



3330 Cameron Park Drive, Ste 550  
Cameron Park, California 95682  
(530) 676-6004 ~ Fax: (530) 676-6005

April 13, 2005  
Project No. 2007-0057-01

Mr. Amir Gholami  
Alameda County Health Agency  
Department of Environmental Health  
1131 Harbor Bay Parkway, 2<sup>nd</sup> Floor  
Alameda, California 94502

Re: Quarterly Groundwater Monitoring Report, First Quarter 2005, for former USA Service Station No. 57, located at 10700 MacArthur Boulevard, Oakland, California (RO0000232)

Dear Mr. Gholami:

Stratus Environmental, Inc. (Stratus) is submitting the attached report which presents the results of the first quarter 2005 quarterly monitoring and sampling program on behalf of USA Gasoline Corporation (USA) for the former USA Service Station No. 57, located at 10700 MacArthur Boulevard, Oakland, California (Figure 1). This report is in compliance with Alameda County Department of Environmental Health requirements for underground storage tank (UST) investigations.

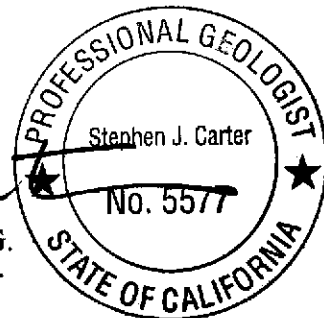
If you have any questions regarding this report, please contact Steve Carter at (530) 676-6008.

Sincerely,

STRATUS ENVIRONMENTAL, INC.

Gowri S. Kowtha, P.E.  
Project Manager

Stephen J. Carter, P.G.  
Sr. Project Supervisor



Attachment: Quarterly Groundwater Monitoring Report, First Quarter 2005

cc: Mr. Charles Miller, USA Gasoline Corporation  
Mr. Ken Phares, Jay-Phares Corporation  
Mr. Peter McIntyre, AEI Consultants

Date April 13, 2005

## USA GASOLINE QUARTERLY GROUNDWATER MONITORING REPORT

Facility No: 57 Address: 10700 MacArthur Blvd., Oakland, California  
USA Gasoline Project Supervisor: Charles Miller  
Consulting Co./Contact Person: Stratus Environmental, Inc./ Stephen J. Carter, P.G.  
Consultant Project No: 2007-0057-01  
Primary Agency/Regulatory ID No: Amir Gholami, Alameda County Department of Environmental Health / RO0000232

### WORK PERFORMED THIS QUARTER (First 2005):

1. Stratus measured groundwater elevations and collected groundwater samples from wells S-1, S-2, MW-3, MW-4, MW-7, and MW-8 on January 19, 2005. Well MW-5 was damaged and well MW-6 was dry.
2. Stratus compiled and evaluated groundwater monitoring data.
3. During previous quarters, Stratus prepared and submitted a *Work Plan for Monitoring Well Replacement* (January 14, 2004), a *Dual Phase Extraction Test Report* (October 15, 2004), and a *Recommendation for Interim Remedial Action* (October 15, 2004, attached to the Third Quarter 2004 Quarterly Monitoring Report).

### WORK PROPOSED FOR NEXT QUARTER (Second 2005):

1. Stratus met with Alameda County and representatives of the property owner on April 7, 2005, to review site conditions and discuss a closure pathway.
2. The next sampling event is tentatively scheduled for April 2005. Groundwater samples will be collected for laboratory analysis from wells S-1, S-2, and MW-3 through MW-8.
3. Groundwater samples will be analyzed for total petroleum hydrocarbons as gasoline (TPHG) using U.S. Environmental Protection Agency Method (EPA) Method SW8015B/DHS Luft Manual, and for benzene, toluene, ethylbenzene, total xylenes (BTEX), methyl tertiary butyl ether (MTBE), tertiary butyl alcohol (TBA), ethyl tertiary butyl ether (ETBE), di-isopropyl ether (DIPE), tertiary amyl methyl ether (TAME), 1,2-dichloroethane (1,2-DCA), 1,2-dibromoethane (EDB), methanol, and ethanol using EPA Method SW8260B.
4. Upon concurrence by ACEHD with the recommendations in the *Dual Phase Extraction Test Report*, Stratus will initiate the DPE at the site to remove dissolved hydrocarbon mass.
5. Stratus will prepare and submit a Site Conceptual Model.

