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January 8, 2008

Mr. Steven Plunkett  
Alameda County  
Department of Environmental Health Services  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

Subject: Fuel Leak Case No. RO0000317-5725 Thornhill Drive, Oakland, CA

Dear Mr. Plunkett:

SOMA's "Fourth Quarter 2007 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. If you have any questions or comments, please call me at (925) 734-6400.

Sincerely,

Mansour Sepehr, Ph.D., PE  
Principal Hydrogeologist

cc: Mr. Mohammad Mashhoon w/report enclosure



**Fourth Quarter 2007  
Groundwater Monitoring Report**

**Mash Petroleum Inc.  
5725 Thornhill Drive  
Oakland, California**

**January 8, 2008**

**Project 2831**

**Prepared for  
Mr. Mohammad Mashhoon  
1721 Jefferson Street  
Oakland, California 94612**



**ENVIRONMENTAL ENGINEERING, INC.**

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## CERTIFICATION

SOMA Environmental Engineering, Inc. has prepared this report on behalf of Mr. Mohammad Mashhoon, property owner of 5725 Thornhill Drive, Oakland, California, to comply with requirements of the Alameda County Health Care Services and California Regional Water Quality Control Board for the Fourth Quarter 2007 groundwater monitoring event.



Mansour Sepehr, Ph.D., P.E.  
Principal Hydrogeologist



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## 1.0 INTRODUCTION

SOMA Environmental Engineering, Inc. (SOMA) has prepared this report on behalf of Mr. Mohammad Mashhoon, property owner of 5725 Thornhill Drive, Oakland, California (the Site, Figure 1). The Site is currently an active ARCO station located in an area of primarily commercial and residential land uses.

This report summarizes results of the Fourth Quarter 2007 groundwater monitoring event conducted at the Site on December 4, 2007, and includes field measurements of physical and chemical properties of the groundwater at the time of sampling and laboratory analytical results for the groundwater samples.

Groundwater monitoring activities for this quarter were performed in accordance with general guidelines of the California Regional Water Quality Control Board (CRWQCB) and the Alameda County Health Care Services (ACHCS). Appendix A details groundwater monitoring procedures used during this monitoring event.

### 1.1 Previous Activities

November 1998: Penn Environmental (Penn) removed a 550-gallon steel underground waste oil tank (WOT) from the Site. Soil samples collected from the WOT excavation contained up to 1,100,000 µg/kg of total petroleum hydrocarbons as gasoline (TPH-g), 2,700,000 µg/kg of total petroleum hydrocarbons as diesel (TPH-d), and 4,200,000 µg/kg of total petroleum hydrocarbons as motor oil (TPH-mo).

February 4, 1999: Penn over-excavated the contaminated soil surrounding the former WOT. Aqua Science Engineers, Inc. (ASE) collected confirmation soil samples from two sidewalls of the excavation. The only compound detected in one of these two soil samples was methyl tertiary-butyl ether (MtBE) at 40 µg/kg.

July 1999: ASE drilled borehole BH-A in the vicinity of the former WOT.

September 6, 2000: ASE drilled soil boreholes BH-B and BH-C.

October 23, 2000: ASE drilled soil boreholes BH-D and BH-E. ASE also collected water samples from Temescal Creek. No hydrocarbons were detected in the samples collected. Figure 2 shows boring locations.

March 2004: On March 1 and 2, SOMA oversaw advancement of nine temporary well boreholes (HP-1 through HP-7, HP-9 and HP-10) by Gregg Drilling & Testing (Gregg). Proposed hydropunch HP-8, which was to be installed in the street, was not drilled due to traffic hazards. Three on-site wells were decommissioned and three additional wells (SOMA-1 to SOMA-3) were installed. Borehole and well locations are shown in Figure 2.

Results of the March 2004 investigation and details of well installations are presented in SOMA's report entitled "Soil and Groundwater Investigation and Monitoring Well Installation Report at 5725 Thornhill Drive, Oakland, California," dated April 16, 2004.

April 25, 2005: SOMA conducted a sensitive receptor survey to identify any water bodies or domestic, irrigation or water supply wells within a quarter-mile radius of the Site. Based on State Department of Water Resources and Alameda County Public Works Agency records, no drinking water, domestic or irrigation wells were within a quarter-mile radius of the Site.

May 2005: CPT/MIP boreholes were advanced under SOMA's supervision (CPT-1 through CPT-5 and CPT-7 through CPT-11). CPT-6 could not be drilled due to physical constraints and obstruction of local traffic. Ten boreholes, designated GS-1 through GS-5 and GS-7 through GS-11, were advanced at their corresponding CPT borehole locations. Monitoring well SOMA-4 was also installed. Figure 2 shows locations of CPT boreholes and SOMA-4.

Results of the May 2005 site investigation and well installation are presented in SOMA's report entitled "Additional Soil and Groundwater Investigation and Monitoring Well Installation Report at 5725 Thornhill Drive, Oakland, California," dated June 13, 2005.

September 2007: On September 21, 2007, SOMA observed drilling and installation of the 2-inch-diameter groundwater monitoring well SOMA-5 by Gregg, Inc., using a combination of hollow-stem auger and direct push technology (DPT) drilling techniques. The monitoring well boring was drilled 8 inches in diameter to a depth of 15 feet below ground surface (bgs). Also on September 21, SOMA drilled and sampled one borehole, USB-1. As shown in Figure 2, this borehole was located immediately adjacent to the sewer main on the south side of Thornhill Drive. Figure 2 also shows the location of SOMA-5.

Results of the September 2007 site investigation and well installation are presented in SOMA's report entitled "Further Site Investigation for Updating Site Conceptual Model and Site Closure Request" dated October 15, 2007.

## **2. RESULTS**

Following are results of field measurements and laboratory analyses for the December 4, 2007 groundwater monitoring event.

### **2.1 Field Measurements**

As shown in Table 1, depth to groundwater ranged from 6.11 feet in SOMA-1 to 8.05 feet in SOMA-5. Corresponding groundwater elevations ranged from 564.18

feet in SOMA-5 to 570.16 feet in SOMA-1. The contour map of the groundwater elevations is presented in Figure 3. Groundwater flows southwesterly across the Site, with an average gradient of 0.0053 feet/feet. Since the previous monitoring event (Third Quarter 2007), the flow direction has remained southwesterly; however, the gradient has decreased.

Field notes in Appendix B show detailed measurements of physical and chemical parameters of the groundwater for each well during this monitoring event.

## 2.2 Laboratory Analyses

Table 1 presents the laboratory analysis results for TPH-g, TPH-d and TPH-mo; benzene, toluene, ethylbenzene, total xylenes (BTEX); and MtBE. Table 2 presents results of the gasoline oxygenates and lead scavengers analysis.

TPH-g was below the laboratory-reporting limit in wells SOMA-1 and SOMA-3. It was detected in SOMA-2, SOMA-4, and SOMA-5 at 868 µg/L, 1,960 µg/L and 1,310 µg/L, respectively. Figure 4 displays the contour map of TPH-g concentrations in the groundwater. TPH-g appears to have originated at the pump islands, as observed by the TPH-g concentration in SOMA-2, and has migrated to off-site well SOMA-4 and SOMA-5. The southwesterly migration can be attributed to the groundwater flow direction across the Site.

TPH-d was below the laboratory-reporting limit in wells SOMA-1 and SOMA-3. Detectable TPH-d concentrations ranged from 182 µg/L in SOMA-2 to 623 µg/L in SOMA-4. During analytical testing for TPH-d results, several variations were observed that included, but were not limited to, the presence of unidentified hydrocarbons and irregular chromatographic patterns in reference to the standard diesel patterns. The laboratory report in Appendix C provides clarification of diesel testing and results.

Figure 5 displays the contour map of TPH-d concentrations in the groundwater. Due to the southwesterly groundwater flow direction from the pump islands, TPH-d has migrated off-site to wells SOMA-4 and SOMA-5. Since the previous monitoring event, TPH-d appears to have slightly decreased in SOMA-2 and SOMA-4.

TPH-mo was below the laboratory-reporting limit throughout the Site.

The following BTEX analytes were observed during this monitoring event:

- All BTEX analytes were below the laboratory-reporting limit in SOMA-1, SOMA-3, SOMA-4 and SOMA-5.
- In SOMA-2, toluene and total xylenes were below the laboratory-reporting limit, and benzene and ethylbenzene were at low levels.



MtBE was detected at low concentrations in all groundwater samples collected during this monitoring event. Detectable MtBE concentrations ranged from 1.17 µg/L in well SOMA-1 to 76 µg/L in SOMA-2. Due to the minimal concentrations detected, no iso-concentration figure was drawn for MtBE.

As shown in Table 2, all gasoline oxygenates and lead scavengers, which include isopropyl ether (DIPE), ethyl tertiary-butyl ether (ETBE), tertiary-amyl methyl ether (TAME), 1,2-dichloroethane (1,2-DCA), 1,2-dibromoethane (EDB), and ethanol, were below the laboratory-reporting limit in all groundwater samples collected during the Fourth Quarter 2007 monitoring event. Tertiary-butyl alcohol (TBA) was detected in wells SOMA-2, SOMA-4 and SOMA-5 at 23.2 µg/L, 387 µg/L and 241 µg/L, respectively; and below the laboratory-reporting limit in SOMA-1 and SOMA-3. Due to the minimal concentrations detected, no iso-concentration figure was drawn for TBA.

Appendix C contains the laboratory report and chain-of-custody (COC) form from this monitoring event.

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

Findings of the Fourth Quarter 2007 groundwater monitoring event are summarized as follows:

- The groundwater flow direction has remained southwesterly across the Site.
- Based on previous site investigations and results of quarterly monitoring events, MtBE at low concentration exists in subsurface.

In September 2007, SOMA conducted additional site investigation and concluded that the site is a “Low Risk Petroleum Hydrocarbons Release Site”. The results of current groundwater monitoring data confirmed SOMA’s conclusions. As such, SOMA recommends that a “No Further Action” status to be adopted for the Site.

### **4. REPORT LIMITATIONS**

This report is the summary of work done by SOMA, including observations and descriptions of Site conditions. It includes analytical results produced by Pacific Analytical Laboratory in Alameda, for the current groundwater monitoring event. Numbers and locations of wells were selected to provide the required information, but may not be completely representative of entire site conditions. All conclusions and recommendations are based on results of laboratory analysis. Conclusions beyond those specifically stated in this document should not be inferred from this report.

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

# Tables

**Table 1**  
**SOMA Historical Groundwater Elevation Data**  
**& Analytical Results (Hydrocarbons, BTEX, & MtBE)**  
**5725 Thornhill Drive, Oakland California**

Monitoring Well	Date	Top of Casing Elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g (µg/L)	TPH-d (µg/L)	TPH-mo (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE* 8260B (µg/L)
SOMA-1	4/22/2004	576.47	5.75	570.72	63	<50	<300	<0.5	<0.5	<0.5	<0.5	7.7
	7/27/2004	576.47	6.21	570.26	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	9.1
	10/28/2004	576.47	5.76	570.71	<50	<1.0	<1.0	<0.5	<0.5	<0.5	<1.0	6.4
	1/11/2005	576.47	3.73	572.74	<50	200 HY	900	<0.5	<0.5	<0.5	<0.5	4.7
	4/12/2005	576.47	4.72	571.75	<200	<50	<300	<0.5	<0.5	<0.5	<1.0	7.49
	7/19/2005	576.47	5.87	570.60	<200	<50	<300	<0.5	<2.0	<0.5	<1.0	4.94
	10/18/2005	576.47	6.12	570.35	<50	<50	<300	<0.5	<2.0	<0.5	<1.0	5.33
	2/6/2006	576.47	5.10	571.37	<50	920LY	<300	<0.5	<2.0	<0.5	<1.0	2.74
	4/26/2006	576.47	4.71	571.76	<50	<50 <sup>1</sup>	<250 <sup>1</sup>	<0.5	<2.0	<0.5	<1.0	5.28
	8/3/2006	576.47	5.96	570.51	<50	<50	<250	<0.5	<2.0	<0.5	<1.0	4.52
	10/30/2006	576.47	6.22	570.25	<50	<50	<250	<0.5	<2.0	<0.5	<1.0	3.38
	1/8/2007	576.47	6.19	570.28	<50	<50 <sup>4</sup>	<250 <sup>4</sup>	<0.5	<2.0	<0.5	<2.0	3.07
	6/14/2007	576.47	5.96	570.51	<50	<50 <sup>4</sup>	<250 <sup>4</sup>	<0.5	<2.0	<0.5	<2.0	1.91
9/13/2007	576.47	6.31	570.16	<50	<50 <sup>1</sup>	<250 <sup>1</sup>	<0.5	<2.0	<0.5	<2.0	0.85	
<b>12/4/2007</b>	<b>576.47</b>	<b>6.11</b>	<b>570.16</b>	<b>&lt;50</b>	<b>&lt;50<sup>1</sup></b>	<b>&lt;250</b>	<b>&lt;0.5</b>	<b>&lt;2.0</b>	<b>&lt;0.5</b>	<b>&lt;2.0</b>	<b>1.17</b>	

