2,210
	8/10/2006	53.91	22.26	31.65	42,100	3,450	869	1,760	5,650	3,570
	10/26/2006	53.91	22.73	31.18	33,400	4,800	331	1,170	3,510	4,790
	1/25/2007	53.91	22.34	31.57	19,300	4,820	167	1,540	3,740	3,430
	4/26/2007	53.91	22.24	31.67	30,700	2,350	158	1,470	4,320	1,330
	7/25/2007	53.91	22.83	31.08	34,900	5,400	364	2,080	6,360	1,980
	10/23/2007	53.91	23.01	30.9	22,600	4,070	<86	1,120	3,095	970
	1/22/2008	53.96	22.04	31.92	22,100	1,280	453	1,330	3,520	490
	4/16/2008	53.91	22.4	31.51	20,700	2,790	182	860	3,389	263
	7/3/2008	53.91	22.9	31.01	48,500	3,760	346	3,130	12,980	573
	10/16/2008	53.91	23.36	30.55	50,000	3,900	300	3,100	11,000	460
<b>MW-4</b>	1/8/2009	53.91	22.82	31.09	54,000	2,600	180	2,500	8,800	220
	4/13/2009	53.91	22.06	31.85	49,000	2,900	170	2,100	8,100	490
<hr/>										
<b>MW-4</b>										
	5/10/2002	50.54	21.78	28.76	880	25	1.0C	110	52	12,000
	8/8/2002	50.54	22.50	28.04	3,800	70	<5.0	300	115	4,800
	11/8/2002	50.54	22.81	27.73	5,100	150	10	460	258	2,400

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<b>MW-4 cont.</b>	2/21/2003	50.54	21.48	29.06	3,200	98	66	220	360	6,600
	5/28/2003	50.54	21.24	29.30	6,200	140	46	200	790	2,300
	8/12/2003	50.54	22.32	28.22	7,500	180	57	220	1450	1,900
	10/9/2003	50.54	22.74	27.80	5,800	250	32	300	970	7,800
	1/15/2004	50.54	21.19	29.35	5,900	270	17 C	150	640	7,300
	5/25/2004	50.54	22.03	28.51	9,100	210	51	200	1190	1800
	9/21/2004	53.31	22.76	30.55	5,200	290	12	370	600	7300
	12/14/2004	53.31	21.99	31.32	8,937	538	114	416	2379	5021
	3/11/2005	53.31	20.01	33.30	12,300	225	39.6	80.1	1465	3870
	6/15/2005	53.31	21.25	32.06	7,690	114	32.6	77.1	555	1150
	8/26/2005	53.31	22.03	31.28	8,850	175	24.6	150	851	1380
	11/11/2005	53.31	22.43	30.88	9,990	356	<43	196	700	3,640
	2/9/2006	53.31	20.31	33.00	6,850	205	<43	67.2	255.2	5,120
	5/9/2006	53.31	20.33	32.98	1,290	18.1	<8.6	12.9	25.87	799
	8/10/2006	53.31	21.74	31.57	7,830	118	<8.60	25.3	174.6	919
	10/26/2006	53.31	22.29	31.02	1,540	81.9	<43	96	46.4	3,610
	1/25/2007	53.31	21.86	31.45	4,370	163	<8.6	85.1	269.1	1,050
	4/26/2007	53.31	21.63	31.68	4,380	140	<8.6	67	276.8	576
	7/25/2007	53.31	22.49	30.82	4,970	220	<8.60	198	241.5	1,040
	10/23/2007	53.31	22.69	30.62	4,200	267	<8.6	147	155.5	1,220
	1/22/2008	53.36	21.39	31.97	2,180	133	<22.0	43.1	32.2	1,800
	4/15/2008	53.31	21.9	31.41	4,240	90.4	<22.0	107	380	674
	7/2/2008	53.31	22.55	30.76	2,300	193	<22.0	212	183	4,050
	10/16/2008	53.31	23.13	30.18	8,900	320	3.7	430	1,160	450
	1/8/2009	53.31	22.42	30.89	19,000	430	44	590	3,380	440
	4/13/2009	53.31	21.51	31.80	21,000	400	38	450	2,880	330

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**15101 Freedom Avenue, San Leandro, CA**

Monitoring Well	Date	Casing Elevation <sup>1</sup> (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g ( $\mu\text{g/L}$ )	Benzene ( $\mu\text{g/L}$ )	Toluene ( $\mu\text{g/L}$ )	Ethyl-benzene ( $\mu\text{g/L}$ )	Total Xylenes ( $\mu\text{g/L}$ )	MtBE 8260B <sup>2</sup> ( $\mu\text{g/L}$ )
MW-5	5/10/2002	47.79	19.02	28.77	25,000	1,000	1200	1,100	3,060	1,800
	8/8/2002	47.79	19.80	27.99	18,000	1,000	660	950	1,720	1,500
	11/8/2002	47.79	20.14	27.65	16,000	1,300	380	930	1,550	1,200
	2/21/2003	47.79	18.70	29.09	12,000	390	71	770	1,100	860
	5/28/2003	47.79	18.52	29.27	9,100	210	31	560	790	600
	8/12/2003	47.79	19.54	28.25	12,000	660	75	660	1,110	1,000
	10/9/2003	47.79	20.06	27.73	15,000	1,000	130	1,000	1,430	1,700
	1/15/2004	47.79	18.42	29.37	9,900	450 C	16	500	431	1,100
	5/25/2004	47.79	19.30	28.49	9,200	380	24	490	536	720
	9/21/2004	50.53	20.15	30.38	10,000	980	71	560	770	1200
	12/14/2004	50.53	19.30	31.23	10,502	587	64	1040	1133	1015
	3/11/2005	50.53	17.20	33.33	8,390	407	<5.5	83	42.5	1530
	6/15/2005	50.53	18.54	31.99	9,350	147	18.3	435	146.2	573
	8/26/2005	50.53	19.31	31.22	9,500	261	<22	726	321.3	749
	11/11/2005	50.53	19.75	30.78	10,000	443	41.5	527	278.5	1,430
	2/9/2006	50.53	17.58	32.95	7,640	237	<22	187	50.2	2,050
	5/9/2006	50.53	17.54	32.99	8,360	111	<8.6	300	75.84	566
	8/10/2006	50.53	19.02	31.51	16,100	250	<22	455	187.4	1,590
	10/26/2006	50.53	19.61	30.92	10,100	430	<22	375	192.6	3,060

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Monitoring Well	Date	Casing Elevation <sup>1</sup> (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g ( $\mu\text{g/L}$ )	Benzene ( $\mu\text{g/L}$ )	Toluene ( $\mu\text{g/L}$ )	Ethyl-benzene ( $\mu\text{g/L}$ )	Total Xylenes ( $\mu\text{g/L}$ )	MtBE 8260B <sup>2</sup> ( $\mu\text{g/L}$ )
<b>MW-5 cont.</b>	1/25/2007	50.53	19.19	31.34	3,960	340	<22	323	150.1	1,740
	4/26/2007	50.53	18.89	31.64	4,590	187	<8.6	307	116.5	861
	7/25/2007	50.53	19.81	30.72	6,490	419	21.8	413	223.2	913
	10/23/2007	50.53	19.98	30.55	6,120	550	11	284	141.4	433
	1/22/2008	50.18	18.69	31.49	9,810	572	22	574	184.1	126
	4/15/2008	50.18	19.16	31.02	8,890	335	15.1	477	397.5	136
	7/3/2008	50.53	19.88	30.65	13,100	949	34.4	875	825.5	176
	10/16/2008	50.53	20.45	30.08	11,000	870	25	820	668	160
	1/8/2009	50.53	19.72	30.81	12,000	490	21	690	456	76
	4/13/2009	<b>50.53</b>	<b>18.81</b>	<b>31.72</b>	<b>9,000 <sup>Y</sup></b>	<b>200</b>	<b>11</b>	<b>390</b>	<b>198</b>	<b>44</b>
<b>MW-6</b>	9/21/2004	45.82	17.64	28.18	34,000	150	130	2200	8100	0.6
	12/14/2004	45.82	15.75	30.07	5,161	137	7	436	1136	<5.5
	3/11/2005	45.82	13.80	32.02	6,040	125	3.22	260	722.1	4.94
	6/15/2005	45.82	14.78	31.04	5,590	44.3	6.60	272	382	5.85
	8/26/2005	45.82	15.91	29.91	6,130	99	<8.6	378	492.9	5.66
	11/11/2005	45.82	16.55	29.27	11,400	101	<8.6	645	834.7	4.33
	2/9/2006	45.82	13.92	31.90	2,790	32.3	<8.6	131	131.22	7.30
	5/9/2006	45.82	13.95	31.87	3,730	25	<2.0	213	207.82	5.87
	8/10/2006	45.82	15.28	30.54	4,800	41.9	<2.0	201	189	10.4
	10/26/2006	45.82	16.11	29.71	6,080	37.4	<2.0	116	183	9.78
	1/25/2007	45.82	15.76	30.06	3,220	25.2	<2.0	219	174	14.7
	4/26/2007	45.82	15.18	30.64	3,110	28	<2.0	165	138.47	14.6
	7/25/2007	45.82	16.82	29.00	4,960	54.1	<2.0	199	255.87	8.05
	10/23/2007	45.82	16.91	28.91	9,610	64.3	<2.0	188	302.6	5.81
	1/21/2008	45.82	15.36	30.46	3,290	33	<2.0	149	131.31	3.86
	4/15/2008	45.82	15.73	30.09	2,070	10.8	<2.0	51.1	67	<0.5
	7/2/2008	45.82	16.9	28.92	7,900	42.4	<2.0	194	296	3.58
	10/15/2008	45.82	17.21	28.61	18,000 <sup>Y</sup>	42	1.4	320	673	1.7
	1/7/2009	45.82	17.08	28.74	13,000	47	<3.1	210	425	<3.1
	4/13/2009	<b>45.82</b>	<b>15.52</b>	<b>30.30</b>	<b>7,200 <sup>Y</sup></b>	<b>26</b>	<b>&lt;1.3</b>	<b>170</b>	<b>312.6</b>	<b>2.6</b>

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**15101 Freedom Avenue, San Leandro, CA**

Monitoring Well	Date	Casing Elevation <sup>1</sup> (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g ( $\mu\text{g/L}$ )	Benzene ( $\mu\text{g/L}$ )	Toluene ( $\mu\text{g/L}$ )	Ethyl-benzene ( $\mu\text{g/L}$ )	Total Xylenes ( $\mu\text{g/L}$ )	MtBE 8260B <sup>2</sup> ( $\mu\text{g/L}$ )
MW-7	9/21/2004	44.74	15.21	29.53	2,900	<0.5	<0.5	52	61	8.1
	12/14/2004	44.74	13.90	30.84	<50	1.6	<0.5	29	58	6.0
	3/11/2005	44.74	11.46	33.28	2,230	<2.5	<2.5	39.4	51.4	12.4
	6/15/2005	44.74	12.97	31.77	2,940	0.85	<2.0	50.6	31.9	13.7
	8/26/2005	44.74	14.10	30.64	2,310	<0.50	<2.0	55.7	29.6	4.01
	11/11/2005	44.74	14.59	30.15	3,030	<0.5	<2.0	66.5	42.3	9.76
	2/9/2006	44.74	NM	NM	NA	NA	NA	NA	NA	NA
	5/9/2006	44.74	12.02	32.72	1,400	<0.5	<2.0	19.8	12.4	2.30
	8/10/2006	44.74	13.72	31.02	604	<0.50	<2.0	6.2	4.63	1.42
	10/26/2006	44.74	14.38	30.36	1350	<0.50	<2.0	16.6	10.8	1.87
	1/25/2007	44.74	13.93	30.81	340	<0.5	<2.0	6.84	2.44	1.63
	4/26/2007	44.74	14.44	30.30	552	<0.5	<2.0	11.4	6.11	4.12
	7/25/2007	44.74	14.79	29.95	1,230	<0.5	<2.0	27	19.24	3.2
	10/23/2007	44.74	14.88	29.86	1,730	0.67	<2.0	20.7	17.31	8.44
	1/21/2008	44.74	13.34	31.40	610	1.15	<2.0	8.4	4.34	17.2
	4/15/2008	44.74	13.91	30.83	1,460	<0.5	<2.0	15.9	19.7	17.3
	7/2/2008	44.74	14.87	29.87	1,450	<0.5	<2.0	11	6.8	22.1
	10/15/2008	44.74	15.68	29.06	1,900 <sup>Y</sup>	0.56	1.2	27	39.5	55
	1/7/2009	44.74	14.72	30.02	2,700	1.2	2.9	11	25	39
	4/13/2009	44.74	13.54	31.20	2300 <sup>Y</sup>	<0.5	<0.5	15	6.3	63
MW-8	9/21/2004	41.14	12.98	28.16	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	12/14/2004	41.14	11.22	29.92	<50	<0.5	<0.5	<0.5	<1.0	<0.5
	3/11/2005	41.14	NM	NM	NA	NA	NA	NA	NA	NA
	6/15/2005	41.14	10.46	30.68	<200	0.53	<2.0	<0.5	<1.0	<0.5
	8/26/2005	41.14	11.53	29.61	<50	<0.50	<2.0	<0.50	<1.0	<0.50
	11/11/2005	41.14	11.92	29.22	<50	<0.5	<2.0	1.36	1.8	<0.5