Current Phase of Project: Monitoring  
Frequency of Groundwater Sampling: All Wells = Quarterly  
Frequency of Groundwater Monitoring: Quarterly  
Groundwater Sampling Date: January 19, 2005  
Is Free Product (FP) Present on Site: No

FP Recovered This Quarter:	NA
Cumulative FP Recovered to Date:	NA
Approximate Depth to Groundwater:	10.34 to 20.33 feet below top of well casing
Groundwater Flow Direction:	To the southeast, and away from a groundwater high centered around well MW-3
Groundwater Gradient:	0.063 to 0.095 ft/ft

## DISCUSSION:

At the time of the first quarter 2005 monitoring event, groundwater elevations had increased between 0.26 and 4.18 feet in all wells since the previous monitoring event (November 11, 2004). Depth-to-water measurements were corrected to mean sea level (MSL) and used to construct a groundwater elevation contour map (Figure 2). The groundwater flow direction was generally to the southeast, and away from an apparent groundwater high centered around well MW-3. Gradients ranged from 0.063 to 0.095 ft/ft. Similar groundwater flow patterns have been observed during previous monitoring events.

TPHG, benzene, and MTBE were reported in wells S-2 and MW-3. TPHG and MTBE were also reported in well S-1, and MTBE was reported in well MW-7. The highest concentrations of TPHG (17,000 µg/L), benzene (590 µg/L), and MTBE (580 µg/L) were reported in well S-2. TBA was reported in wells S-1 (14 µg/L), S-2 (200 µg/L), and MW-3 (19 µg/L). 1,2-DCA was reported in wells S-1 (3.8 µg/L), S-2 (8.2 µg/L), and MW-3 (1.4 µg/L). DIPE, ETBE, TAME, EDB, methanol, or ethanol were not reported in any of the wells. These results are generally consistent with historical analytical data. The laboratory noted that the pH in the sample for well S-1 was above the EPA recommended limit of 2. As the reported result for this well appears to be generally consistent with historical data, it appears that the elevated pH has not affected data quality. Analytical results of TPHG, benzene, and MTBE for groundwater samples collected on January 19, 2005, are presented in Figure 3.

## ATTACHMENTS:

- Table 1 Groundwater Elevation and Analytical Summary
- Table 2 Groundwater Analytical Results for Oxygenates and Additional Compounds
- Figure 1 Site Location Map
- Figure 2 Groundwater Elevation Contour Map (First Quarter 2005)
- Figure 3 Groundwater Analytical Summary (First Quarter 2005)
- Appendix A Field Data Sheets
- Appendix B Sampling and Analysis Procedures
- Appendix C Certified Analytical Reports and Chain-of-Custody Documentation