**Table 1**  
**SOMA Historical Groundwater Elevation Data**  
**& Analytical Results (Hydrocarbons, BTEX, & MtBE)**  
**5725 Thornhill Drive, Oakland California**

Monitoring Well	Date	Top of Casing Elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g (µg/L)	TPH-d (µg/L)	TPH-mo (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE* 8260B (µg/L)
SOMA-2	4/22/2004	575.50	7.40	568.10	1,900	690 LY	<300	<0.5	<0.5	5.2	9.9	1,900
	7/27/2004	575.50	7.92	567.58	1,500	710 LY	<300	8.9 C	<0.5	1.5 C	2.9 C	740
	10/28/2004	575.50	7.62	567.88	955	790 LY	<1.0	<2.5	<2.5	<2.5	< 5	785
	1/11/2005	575.50	5.70	569.80	3,700	2100 LY	380	3.7	<2.0	3.5	102	310
	4/12/2005	575.50	6.28	569.22	5,960	1200 LY	<300	1.19	<0.5	20.6	25	241
	7/19/2005	575.50	7.42	568.08	2,480	800 LY	<300	1.09	<2.0	2.65	0.73	162
	10/18/2005	575.50	7.70	567.80	2,710	1,100 LY	<300	1.41	<2.0	2.24	0.64	130
	2/6/2006	575.50	6.71	568.79	2,730	66Y	<300	0.68	<2.0	0.71	6.33	49
	4/26/2006	575.50	6.32	569.18	6,490	1,580 <sup>1,2,3</sup>	<250 <sup>1</sup>	<0.5	<2.0	15.3	8.49	38.5
	8/3/2006	575.50	7.39	568.11	3,580	286 <sup>1,3</sup>	<250	0.8	0.7	2.65	0.7	44.8
	10/30/2006	575.50	7.60	567.90	1,680	608 <sup>2,3</sup>	448	<0.5	<2.0	3.78	<1.0	51.4
	1/8/2007	575.50	7.18	568.32	1,720	1010 <sup>3,Y</sup>	<250	<0.5	<2.0	2.75	<2.0	33.3
	6/14/2007	575.50	7.39	568.11	988	427 <sup>3,4,Y</sup>	<250 <sup>4</sup>	<0.5	<2.0	4.80	2.46	28.9
9/13/2007	575.50	7.91	567.59	906	427 <sup>1,2,3</sup>	<250 <sup>1</sup>	<0.5	<2.0	4.64	2.37	58	
	<b>12/4/2007</b>	<b>575.50</b>	<b>7.64</b>	<b>567.86</b>	<b>868</b>	<b>182<sup>1,2,3</sup></b>	<b>&lt;250</b>	<b>0.69</b>	<b>&lt;2.0</b>	<b>0.65</b>	<b>&lt;2.0</b>	<b>76</b>
SOMA-3	4/22/2004	575.92	7.14	568.78	190	120 Y	<300	<0.5	<0.5	<0.5	<0.5	5.1
	7/27/2004	575.92	7.95	567.97	130	120 LY	<300	<0.5	<0.5	<0.5	<0.5	9.1
	10/28/2004	575.92	7.60	568.32	57	280 LY	<1.0	<0.5	<0.5	<0.5	<2	11.3

**Table 1**  
**SOMA Historical Groundwater Elevation Data**  
**& Analytical Results (Hydrocarbons, BTEX, & MtBE)**  
**5725 Thornhill Drive, Oakland California**

Monitoring Well	Date	Top of Casing Elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g (µg/L)	TPH-d (µg/L)	TPH-mo (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE* 8260B (µg/L)
SOMA-3 cont	1/11/2005	572.92	5.45	567.47	140	210 Y	<300	<0.5	<0.5	<0.5	<0.5	5.8
	4/12/2005	572.92	6.02	566.90	<200	<50	<300	<0.5	<0.5	<0.5	<1.0	4.53
	7/19/2005	572.92	7.49	565.43	<200	120 Y	<300	<0.5	<2.0	<0.5	<1.0	4.69
	10/18/2005	572.92	7.63	565.29	50.1	120 Y	<300	<0.5	<2.0	<0.5	<1.0	8.63
	2/6/2006	572.92	7.20	565.72	1,010	220Y	<300	<0.5	<2.0	<0.5	2.06	32
	4/26/2006	572.92	6.13	566.79	121	123 <sup>1,2,3</sup>	<250 <sup>1</sup>	<0.5	<2.0	<0.5	<1.0	5.49
	8/3/2006	572.92	7.35	565.57	<50	60 <sup>1,2</sup>	<250	<0.5	<0.5	<0.5	<1.0	8.05
	10/30/2006	572.92	7.64	565.28	<50	199 <sup>2,3</sup>	<250	<0.5	<2.0	<0.5	<1.0	7.37
	1/8/2007	572.92	7.82	565.10	<50	181 <sup>3,Y</sup>	<250	<0.5	<2.0	<0.5	<2.0	8.65
	6/14/2007	572.92	7.31	565.61	<50	569 <sup>3,Y</sup>	<250	<0.5	<2.0	<0.5	<2.0	5.57
9/13/2007	572.92	8.00	564.92	<50	<50 <sup>1</sup>	<250 <sup>1</sup>	<0.5	<2.0	<0.5	<2.0	8.55	
	<b>12/4/2007</b>	<b>572.92</b>	<b>7.74</b>	<b>565.18</b>	<b>&lt;50</b>	<b>&lt;50<sup>1</sup></b>	<b>&lt;250</b>	<b>&lt;0.5</b>	<b>&lt;2.0</b>	<b>&lt;0.5</b>	<b>&lt;2.0</b>	<b>13.2</b>
SOMA-4	7/19/2005	572.65	8.10	564.55	3,350	1,200 LY	<300	<1.0	<4.0	<1.0	<2.0	455
	10/18/2005	572.65	8.15	564.50	1,580	1,200 LY	<300	<2.15	<8.6	<2.15	<4.3	425
	2/6/2006	572.65	7.68	564.97	1,940	830LY	<300	<2.15	<8.60	<2.15	<4.3	409
	4/26/2006	572.65	7.61	565.04	3,930	1,080 <sup>1,2,3</sup>	<250 <sup>1</sup>	<0.5	<2.0	<0.5	<1.0	231
	8/3/2006	572.65	8.08	564.57	4,340	357 <sup>1,3</sup>	<250	<0.5	0.52	<0.5	0.52	34.2
	10/30/2006	572.65	8.11	564.54	4,320	1070 <sup>2,3</sup>	<250	<0.5	<2.0	3.34	0.54	37.4
	1/8/2007	572.65	7.86	564.79	2,280	977 <sup>3,Y</sup>	<250	<0.5	<2.0	<0.5	<2.0	36
	6/14/2007	572.65	8.03	564.62	2,600	407 <sup>3,4,Y</sup>	<250 <sup>4</sup>	<0.5	<2.0	4.39	2.69	10.3
	9/13/2007	572.65	8.46	564.19	2,670	642 <sup>1,2,3</sup>	<250 <sup>1</sup>	<0.5	<2.0	4.52	2.79	25.3
	<b>12/4/2007</b>	<b>572.65</b>	<b>7.93</b>	<b>564.72</b>	<b>1,960</b>	<b>623<sup>1,2,3</sup></b>	<b>&lt;250</b>	<b>&lt;0.5</b>	<b>&lt;2.0</b>	<b>&lt;0.5</b>	<b>&lt;2.0</b>	<b>31.2</b>
SOMA-5	<b>12/4/2007</b>	<b>572.23</b>	<b>8.05</b>	<b>564.18</b>	<b>1,310</b>	<b>295<sup>1,2,3</sup></b>	<b>&lt;250</b>	<b>&lt;0.5</b>	<b>&lt;2.0</b>	<b>&lt;0.5</b>	<b>&lt;2.0</b>	<b>21</b>

**Table 1**  
**SOMA Historical Groundwater Elevation Data**  
**& Analytical Results (Hydrocarbons, BTEX, & MtBE)**  
 5725 Thornhill Drive, Oakland California

Monitoring Well	Date	Top of Casing Elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g (µg/L)	TPH-d (µg/L)	TPH-mo (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE* 8260B (µg/L)
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Notes:

<: not detected at or above laboratory reporting limits.

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

H: Heavier hydrocarbons contributed to the quantitation.

L: Lighter hydrocarbons contributed to the quantitation.

Y: Sample exhibits chromatographic pattern which did not resemble standard.

- 1 To reduce matrix interference , the sample extract has undergone silica-gel clean-up, method 3630, which is specific to polar compound contamination, diesel 2Q06.
- 2 The sample chromatographic pattern does not resemble fuel standard used for quantitation, diesel 2Q06 to 4Q07.
- 3 Unidentified hydrocarbons C9-C16, diesel 2Q06 to 4Q07.
- 4 Surrogate recovery for this sample is outside of established control limits due to sample matrix effect, diesel & motor oil 1Q07, 2Q07.

The Second Quarter 2004 was the first time SOMA monitored the site. Wells SOMA-1 to SOMA-3 were monitored at that time.

Well SOMA-4 was installed on May 27, 2005. The Third Quarter 2005 was the first time SOMA monitored this well.

**Table 2**  
**Groundwater Analytical Results**  
**Gasoline Oxygenates & Lead Scavengers**  
**5725 Thornhill Drive, Oakland California**

Monitoring Well	Date	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Ethanol (µg/L)
SOMA-1	4/22/2004	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<1000
	7/27/2004	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<1000
	10/28/2004	<2.5	<0.5	<0.5	<2	<0.5	<0.5	<1.0
	1/11/2005	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<1,000
	4/12/2005	<2.5	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	7/19/2005	<10	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	10/18/2005	<10	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	2/1/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	4/26/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	8/3/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	10/30/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	1/8/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	6/14/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	9/13/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	<b>12/4/2007</b>	<b>&lt;2.0</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;2.0</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;1000</b>
SOMA-2	4/22/2004	<100	<5.0	<5.0	19.0	<5.0	<5.0	<10000
	7/27/2004	<33	<1.7	<1.7	9.8	<1.7	<1.7	<3300
	10/28/2004	36.3	<2.5	<2.5	12.85	<0.5	<0.5	<1.0
	1/11/2005	67	<2.0	<2.0	6.7	<2.0	<2.0	<4,000
	4/12/2005	71	<0.5	<0.5	3.29	<0.5	<0.5	<1000
	7/19/2005	74.2	<0.5	<0.5	2.82	<0.5	<0.5	<1000
	10/18/2005	81.7	<0.5	<0.5	2.61	<0.5	<0.5	<1000
	2/1/2006	37.8	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	4/26/2006	36.1	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	8/3/2006	32.4	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	10/30/2006	20.7	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	1/8/2007	22.2	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	6/14/2007	35.6	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	9/13/2007	61.1	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	<b>12/4/2007</b>	<b>23.2</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;2.0</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;1000</b>



**Table 2**  
**Groundwater Analytical Results**  
**Gasoline Oxygenates & Lead Scavengers**  
**5725 Thornhill Drive, Oakland California**

Monitoring Well	Date	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Ethanol (µg/L)
SOMA-3	4/22/2004	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<1000
	7/27/2004	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<1000
	10/28/2004	<2.5	<0.5	<0.5	<2	<0.5	<0.5	<1.0
	1/11/2005	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<1,000
	4/12/2005	<2.5	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	7/19/2005	<10	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	10/18/2005	<10	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	2/1/2006	40.9	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	4/26/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	8/3/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	10/30/2006	<10	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	1/8/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	6/14/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	9/13/2007	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
<b>12/4/2007</b>	<b>&lt;2.0</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;2.0</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;1000</b>	
SOMA-4	7/19/2005	84.1	<1.0	<1.0	4.4	<1.0	<1.0	<1000
	10/18/2005	314	<2.15	<2.15	<8.6	<2.15	<2.15	<4300
	2/1/2006	417	<2.15	<2.15	<8.6	<2.15	<2.15	<4300
	4/26/2006	357	0.59	<0.5	2.1	<0.5	<0.5	<1000
	8/3/2006	216	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	10/30/2006	269	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	1/8/2007	233	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	6/14/2007	87.9	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	9/13/2007	278	<0.5	<0.5	<2.0	<0.5	<0.5	<1000
	<b>12/4/2007</b>	<b>387</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;2.0</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;1000</b>
SOMA-5	<b>12/4/2007</b>	<b>241</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;2.0</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;1000</b>

Notes:

<: Not detected above the laboratory reporting limit.