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<b>MW-8 cont.</b>	2/9/2006	41.14	9.74	31.40	<50	<0.50	<2.0	<0.50	<1.0	<0.50
	5/9/2006	41.14	9.90	31.24	<50	<0.50	<2.0	<0.50	<1.0	<0.50
	8/10/2006	41.14	10.9	30.24	<50	<0.50	<2.0	<0.50	<1.0	<0.50
	10/26/2006	41.14	11.68	29.46	<50	<0.50	<2.0	3.37	<1.0	<0.50
	1/25/2007	41.14	11.44	29.70	<50	<0.5	<2.0	<0.5	<2.0	<0.5
	4/26/2007	41.14	10.81	30.33	<50	<0.5	<2.0	4.29	<2.0	<0.5
	7/25/2007	41.14	12.31	28.83	<50	<0.5	<2.0	4.39	<2.0	<0.5
	10/23/2007	41.14	12.37	28.77	<50	<0.5	<2.0	4.31	<2.0	<0.5
	1/21/2008	41.14	11.02	30.12	<50	<0.5	<2.0	<0.5	<2.0	<0.5
	4/15/2008	41.14	11.44	29.70	<50	<0.5	<2.0	<0.5	<2.0	<0.5
	7/2/2008	41.14	12.39	28.75	94.8	<0.5	<2.0	1	<2.0	<0.5
	10/15/2008	41.14	13.42	27.72	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	1/7/2009	41.14	12.50	28.64	<50	<0.5	<0.5	<0.5	0.6	<0.5
	4/13/2009	41.14	11.23	29.91	<50	<0.5	<0.5	<0.5	<0.5	<0.5
<b>MW-9</b>	9/21/2004	40.26	12.18	28.08	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	12/14/2004	40.26	10.91	29.35	<50	<0.5	<0.5	<0.5	<1.0	<0.5
	3/11/2005	40.26	10.52	29.74	<200	<0.5	<0.5	<0.5	<1.0	<0.5
	6/15/2005	40.26	14.73	25.53	<200	<0.5	<2.0	<0.5	<1.0	<0.5
	8/26/2005	40.26	10.59	29.67	<50	<0.50	<2.0	<0.50	<1.0	<0.50
	11/11/2005	40.26	11.25	29.01	<50	<0.5	<2.0	<0.5	<1.0	<0.5
	2/9/2006	40.26	10.05	30.21	<50	<0.50	<2.0	<0.50	<1.0	<0.50
	5/9/2006	40.26	9.06	31.20	<50	<0.50	<2.0	<0.50	<1.0	<0.50
	8/10/2006	40.26	10.01	30.25	<50	<0.50	<2.0	<0.50	<1.0	<0.50
	10/26/2006	40.26	10.81	29.45	<50	<0.50	<2.0	<0.50	<1.0	<0.50
	1/25/2007	40.26	10.67	29.59	<50	<0.5	<2.0	<0.5	<2.0	<0.5
	4/26/2007	40.26	10.05	30.21	<50	<0.5	<2.0	<0.5	<2.0	<0.5
	7/25/2007	40.26	11.44	28.82	<50	<0.5	<2.0	<0.5	<2.0	<0.5
	10/23/2007	40.26	11.59	28.67	<50	<0.5	<2.0	<0.5	<2.0	<0.5

**Table 1**  
**Historical Groundwater Elevation Data and Analytical Results**  
**15101 Freedom Avenue, San Leandro, CA**

Monitoring Well	Date	Casing Elevation <sup>1</sup> (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g ( $\mu\text{g/L}$ )	Benzene ( $\mu\text{g/L}$ )	Toluene ( $\mu\text{g/L}$ )	Ethyl-benzene ( $\mu\text{g/L}$ )	Total Xylenes ( $\mu\text{g/L}$ )	MtBE 8260B <sup>2</sup> ( $\mu\text{g/L}$ )
MW-9 cont.	1/21/2008	40.26	10.37	29.89	<50	<0.5	<2.0	<0.5	<2.0	<0.5
	4/15/2008	40.26	10.56	29.70	<50	<0.5	<2.0	<0.5	<2.0	<0.5
	7/2/2008	40.26	11.95	28.31	161	<0.5	<2.0	2.15	<2.0	<0.5
	10/15/2008	40.26	12.64	27.62	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	1/7/2009	40.26	11.75	28.51	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	4/13/2009	40.26	10.89	29.37	<50	<0.5	<0.5	<0.5	<0.5	<0.5
2nd WBZ										
MW-1D	1/3/2008	54.42		-	<50	<0.50	<2.0	<0.50	<2.0	<0.50
	1/22/2008	54.42	22.85	31.57	<50	<0.50	<2.0	<0.50	<2.0	<0.50
	4/16/2008	54.42	23.10	31.32	<50	<0.5	<2.0	<0.5	<2.0	<0.5
	7/3/2008	54.42	23.44	30.98	75.9	<0.5	<2.0	0.54	<2.0	<0.5
	10/15/2008	54.42	23.82	30.60	120.0	1.6	<0.5	2.8	3.6	<0.5
	1/8/2009	54.42	23.44	30.98	<50	<0.5	<0.5	<0.5	<0.5	<0.5
MW-3D	4/14/2009	54.42	23.06	31.36	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	1/3/2008	54.10		-	<50	<0.50	<2.0	<0.50	<2.0	87.6
	1/22/2008	54.10	22.31	31.79	<50	<0.50	<2.0	<0.50	<2.0	88.3
	4/16/2008	54.10	22.64	31.46	<50	<0.5	<2.0	<0.5	<2.0	71.1
	7/3/2008	54.10	23.17	30.93	<50	<0.5	<2.0	<0.5	<2.0	67.4
	10/16/2008	54.10	23.62	30.48	<50	<0.5	<0.5	<0.5	<0.5	37
MW-4D	1/8/2009	54.10	23.07	31.03	<50	<0.5	<0.5	<0.5	<0.5	29
	4/14/2009	54.10	22.36	31.74	<50	<0.5	<0.5	<0.5	<0.5	44
	1/4/2008	53.12		-	<50	<0.50	<2.0	<0.50	<2.0	<0.50
	1/22/2008	53.12	21.11	32.01	91.5	18.7	<2.0	7.08	11.42	219
	4/15/2008	53.12	21.67	31.45	<50	<0.5	<2.0	<0.5	<2.0	27
	7/3/2008	53.12	22.39	30.73	<50	<0.5	<2.0	<0.5	<2.0	6.27
	10/16/2008	53.12	22.98	30.14	<50	<0.5	<0.5	<0.5	<0.5	1.9
	1/8/2009	53.12	22.25	30.87	<50	<0.5	<0.5	<0.5	<0.5	2
	4/14/2009	53.12	21.34	31.78	<50	<0.5	<0.5	<0.5	<0.5	2.2

**Table 1**  
**Historical Groundwater Elevation Data and Analytical Results**  
**15101 Freedom Avenue, San Leandro, CA**

Monitoring Well	Date	Casing Elevation <sup>1</sup> (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g ( $\mu\text{g}/\text{L}$ )	Benzene ( $\mu\text{g}/\text{L}$ )	Toluene ( $\mu\text{g}/\text{L}$ )	Ethyl-benzene ( $\mu\text{g}/\text{L}$ )	Total Xylenes ( $\mu\text{g}/\text{L}$ )	MtBE 8260B <sup>2</sup> ( $\mu\text{g}/\text{L}$ )
1573 153 RD	7/2/2008 10/16/2008	NS NS	NM NM	NC NC	<50 <50	<0.5 <0.5	<2.0 <0.5	<0.5 <0.5	<2.0 <0.5	<0.5 <0.5
EB-PMP	1/21/2008	-	-	-	<50	<0.50	<2.0	<0.50	<2.0	<0.50
EB-PRB	1/21/2008	-	-	-	<50	<0.50	<2.0	<0.50	<2.0	<0.50
EB-PMP2	1/22/2008	-	-	-	<50	<0.50	<2.0	<0.50	<2.0	<0.50
EB-PRB2	1/22/2008	-	-	-	<50	<0.50	<2.0	<0.50	<2.0	<0.50
ESL (ug/L)	-	-	-	-	100	1	40	30	20	5

Notes:

The first time SOMA monitored this Site was in May 2002.

\*: Due to minimal recharge rates in well MW-2, the groundwater elevation recorded on these dates did not match the overall site conditions, May 2002 & August 2003.

NC: Not Calculated

<sup>1</sup>: Top of casing elevations were surveyed to a datum of 67.07 M.S.L by Kier & Wright Civil Engineers & Land Surveyors on May 7, 2002.

On October 11, 2004, the site was re-surveyed by Harrington Surveys, Inc. of Walnut Creek, CA to a datum of California Coordinate System, Zone 3, NAD 83.

<sup>2</sup>: MtBE analyzed by EPA Method 8021B, and confirmed by EPA Method 8260B.

<: Not detected above the laboratory reporting limit.

Y: Sample exhibits chromatographic pattern which does not resemble standard

C: Presence confirmed, but confirmation concentration differed by more than a factor of two.

C: Presence confirmed, but RPD between columns exceeds 40%.

H: Heavier hydrocarbons contributed to the quantitation.

NA: Not Analyzed. Well MW-8 was inaccessible during the First Quarter 2005, car was parked over well.

Not Analyzed. Well MW-7 was inaccessible during the First Quarter 2006, car was parked over well.

NM: Not Measured. Well MW-8 was inaccessible during the First Quarter 2005, car was parked over well.

Not Measured. Well MW-7 was inaccessible during the First Quarter 2006, car was parked over well.

The first time SOMA monitored wells MW-6 to MW-9 was in September 2004.

EB-PMP/EB-PRB: Equipment Blanks for Pump and Probe

ESL: Environmental Screening Levels per CRWQCB SFBay Region Interim Final Nov. 2007 (Revised May 2008);

Table F-1a,Groundwater Screening Levels (groundwater is a current or potential drinking water resource)

**Table 2**  
**Historical Gasoline Oxygenates Results**  
**15101 Freedom Avenue, San Leandro, CA**

Monitoring Well	Date	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)
1st WBZ							
MW-1	8/8/2002	78	<1.3	<1.3	<1.3	NA	NA
	11/1/2002	42	< 1.0	< 1.0	< 1.0	NA	NA
	2/21/2003	47	<0.5	<0.5	<0.5	NA	NA
	5/28/2003	25	<0.5	<0.5	<0.5	NA	NA
	8/12/2003	<10	<0.5	<0.5	<0.5	NA	NA
	10/9/2003	70	<1.0	<1.0	<1.0	NA	NA
	1/15/2004	55	<0.5	<0.5	<0.5	NA	NA
	5/25/2004	62	<0.7	<0.7	<0.7	NA	NA
	9/21/2004	<10	<0.5	<0.5	<0.5	NA	NA
	12/14/2004	<21.5	<4.3	<4.3	<17.2	NA	NA
	3/11/2005	81	<0.5	<0.5	<2.0	NA	NA
	6/15/2005	<10	<0.5	<0.5	<2.0	NA	NA
	8/26/2005	68.9	<2.15	<2.15	<8.6	NA	NA
	11/11/2005	46	<2.15	<2.15	<8.6	NA	NA
	2/9/2006	11.3	<0.5	<0.5	<2.0	NA	NA
	5/9/2006	<10	<0.5	<0.5	<2.0	0.51	<0.5
	8/10/2006	<43	<2.15	<2.15	<8.60	3.37	<2.15
	10/26/2006	39.4	<1.0	<1.0	<4.0	2.92	<1.0
MW-2	1/25/2007	41.4	<0.5	<0.5	<2.0	1.36	<0.5
	4/26/2007	39.6	<0.5	<0.5	<2.0	<0.5	<0.5
	7/25/2007	46.5	<1.0	<1.0	<4.0	<1.0	<1.0
	10/23/2007	53.7	<0.5	<0.5	<2.0	<0.5	<0.5
	1/22/2008	23.8	<0.5	<0.5	2.16	<0.5	<0.5
	4/16/2008	8.36	<0.5	<0.5	<2.0	164	<0.5
	7/3/2008	30.5	<0.5	<0.5	<2.0	1.08	<0.5
	10/15/2008	<20	<1.0	<1.0	<1.0	<1.0	<1.0
	1/7/2009	<25	<1.3	<1.3	<1.3	<1.3	<1.3
	4/14/2009	15	<0.5	<0.5	<0.5	<0.5	<0.5

**Table 2**  
**Historical Gasoline Oxygenates Results**  
**15101 Freedom Avenue, San Leandro, CA**

Monitoring Well	Date	TBA ( $\mu\text{g/L}$ )	DIPE ( $\mu\text{g/L}$ )	ETBE ( $\mu\text{g/L}$ )	TAME ( $\mu\text{g/L}$ )	1,2-DCA ( $\mu\text{g/L}$ )	EDB ( $\mu\text{g/L}$ )
MW-2 cont.	3/11/2005	<2.5	<0.5	<0.5	<2.0	NA	NA
	6/15/2005	<10	<0.5	<0.5	<2.0	NA	NA
	8/26/2005	<10	<0.5	<0.5	<2.0	NA	NA
	11/11/2005	<10	<0.5	<0.5	<2.0	NA	NA
	2/9/2006	<10	<0.5	<0.5	<2.0	NA	NA
	5/9/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5
	8/10/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5
	10/26/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5
	1/25/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	4/26/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	7/25/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	10/23/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	1/22/2008	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	4/15/2008	<2.0	<0.5	<0.5	<2.0	2.44	<0.5
	7/2/2008	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	10/15/2008	<10	<0.5	<0.5	<0.5	<0.5	<0.5
	1/7/2009	<10	<0.5	<0.5	<0.5	<0.5	<0.5
	4/13/2009	<10	<0.5	<0.5	<0.5	<0.5	<0.5
MW-3	8/8/2002	<330	<8.3	<8.3	330	NA	NA
	11/1/2002	85	<1.3	<1.3	220	NA	NA
	2/21/2003	140	<5.0	<5.0	320	NA	NA
	5/28/2003	520	<10	<10	530	NA	NA
	8/12/2003	180	<4.2	<4.2	270	NA	NA
	10/9/2003	<170	<8.3	<8.3	200	NA	NA
	1/15/2004	<100	<5.0	<5.0	150	NA	NA
	5/25/2004	<100	<5.0	<5.0	270	NA	NA
	9/21/2004	<140	<7.1	<7.1	110	NA	NA
	12/14/2004	<100	<20	<20	154	NA	NA
	3/11/2005	<215	<43	<43	256	NA	NA
	6/15/2005	<215	<10.8	<10.8	374	NA	NA
	8/26/2005	699	<21.5	<21.5	277	NA	NA
	11/11/2005	<430	<21.5	<21.5	171	NA	NA
	2/9/2006	<430	<21.5	<21.5	620	NA	NA
	5/9/2006	367	<10.8	<10.8	594	<10.8	<10.8
	8/10/2006	365	<10.8	<10.8	727	<10.8	<10.8
	10/26/2006	591	<10.8	<10.8	899	<10.8	<10.8
	1/25/2007	711	<10.8	<10.8	768	<10.8	<10.8
	4/26/2007	690	<10.8	<10.8	369	<10.8	<10.8
	7/25/2007	1,340	<10.8	<10.8	565	<10.8	<10.8
	10/23/2007	1,050	<21.5	<21.5	301	<21.5	<21.5
	1/22/2008	373	<10.8	<10.8	170	<0.5	<0.5
	4/16/2008	881	<5.50	<5.50	<22.0	1,850	12.1
	7/3/2008	426	<10.8	<10.8	124	<10.8	<10.8
	10/16/2008	<400	<20	<20	<20	<20	<20
	1/8/2009	<500	<25	<25	<25	<25	<25
	4/13/2009	<500	<25	<25	<25	<25	<25
MW-4	8/8/2002	1500	<17	<17	18	NA	NA
	11/1/2002	580	<5.0	6	13	NA	NA