The Second Quarter 2004 was the first time SOMA monitored the site.

Wells SOMA-1 to SOMA-3 were monitored at that time.

Well SOMA-4 was installed on May 27, 2005. The Third Quarter 2005

was the first time SOMA monitored this well.

**Gasoline Oxygenates:**

TBA: tertiary butyl alcohol

DIPE: Di-Isopropyl ether

ETBE: Ethyl tertiary butyl ether

TAME: Methyl tertiary amyl ether

Ethanol

**Lead Scavengers:**

1,2-Dichloroethane

EDB: 1,2-Dibromoethane

# Figures

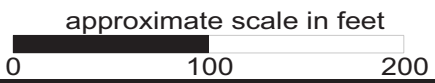
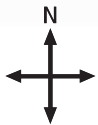
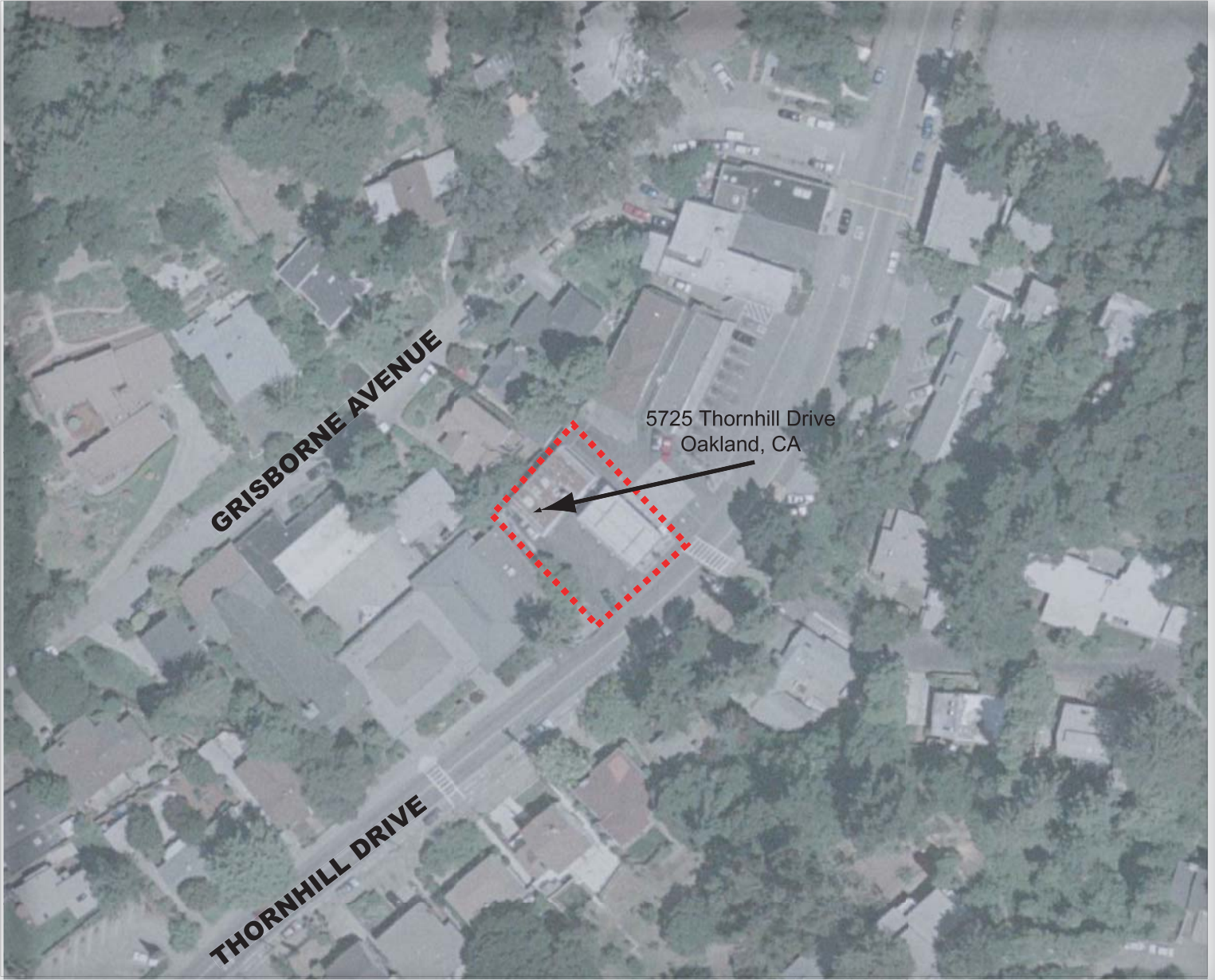


Figure 1: Site vicinity map.



RESIDENTIAL AREA

GRISBOURNE AVE

CHURCH PROPERTY

RESIDENTIAL AREA

STATION BUILDING

Former Waste Oil Tank

CHURCH PROPERTY

SIDEWALK

THORNHILL DRIVE

RESIDENTIAL AREA

COMMERCIAL AREA

RESIDENTIAL AREA

RESIDENTIAL AREA

TEMESCAL (Kohler) CREEK  
flow direction

66" CULVERT

CPT-7

BH-E

SOMA-5

BH-C

CPT-6

SOMA-4

HP-10

TEMESCAL CREEK underground

66" x 54" Culvert

HP-9

CPT-10

SOMA-2

BH-B

CPT-8

HP-1

BH-A

CPT-9

HP-2

HP-5

CPT-3

HP-3

HP-4

CPT-4

HP-6

SOMA-1

CPT-2

HP-7

CPT-1

UST PIT

PUMP CANOPY

USB-1

- GROUNDWATER MONITORING WELL (September 2007)
- TRENCH SAMPLING BOREHOLE (September 2007)
- CPT/MIP/GS BOREHOLE (May 2005)
- CPT/MIP/GS BOREHOLE WITH ADJACENT CALIBRATION BORING (May 2005)
- MONITORING WELL (May 2005)
- MONITORING WELL
- SOMA SOIL BORING
- AQUA SCIENCE SOIL BORING
- LOCATION NOT DRILLED DUE TO SUBSURFACE OBSTRUCTION
- SEWER CONDUIT
- STORM (CULVERT) CONDUIT

approximate scale in feet

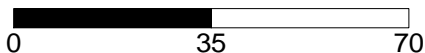
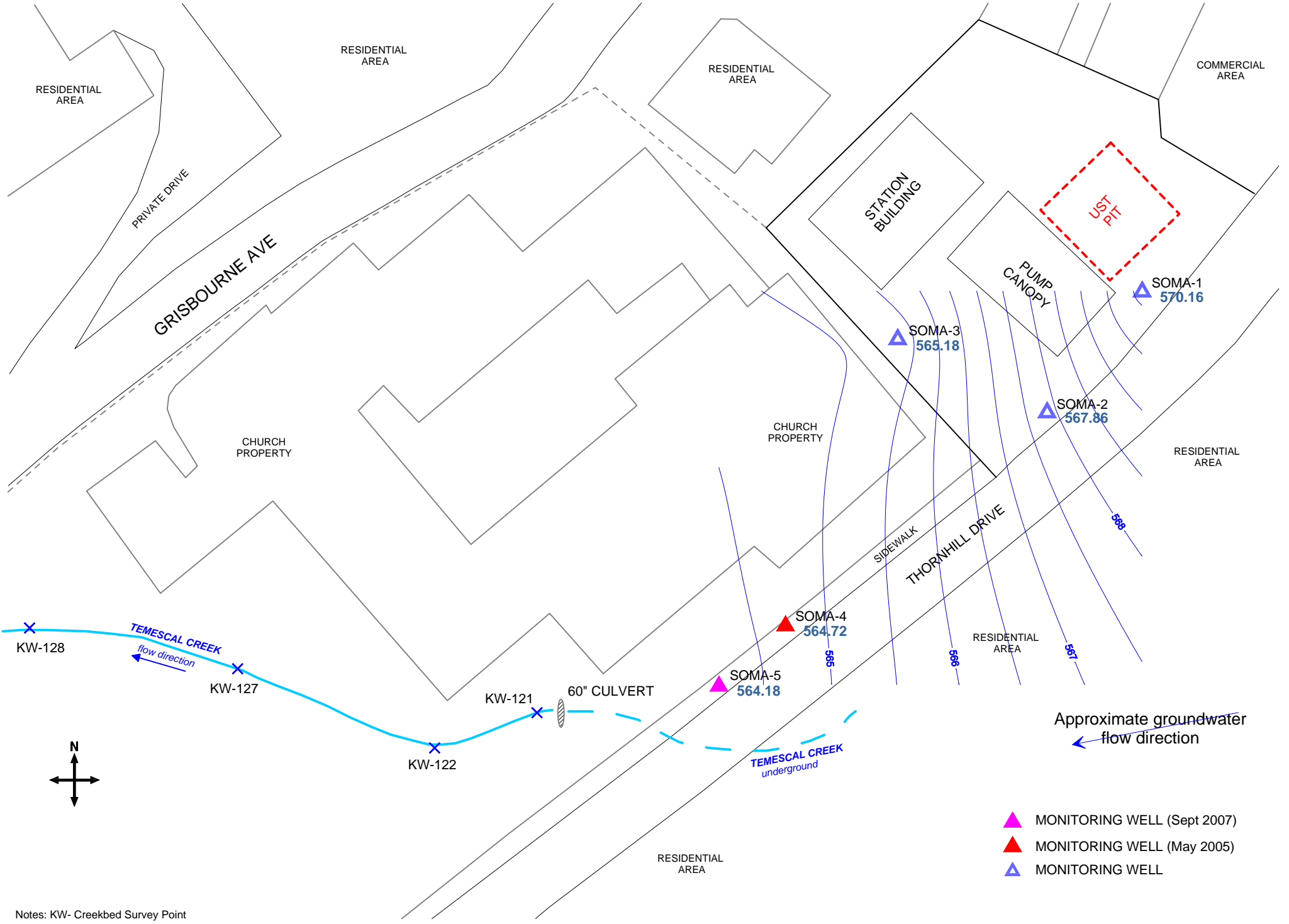


Figure 2: Site Map Showing the Locations of existing and newly installed borings and groundwater monitoring well





- ▲ MONITORING WELL (Sept 2007)
- ▲ MONITORING WELL (May 2005)
- ▲ MONITORING WELL

Notes: KW- Creekbed Survey Point

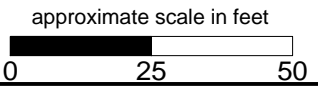


Figure 3: Groundwater elevation contour map in feet. December 4, 2007.

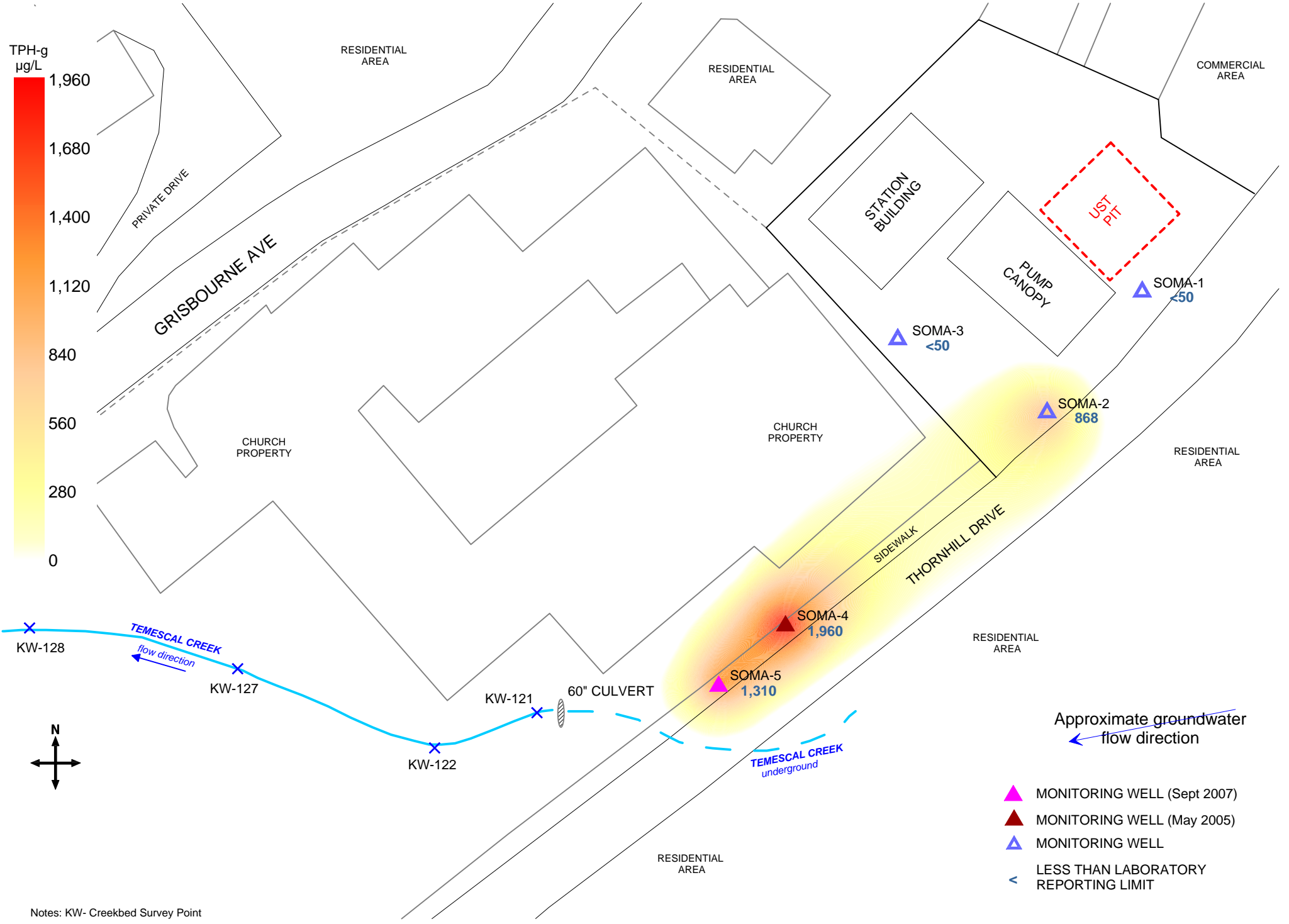


Figure 4: Contour map of TPH-g concentrations in groundwater. December 4, 2007.

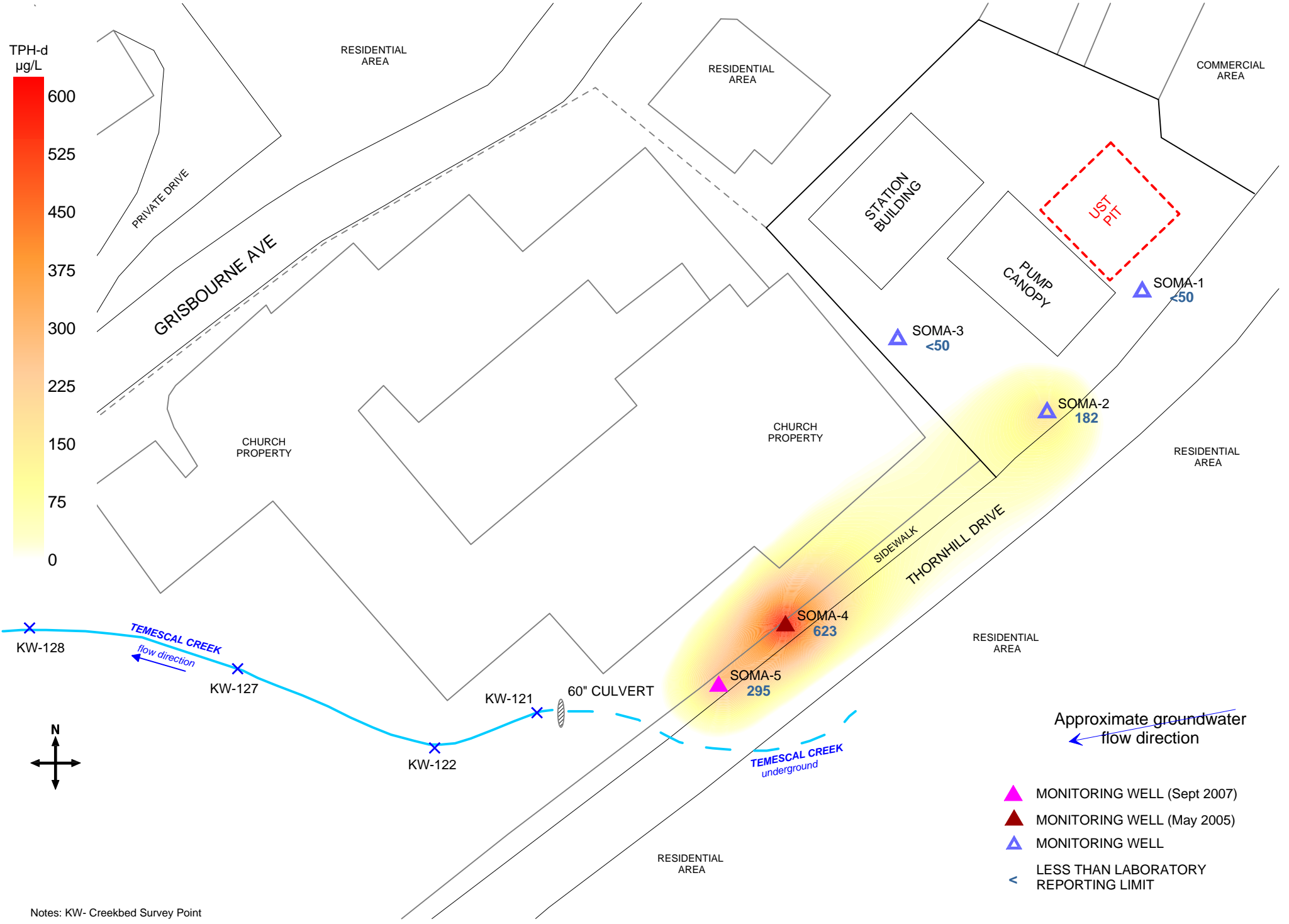
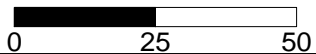


Figure 5: Contour map of TPH-d concentrations in groundwater. December 4, 2007.

Notes: KW- Creekbed Survey Point

approximate scale in feet



# **APPENDIX A**

## **SOMA's Groundwater Monitoring Procedures**



## **Field Activities**

On December 4, 2007, three on-site monitoring wells (SOMA-1 to SOMA-3), and two off-site wells (SOMA-4 and SOMA-5) were measured for depth to groundwater. On December 4, 2007, additional field measurements and grab groundwater samples were collected from all of the monitoring wells. This monitoring event was conducted in accordance with the procedures and guidelines of the California Regional Water Quality Control Board and the Alameda County Health Care Services.

Prior to measurement of the groundwater depth at each well, equalization with the surrounding aquifer was achieved. The well cap was removed each well, and the pressure in each well was then allowed to dissipate. This allowed for a more stable water table level within the well. After a few minutes, and once the water level in the well stabilized, the depth to groundwater in each monitoring well was measured from the top of the casing to the nearest 0.01 foot using an electric sounder.

The top of the casing elevation data and the depth to groundwater in each monitoring well were used to calculate the groundwater elevation. The top of casing elevation was based on an elevation datum of 37 feet NAVD88. Appendix B shows the survey datum.

Prior to the collection of samples, each well was purged using a battery operated 2-inch diameter pump (Model ES-60 DC). In order to ensure that the final samples were in equilibrium with (and representative of) the surrounding groundwater, during purging, several samples were taken for field measurements of pH, temperature and EC. The field parameters were measured using a Hanna pH, conductivity, and temperature meter. The equipment was calibrated at the Site using standard solutions and procedures provided by the manufacturer.

Appendix B details the field measurements taken during the monitoring event.

The purging of the wells continued until the parameters for pH, temperature and EC stabilized or three casing volumes were purged. A disposable polyethylene bailer was used to collect sufficient samples from each well for laboratory analyses. The groundwater sample was transferred to three 40-mL VOA vials and preserved with hydrochloric acid. The vials were then sealed to prevent the development of air bubbles within the headspace. The groundwater sample collected from each well was also transferred into one 1-liter amber non-preserved glass container.

After the groundwater samples were collected they were placed on ice in an ice chest and maintained at 4<sup>o</sup>C. A chain of custody (COC) form was written for all the samples. After the sampling was complete, on December 4, 2007, SOMA's field crew delivered the groundwater samples along with the COC form to Pacific Analytical Laboratory in Alameda, California.

### **Laboratory Analysis**

Pacific Analytical Laboratory, a state certified laboratory, analyzed the groundwater samples for TPH-g, TPH-d, TPH-mo, BTEX, MtBE, gasoline oxygenates, and lead scavengers.

TPH-g, BTEX, MtBE, gasoline oxygenates, and lead scavengers measurements were prepared using EPA Method 5030B and analyzed using EPA Method 8260B. Samples for TPH-d and TPH-mo measurements were analyzed using EPA Method 8015B modified.

# Appendix B

Table of Elevations & Coordinates on Monitoring Wells  
and  
Field Measurements of the Physical and Chemical  
Properties of the Groundwater Samples  
Collected During the Fourth Quarter 2007

**TABLE OF ELEVATIONS & COORDINATES  
ON MONITORING WELLS**

SOMA ENVIRONMENTAL, PROJECT # 2830  
5725 THORNHILL DRIVE, OAKLAND

WELL ID #	NORTHING (FT.) / LATITUDE (D.M.S.)	EASTING (FT.) / LONGITUDE (D.M.S.)	ELEVATION (FT.)	DESCRIPTION
SOMA-1	2130799.64	6067141.82	576.47	TOP PIPE , BLACK MARK N. SIDE (FELT TIP) (LOCKED AND TIGHT)
	N 37°50'03.73174"	W 122°12'44.98565"	576.72	RIM
			576.70	CONC.
SOMA-2	2130764.55	6067114.08	575.50	TOP PIPE , BLACK MARK N. SIDE (FELT TIP) (LOCKED AND TIGHT)
	N 37°50'03.37985"	W 122°12'45.32339"	575.74	RIM
			575.75	CONC.
SOMA-3	2130785.85	6067071.01	575.92	TOP PIPE , BLACK MARK N. SIDE (FELT TIP) (LOCKED AND TIGHT)
	N 37°50'03.58261"	W 122°12'45.86506"	576.31	RIM
			576.30	CONC.