**Table 2**  
**Historical Gasoline Oxygenates Results**  
**15101 Freedom Avenue, San Leandro, CA**

<b>Monitoring Well</b>	<b>Date</b>	<b>TBA (µg/L)</b>	<b>DIPE (µg/L)</b>	<b>ETBE (µg/L)</b>	<b>TAME (µg/L)</b>	<b>1,2-DCA (µg/L)</b>	<b>EDB (µg/L)</b>
<b>MW-4 cont.</b>	2/21/2003	1600	<20	22	<20	NA	NA
	5/28/2003	690	<8.3	<8.3	17	NA	NA
	8/12/2003	550	<7.1	7.3	18	NA	NA
	10/9/2003	1400	<31	50	<31	NA	NA
	1/15/2004	1,300	<20	25	21	NA	NA
	5/25/2004	560	<8.3	<8.3	24	NA	NA
	9/21/2004	1,300	<50	<50	<50	NA	NA
	12/14/2004	826	<10.75	21	49	NA	NA
	3/11/2005	1,110	<10.8	12.1	<43	NA	NA
	6/15/2005	<110	<5.5	<5.5	22.9	NA	NA
	8/26/2005	902	<5.50	<5.50	37.4	NA	NA
	11/11/2005	884	<10.8	<10.8	<43	NA	NA
	2/9/2006	769	<10.8	16.4	45.6	NA	NA
	5/9/2006	405	<2.15	2.95	31.3	<2.15	<2.15
	8/10/2006	306	<2.15	<2.15	35.3	<2.15	<2.15
	10/26/2006	3430	<10.8	13.8	<43	<10.8	<10.8
	1/25/2007	822	<2.15	2.4	28	2.25	<2.15
	4/26/2007	556	<2.15	2.28	29.2	<2.15	<2.15
	7/25/2007	1,860	<2.15	9.94	24	<2.15	<2.15
	10/23/2007	3,400	<2.15	18.4	25.9	<2.15	<2.15
	1/22/2008	2,580	<5.50	64.7	<22	<0.5	<0.5
	4/15/2008	1,100	<5.50	11.7	<22	39.9	<5.50
	7/2/2008	8,720	<5.50	75.2	<22	<5.50	<5.50
	10/16/2008	700	<3.6	4.2	37	5.4	<3.6
	1/8/2009	1,500	<3.6	9.9	41	3.6	<3.6
	<b>4/13/2009</b>	<b>1,100</b>	<b>&lt;8.3</b>	<b>&lt;8.3</b>	<b>28</b>	<b>&lt;8.3</b>	<b>&lt;8.3</b>
<b>MW-5</b>	8/8/2002	<250	<6.3	<6.3	510	NA	NA
	11/1/2002	66	< 2.0	< 2.0	560	NA	NA
	2/21/2003	<63	<3.1	<3.1	280	NA	NA
	5/28/2003	<33	<1.7	<1.7	110	NA	NA
	8/12/2003	130	<3.6	<3.6	270	NA	NA
	10/9/2003	<100	<5.0	<5.0	740	NA	NA
	1/15/2004	<63	<3.1	<3.1	300	NA	NA
	5/25/2004	<100	<5.0	<5.0	210	NA	NA
	9/21/2004	<130	<6.3	<6.3	550	NA	NA
	12/14/2004	40	<5.5	<5.5	444	NA	NA
	3/11/2005	88.8	<5.5	<5.5	448	NA	NA
	6/15/2005	<43	<2.15	<2.15	88.1	NA	NA
	8/26/2005	274	<5.50	<5.50	195	NA	NA
	11/11/2005	192	<5.50	<5.50	360	NA	NA
	2/9/2006	218	<5.50	<5.50	523	NA	NA
	5/9/2006	91.8	<2.15	<2.15	163	<2.15	<2.15
	8/10/2006	138	<5.50	<5.50	342	<5.50	<5.50
	10/26/2006	322	<5.50	<5.50	712	<5.50	<5.50

**Table 2**  
**Historical Gasoline Oxygenates Results**  
**15101 Freedom Avenue, San Leandro, CA**

Monitoring Well	Date	TBA ( $\mu\text{g/L}$ )	DIPE ( $\mu\text{g/L}$ )	ETBE ( $\mu\text{g/L}$ )	TAME ( $\mu\text{g/L}$ )	1,2-DCA ( $\mu\text{g/L}$ )	EDB ( $\mu\text{g/L}$ )
MW-5 cont.	1/25/2007	878	<5.50	<5.50	552	<5.50	<5.50
	4/26/2007	708	<2.15	<2.15	310	<2.15	<2.15
	7/25/2007	1,020	<2.15	<2.15	356	<2.15	<2.15
	10/23/2007	1,510	<2.15	<2.15	181	<2.15	<2.15
	1/22/2008	470	<0.5	4.56	62.1	<0.5	<0.5
	4/15/2008	566	<1.0	<1.0	29.6	231	5.66
	7/3/2008	2,320	<2.15	<2.15	53.3	<2.15	<2.15
	10/16/2008	990	<5.0	<5.0	82	<5.0	<5.0
	1/8/2009	360	<6.3	<6.3	51	<6.3	<6.3
	4/13/2009	280	<3.1	<3.1	<3.1	<3.1	<3.1
MW-6	9/21/2004	<10	<0.5	<0.5	<0.5	NA	NA
	12/14/2004	<5.5	<5.5	<5.5	<22	NA	NA
	3/11/2005	2.54	<0.5	<0.5	<2.0	NA	NA
	6/15/2005	<20	<1.0	<1.0	<4.0	NA	NA
	8/26/2005	<43	<2.15	<2.15	<8.6	NA	NA
	11/11/2005	<43	<2.15	<2.15	<8.6	NA	NA
	2/9/2006	<43	<2.15	<2.15	<8.6	NA	NA
	5/9/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5
	8/10/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5
	10/26/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5
	1/25/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	4/26/2007	7.21	<0.5	<0.5	<2.0	<0.5	<0.5
	7/25/2007	5.66	<0.5	<0.5	<2.0	<0.5	<0.5
	10/23/2007	6.68	<0.5	<0.5	<2.0	<0.5	<0.5
	1/21/2008	13.9	<0.5	<0.5	<2.0	<0.5	<0.5
	4/15/2008	<2.0	<0.5	<0.5	<2.0	6.78	1.49
	7/2/2008	4.54	<0.5	<0.5	<2.0	<0.5	<0.5
	10/15/2008	<10	<0.5	<0.5	<0.5	<0.5	<0.5
	1/7/2009	<63	<3.1	<3.1	<3.1	<3.1	<3.1
	4/13/2009	<25	<1.3	<1.3	<1.3	<1.3	<1.3
MW-7	9/21/2004	<10	<0.5	<0.5	1.5	NA	NA
	12/14/2004	<2.5	<0.5	<0.5	<2.0	NA	NA
	3/11/2005	<12.5	<2.5	<2.5	<10	NA	NA
	6/15/2005	<10	<0.5	<0.5	2.23	NA	NA
	8/26/2005	<10	<0.5	<0.5	<2.0	NA	NA
	11/11/2005	<10	<0.5	<0.5	<2.0	NA	NA
	2/9/2006	NA	NA	NA	NA	NA	NA
	5/9/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5
	8/10/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5
	10/26/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5
	1/25/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	4/26/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	7/25/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	10/23/2007	6.49	<0.5	<0.5	2.58	<0.5	<0.5
	1/21/2008	<2.0	<0.5	<0.5	6.01	<0.5	<0.5
	4/15/2008	8.8	<0.5	<0.5	<2.0	<0.5	1.26
	7/2/2008	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	10/15/2008	<10	<0.5	<0.5	14	<0.5	<0.5
	1/7/2009	<10	<0.5	<0.5	11	<0.5	<0.5
	4/13/2009	<10	<0.5	<0.5	16	<0.5	<0.5

**Table 2**  
**Historical Gasoline Oxygenates Results**  
**15101 Freedom Avenue, San Leandro, CA**

Monitoring Well	Date	TBA ( $\mu\text{g/L}$ )	DIPE ( $\mu\text{g/L}$ )	ETBE ( $\mu\text{g/L}$ )	TAME ( $\mu\text{g/L}$ )	1,2-DCA ( $\mu\text{g/L}$ )	EDB ( $\mu\text{g/L}$ )
<hr/>							
MW-8	9/21/2004	<10	<0.5	<0.5	<0.5	NA	NA
	12/14/2004	<2.5	<0.5	<0.5	<2.0	NA	NA
	3/11/2005	NA	NA	NA	NA	NA	NA
	6/15/2005	<10	<0.5	<0.5	<2.0	NA	NA
	8/26/2005	<10	<0.5	<0.5	<2.0	NA	NA
	11/11/2005	<10	<0.5	<0.5	<2.0	NA	NA
	2/9/2006	<10	<0.5	<0.5	<2.0	NA	NA
	5/9/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5
	8/10/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5
	10/26/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5
	1/25/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	4/26/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	7/25/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	10/23/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	1/21/2008	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	4/15/2008	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	7/2/2008	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	10/15/2008	<10	<0.5	<0.5	<0.5	<0.5	<0.5
	1/7/2009	<10	<0.5	<0.5	<0.5	<0.5	<0.5
	4/13/2009	<10	<0.5	<0.5	<0.5	<0.5	<0.5
<hr/>							
MW-9	9/21/2004	<10	<0.5	<0.5	<0.5	NA	NA
	12/14/2004	<2.5	<0.5	<0.5	<2.0	NA	NA
	3/11/2005	<2.5	<0.5	<0.5	<2.0	NA	NA
	6/15/2005	<10	<0.5	<0.5	<2.0	NA	NA
	8/26/2005	<10	<0.5	<0.5	<2.0	NA	NA
	11/11/2005	<10	<0.5	<0.5	<2.0	NA	NA
	2/9/2006	<10	<0.5	<0.5	<2.0	NA	NA
	5/9/2006	<10	<0.5	<0.5	<2.0	2.8	<0.5
	8/10/2006	<10	<0.5	<0.5	<2.0	1.83	<0.5
	10/26/2006	<10	<0.5	<0.5	<2.0	3.07	<0.5
	1/25/2007	<2.0	<0.5	<0.5	<2.0	2.92	<0.5
	4/26/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	7/25/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	10/23/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	1/21/2008	<2.0	<0.5	<0.5	<2.0	1.18	<0.5
	4/15/2008	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	7/2/2008	<2.0	<0.5	<0.5	<2.0	2.07	<0.5
	10/15/2008	<10	<0.5	<0.5	<0.5	1.5	<0.5
	1/7/2009	<10	<0.5	<0.5	<0.5	1.4	<0.5
	4/13/2009	<10	<0.5	<0.5	<0.5	0.97	<0.5
<hr/>							
2nd WBZ							
MW-1D	1/3/2008	111	<0.5	<0.5	<2.0	NA	NA
	1/22/2008	12.9	<0.5	<0.5	<2.0	<0.5	<0.5
	4/16/2008	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	7/3/2008	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	10/15/2008	<10	<0.5	<0.5	<0.5	<0.5	<0.5
	1/8/2009	<10	<0.5	<0.5	<0.5	<0.5	<0.5
	4/14/2009	<10	<0.5	<0.5	<0.5	<0.5	<0.5
MW-3D	1/3/2008	37.3	<0.5	3.12	15.3	NA	NA
	1/22/2008	15.6	<0.5	3.1	15.3	<0.5	<0.5
	4/16/2008	17.7	<0.5	<0.5	<2.0	<0.5	<0.5
	7/3/2008	<2.0	<0.5	<0.5	7.45	<0.5	<0.5

**Table 2**  
**Historical Gasoline Oxygenates Results**  
**15101 Freedom Avenue, San Leandro, CA**

Monitoring Well	Date	TBA ( $\mu\text{g/L}$ )	DIPE ( $\mu\text{g/L}$ )	ETBE ( $\mu\text{g/L}$ )	TAME ( $\mu\text{g/L}$ )	1,2-DCA ( $\mu\text{g/L}$ )	EDB ( $\mu\text{g/L}$ )
MW-3D cont.	10/16/2008	<10	<0.5	<0.5	4.7	<0.5	<0.5
	1/8/2009	<10	<0.5	<0.5	3.4	<0.5	<0.5
	4/14/2009	<10	<0.5	<0.5	5	<0.5	<0.5
MW-4D	1/4/2008	25	<0.5	<0.5	<2.0	NA	NA
	1/22/2008	124	<0.5	4.9	3.32	<0.5	<0.5
	4/15/2008	25.7	<0.5	<0.5	<2.0	<0.5	<0.5
	7/3/2008	3.38	<0.5	<0.5	<2.0	<0.5	<0.5
	10/16/2008	<10	<0.5	<0.5	<0.5	<0.5	<0.5
	1/8/2009	<10	<0.5	<0.5	<0.5	<0.5	<0.5
	4/14/2009	<10	<0.5	<0.5	<0.5	<0.5	<0.5
1573 153 RD	7/2/2008	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
	10/16/2008	<10	<0.5	<0.5	<0.5	<0.5	<0.5
EB-PMP	1/21/2008	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
EB-PRB	1/21/2008	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
EB-PMP2	1/22/2008	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
EB-PRB2	1/22/2008	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5
ESL	12	NE	NE	NE	0.5	0.05	

Notes:

August 8, 2002 was the first time that samples were analyzed for Gasoline Oxygenates

<: Not detected above the laboratory reporting limit.

NA: Not Analyzed. Well MW-8 was inaccessible during the 1Q05

& well MW-7 (1Q06) car was parked over each well.

NE: Not Established

TBA: tert-Butyl Alcohol

DIPE: Isopropyl Ether

ETBE: Ethyl tert-Butyl Ether

TAME: Methyl tert-Amyl Ether

ESL: Environmental Screening Levels per CRWQCB SFBay Region Interim Final Nov. 2007 (Revised May 2008);

Table F-1a, Groundwater Screening Levels (groundwater is a current or potential drinking water resource)

# **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 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 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 well is purged using a battery-operated, 2-inch-diameter pump (Model ES-60 DC). During purging, groundwater is measured for parameters such as dissolved oxygen (DO), pH, temperature, electrical conductivity (EC), and oxygen-reduction potential (ORP) using a Hanna HI-9828 multi-parameter instrument. Turbidity is measured using a Hanna HI-98703 portable turbidimeter. The equipment is calibrated at the Site using standard solutions and procedures provided by the manufacturer.