**ADDITIONAL POINTS**

PT#	NORTHING (FT.)	EASTING (FT.)	ELEVATION (FT.)	DESCRIPTION
108	2130820.55	6067045.27	N/A	BL<
109	2130800.14	6067066.40	N/A	BL<
110	2130830.97	6067096.14	N/A	BL<
104	2130818.02	6067033.92	N/A	BLOCK WALL 8" <PT
105	2130808.04	6067041.66	N/A	BLOCK WALL 8" END
106	2130821.74	6067037.78	N/A	BLOCK WALL 8" END
107	2130821.83	6067037.75	N/A	FNC-WD B-C CL
111	2130872.58	6067087.64	N/A	FNC-WD END CL
112	2130837.52	6067194.12	N/A	FOGL
113	2130793.20	6067156.45	N/A	FOGL
114	2130759.63	6067123.75	N/A	FOGL
115	2130740.79	6067101.26	N/A	FOGL END
117	2130628.30	6066947.69	N/A	TC
116	2130738.69	6067095.34	N/A	TC END
128	2130693.29	6066817.93	558.29	C/L CREEK +0.4' TO TOP OF WATER
127	2130685.30	6066880.75	559.78	C/L CREEK +0.4' TO TOP OF WATER
122	2130664.83	6066937.67	562.81	C/L CREEK +0.4' TO TOP OF WATER
121	2130676.03	6066966.79	563.15	C/L 60" CULVERT +0.5' TO TOP OF WATER

**Kier & Wright Engineers Surveyors, Inc.**

1233 Quarry Lane, Suite 145, Pleasanton, CA 94566

**TABLE OF ELEVATIONS & COORDINATES  
ON MONITORING WELLS**

SOMA ENVIRONMENTAL, PROJECT # 2830  
5725 THORNHILL DRIVE, OAKLAND

**BENCH MARK:** NGS Bench mark No.PID# HT2487

DESCRIPTION FROM NGS DATA SHEET:

DESCRIBED BY EAST BAY MUNICIPAL UTILITIES DISTRICT 1947 (SPH) THE AZIMUTH MARK IS AN EBMUD TRIANGULATION STATION DISC SET 1 FOOT BELOW THE SURFACE AND COVERED BY AN 8 INCH IRON CASTING WITH A REMOVABLE LID MARKED CITY MONUMENT. IT IS IN THE SIDEWALK IN FRONT OF A SAFEWAY STORE AT THE INTERSECTION OF GRAND AND WILDWOOD AVENUES. IT IS 1.5 FEET SOUTHEAST OF THE SOUTHEAST CURB OF WILDWOOD AVE., 6.2 FEET OF EAST CURB OF GRAND AVE. AND 10.4 FEET NORTHEAST OF POWERPOLE. THE MARK IS STAMPED LINDA AZIMUTH MARK 1947.

Elevation =37. FEET NAVD88 Datum  
BY VERTCON

**HORIZONTAL CONTROL:**

**PID - AA5496**

NORTHING =1,988,577.07 , EASTING = 6,077,862.13 FEET; EPOCH DATE = 1991.35

**PID - HT2541**

NORTHING = 2,130,331.28 , EASTING = 6,062,624.49 FEET; EPOCH DATE = 1991.35

Coordinate values are based on the California Coordinate System, Zone III NAD 83 Datum.

**Kier & Wright Engineers Surveyors, Inc.**

1233 Quarry Lane, Suite 145, Pleasanton, CA 94566

Phone (925) 249-6555,

Fax (925) 249-6563

DATE: 8/17/05

Job No. 205048

DATE OF SURVEY 8/12/05

INSTRUMENT LEICA TCA 1100L

**TABLE OF ELEVATIONS & COORDINATES  
ON MONITORING WELLS**

SOMA ENVIRONMENTAL, PROJECT # 2830  
5725 THORNHILL DRIVE, OAKLAND

WELL ID #	NORTHING (FT.) / LATITUDE (D.M.S.)	EASTING (FT.) / LONGITUDE (D.M.S.)	ELEVATION (FT.)	DESCRIPTION
SOMA-4	2130703.437	6067044.632	572.65	TOP PIPE , BLACK MARK N. SIDE (FELT TIP)
	N 37°50'02.76318"	W 122°12'46.17502"	573.03	RIM
			573.03	CONC.
DECIMAL DEGREES	N 37°.83410088	W 121°.21282639'		
<b>LOCAL CONTROL</b>				
SOMA-2	2130764.55	6067114.08	575.50	TOP PIPE
	N 37°50'03.37985"	W 122°12'45.32339"		
SOMA-3	2130785.85	6067071.01	575.92	TOP PIPE
	N 37°50'03.58261"	W 122°12'45.86506"		

BENCH MARK: NGS Bench mark No.PID# HT2487

DESCRIPTION FROM NGS DATA SHEET:

DESCRIBED BY EAST BAY MUNICIPAL UTILITIES DISTRICT 1947 (SPH) THE AZIMUTH MARK IS AN EBMUD TRIANGULATION STATION DISC SET 1 FOOT BELOW THE SURFACE AND COVERED BY AN 8 INCH IRON CASTING WITH A REMOVABLE LID MARKED CITY MONUMENT. IT IS IN THE SIDEWALK IN FRONT OF A SAFEWAY STORE AT THE INTERSECTION OF GRAND AND WILDWOOD AVENUES. IT IS 1.5 FEET SOUTHEAST OF THE SOUTHEAST CURB OF WILDWOOD AVE., 6.2 FEET OF EAST CURB OF GRAND AVE. AND 10.4 FEET NORTHEAST OF POWERPOLE. THE MARK IS STAMPED LINDA AZIMUTH MARK 1947.

Elevation =37. FEET NAVD88 Datum  
BY VERTCON

DATE: 8/17/05

Job No. 205048

DATE OF SURVEY 8/12/05

INSTRUMENT LEICA TCA 1100L

**TABLE OF ELEVATIONS & COORDINATES  
ON MONITORING WELLS**  
SOMA ENVIRONMENTAL, PROJECT # 2830  
5725 THORNHILL DRIVE, OAKLAND

**HORIZONTAL CONTROL:**

PID - AA5496

NORTHING = 1,988,577.07 , EASTING = 6,077,862.13 FEET; EPOCH DATE = 1991.35

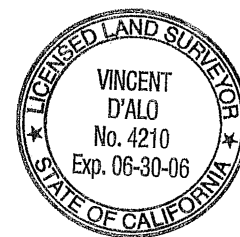
PID - HT2541

NORTHING = 2,130,331.28 , EASTING = 6,062,624.49 FEET; EPOCH DATE = 1991.35

Coordinate values are based on the California Coordinate System, Zone III NAD 83 Datum.

**NOTE**

THE VALUES FOR SOMA-4 ARE DERIVED FROM LOCAL CONTROL BASED UPON CONTROL VALUE  
USED FROM THE PREVIOUS SITE SURVEY AS PROVIDED BY KIER AND WRIGHT



DATE: 10/04/07  
 Job No. 205072.1  
 DATE OF SURVEY 10/03/07

**TABLE OF ELEVATIONS & COORDINATES  
 ON MONITORING WELLS**

INSTRUMENT LEICA TCA 1100L

SOMA ENVIRONMENTAL, PROJECT # 2831  
 5725 THORNHILL DRIVE, OAKLAND

WELL ID #	NORTHING (FT.) / LATITUDE (D.M.S.) / LATITUDE (D.D.)	EASTING (FT.) / LONGITUDE (D.M.S.) / LONGITUDE (D.D.)	ELEVATION (FT.)	DESCRIPTION
SOMA-5	2130693.310	6067027.659	572.23	TOP PIPE, BLACK MARK ON N. SIDE (FELT TIP)
	N 37°50'02.66001"	W 122°12'46.38426"	572.70	RIM
	N 37.834072225°	W 122.212884517°	571.93	CONC.

**LOCAL CONTROL**

SOMA-2	2130764.55	6067114.08	575.50	TOP PIPE, BLACK MARK ON N. SIDE (FELT TIP)
	N 37°50'03.37985"	W 122°12'45.32339"		
SOMA-3	2130785.85	6067071.01	575.92	TOP PIPE, BLACK MARK ON N. SIDE (FELT TIP)
	N 37°50'03.58261"	W 122°12'45.86506"		

**NOTE**

THE VALUES FOR SOMA-5 ARE DERIVED FROM A LOCAL CONTROL BASED UPON CONTROL VALUES USED FROM A PREVIOUS SITE SURVEY AS PROVIDED BY KIER AND WRIGHT

**VERTICAL CONTROL:**

BENCH MARK: NGS Bench mark No.PID# HT2487

DESCRIPTION FROM NGS DATA SHEET:

DESCRIBED BY EAST BAY MUNICIPAL UTILITIES DISTRICT 1947 (SPH) THE AZIMUTH MARK IS AN EBMUD TRIANGULATION STATION DISC SET 1 FOOT BELOW THE SURFACE AND COVERED BY AN 8 INCH IRON CASTING WITH A REMOVABLE LID MARKED CITY MONUMENT. IT IS IN THE SIDEWALK IN FRONT OF A SAFEWAY STORE AT THE INTERSECTION OF GRAND AND WILDWOOD AVENUES. IT IS 1.5 FEET SOUTHEAST OF THE SOUTHEAST CURB OF WILDWOOD AVE., 6.2 FEET OF EAST CURB OF GRAND AVE. AND 10.4 FEET NORTHEAST OF POWERPOLE. THE MARK IS STAMPED LINDA AZIMUTH MARK 1947.

Elevation =37. FEET NAVD88 Datum

BY VERTCON

**HORIZONTAL CONTROL:**

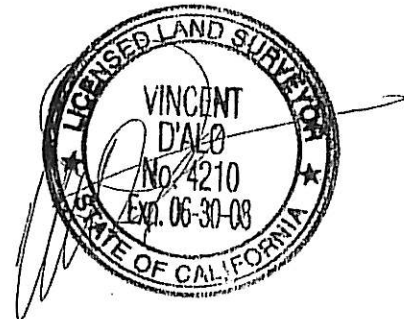
PID - AA5496

NORTHING =1,988,577.07 , EASTING = 6,077,862.13 FEET; EPOCH DATE = 1991.35

PID - HT2541

NORTHING = 2,130,331.28 , EASTING = 6,062,624.49 FEET; EPOCH DATE = 1991.35

Coordinate values are based on the California Coordinate System, Zone III NAD 83 Datum.



ALIQOT ASSOCIATES  
 1390 South Main Street, Suite 310  
 Walnut Creek, CA 94596  
 (925) 476-2300 / FAX (925) 476-2350





ENVIRONMENTAL ENGINEERING, INC

Well No.: SOMA-1  
 Casing Diameter: 2 inches  
 Depth of Well: 27.85 feet  
 Top of Casing Elevation: 576.47 feet  
 Depth to Groundwater: 6.11 feet  
 Groundwater Elevation: 570.16 feet  
 Water Column Height: 21.74 feet  
 Purged Volume: 13 gallons

Project No.: 2831  
 Address: 5725 Thornhill Drive  
 Oakland CA  
 Date: December 4, 2007  
 Sampler: Lizzie Hightower

Purging Method: Bailer  Pump

Sampling Method: Bailer  Pump

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

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

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

Field Measurements: 10.63

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
1348	Started purging well			
1351	4	6.74	18.31	564
1355	8	6.66	18.21	575
1359	12	6.64	18.22	580
1400	13	6.64	18.21	581
1403	Sampled			



ENVIRONMENTAL ENGINEERING, INC

Well No.: SOMA-2  
 Casing Diameter: 2 inches  
 Depth of Well: 28.00 feet  
 Top of Casing Elevation: 575.50 feet  
 Depth to Groundwater: 7.64 feet  
 Groundwater Elevation: 567.86 feet  
 Water Column Height: 20.36 feet  
 Purged Volume: 10 gallons

Project No.: 2831  
 Address: 5725 Thornhill Drive  
 Oakland CA  
 Date: December 4, 2007  
 Sampler: Lizzie Hightower

Purging Method: Bailer  Pump   
 Sampling Method: Bailer  Pump

Color: No  Yes  Describe: cloudy  
 Sheen: No  Yes  Describe: \_\_\_\_\_  
 Odor: No  Yes  Describe: very slight petro

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
1426	started purging well			
1428	2	7.16	18.38	787
1430	4	7.08	18.53	771
1432	6	7.06	18.61	766
1434	8	7.05	18.62	765
1436	10	7.04	18.66	762

1439 Sampled



ENVIRONMENTAL ENGINEERING, INC

Well No.: SOMA-3  
 Casing Diameter: 2 inches  
 Depth of Well: 27.77 feet  
 Top of Casing Elevation: 572.92 feet  
 Depth to Groundwater: 7.74 feet  
 Groundwater Elevation: 565.18 feet  
 Water Column Height: 20.03 feet  
 Purged Volume: 12 gallons

Project No.: 2831  
 Address: 5725 Thornhill Drive  
 Oakland CA  
 Date: December 4, 2007  
 Sampler: Lizzie Hightower

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

Field Measurements: 9.79

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
1455	Started purging well			
1457	2	7.41	17.76	892
1601	6	7.35	17.82	888
1603	8	7.24	17.84	868
1605	10	7.17	17.86	856
1606	11	7.14	17.87	852
1607	12	7.13	17.87	848
1608	Sampled			



ENVIRONMENTAL ENGINEERING, INC

Well No.: SOMA-4  
 Casing Diameter: 2 inches  
 Depth of Well: 19.70 feet  
 Top of Casing Elevation: 572.65 feet  
 Depth to Groundwater: 7.93 feet  
 Groundwater Elevation: 564.72 feet  
 Water Column Height: 11.77 feet  
 Purged Volume: 6 gallons

Project No.: 2831  
 Address: 5725 Thornhill Drive  
 Oakland CA  
 Date: December 4, 2007  
 Sampler: Lizzie Hightower

Purging Method: Bailer  Pump   
 Sampling Method: Bailer  Pump

Color: No  Yes  Describe: Slightly cloudy  
 Sheen: No  Yes  Describe: \_\_\_\_\_  
 Odor: No  Yes  Describe: \_\_\_\_\_

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
1321	Started purging well			
1323	2	6.82	17.86	752
1325	4	6.79	17.90	750
1327	6	6.79	17.92	748
1330	Sampled			



ENVIRONMENTAL ENGINEERING, INC

Well No.: SOMA-5  
 Casing Diameter: 2 inches  
 Depth of Well: 14.77 feet  
 Top of Casing Elevation: 572.23 feet  
 Depth to Groundwater: 8.05 feet  
 Groundwater Elevation: 564.18 feet  
 Water Column Height: 6.72 feet  
 Purged Volume: 5 gallons

Project No.: 2831  
 Address: 5725 Thornhill Drive  
 Oakland CA  
 Date: December 4, 2007  
 Sampler: Lizzie Hightower

Purging Method: Bailer  Pump   
 Sampling Method: Bailer  Pump

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

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
1249	Star	fed	purging well	
1250	1	6.87	15.44	709
1251	2	6.61	15.43	705
1252	3	6.55	15.41	714
1253	4	6.52	15.43	716
1254	5	6.51	15.60	712
1257	Sampled			

# Appendix C

Chain of Custody Form and Laboratory Report  
for the  
Fourth Quarter 2007 Monitoring Event

# CHAIN OF CUSTODY FORM

15  
5 Amber

**PAL** Pacific Analytical Laboratory  
 851 West Midway Ave., Suite 201B  
 Alameda, CA 94501  
 510-864-0364 Telephone  
 510-864-0365 Fax

PAL  
 Login# 7120005

Project No: 2831				Sampler: Lizzie Hightower								Analyses/Method									
Project Name: 5725 Thornhill Drive, Oakland				Report To: Joyce Bobek								TPHg, BTEX, MiBE 8260B	Gasoline Oxygenates, Lead Scavengers 8260B	Ethanol	TPHd 8015	TPHmo 3550/8015					
				Company: SOMA Environmental Engineering, Inc.																	
Turnaround Time: Standard				Tel: 925-734-6400 Fax: 925-734-6401																	
Lab No.	Sample ID	Sampling Date/Time		Matrix			# of Containers	Preservatives				Field Notes									
		Date	Time	Soil	Water	Waste		HCL	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	ICE										
	SOMA-1	12/4/07	1403	*			3 - VOAs	*			*	Grab Sample	*	*	*						
	SOMA-2	12/4/07	1439	*			3 - VOAs	*			*	↓	*	*	*						
	SOMA-3	12/4/07	1608	*			3 - VOAs	*			*		*	*	*						
	SOMA-4	12/4/07	1330	*			3 - VOAs	*			*		*	*	*						
	SOMA-5	12/4/07	1257	*			3 - VOAs	*			*		*	*	*						
	SOMA-1	12/4/07	1403	*			1 - 1L Amber				*					*	*				
	SOMA-2	12/4/07	1439	*			1 - 1L Amber				*					*	*				
	SOMA-3	12/4/07	1608	*			1 - 1L Amber				*					*	*				
	SOMA-4	12/4/07	1330	*			1 - 1L Amber				*					*	*				
	SOMA-5	12/4/07	1257	*			1 - 1L Amber				*					*	*				
<b>Sampler Remarks:</b>				<b>Relinquished by:</b>				<b>Date/Time:</b>					<b>Received by:</b>				<b>Date/Time:</b>				
Gasoline Oxygenates: DIPE, ETBE, TAME, TBA Lead Scavengers: EDB, 1,2-DCA Silica Gel Cleanup Method				E. Hightower				1612 12/4/07				V. Vazquez				16125 12/4/07					

19 December 2007

Mansour Sepehr  
SOMA Environmental Engineering Inc.  
6620 Owens Drive, Suite A  
Pleasanton, CA 94588

RE: 5725 Thornhill Dr., Oakland

Work Order Number: 7120005

This Laboratory report has been reviewed for technical correctness and completeness. This entire report was reviewed and approved by the Laboratory Director or the Director's designee, as verified by the following signature.

Sincerely,



---

Maiid Akhavan  
Laboratory Director





SOMA Environmental Engineering Inc.  
6620 Owens Drive, Suite A  
Pleasanton CA, 94588

Project: 5725 Thornhill Dr., Oakland  
Project Number: 2831  
Project Manager: Mansour Sepehr

**Reported:**  
19-Dec-07 19:06

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SOMA-1	7120005-01	Water	04-Dec-07 14:03	04-Dec-07 16:25
SOMA-2	7120005-02	Water	04-Dec-07 14:39	04-Dec-07 16:25
SOMA-3	7120005-03	Water	04-Dec-07 16:08	04-Dec-07 16:25
SOMA-4	7120005-04	Water	04-Dec-07 13:30	04-Dec-07 16:25
SOMA-5	7120005-05	Water	04-Dec-07 12:57	04-Dec-07 16:25



SOMA Environmental Engineering Inc.  
6620 Owens Drive, Suite A  
Pleasanton CA, 94588

Project: 5725 Thornhill Dr., Oakland  
Project Number: 2831  
Project Manager: Mansour Sepehr

**Reported:**  
19-Dec-07 19:06

**Extractable Petroleum Hydrocarbons by 8015 DRO**  
**Pacific Analytical Laboratory**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>SOMA-1 (7120005-01) Water    Sampled: 04-Dec-07 14:03    Received: 04-Dec-07 16:25</b>									
Diesel (C10-C24)	ND	50.0	ug/l	1	BL70901	04-Dec-07	09-Dec-07	EPA 8015M	C-03
Motor Oil (C24-C36)	ND	250	"	"	"	"	"	"	
<i>Surrogate: Pentacosane</i>		84.2 %	50.4-137	"	"	"	"	"	
<b>SOMA-2 (7120005-02) Water    Sampled: 04-Dec-07 14:39    Received: 04-Dec-07 16:25</b>									
Diesel (C10-C24)	182	50.0	ug/l	1	BL70901	04-Dec-07	09-Dec-07	EPA 8015M	C-03, D-06, D-30
Motor Oil (C24-C36)	ND	250	"	"	"	"	"	"	
<i>Surrogate: Pentacosane</i>		80.0 %	50.4-137	"	"	"	"	"	
<b>SOMA-3 (7120005-03) Water    Sampled: 04-Dec-07 16:08    Received: 04-Dec-07 16:25</b>									
Diesel (C10-C24)	ND	50.0	ug/l	1	BL70901	04-Dec-07	09-Dec-07	EPA 8015M	C-03
Motor Oil (C24-C36)	ND	250	"	"	"	"	"	"	
<i>Surrogate: Pentacosane</i>		47.4 %	50.4-137	"	"	"	"	"	S-04
<b>SOMA-4 (7120005-04) Water    Sampled: 04-Dec-07 13:30    Received: 04-Dec-07 16:25</b>									
Diesel (C10-C24)	623	50.0	ug/l	1	BL70901	04-Dec-07	09-Dec-07	EPA 8015M	C-03, D-06, D-30
Motor Oil (C24-C36)	ND	250	"	"	"	"	"	"	
<i>Surrogate: Pentacosane</i>		84.0 %	50.4-137	"	"	"	"	"	
<b>SOMA-5 (7120005-05) Water    Sampled: 04-Dec-07 12:57    Received: 04-Dec-07 16:25</b>									
Diesel (C10-C24)	295	50.0	ug/l	1	BL70901	04-Dec-07	10-Dec-07	EPA 8015M	C-03, D-06, D-30
Motor Oil (C24-C36)	ND	250	"	"	"	"	"	"	
<i>Surrogate: Pentacosane</i>		54.2 %	50.4-137	"	"	"	"	"	



SOMA Environmental Engineering Inc.  
6620 Owens Drive, Suite A  
Pleasanton CA, 94588

Project: 5725 Thornhill Dr., Oakland  
Project Number: 2831  
Project Manager: Mansour Sepehr

Reported:  
19-Dec-07 19:06

### Volatile Organic Compounds by EPA Method 8260B

#### Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>SOMA-1 (7120005-01) Water</b> Sampled: 04-Dec-07 14:03 Received: 04-Dec-07 16:25									
Gasoline (C6-C12)	ND	50.0	ug/l	1	BL71301	04-Dec-07	13-Dec-07	EPA 8260B	
Benzene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
m&p-Xylene	ND	2.00	"	"	"	"	"	"	
o-xylene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	2.00	"	"	"	"	"	"	
<b>MTBE</b>	<b>1.17</b>	0.500	"	"	"	"	"	"	
DIPE	ND	0.500	"	"	"	"	"	"	
ETBE	ND	0.500	"	"	"	"	"	"	
TAME	ND	2.00	"	"	"	"	"	"	
TBA	ND	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.500	"	"	"	"	"	"	
Ethanol	ND	1000	"	"	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		96.2 %		70-130	"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		111 %		70-130	"	"	"	"	
<i>Surrogate: Perdeuterotoluene</i>		104 %		70-130	"	"	"	"	
<b>SOMA-2 (7120005-02) Water</b> Sampled: 04-Dec-07 14:39 Received: 04-Dec-07 16:25									
<b>Gasoline (C6-C12)</b>	<b>868</b>	50.0	ug/l	1	BL71301	04-Dec-07	13-Dec-07	EPA 8260B	
<b>Benzene</b>	<b>0.690</b>	0.500	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.650</b>	0.500	"	"	"	"	"	"	
m&p-Xylene	ND	2.00	"	"	"	"	"	"	
o-xylene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	2.00	"	"	"	"	"	"	
<b>MTBE</b>	<b>76.0</b>	0.500	"	"	"	"	"	"	
DIPE	ND	0.500	"	"	"	"	"	"	
ETBE	ND	0.500	"	"	"	"	"	"	
TAME	ND	2.00	"	"	"	"	"	"	
<b>TBA</b>	<b>23.2</b>	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.500	"	"	"	"	"	"	
Ethanol	ND	1000	"	"	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		105 %		70-130	"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		112 %		70-130	"	"	"	"	
<i>Surrogate: Perdeuterotoluene</i>		108 %		70-130	"	"	"	"	

Pacific Analytical Laboratory

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



SOMA Environmental Engineering Inc.  
6620 Owens Drive, Suite A  
Pleasanton CA, 94588

Project: 5725 Thornhill Dr., Oakland  
Project Number: 2831  
Project Manager: Mansour Sepehr