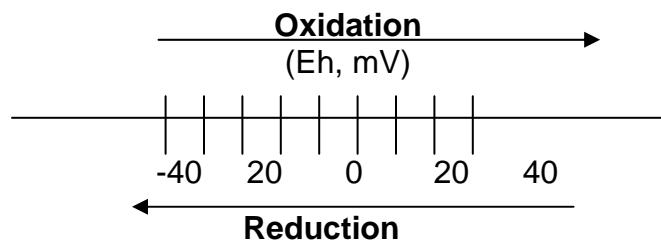
The pH of groundwater has an effect on the activity of microbial populations in the groundwater. The groundwater temperature affects the metabolic activity of bacteria. The groundwater EC is directly related to the concentration of total dissolved solids (TDS) in solution.

There is a strong correlation between the turbidity level and the biological oxygen demand of natural water bodies. The main purpose for checking the turbidity level is to provide a general overview of the extent of the suspended solids in the groundwater.

ORP is the measure of the potential for an oxidation or reduction process to occur. In the oxidation process, a molecule or ion loses one or several electrons. In the reduction process, a molecule or ion gains one or several electrons. The unit of the redox potential is the volt or millivolt. The most important redox reaction in petroleum-contaminated groundwater is the oxidation of petroleum hydrocarbons in the presence of bacteria and free molecular oxygen. Because the solubility of O<sub>2</sub> in water is low (9 mg/L at 25 °C and 11 mg/L at 5 °C), and because the rate of O<sub>2</sub> replenishment in subsurface environments is limited, DO can be entirely consumed when the oxidation of only a small amount of petroleum hydrocarbons occurs.

Oxidation of petroleum hydrocarbons can still occur when all the dissolved O<sub>2</sub> in the groundwater is consumed; however, the oxidizing agents (i.e., the constituents that undergo reduction) now become NO<sub>3</sub><sup>-</sup>, MnO<sub>2</sub>, Fe (OH)<sub>3</sub>, SO<sub>4</sub><sup>2-</sup>

and others (Freeze and Cherry, 1979). As these oxidizing agents are consumed, the groundwater environment becomes more and more reduced. If the process advances far enough, the environment may become so strongly reduced that the petroleum hydrocarbons undergo anaerobic degradation, resulting in the production of methane and carbon dioxide. The concept of oxidation and reduction in terms of changes in oxidation states is illustrated below.



Purging of wells continues until the parameters for DO, pH, temperature, EC, turbidity, and redox stabilize, or three casing volumes are purged.

Once stabilization occurs, the groundwater samples are also tested on-site for ferrous iron ( $\text{Fe}^{+2}$ ), nitrate ( $\text{NO}_3^-$ ), and sulfate ( $\text{SO}_4^{+2}$ ) concentrations.

$\text{Fe}^{+2}$ ,  $\text{NO}_3^-$ , and  $\text{SO}_4^{+2}$  are measured colorimetrically using the Hach Colorimeter Model 890, a microprocessor-controlled photometer suitable for colorimetric testing in the laboratory or the field. The required reagents for each specific test are provided in AccuVac ampuls.

## 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 into 40-mL VOA vials and preserved with hydrochloric acid. The vials are sealed to prevent air bubbles from developing within the headspace. For TPH-d 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**

Table of Elevations and Coordinates on Monitoring Wells  
and Field Measurements of Physical and Chemical  
Parameters of Groundwater Samples

DATE: 1/08/2008  
JOB NUMBER 0208101  
DATE OF SURVEY 1/03/08  
INSTRUMENT LIECA SR520

TABLE OF ELEVATIONS & COORDINATES  
ON MONITORING WELLS

SOMA ENVIRONMENTAL, PROJECT 15101 FREEDOM DRIVE - SAN LEANDRO

WELL ID#	NORTHING (ft.) LATITUDE	EASTING (ft.) LONGITUDE	ELEVATION (ft.)	DESCRIPTION
MW-1D	2084371.23	6092127.90	54.42	MW-1D NOTCH
	37.708104856	122.123200912	54.94	MW-1D RIM
	37° 42' 29.1" N	122° 07' 23" W	54.74	PAVEMENT
MW-3D	2084303.98	6092183.53	54.10	MW-3D NOTCH
	37.707922851	122.123004590	54.56	MW-3D RIM
	37° 42' 28.5" N	122° 07' 22" W	54.47	PAVEMENT
MW-4D	2084222.77	6092116.37	53.12	MW-4D NOTCH
	37.707696648	122.123231858	53.37	MW-4D RIM
	37° 42' 27.7" N	122° 07' 23" W	53.39	PAVEMENT

BENCH MARK: NGS BENCH MARK NO. HT1871

3.0 KM (1.85 MI) NORTH FROM SAM LORENZO. 1.85 MILES NORTH ALONG INTERSTATE HIGHWAY 580 FROM THE JUNCTION OF STATE HIGHWAY 238 IN SAN LORENZO, IN THE WEST CORNER OF THE CROSSING OF 150TH AVENUE, IN TOP OF THE CONCRETE BRIDGE DECK, 15.5 FEET NORTHWEST OF THE SOUTHWEST BOUND LANES OF THE AVENUE, 10.9 FEET NORTHEAST OF THE SOUTH CORNER OF THE SOUTHWEST END OF THE NORTHWEST CONCRETE GUARDRAIL, 0.7 FOOT NORTHEAST OF THE SOUTHWEST EDGE OF THE DECK, 0.9 FOOT SOUTHEAST OF THE NORTHWEST CONCRETE GUARDRAIL, AND ABOUT LEVEL WITH THE HIGHWAY.

ELEVATION = 58.50 NAVD 88 DATUM

HORIZONTAL AND VERTICAL CONTROL BASED ON HARRINGTON SURVEY DATED 10-12-2004

FD CHABOT A, CALIFORNIA STATE PLAIN COORDINATE SYSTEM, NAD 83, ZONE 3. NORTH 2,088,584.99 EAST 6,093,351.39. LAT N 37°43'11.04190" LONG W 122°07'09.20691", ELEVATION 492.08 NAVD 88.

FD CHABOT B, CALIFORNIA STATE PLAIN COORDINATE SYSTEM, NAD 83, ZONE 3. NORTH 2,087,731.02 EAST 6,094,039.23. . LAT N 37°43'02.71762" LONG W 122°07'00.46339", ELEVATION 442.77 NAVD 88.

**AMMENDED REPORT  
15101 FREEDOM AVE  
SAN LEANDRO, CA.**

**HARRINGTON SURVEYS INC.**  
**2278 LARKEY LANE**  
**WALNUT CREEK, CA. 94597**  
**925-935-7228 FAX. 935-5118**

**JOB NO. 2445**



ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-1  
 Casing Diameter: 4 inches  
 Depth of Well: 30.50 feet  
 Top of Casing Elevation: 54.46 feet  
 Depth to Groundwater: 22.52 feet  
 Groundwater Elevation: 31.94 feet  
 Water Column Height: 7.88 feet  
 Purged Volume: 14 gallons

Project No.: 2551  
 Address: 15101 Freedom Avenue  
 San Leandro, CA  
 Date: April 16, 2009  
 Sampler: Eric Gassner/Wallace

Ruchi Mathur  
 Lizzie Hightower

Purging Method: Bailer  Pump

Sampling Method: Bailer  Pump

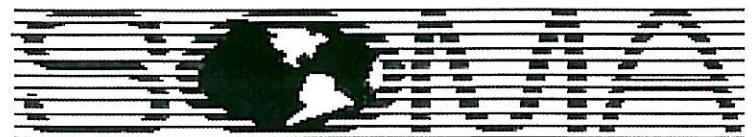
Color: Yes  No  Describe: \_\_\_\_\_

Sheen: Yes  No  Describe: \_\_\_\_\_

Odor: Yes  No  Describe: Petro Odor

**Field Measurements:**

Time	Volume (gallons)	D.O. mg/L	pH	Temp °C	E.C. (µS/cm)	Turb. NTU	ORP
11:19	Started purging well						
11:20	2	0.06	7.05	20.94	1154	2.81	-318.2
11:22	6	0.15	7.00	21.01	1147	3.56	-311.8
11:24	10	0.15	6.97	21.01	1147	2.81	-299.0
11:25	12	0.14	6.96	20.99	1151	2.10	-289.0
11:26	14	0.14	6.96	20.98	1154	3.13	-284.4
11:31	Sampled						



## ENVIRONMENTAL ENGINEERING, INC

Well No.: MJ-2  
Casing Diameter: 4 inches  
Depth of Well: 30.15 feet  
Top of Casing Elevation: 52.41 feet  
Depth to Groundwater: 20.52 feet  
Groundwater Elevation: 31.89 feet  
Water Column Height: 9.63 feet  
Purged Volume: 20 gallons

Project No.: 2551  
Address: 15101 Freedom Avenue  
San Leandro, CA  
Date: April 13, 2009  
Sampler: Eric Gassner-Wollwage  
Ruchi Mathur

Purging Method: Bailer  Pump

Sampling Method: Bailer  Pump

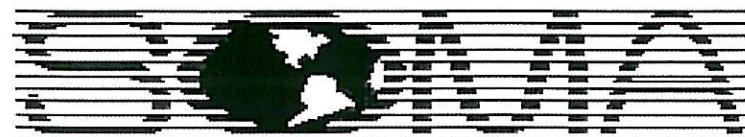
Color: Yes  No  Describe: yellowish

Sheen: Yes  No  Describe: \_\_\_\_\_

Odor: Yes  No  Describe: slight petro

## Field Measurements:

Time	Volume (gallons)	D.O. mg/L	pH	Temp °C	E.C. (µS/cm)	Turb. NTU	ORP
1152	started purging well						
1154	4	0.18	7.53	21.02	616	7.58	-243.8
1156	8	0.17	7.25	21.08	504	5.21	-253.6
1158	12	0.17	7.21	21.08	467	4.84	-227.1
1200	16	0.16	7.31	21.07	587	2.06	-233.0
1202	20	0.16	7.41	21.07	711	1.90	-241.7
1207	sampled						



## ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-3  
Casing Diameter: 4 inches  
Depth of Well: 29.90 feet  
Top of Casing Elevation: 53.91 feet  
Depth to Groundwater: 22.06 feet  
Groundwater Elevation: 31.85 feet  
Water Column Height: 7.84 feet  
Purged Volume: 16 gallons

Project No.: 2551  
Address: 15101 Freedom Avenue  
San Leandro, CA  
Date: April 13, 2009  
Sampler: Eric Gassner-Wollwage  
Ruchi Mathur

Purging Method: Bailer  Pump

Sampling Method: Bailer  Pump

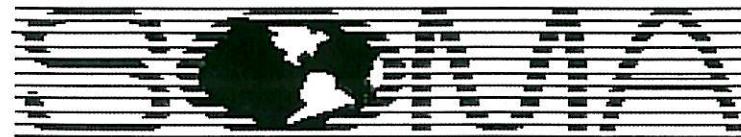
Color: Yes  No  Describe: \_\_\_\_\_

Sheen: Yes  No  Describe: \_\_\_\_\_

Odor: Yes  No  Describe: Petro

## Field Measurements:

Time	Volume (gallons)	D.O. mg/L	pH	Temp °C	E.C. (µS/cm)	Turb. NTU	ORP
1358	Started purging well						
1400	4	0.33	7.12	21.11	1312	3.52	-171.9
1402	8	0.30	7.03	21.12	1297	3.31	-174.9
1404	12	0.26	7.31	21.10	1304	2.53	-180.3
1406	16	0.19	7.02	21.10	1316	2.70	-180.7
1410	Sampled						



## ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-4 Project No.: 2551  
Casing Diameter: 4 inches Address: 15101 Freedom Avenue  
Depth of Well: 30.20 feet San Leandro, CA  
Top of Casing Elevation: 53.31 feet Date: April 13, 2009  
Depth to Groundwater: 21.51 feet Sampler: Eric Gassner-Wollwage  
Groundwater Elevation: 31.80 feet Ruchi Mathur  
Water Column Height: 8.69 feet  
Purged Volume: 16 gallons

Purging Method: Bailer  Pump

Sampling Method: Bailer  Pump

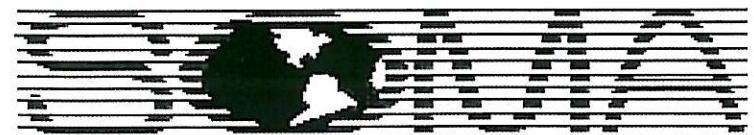
Color: Yes  No  Describe: \_\_\_\_\_

Sheen: Yes  No  Describe: \_\_\_\_\_

Odor: Yes  No  Describe: petro

## Field Measurements:

Time	Volume (gallons)	D.O. mg/L	pH	Temp °C	E.C. (µS/cm)	Turb. NTU	ORP
1336	Started purging	4	7.01	20.34	1514	14.8	-187.1
1339	4	0.63	7.01	20.34	1514	3.49	-190.7
1340	8	0.12	6.97	20.34	1519	2.17	-184.3
1342	12	0.12	7.02	20.34	1517	1.92	-176.2
1344	16	0.13	6.95	20.33	1527		
1350	Sampled						



## ENVIRONMENTAL ENGINEERING, INC

Well No.: MJ-5  
Casing Diameter: 4 inches  
Depth of Well: 29.80 feet  
Top of Casing Elevation: 50.53 feet  
Depth to Groundwater: 18.81 feet  
Groundwater Elevation: 31.72 feet  
Water Column Height: 10.99 feet  
Purged Volume: 22 gallons

Project No.: 2551  
Address: 15101 Freedom Avenue  
San Leandro, CA  
Date: April 13, 2009  
Sampler: Eric Gassner-Wollwage  
Ruchi Mathur

Purging Method: Bailer  Pump

Sampling Method: Bailer  Pump

Color: Yes  No  Describe: \_\_\_\_\_

Sheen: Yes  No  Describe: \_\_\_\_\_

Odor: Yes  No  Describe: Slight petro

## Field Measurements:

Time	Volume (gallons)	D.O. mg/L	pH	Temp °C	E.C. (µS/cm)	Turb. NTU	ORP
13:12	Started purging well						
13:14	4	0.19	7.27	21.14	1199	3.35	-164.3
13:16	8	0.18	7.19	21.14	1199	2.48	-161.8
13:20	16	0.17	7.13	21.14	1199	3.54	-163.8
13:23	22	0.17	7.16	21.13	1194	4.75	-166.1
13:28	Sampled						



## ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-G Project No.: 2551  
Casing Diameter: 4 inches Address: 15101 Freedom Avenue  
Depth of Well: 27.30 feet San Leandro, CA  
Top of Casing Elevation: 45.82 feet Date: April 13, 2009  
Depth to Groundwater: 15.52 feet Sampler: Eric Gassner-Wollwage  
Groundwater Elevation: 30.30 feet Ruchi Mathur  
Water Column Height: 11.78 feet  
Purged Volume: 18 gallons

Purging Method: Bailer  Pump

Sampling Method: Bailer  Pump

Color: Yes  No  Describe: \_\_\_\_\_

Sheen: Yes  No  Describe: rainbow

Odor: Yes  No  Describe: petro

## Field Measurements:

Time	Volume (gallons)	D.O. mg/L	pH	Temp °C	E.C. (µS/cm)	Turb. NTU	ORP
1105	Started Purging						
1107	4	0.25	7.52	20.64	1078	2.25	-547.0
1109	8	0.25	7.41	20.66	1083	2.19	-542.1
1111	12	0.21	7.60	20.67	1076	2.42	-531.1
1113	16	0.23	7.38	20.68	1082	2.18	-523.5
1114	18	0.21	7.33	20.67	1084	2.50	-518.1
1120	Sampled						



## ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-7 Project No.: 2551  
Casing Diameter: 2 inches Address: 15101 Freedom Avenue  
Depth of Well: 21.00 feet San Leandro, CA  
Top of Casing Elevation: 44.74 feet Date: April 13, 2009  
Depth to Groundwater: 13.54 feet Sampler: Eric Gassner-Wollwage  
Groundwater Elevation: 31.20 feet Ruchi Mathur  
Water Column Height: 7.46 feet  
Purged Volume: 4 gallons

Purging Method: Bailer  Pump

Sampling Method: Bailer  Pump

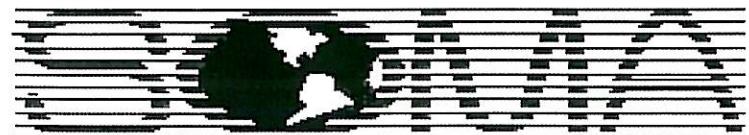
Color: Yes  No  Describe: \_\_\_\_\_

Sheen: Yes  No  Describe: \_\_\_\_\_

Odor: Yes  No  Describe: Slight petro

## Field Measurements:

Time	Volume (gallons)	D.O. mg/L	pH	Temp °C	E.C. (µS/cm)	Turb. NTU	ORP
1131	Started Purging						
1132	2	0.89	7.9	18.58	1239	112	-260.0
1133	4	0.40	7.13	18.56	1242	20.6	-265.9
1138	Sampled						



## ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-8 Project No.: 2551  
Casing Diameter: 2 inches Address: 15101 Freedom Avenue  
Depth of Well: 28.75 feet San Leandro, CA  
Top of Casing Elevation: 41.14 feet Date: April 13, 2009  
Depth to Groundwater: 11.23 feet Sampler: Eric Gassner-Wollwage  
Groundwater Elevation: 29.91 feet Ruchi Mathur  
Water Column Height: 17.52 feet  
Purged Volume: 8 gallons

Purging Method: Bailer  Pump

Sampling Method: Bailer  Pump

Color: Yes  No  Describe: slightly cloudy

Sheen: Yes  No  Describe: \_\_\_\_\_

Odor: Yes  No  Describe: \_\_\_\_\_

## Field Measurements:

Time	Volume (gallons)	D.O. mg/L	pH	Temp °C	E.C. (µS/cm)	Turb. NTU	ORP
10:24	Started purging well						
10:25	2	1.07	7.72	19.68	1291	574	-88.9
10:26	4	0.28	7.66	19.69	1304	127	-94.9
10:27	6	0.25	7.63	19.71	1313	4811	-101.6
10:28	8	0.20	7.61	19.71	1317	24.5	-103.2
10:31	Sampled						



## ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-9  
Casing Diameter: 2 inches  
Depth of Well: 32.55 feet  
Top of Casing Elevation: 40.26 feet  
Depth to Groundwater: 10.59 feet  
Groundwater Elevation: 29.37 feet  
Water Column Height: 21.66 feet  
Purged Volume: 12 gallons

Project No.: 2551  
Address: 15101 Freedom Avenue  
San Leandro, CA  
Date: April 13, 2009  
Sampler: Eric Gassner-Wollwage  
Ruchi Mathur

Purging Method: Bailer  Pump

Sampling Method: Bailer  Pump

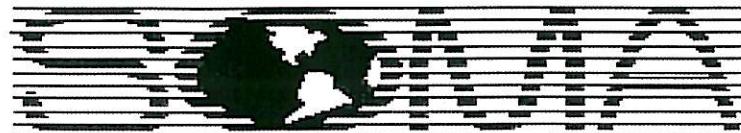
Color: Yes  No  Describe: \_\_\_\_\_

Sheen: Yes  No  Describe: \_\_\_\_\_

Odor: Yes  No  Describe: \_\_\_\_\_

## Field Measurements:

Time	Volume (gallons)	D.O. mg/L	pH	Temp °C	E.C. (µS/cm)	Turb. NTU	ORP
1044	Started purging well						
1046	4	2.77	7.93	19.37	1198	7.03	-48.2
1048	8	1.43	7.76	19.32	1185	5.63	-50.1
1050	12	0.50	7.73	19.34	1191	7.59	-55.5
1054	sampled						



## ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-1D  
Casing Diameter: 2 inches  
Depth of Well: 59.81 feet  
Top of Casing Elevation: 54.42 feet  
Depth to Groundwater: 23.06 feet  
Groundwater Elevation: 31.36 feet  
Water Column Height: 36.75 feet  
Purged Volume: 16 gallons

Project No.: 2551  
Address: 15101 Freedom Avenue  
San Leandro, CA

Date: April 14, 2009  
Sampler: Eric Gessner-Wollwage  
Rachael Martin

Lizzie Hightower

Purging Method: Bailer  Pump

Sampling Method: Bailer  Pump

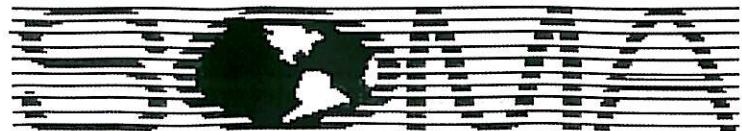
Color: Yes  No  Describe: \_\_\_\_\_

Sheen: Yes  No  Describe: \_\_\_\_\_

Odor: Yes  No  Describe: \_\_\_\_\_

## Field Measurements:

Time	Volume (gallons)	D.O. mg/L	pH	Temp °C	E.C. (µS/cm)	Turb. NTU	ORP
10:43	Started purging well						
10:44	2	0.25	7.89	19.86	1314	2.12	-126.8
10:46	6	0.21	7.73	19.77	1319	4.60	-133.9
10:48	10	0.19	7.70	19.75	1305	6.39	-139.9
10:50	14	0.19	7.68	19.74	1297	3.64	-140.2
10:51	16	0.19	7.66	19.78	1293	2.86	-140.2
10:56	Sampled						



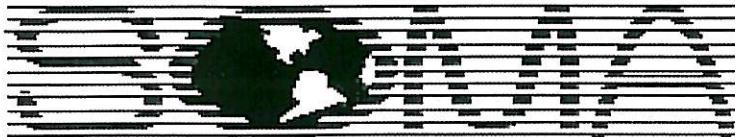
ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-3D Project No.: 2551  
Casing Diameter: 2 inches Address: 15101 Freedom Avenue  
Depth of Well: 58.59 feet San Leandro, CA  
Top of Casing Elevation: 54.10 feet Date: April 16, 2009  
Depth to Groundwater: 22.36 feet Sampler: Eriel Geissner-Wolffage  
Groundwater Elevation: 31.74 feet Ruth Mathur  
Water Column Height: 36.23 feet Lizzie Hightower  
Purged Volume: 16 gallons

Purging Method: Bailer  Pump   
Sampling Method: Bailer  Pump   
Color: Yes  No  Describe: \_\_\_\_\_  
Sheen: Yes  No  Describe: \_\_\_\_\_  
Odor: Yes  No  Describe: \_\_\_\_\_

Field Measurements:

Time	Volume (gallons)	D.O. mg/L	pH	Temp °C	E.C. µS/cm	Turb. NTU	ORP
10:09	Started purging well						
10:10	2	0.18	7.80	19.92	1213	1.23	-136.8
10:12	6	0.15	7.65	19.89	1224	1.49	-138.4
10:14	10	0.15	7.60	19.89	1223	0.66	-140.2
10:16	14	0.12	7.58	19.89	1222	1.60	-141.1
10:17	16	0.11	7.57	19.89	1221	1.15	-1415
10:22	samp 4d						



## ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-4D Project No.: 2551  
Casing Diameter: 2 inches Address: 15101 Freedom Avenue  
Depth of Well: 58.79 feet San Leandro, CA  
Top of Casing Elevation: 53.12 feet Date: April 19, 2009  
Depth to Groundwater: 21.34 feet Sampler: Eric Gassner/Melville  
Groundwater Elevation: 31.78 feet Ruth Matlak  
Water Column Height: 37.45 feet Lizzie Hightower  
Purged Volume: 16 gallons

Purging Method: Bailer  Pump

Sampling Method: Bailer  Pump

Color: Yes  No  Describe: Slightly Cloudy

Sheen: Yes  No  Describe: \_\_\_\_\_

Odor: Yes  No  Describe: \_\_\_\_\_

## Field Measurements:

Time	Volume (gallons)	D.O. mg/L	pH	Temp °C	E.C. (µS/cm)	Turb. NTU	ORP
09:35	Started purging well						
09:36	2	0.09	7.90	19.27	1189	999	-133.3
09:38	6	0.09	7.77	19.27	1189	206	-142.3
09:40	10	0.08	7.75	19.28	1183	104	-153.2
09:42	14	0.07	7.73	19.28	1181	64.1	-148.5
09:43	16	0.07	7.70	19.29	1179	45.8	-146.1
09:48	Sampled						

# **Appendix C**

Laboratory Report and Chain of Custody Form  
for the Second Quarter 2009 Monitoring Event



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

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

**Laboratory Job Number 211412  
ANALYTICAL REPORT**

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

Project : 2551  
Location : 15101 Freedom Avenue., San Leandro  
Level : II

<u>Sample ID</u>	<u>Lab ID</u>
MW-1	211412-001
MW-2	211412-002
MW-3	211412-003
MW-4	211412-004
MW-5	211412-005
MW-6	211412-006
MW-7	211412-007
MW-8	211412-008
MW-9	211412-009
MW-1D	211412-010
MW-3D	211412-011
MW-4D	211412-012

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 signatures. 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: Troy Baker  
Project Manager

Date: 04/28/2009

Signature: John S. Baker  
Senior Program Manager

Date: 04/28/2009

NELAP # 01107CA

**CASE NARRATIVE**

Laboratory number: **211412**  
Client: **SOMA Environmental Engineering Inc.**  
Project: **2551**  
Location: **15101 Freedom Avenue., San Leandro**  
Request Date: **04/14/09**  
Samples Received: **04/14/09**

This data package contains sample and QC results for twelve water samples, requested for the above referenced project on 04/14/09. The samples were received cold and intact.

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

Low recoveries were observed for 1,2-dichloroethane in the MS/MSD for batch 150286; the parent sample was not a project sample, and the associated RPD was within limits. No other 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

Project No: 2551

**Project Name:** 15101 Freedom Ave., San Leandro **Company :** SOMA Environmental

**Turnaround Time: Standard**      **Telephone:** 925-734-6400

C&T LOGIN #

**Sampler:Eric Gassner-Wollwage/Ruchi Mathur**

**Report To:** Joyce Bobek

Lizzie Fletcher

**Company :** SOMA Environmental

**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
1	MW-1	4/14/09	11:31	*	*		4-VOAs	*			*
2	MW-2	4/13/09	12:07	*			4-VOAs	*			*
3	MW-3	4/13/09	14:10	*			4-VOAs	*			*
4	MW-4	4/13/09	13:50	*			4-VOAs	*			*
5	MW-5	4/13/09	13:28	*			4-VOAs	*			*
6	MW-6	4/13/09	11:20	*			4-VOAs	*			*
7	MW-7	4/13/09	11:38	*			4-VOAs	*			*
8	MW-8	4/13/09	10:31	*			4-VOAs	*			*
9	MW-9	4/13/09	10:54	*			4-VOAs	*			*
10	MW-1D	4/14/09	10:56	*			4-VOAs	*			*
11	MW-3D	4/19/09	10:22	*			4-VOAs	*			*
12	MW-4D	4/14/09	09:48	*			4-VOAs	*			*

**Notes: EDE OUTPUT REQUIRED**

### Ethanol

**RELINQUISHED BY:**

E. Wright

13:47 DATE/TIME

**RECEIVED BY:**

E Dt. Langley 4/14/09 1:45 DATE/TIME

**DATE/TIME**

DATETIME

DATE/TIME

**DATE/TIME**



### **Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Field ID:	MW-1	Batch#:	150286
Lab ID:	211412-001	Sampled:	04/14/09
Matrix:	Water	Received:	04/14/09
Units:	ug/L	Analyzed:	04/24/09
Diln Fac:	1.000		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
Gasoline C7-C12	1,800 Y	50
tert-Butyl Alcohol (TBA)	15	10
Isopropyl Ether (DIPE)	ND	0.50
Ethyl tert-Butyl Ether (ETBE)	ND	0.50
Methyl tert-Amyl Ether (TAME)	ND	0.50
Ethanol	ND	1,000
MTBE	2.5	0.50
1,2-Dichloroethane	ND	0.50
Benzene	78	0.50
Toluene	ND	0.50
1,2-Dibromoethane	ND	0.50
Ethylbenzene	35	0.50
m,p-Xylenes	18	0.50
o-Xylene	ND	0.50

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	94	80-122
1,2-Dichloroethane-d4	83	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	95	80-125