Reported:  
19-Dec-07 19:06

### Volatile Organic Compounds by EPA Method 8260B

#### Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>SOMA-3 (7120005-03) Water</b> Sampled: 04-Dec-07 16:08 Received: 04-Dec-07 16:25									
Gasoline (C6-C12)	ND	50.0	ug/l	1	BL71301	04-Dec-07	13-Dec-07	EPA 8260B	
Benzene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
m&p-Xylene	ND	2.00	"	"	"	"	"	"	
o-xylene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	2.00	"	"	"	"	"	"	
<b>MTBE</b>	<b>13.2</b>	0.500	"	"	"	"	"	"	
DIPE	ND	0.500	"	"	"	"	"	"	
ETBE	ND	0.500	"	"	"	"	"	"	
TAME	ND	2.00	"	"	"	"	"	"	
TBA	ND	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.500	"	"	"	"	"	"	
Ethanol	ND	1000	"	"	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		96.2 %		70-130	"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		112 %		70-130	"	"	"	"	
<i>Surrogate: Perdeuterotoluene</i>		105 %		70-130	"	"	"	"	
<b>SOMA-4 (7120005-04) Water</b> Sampled: 04-Dec-07 13:30 Received: 04-Dec-07 16:25									
<b>Gasoline (C6-C12)</b>	<b>1960</b>	50.0	ug/l	1	BL71301	04-Dec-07	14-Dec-07	EPA 8260B	
Benzene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
m&p-Xylene	ND	2.00	"	"	"	"	"	"	
o-xylene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	2.00	"	"	"	"	"	"	
<b>MTBE</b>	<b>31.2</b>	0.500	"	"	"	"	"	"	
DIPE	ND	0.500	"	"	"	"	"	"	
ETBE	ND	0.500	"	"	"	"	"	"	
TAME	ND	2.00	"	"	"	"	"	"	
<b>TBA</b>	<b>387</b>	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.500	"	"	"	"	"	"	
Ethanol	ND	1000	"	"	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		106 %		70-130	"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		112 %		70-130	"	"	"	"	
<i>Surrogate: Perdeuterotoluene</i>		107 %		70-130	"	"	"	"	

Pacific Analytical Laboratory

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SOMA Environmental Engineering Inc.  
 6620 Owens Drive, Suite A  
 Pleasanton CA, 94588

Project: 5725 Thornhill Dr., Oakland  
 Project Number: 2831  
 Project Manager: Mansour Sepehr

**Reported:**  
 19-Dec-07 19:06

**Volatile Organic Compounds by EPA Method 8260B**

**Pacific Analytical Laboratory**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>SOMA-5 (7120005-05) Water</b> <b>Sampled: 04-Dec-07 12:57</b> <b>Received: 04-Dec-07 16:25</b>									
<b>Gasoline (C6-C12)</b>	<b>1310</b>	50.0	ug/l	1	BL71301	04-Dec-07	14-Dec-07	EPA 8260B	
Benzene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
m&p-Xylene	ND	2.00	"	"	"	"	"	"	
o-xylene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	2.00	"	"	"	"	"	"	
<b>MTBE</b>	<b>21.0</b>	0.500	"	"	"	"	"	"	
DIPE	ND	0.500	"	"	"	"	"	"	
ETBE	ND	0.500	"	"	"	"	"	"	
TAME	ND	2.00	"	"	"	"	"	"	
<b>TBA</b>	<b>241</b>	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.500	"	"	"	"	"	"	
Ethanol	ND	1000	"	"	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		104 %		70-130	"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		109 %		70-130	"	"	"	"	
<i>Surrogate: Perdeuterotoluene</i>		107 %		70-130	"	"	"	"	



SOMA Environmental Engineering Inc. 6620 Owens Drive, Suite A Pleasanton CA, 94588	Project: 5725 Thornhill Dr., Oakland Project Number: 2831 Project Manager: Mansour Sepehr	<b>Reported:</b> 19-Dec-07 19:06
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**Extractable Petroleum Hydrocarbons by 8015 DRO - Quality Control**

**Pacific Analytical Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BL70901 - EPA 3510B**

**Blank (BL70901-BLK1)**

Prepared & Analyzed: 10-Dec-07

Surrogate: Pentacosane	46.6		ug/l	50.0		93.2	50.4-137			
Diesel (C10-C24)	ND	50.0	"							
Motor Oil (C24-C36)	ND	250	"							

**LCS (BL70901-BS1)**

Prepared & Analyzed: 10-Dec-07

Surrogate: Pentacosane	57.0		ug/l	50.0		114	50.4-137			
Diesel (C10-C24)	838	50.0	"	1000		83.8	70-130			

**LCS Dup (BL70901-BSD1)**

Prepared & Analyzed: 10-Dec-07

Surrogate: Pentacosane	39.2		ug/l	50.0		78.4	50.4-137			
Diesel (C10-C24)	785	50.0	"	1000		78.5	70-130	6.53	40	



SOMA Environmental Engineering Inc.  
6620 Owens Drive, Suite A  
Pleasanton CA, 94588

Project: 5725 Thornhill Dr., Oakland  
Project Number: 2831  
Project Manager: Mansour Sepehr

Reported:  
19-Dec-07 19:06

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Pacific Analytical Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BL71301 - EPA 5030 Water MS**

**Blank (BL71301-BLK1)**

Prepared & Analyzed: 13-Dec-07

Surrogate: 4-Bromofluorobenzene	47.2		ug/l	50.0		94.4	70-130			
Surrogate: Dibromofluoromethane	54.9		"	50.0		110	70-130			
Surrogate: Perdeuterotoluene	51.9		"	50.0		104	70-130			
MTBE	ND	0.500	"							
DIPE	ND	0.500	"							
ETBE	ND	0.500	"							
TAME	ND	2.00	"							
TBA	ND	2.00	"							
Gasoline (C6-C12)	ND	50.0	"							
1,2-dichloroethane	ND	0.500	"							
1,2-Dibromoethane (EDB)	ND	0.500	"							
Ethanol	ND	1000	"							
Benzene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
m&p-Xylene	ND	2.00	"							
o-xylene	ND	0.500	"							
Toluene	ND	2.00	"							

**LCS (BL71301-BS1)**

Prepared & Analyzed: 13-Dec-07

Surrogate: 4-Bromofluorobenzene	38.7		ug/l	50.0		77.4	70-130			
Surrogate: Dibromofluoromethane	37.0		"	50.0		74.0	70-130			
Surrogate: Perdeuterotoluene	44.5		"	50.0		89.0	70-130			
MTBE	121	0.500	"	100		121	70-130			
ETBE	70.6	0.500	"	100		70.6	70-130			
TBA	345	2.00	"	500		69.0	65-130			
Gasoline (C6-C12)	2310	50.0	"	2000		116	70-130			
Benzene	132	0.500	"	100		132	70-140			
Toluene	91.5	2.00	"	100		91.5	70-130			



SOMA Environmental Engineering Inc.  
 6620 Owens Drive, Suite A  
 Pleasanton CA, 94588

Project: 5725 Thornhill Dr., Oakland  
 Project Number: 2831  
 Project Manager: Mansour Sepehr

**Reported:**  
 19-Dec-07 19:06

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Pacific Analytical Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BL71301 - EPA 5030 Water MS**

**LCS Dup (BL71301-BSD1)**

Prepared & Analyzed: 13-Dec-07

Surrogate: 4-Bromofluorobenzene	50.4		ug/l	50.0		101	70-130			
Surrogate: Dibromofluoromethane	56.7		"	50.0		113	70-130			
Surrogate: Perdeuterotoluene	52.9		"	50.0		106	70-130			
MTBE	125	0.500	"	100		125	70-130	3.25	20	
ETBE	67.1	0.500	"	100		67.1	65-130	5.08	20	
TBA	394	2.00	"	500		78.8	70-130	13.3	20	
Gasoline (C6-C12)	2260	50.0	"	2000		113	70-130	2.19	20	
Benzene	137	0.500	"	100		137	70-140	3.72	20	
Toluene	92.5	2.00	"	100		92.5	70-130	1.09	20	





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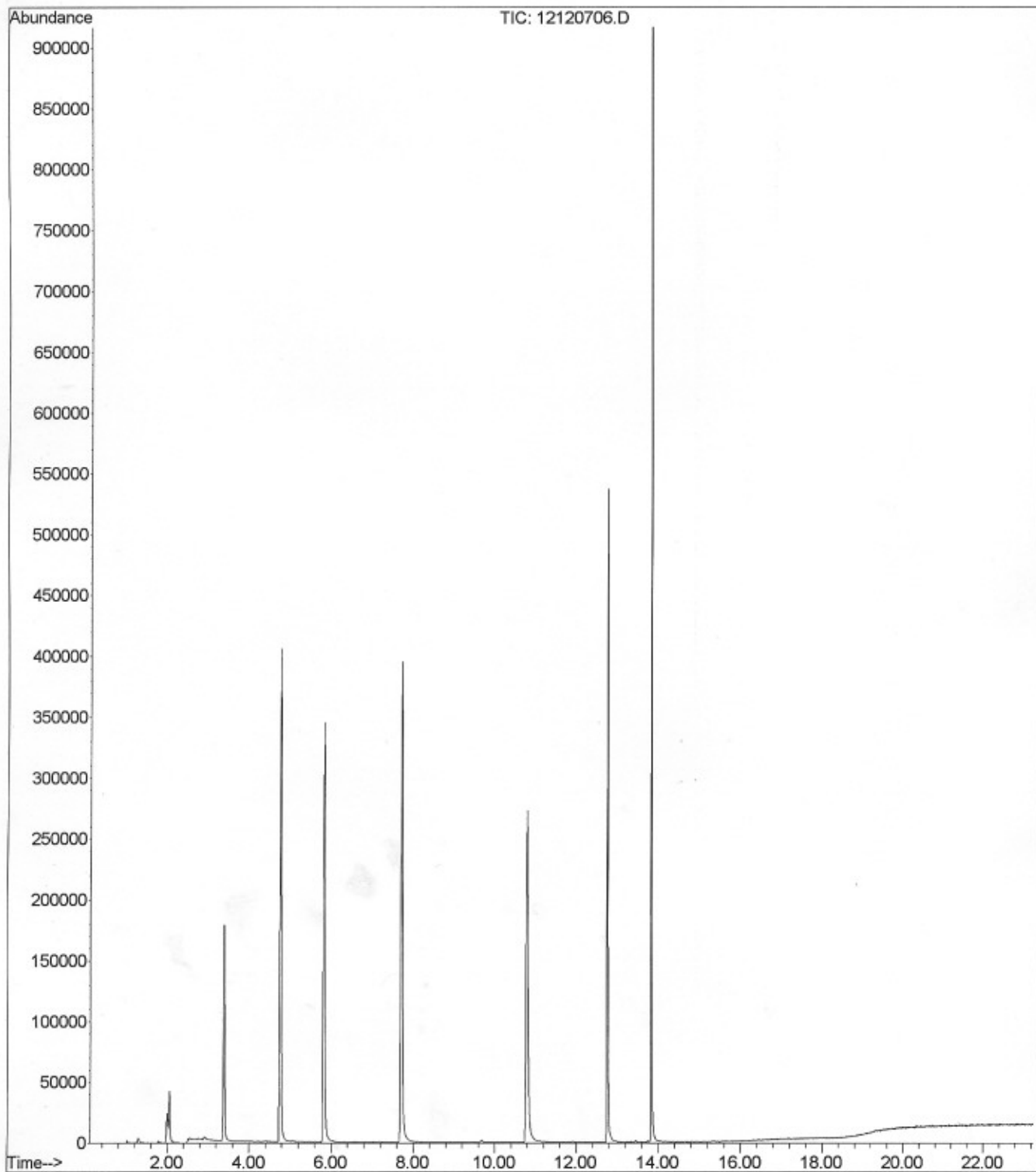
Project: 5725 Thornhill Dr., Oakland  
Project Number: 2831  
Project Manager: Mansour Sepehr