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

### **Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Field ID:	MW-2	Batch#:	150248
Lab ID:	211412-002	Sampled:	04/13/09
Matrix:	Water	Received:	04/14/09
Units:	ug/L	Analyzed:	04/23/09
Diln Fac:	1.000		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
Gasoline C7-C12	480 Y	50
tert-Butyl Alcohol (TBA)	ND	10
Isopropyl Ether (DIPE)	ND	0.50
Ethyl tert-Butyl Ether (ETBE)	ND	0.50
Methyl tert-Amyl Ether (TAME)	ND	0.50
Ethanol	ND	1,000
MTBE	ND	0.50
1,2-Dichloroethane	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
1,2-Dibromoethane	ND	0.50
Ethylbenzene	20	0.50
m,p-Xylenes	5.5	0.50
o-Xylene	ND	0.50

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	108	80-122
1,2-Dichloroethane-d4	114	77-137
Toluene-d8	104	80-120
Bromofluorobenzene	96	80-125

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

### **Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Field ID:	MW-3	Batch#:	150248
Lab ID:	211412-003	Sampled:	04/13/09
Matrix:	Water	Received:	04/14/09
Units:	ug/L	Analyzed:	04/24/09
Diln Fac:	50.00		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
Gasoline C7-C12	49,000	2,500
tert-Butyl Alcohol (TBA)	ND	500
Isopropyl Ether (DIPE)	ND	25
Ethyl tert-Butyl Ether (ETBE)	ND	25
Methyl tert-Amyl Ether (TAME)	ND	25
Ethanol	ND	50,000
MTBE	490	25
1,2-Dichloroethane	ND	25
Benzene	2,900	25
Toluene	170	25
1,2-Dibromoethane	ND	25
Ethylbenzene	2,100	25
m,p-Xylenes	6,600	25
o-Xylene	1,500	25

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	106	80-122
1,2-Dichloroethane-d4	114	77-137
Toluene-d8	105	80-120
Bromofluorobenzene	92	80-125

ND= Not Detected

RL= Reporting Limit

### **Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Field ID:	MW-4	Batch#:	150286
Lab ID:	211412-004	Sampled:	04/13/09
Matrix:	Water	Received:	04/14/09
Units:	ug/L	Analyzed:	04/24/09
Diln Fac:	16.67		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
Gasoline C7-C12	21,000	830
tert-Butyl Alcohol (TBA)	1,100	170
Isopropyl Ether (DIPE)	ND	8.3
Ethyl tert-Butyl Ether (ETBE)	ND	8.3
Methyl tert-Amyl Ether (TAME)	28	8.3
Ethanol	ND	17,000
MTBE	330	8.3
1,2-Dichloroethane	ND	8.3
Benzene	400	8.3
Toluene	38	8.3
1,2-Dibromoethane	ND	8.3
Ethylbenzene	450	8.3
m,p-Xylenes	2,500	8.3
o-Xylene	380	8.3

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	102	80-122
1,2-Dichloroethane-d4	98	77-137
Toluene-d8	104	80-120
Bromofluorobenzene	96	80-125

ND= Not Detected

RL= Reporting Limit

### **Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Field ID:	MW-5	Batch#:	150286
Lab ID:	211412-005	Sampled:	04/13/09
Matrix:	Water	Received:	04/14/09
Units:	ug/L	Analyzed:	04/24/09
Diln Fac:	6.250		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
Gasoline C7-C12	9,000 Y	310
tert-Butyl Alcohol (TBA)	280	63
Isopropyl Ether (DIPE)	ND	3.1
Ethyl tert-Butyl Ether (ETBE)	ND	3.1
Methyl tert-Amyl Ether (TAME)	ND	3.1
Ethanol	ND	6,300
MTBE	44	3.1
1,2-Dichloroethane	ND	3.1
Benzene	200	3.1
Toluene	11	3.1
1,2-Dibromoethane	ND	3.1
Ethylbenzene	390	3.1
m,p-Xylenes	180	3.1
o-Xylene	18	3.1

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	97	80-122
1,2-Dichloroethane-d4	89	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	94	80-125

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

### **Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Field ID:	MW-6	Batch#:	150286
Lab ID:	211412-006	Sampled:	04/13/09
Matrix:	Water	Received:	04/14/09
Units:	ug/L	Analyzed:	04/24/09
Diln Fac:	2.500		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
Gasoline C7-C12	7,200 Y	130
tert-Butyl Alcohol (TBA)	ND	25
Isopropyl Ether (DIPE)	ND	1.3
Ethyl tert-Butyl Ether (ETBE)	ND	1.3
Methyl tert-Amyl Ether (TAME)	ND	1.3
Ethanol	ND	2,500
MTBE	2.6	1.3
1,2-Dichloroethane	ND	1.3
Benzene	26	1.3
Toluene	ND	1.3
1,2-Dibromoethane	ND	1.3
Ethylbenzene	170	1.3
m,p-Xylenes	310	1.3
o-Xylene	2.6	1.3

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	97	80-122
1,2-Dichloroethane-d4	87	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	98	80-125

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

### **Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Field ID:	MW-7	Batch#:	150248
Lab ID:	211412-007	Sampled:	04/13/09
Matrix:	Water	Received:	04/14/09
Units:	ug/L	Analyzed:	04/24/09
Diln Fac:	1.000		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
Gasoline C7-C12	2,300 Y	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)	16	0.50
Ethanol	ND	1,000
MTBE	63	0.50
1,2-Dichloroethane	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
1,2-Dibromoethane	ND	0.50
Ethylbenzene	15	0.50
m,p-Xylenes	6.3	0.50
o-Xylene	ND	0.50

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	100	80-122
1,2-Dichloroethane-d4	98	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	93	80-125

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

### **Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Field ID:	MW-8	Batch#:	150248
Lab ID:	211412-008	Sampled:	04/13/09
Matrix:	Water	Received:	04/14/09
Units:	ug/L	Analyzed:	04/24/09
Diln Fac:	1.000		

<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
Ethanol	ND	1,000
MTBE	ND	0.50
1,2-Dichloroethane	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
1,2-Dibromoethane	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	96	80-122
1,2-Dichloroethane-d4	93	77-137
Toluene-d8	97	80-120
Bromofluorobenzene	100	80-125

ND= Not Detected

RL= Reporting Limit

### **Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Field ID:	MW-9	Batch#:	150286
Lab ID:	211412-009	Sampled:	04/13/09
Matrix:	Water	Received:	04/14/09
Units:	ug/L	Analyzed:	04/24/09
Diln Fac:	1.000		

<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
Ethanol	ND	1,000
MTBE	ND	0.50
1,2-Dichloroethane	0.97	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	95	80-122
1,2-Dichloroethane-d4	84	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	95	80-125

ND= Not Detected

RL= Reporting Limit

### **Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Field ID:	MW-1D	Batch#:	150286
Lab ID:	211412-010	Sampled:	04/14/09
Matrix:	Water	Received:	04/14/09
Units:	ug/L	Analyzed:	04/24/09
Diln Fac:	1.000		

<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
Ethanol	ND	1,000
MTBE	ND	0.50
1,2-Dichloroethane	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
1,2-Dibromoethane	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	97	80-122
1,2-Dichloroethane-d4	88	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	97	80-125

ND= Not Detected

RL= Reporting Limit

### **Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Field ID:	MW-3D	Batch#:	150286
Lab ID:	211412-011	Sampled:	04/14/09
Matrix:	Water	Received:	04/14/09
Units:	ug/L	Analyzed:	04/24/09
Diln Fac:	1.000		

<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)	5.0	0.50
Ethanol	ND	1,000
MTBE	44	0.50
1,2-Dichloroethane	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
1,2-Dibromoethane	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	96	80-122
1,2-Dichloroethane-d4	86	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	94	80-125

ND= Not Detected

RL= Reporting Limit

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### **Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Field ID:	MW-4D	Batch#:	150286
Lab ID:	211412-012	Sampled:	04/14/09
Matrix:	Water	Received:	04/14/09
Units:	ug/L	Analyzed:	04/24/09
Diln Fac:	1.000		

<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
Ethanol	ND	1,000
MTBE	2.2	0.50
1,2-Dichloroethane	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
1,2-Dibromoethane	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	97	80-122
1,2-Dichloroethane-d4	90	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	100	80-125

ND= Not Detected

RL= Reporting Limit

**Batch QC Report**
**Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC492956	Batch#:	150248
Matrix:	Water	Analyzed:	04/23/09
Units:	ug/L		

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

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-122
1,2-Dichloroethane-d4	95	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	99	80-125

ND= Not Detected

RL= Reporting Limit

**Batch QC Report**
**Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC493096	Batch#:	150286
Matrix:	Water	Analyzed:	04/24/09
Units:	ug/L		

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

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-122
1,2-Dichloroethane-d4	92	77-137
Toluene-d8	105	80-120
Bromofluorobenzene	99	80-125

ND= Not Detected

RL= Reporting Limit

**Batch QC Report**
**Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	150248
Units:	ug/L	Analyzed:	04/23/09
Diln Fac:	1.000		

Type: BS Lab ID: QC492954

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	100.0	101.0	101	55-151
Isopropyl Ether (DIPE)	20.00	22.27	111	65-131
Ethyl tert-Butyl Ether (ETBE)	20.00	21.29	106	75-128
Methyl tert-Amyl Ether (TAME)	20.00	18.48	92	80-121
MTBE	20.00	18.15	91	73-122
1,2-Dichloroethane	20.00	16.01	80	73-141
Benzene	20.00	19.99	100	80-120
Toluene	20.00	20.32	102	80-120
1,2-Dibromoethane	20.00	20.53	103	80-120
Ethylbenzene	20.00	20.92	105	80-121
m,p-Xylenes	40.00	42.08	105	80-122
o-Xylene	20.00	20.76	104	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	105	80-122
1,2-Dichloroethane-d4	97	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	90	80-125

Type: BSD Lab ID: QC492955

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	100.0	92.68	93	55-151	9	21
Isopropyl Ether (DIPE)	20.00	22.12	111	65-131	1	20
Ethyl tert-Butyl Ether (ETBE)	20.00	21.00	105	75-128	1	20
Methyl tert-Amyl Ether (TAME)	20.00	18.40	92	80-121	0	20
MTBE	20.00	18.16	91	73-122	0	20
1,2-Dichloroethane	20.00	15.80	79	73-141	1	20
Benzene	20.00	20.01	100	80-120	0	20
Toluene	20.00	20.01	100	80-120	2	20
1,2-Dibromoethane	20.00	19.60	98	80-120	5	20
Ethylbenzene	20.00	19.75	99	80-121	6	20
m,p-Xylenes	40.00	42.29	106	80-122	0	20
o-Xylene	20.00	20.64	103	80-120	1	20

Surrogate	%REC	Limits
Dibromofluoromethane	107	80-122
1,2-Dichloroethane-d4	100	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	92	80-125

RPD= Relative Percent Difference

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**Batch QC Report**
**Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	150248
Units:	ug/L	Analyzed:	04/23/09
Diln Fac:	1.000		

Type: BS Lab ID: QC492992

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	800.0	859.3	107	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-122
1,2-Dichloroethane-d4	93	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	94	80-125

Type: BSD Lab ID: QC492993

Analyte	Spiked	Result	%REC	Limits	RPD Lim
Gasoline C7-C12	800.0	901.8	113	80-120	5 20

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-122
1,2-Dichloroethane-d4	89	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	94	80-125

RPD= Relative Percent Difference

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**Batch QC Report**
**Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC493094	Batch#:	150286
Matrix:	Water	Analyzed:	04/24/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	100.0	84.33	84	55-151
Isopropyl Ether (DIPE)	20.00	21.68	108	65-131
Ethyl tert-Butyl Ether (ETBE)	20.00	20.30	101	75-128
Methyl tert-Amyl Ether (TAME)	20.00	17.37	87	80-121
MTBE	20.00	16.54	83	73-122
1,2-Dichloroethane	20.00	14.53	73	73-141
Benzene	20.00	19.89	99	80-120
Toluene	20.00	20.04	100	80-120
1,2-Dibromoethane	20.00	19.65	98	80-120
Ethylbenzene	20.00	20.46	102	80-121
m,p-Xylenes	40.00	42.52	106	80-122
o-Xylene	20.00	20.04	100	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-122
1,2-Dichloroethane-d4	92	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	95	80-125

## Batch QC Report

**Gasoline by GC/MS**

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	150286
Units:	ug/L	Analyzed:	04/24/09
Diln Fac:	1.000		

Type: BS Lab ID: QC493097

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	800.0	913.0	114	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-122
1,2-Dichloroethane-d4	94	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	93	80-125

Type: BSD Lab ID: QC493098

Analyte	Spiked	Result	%REC	Limits	RPD Lim
Gasoline C7-C12	800.0	962.1	120	80-120	5 20

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-122
1,2-Dichloroethane-d4	93	77-137
Toluene-d8	104	80-120
Bromofluorobenzene	92	80-125

RPD= Relative Percent Difference

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Curtis & Tompkins, Ltd.

## Batch QC Report

## Gasoline by GC/MS

Lab #:	211412	Location:	15101 Freedom Avenue., San Leandro, CA 94577
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZ	Batch#:	150286
MSS Lab ID:	211544-002	Sampled:	04/14/09
Matrix:	Water	Received:	04/17/09
Units:	ug/L	Analyzed:	04/24/09
Diln Fac:	1.000		

Type: MS Lab ID: QC493198

Analyte	MSS	Result	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)		<2.000	125.0	106.3	85	62-140
Isopropyl Ether (DIPE)		<0.1000	25.00	23.74	95	71-131
Ethyl tert-Butyl Ether (ETBE)		<0.1000	25.00	23.12	92	78-130
Methyl tert-Amyl Ether (TAME)		<0.1000	25.00	21.41	86	80-121
MTBE		<0.1000	25.00	19.77	79	73-124
1,2-Dichloroethane		<0.1000	25.00	16.67	67 *	80-139
Benzene		<0.1000	25.00	24.49	98	80-122
Toluene		<0.1000	25.00	24.62	98	80-121
1,2-Dibromoethane		<0.1000	25.00	25.30	101	80-120
Ethylbenzene		<0.1000	25.00	23.91	96	80-121
m,p-Xylenes		<0.1095	50.00	52.72	105	80-120
o-Xylene		<0.1000	25.00	25.18	101	80-120

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	98	80-122
1,2-Dichloroethane-d4	90	77-137
Toluene-d8	100	80-120
Bromofluorobenzene	94	80-125

Type: MSD Lab ID: QC493199

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	125.0	98.78	79	62-140	7	20
Isopropyl Ether (DIPE)	25.00	23.13	93	71-131	3	20
Ethyl tert-Butyl Ether (ETBE)	25.00	23.01	92	78-130	0	20
Methyl tert-Amyl Ether (TAME)	25.00	20.29	81	80-121	5	20
MTBE	25.00	19.56	78	73-124	1	20
1,2-Dichloroethane	25.00	16.92	68 *	80-139	2	20
Benzene	25.00	23.17	93	80-122	6	20
Toluene	25.00	24.47	98	80-121	1	20
1,2-Dibromoethane	25.00	23.56	94	80-120	7	20
Ethylbenzene	25.00	24.68	99	80-121	3	20
m, p-Xylenes	50.00	50.37	101	80-120	5	20
o-Xylene	25.00	25.33	101	80-120	1	20

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	98	80-122
1,2-Dichloroethane-d4	89	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	98	80-125

\* = Value outside of QC limits; see narrative  
RPD= Relative Percent Difference

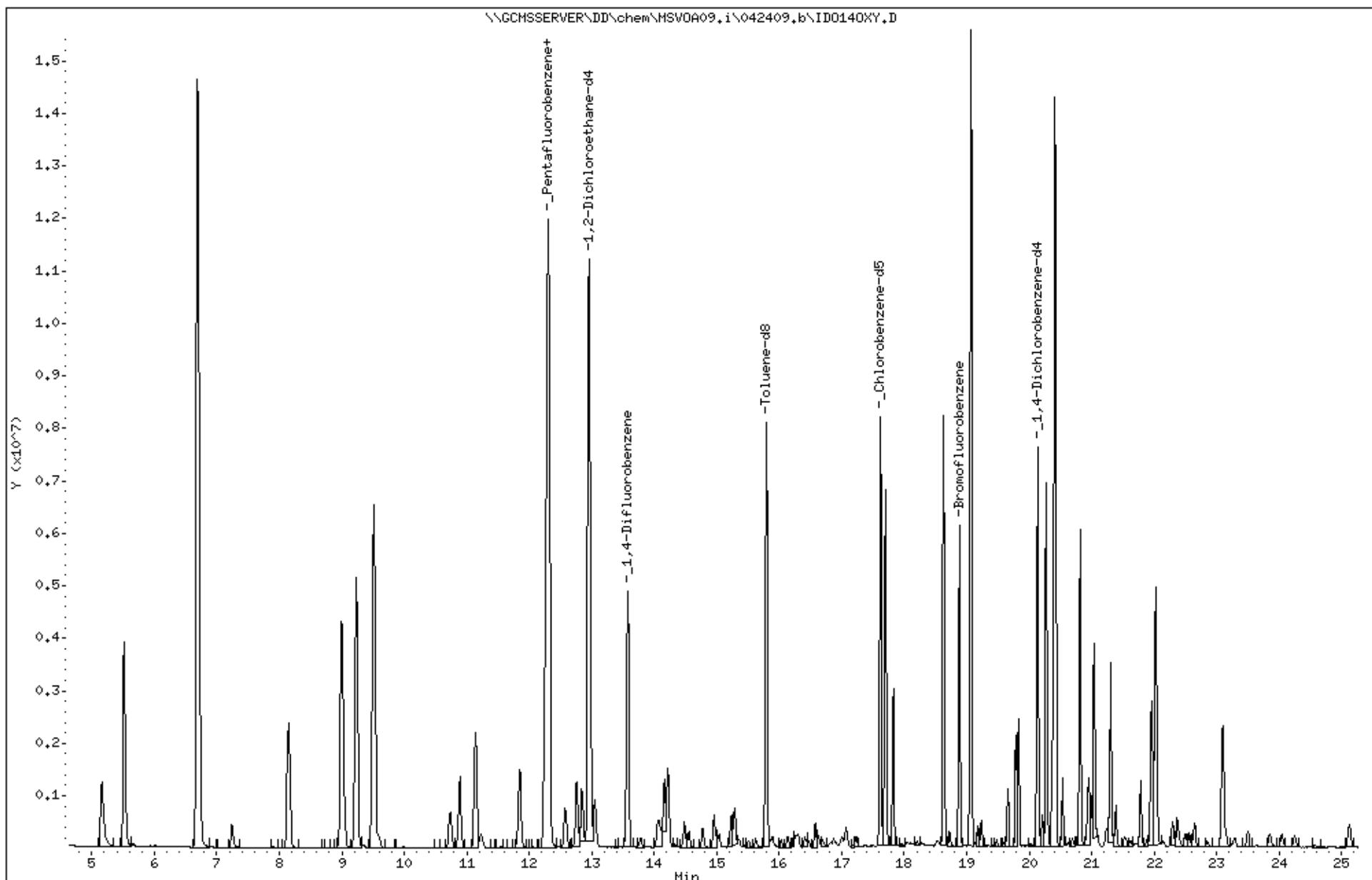
RFD- Relative Percent Difference  
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30 0

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Sample Info: S,211412-001  
Purge Volume: 5.0  
Column phase: RTx Volatiles

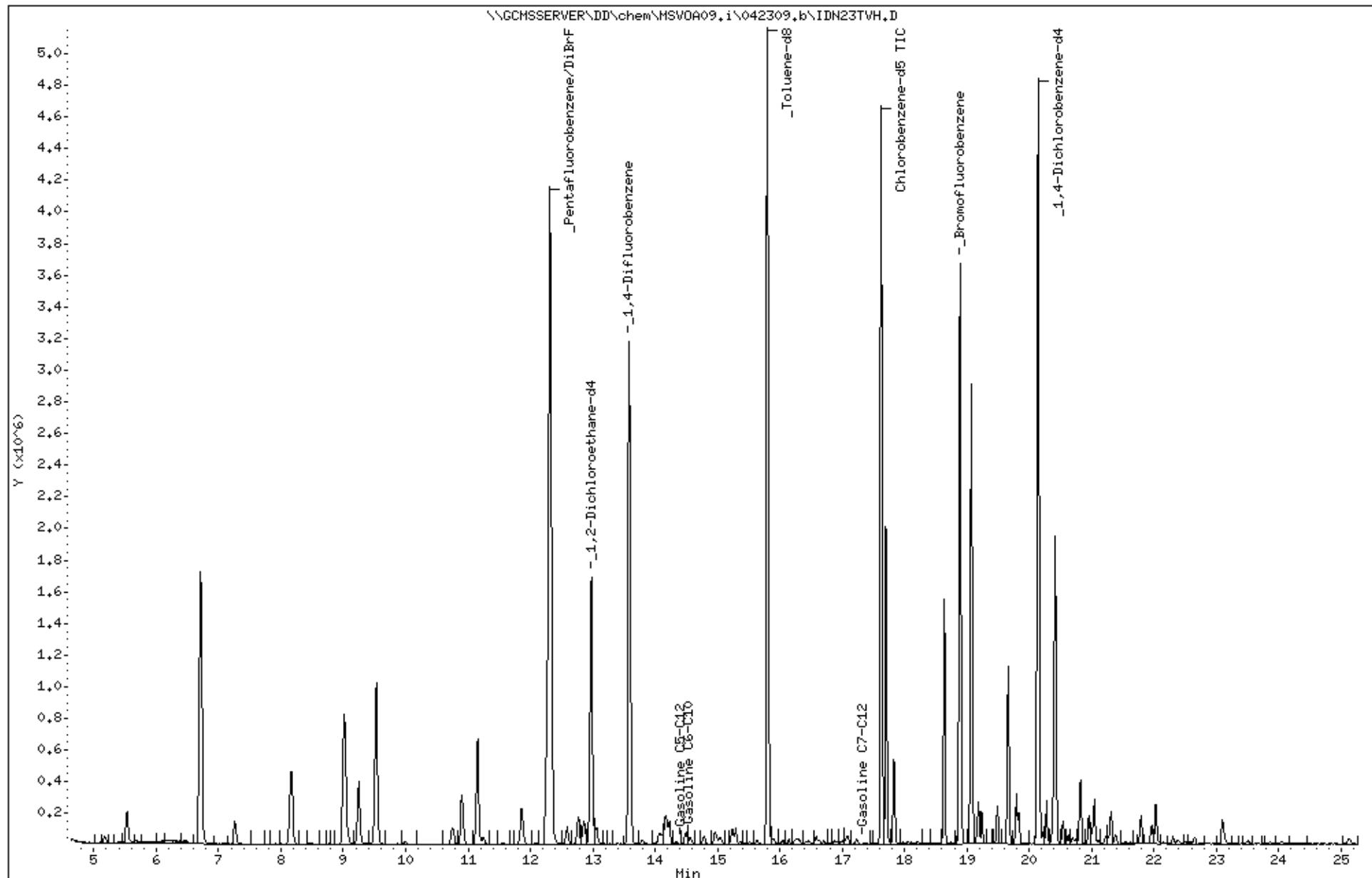
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Operator: VOC  
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Instrument: MSVOA09.i  
Operator: VOC  
Column diameter: 2.00

Column phase:

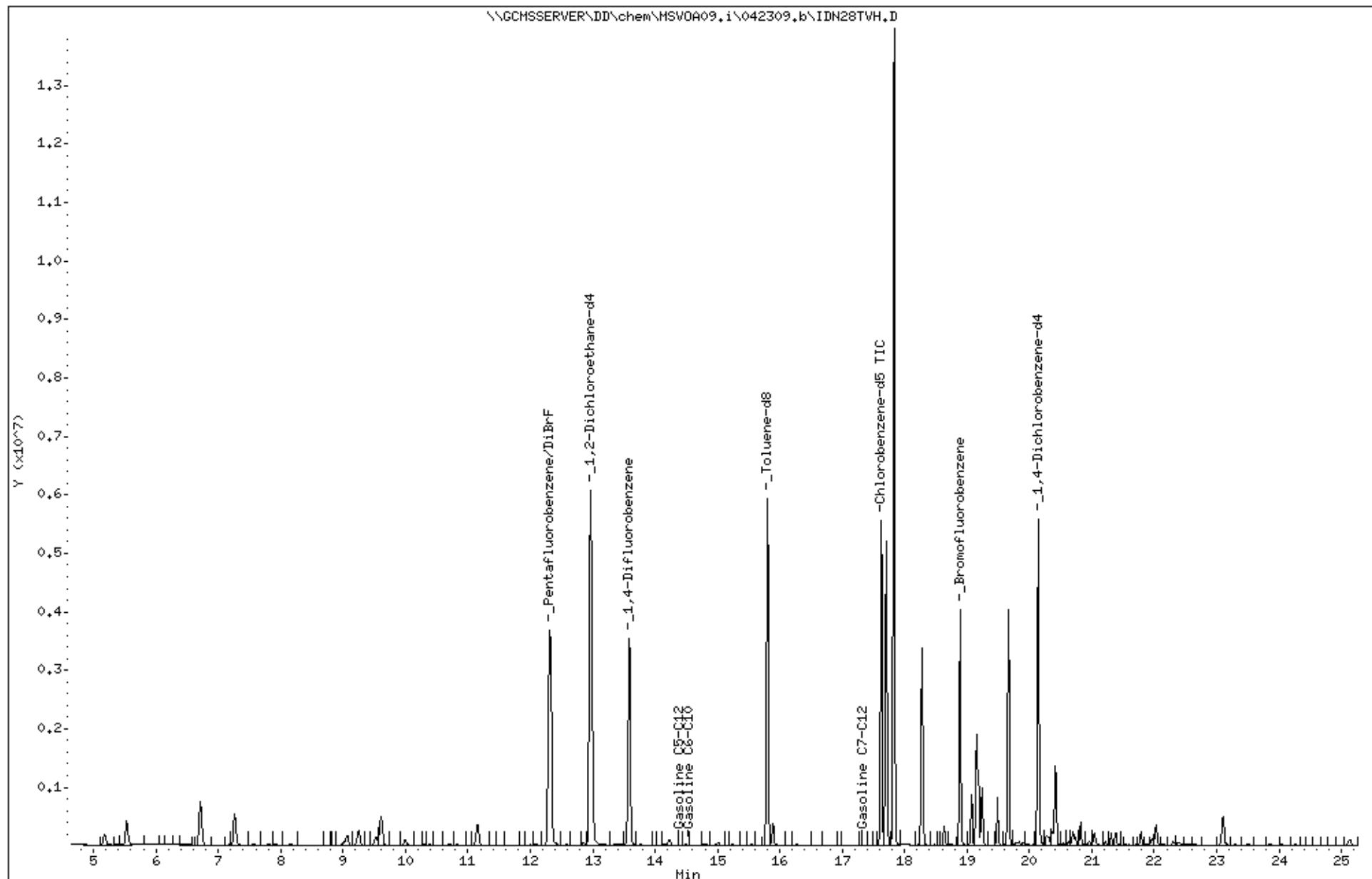


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Instrument: MSV0A09.i

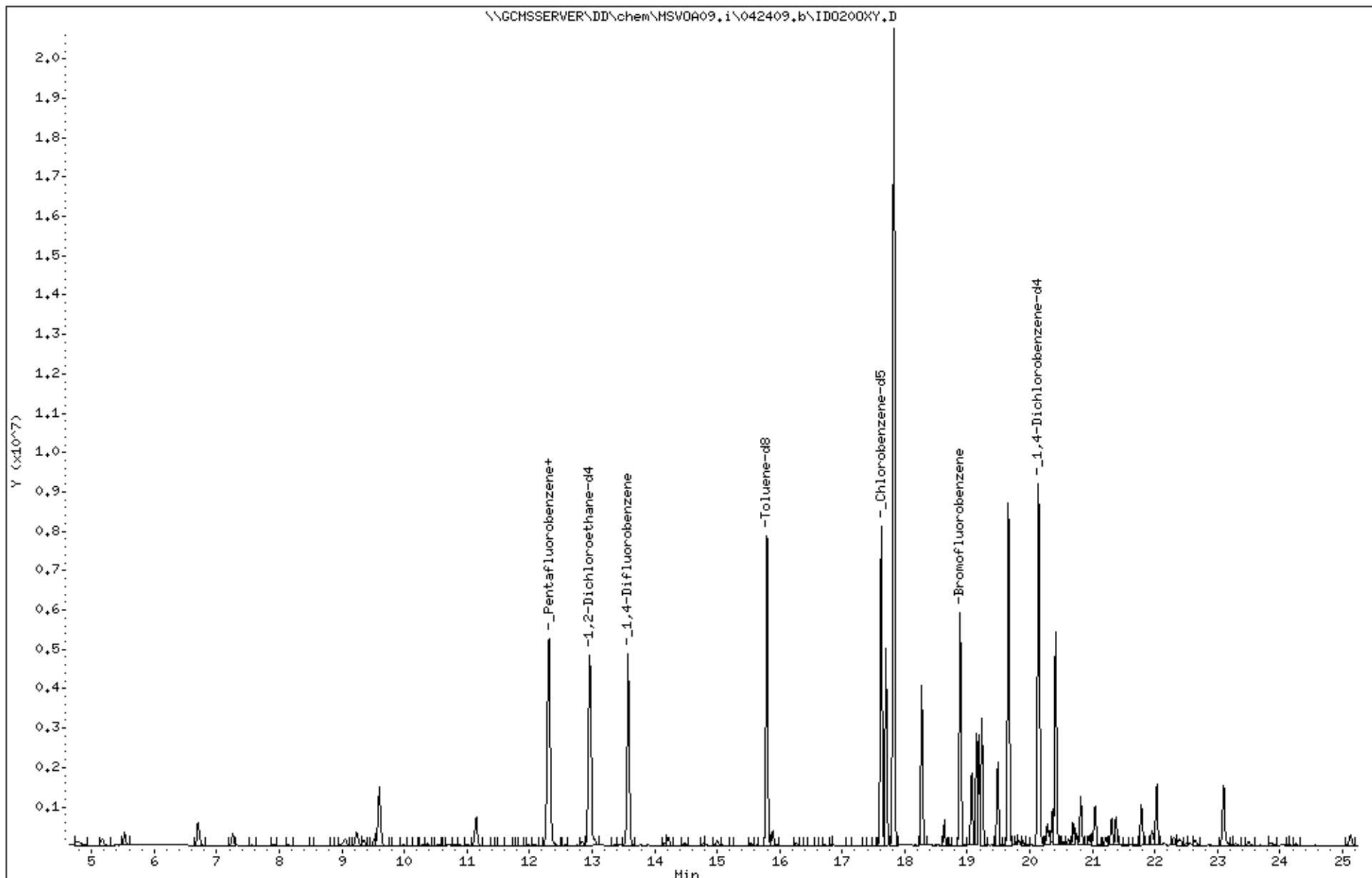
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Operator: VOC  
Column diameter: 2.00