**Reported:**  
19-Dec-07 19:06

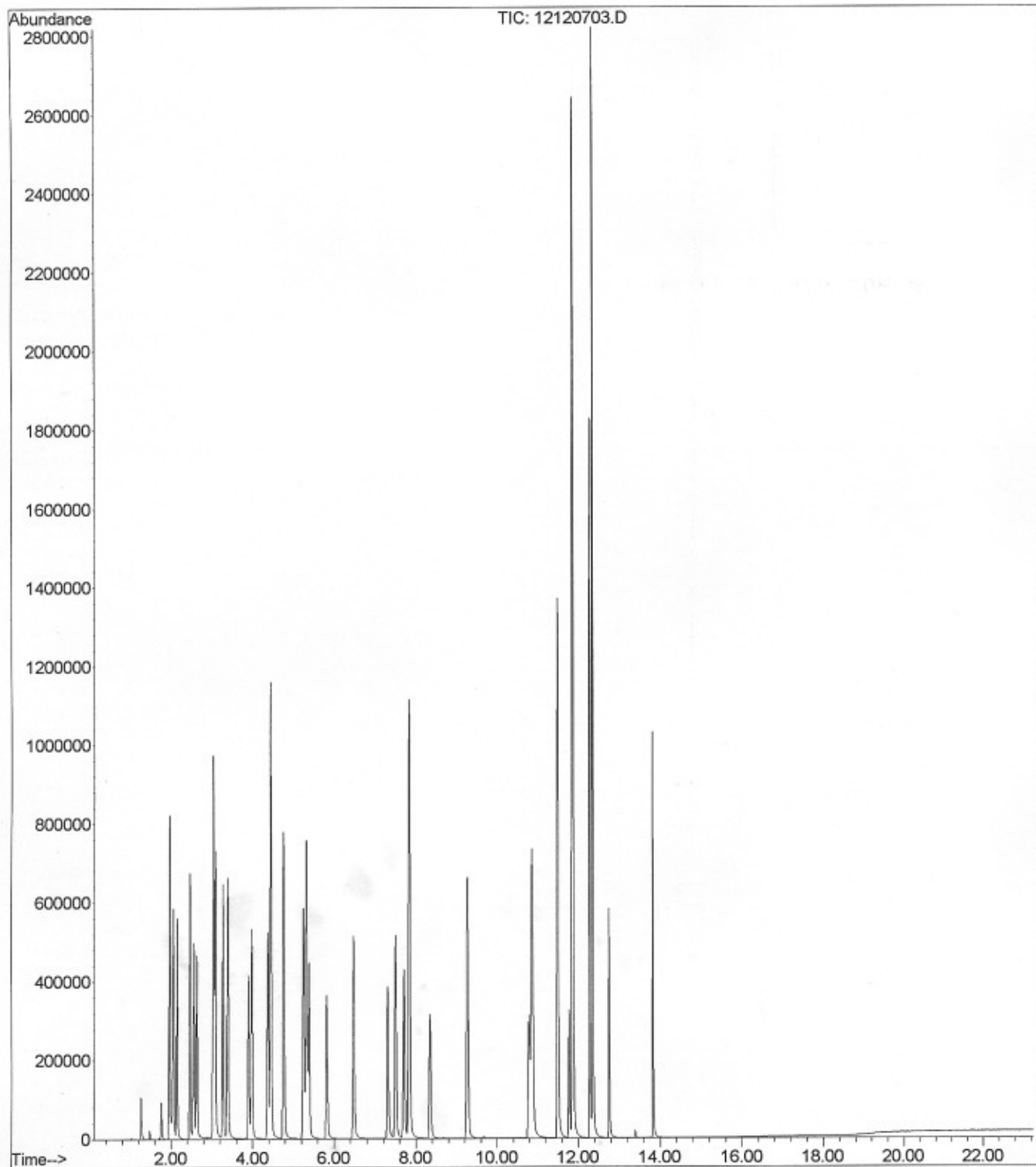
### Notes and Definitions

- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- D-30 Unidentified hydrocarbons C9-C16.
- D-06 The sample chromatographic pattern does not resemble the fuel standard used for quantitation.
- C-03 To reduce matrix interference, the sample extract has undergone silica-gel clean-up, method 3630, which is specific to polar compound contamination.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

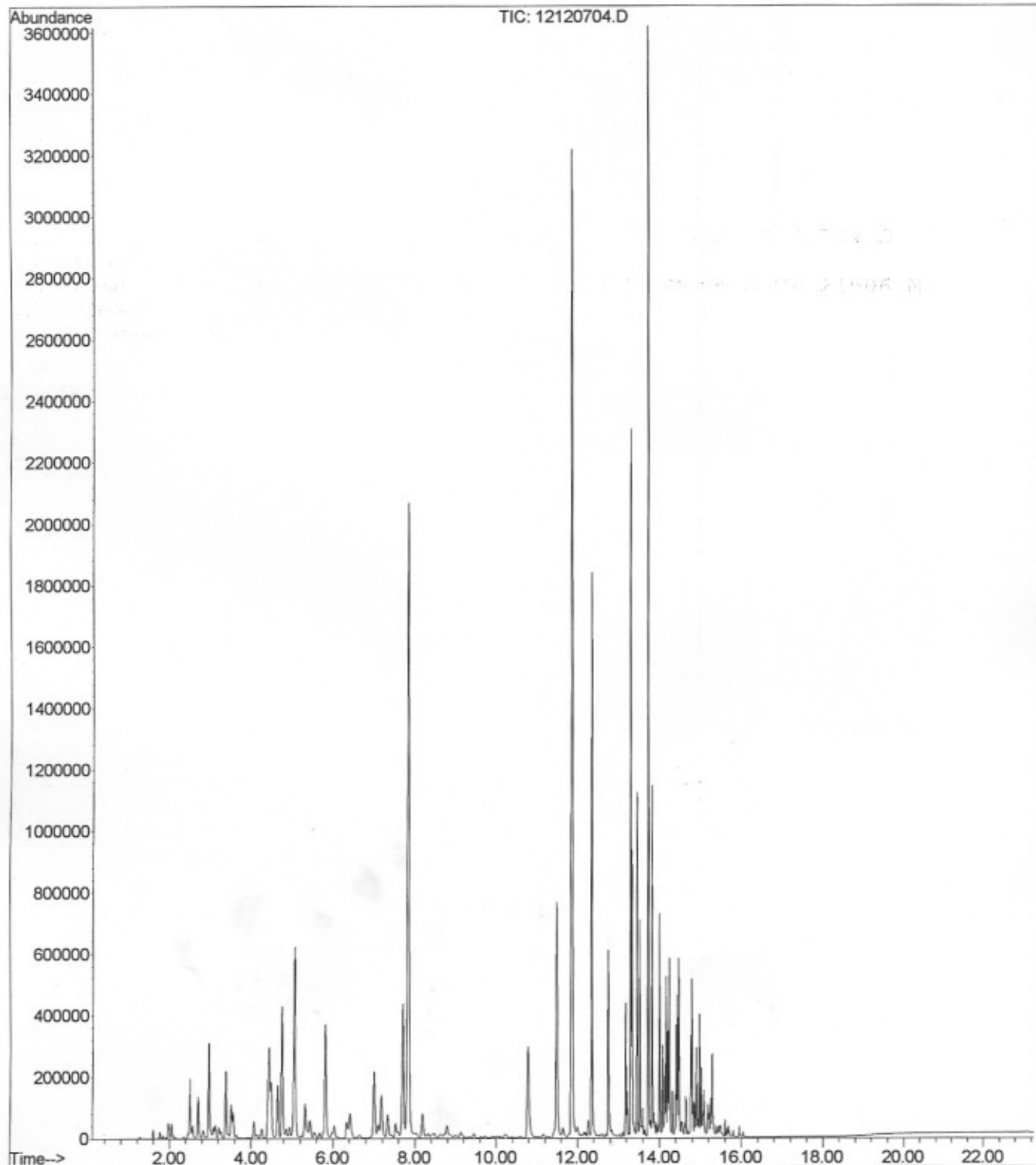
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Operator : dh  
Acquired : 12 Dec 2007 10:19 pm using AcqMethod OXY21506.M  
Instrument : PAL GCMS  
Sample Name: BL71301-BLK1  
Misc Info :  
Vial Number: 6



File :C:\MSDChem\1\DATA\2007-Dec-12-1920.b\12120703.D  
Operator : dh  
Acquired : 12 Dec 2007 8:47 pm using AcqMethod OXY21506.M  
Instrument : PAL GCMS  
Sample Name: BL71301-BS1@voc  
Misc Info :  
Vial Number: 3



File :C:\MSDCHEM\1\DATA\2007-Dec-12-1920.b\12120704.D  
Operator : dh  
Acquired : 12 Dec 2007 9:18 pm using AcqMethod OXY21506.M  
Instrument : PAL GCMS  
Sample Name: BL71301-BS1@gas  
Misc Info :  
Vial Number: 4

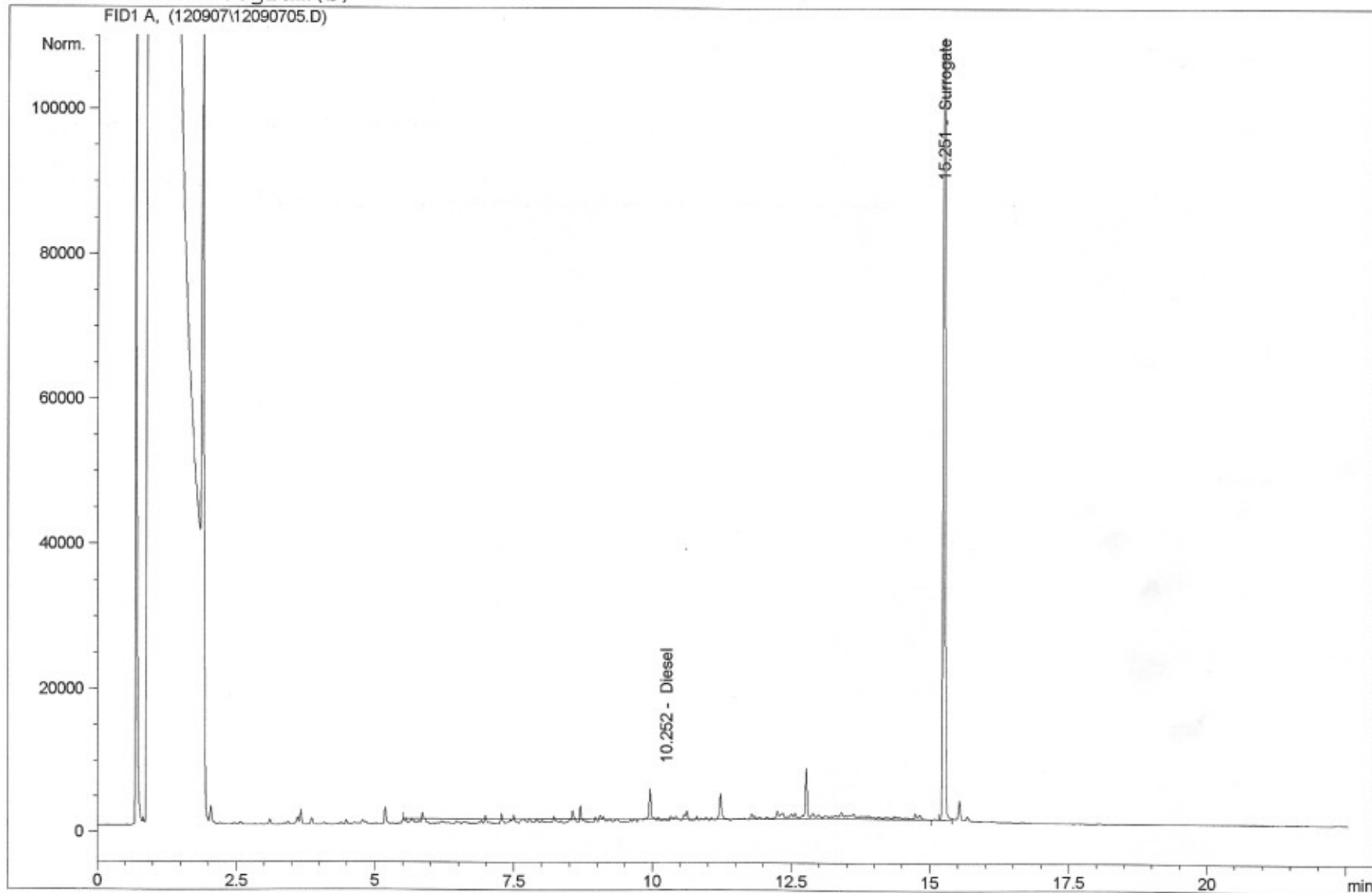


=====

Injection Date	: 12/9/07 7:25:58 PM	Seq. Line	: 4
Sample Name	: BL70901-BLK1	Vial	: 4
Acq. Operator	: jz	Inj	: 1
		Inj Volume	: 2 ul

Method : C:\HPCHEM\1\METHODS\GC071707.M  
Last changed : 12/6/07 8:19:10 AM by jz

Current Chromatogram(s)



Injection Date : 12/9/07 7:57:25 PM  
Sample Name : BL70901-BS1  
Acq. Operator : jz

Seq. Line : 5  
Vial : 5  
Inj : 1  
Inj Volume : 2 ul

Method : C:\HPCHEM\1\METHODS\GC071707.M  
Last changed : 12/6/07 8:19:10 AM by jz

Current Chromatogram(s)