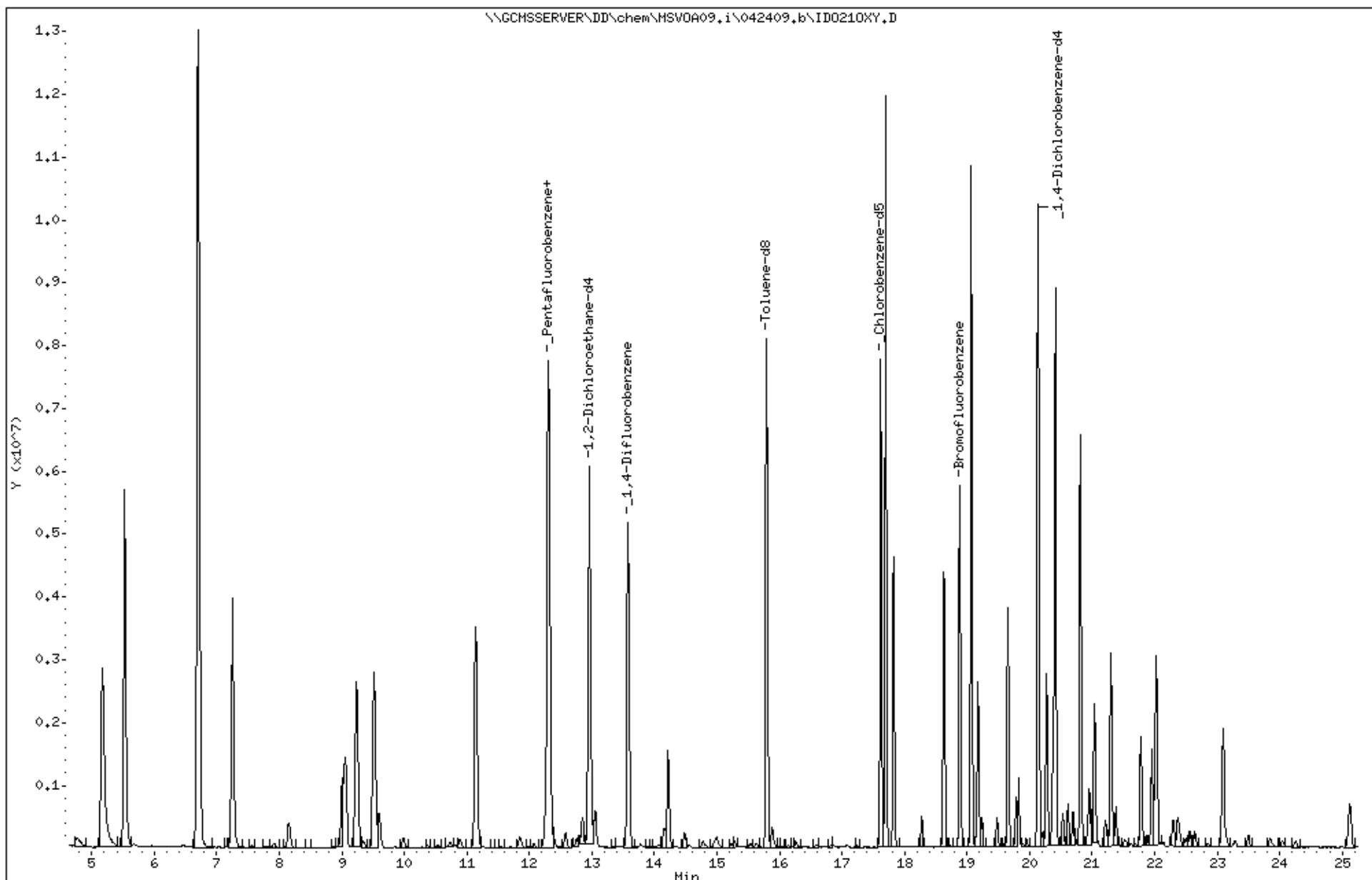
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Purge Volume: 5.0  
Column phase: RTx Volatiles

Instrument: MSV0A09.i  
Operator: VOC  
Column diameter: 0.25



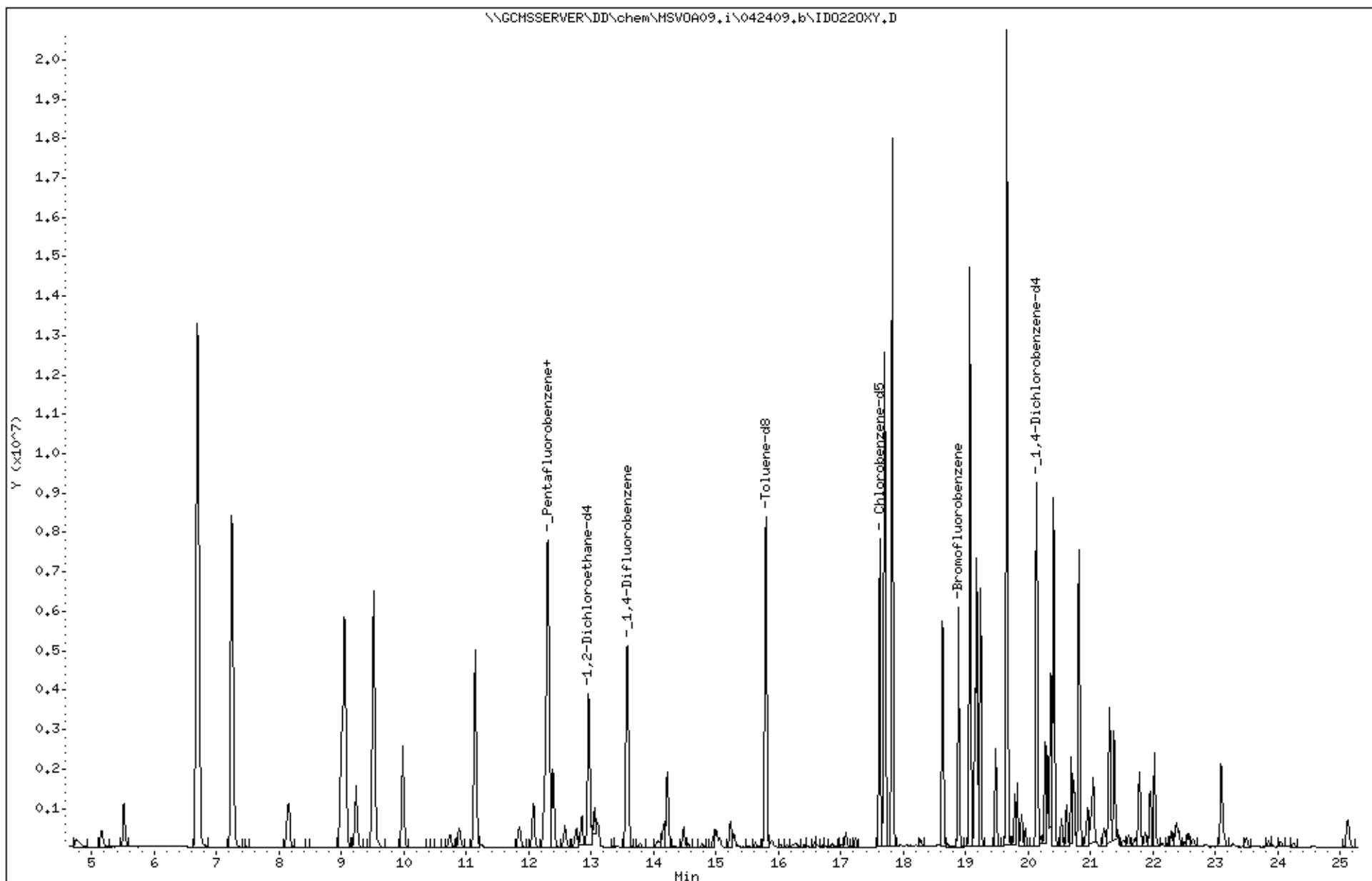
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Sample Info: S,211412-005  
Purge Volume: 5.0  
Column phase: RTx Volatiles

Instrument: MSVOA09.i  
Operator: VOC  
Column diameter: 0.25



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Sample Info: S,211412-006  
Purge Volume: 5.0  
Column phase: RTx Volatiles

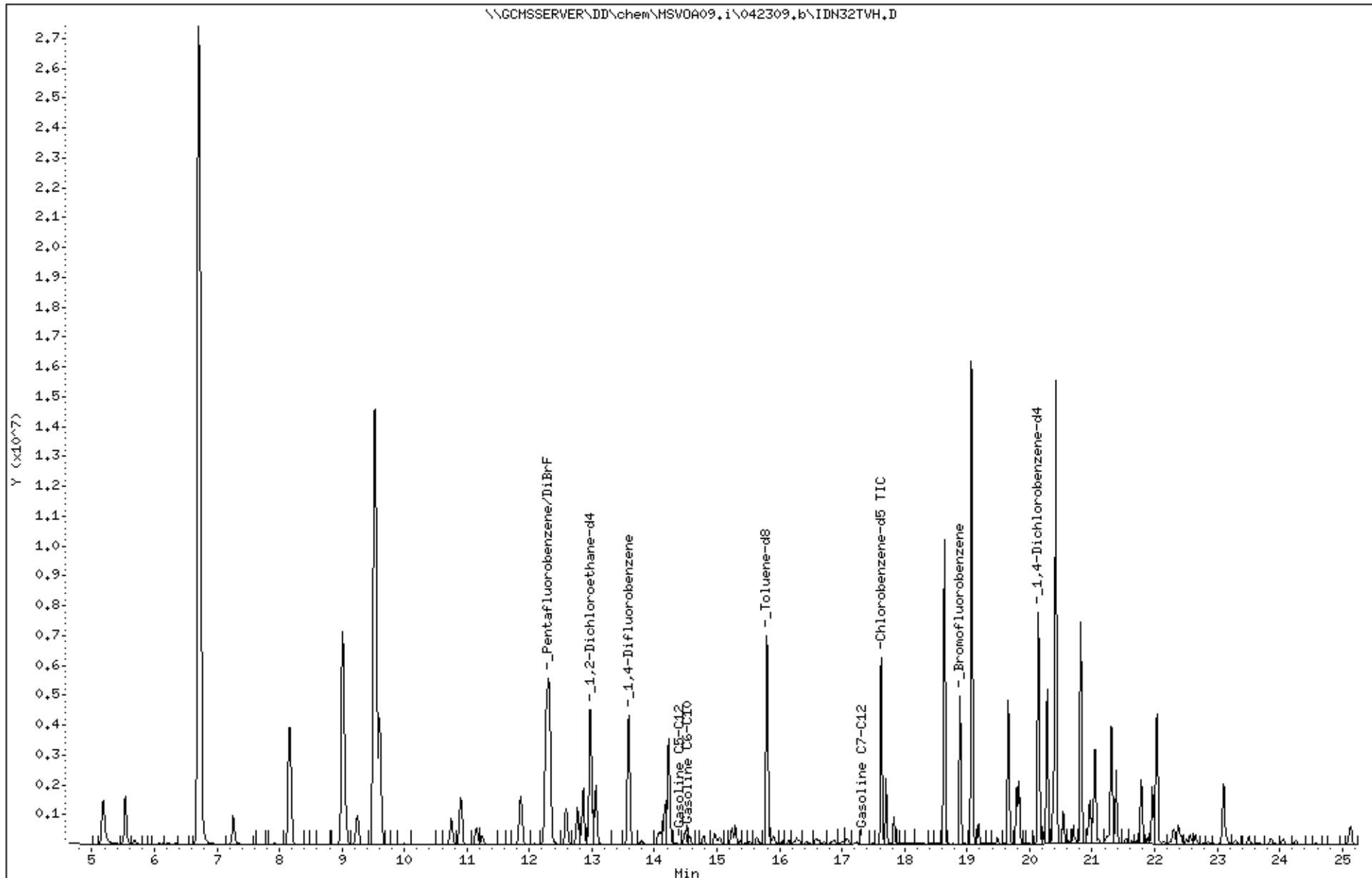
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Sample Info: S\_211412-007

Instrument: MSV0A09.i  
Operator: VOC  
Column diameter: 2.00

Column phase:



Data File: \\GCHSSERVER\DD\chem\MSVOA09.i\042309.b\IDN09.D  
 Date : 23-APR-2009 14:25  
 Client ID: DYNAP&T  
 Sample Info: CCV/BS, QC492992, 150248, 1/1  
 Purge Volume: 5.0  
 Column phase: RTx Volatiles

Instrument: MSVOA09.i  
 Operator: VOC  
 Column diameter: 0.25