**TABLE 1**

**GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**

Former USA Service Station No. 57  
10700 MacArthur Blvd., Oakland, California

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater							Total	
				Elevation (ft msl)	TPHG (µg/L)	TPHD (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	
S-1	03/03/95	13.10	74.74	61.64	910	5,900	260	7.6	16	14	NA	
	07/24/95	12.35		62.39	NA	NA	NA	NA	NA	NA	NA	
	11/22/95	19.30	78.68	59.38	460	6100	13	0.69	0.99	1.1	460*	
	12/06/95	19.59		59.09	NA	NA	NA	NA	NA	NA	NA	
	01/04/96	19.52		59.16	NA	NA	NA	NA	NA	NA	NA	
	01/31/97	15.07		63.61	1,100	200	11	6	3	6	200*	
	10/10/97	18.90		59.78	530	2,000	<0.5	2.1	<0.5	<2	230*	
	01/20/98	16.79		61.89	1,800	200	<0.5	<0.5	1.5	10	87*	
	04/28/98	8.37		70.31	130	7,300	1.9	3.2	<0.5	<0.5	310*	
	07/31/98	11.61		67.07	310	2,000	0.54	4.6	3.8	0.82	280*	
	06/10/99	14.35		64.33	660	150	0.99	<0.5	<0.5	2.4	80*[1]	
	10/18/00	17.56		61.12	<50	330	<0.5	0.93	<0.5	<0.5	44	
	03/12/02	16.29		62.39	500	<50	2.8	4.8	0.79	4.4	63	
	11/19/02	19.53		59.15	190	NA	<0.50	<0.50	<0.50	<0.50	190	
	01/09/03	18.14		60.54	510	NA	1.1	<0.50	0.52	<0.50	11	
	04/14/03	18.04		60.64	300	NA	<1.0[2]	<1.0[2]	<1.0[2]	<1.0[2]	27	
	07/21/03	20.31		58.37	300	NA	<0.50	<0.50	<0.50	<0.50	11	
	10/09/03	19.46		59.22	390	NA	<0.50	<0.50	<0.50	<0.50	8.8	
	01/15/04	18.21	79.66	61.45	200	NA	<0.50	<0.50	<0.50	<0.50	6.0	
	04/08/04	19.29		60.37	140	NA	<0.50	<0.50	<0.50	<0.50	12	
08/10/04	18.86		60.80	110	NA	4.6	<0.50	<0.50	0.51	73		
11/11/04	19.81		59.85	160	NA	<0.50	<0.50	<0.50	<0.50	150		
01/19/05	18.12		61.54	440	NA	<0.50	<0.50	1.4	<0.50	140		

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				Elevation (ft msl)	TPHG (µg/L)	TPHD (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	
S-2	03/03/95	15.39	76.86	61.47	24,000	6,000	1,900	440	600	2,500	NA	
	07/24/95	14.47		62.39	NA	NA	NA	NA	NA	NA	NA	
	11/22/95	21.52	80.93	59.41	NA	NA	NA	NA	NA	NA	NA	
	12/06/95	21.78		59.15	NA	NA	NA	NA	NA	NA	NA	
	01/04/96	21.75		59.18	NA	NA	NA	NA	NA	NA	NA	
	01/31/97	17.25		63.68	NA	NA	NA	NA	NA	NA	NA	
	10/10/97	21.21		59.72	13,000	<50	260	38	190	280	600*	
	01/20/98	19.07		61.86	1,900	2300	4.6	6.3	<0.5	4.6	190*	
	04/28/98	10.47		70.46	22,000	<100	980	160	320	680	570*	
	07/31/98	13.71		67.22	160,000	<50	950	290	550	1,700	550*	
	11/02/98	17.31		63.62	14,000	<500	170	70	170	230	490*	
	06/10/99	16.48		64.45	17,000	<50	650	230	<25	750	490*[1]	
	10/18/00	19.70		61.23	4,400	<50	2	64	5.1	12	270	
	03/12/02	18.56		62.37	5,100	660	62	44	52	78	430	
	11/19/02	21.70		59.23	26,000	NA	1,400	180	520	340	750	
	01/09/03	20.37		60.56	16,000	NA	120	32	76	214	270	
	04/14/03	19.93		61.00	16,000	NA	160	76	210	290	400	
	07/21/03	22.00		58.93	9,700	NA	270	90	200	277	410	
	10/09/03	21.58		59.35	10,000	NA	39	9.2	52	26.5	180	
	01/15/04	20.44	81.90	61.46	6,300	NA	21	<2.0 [3]	20	3.1	130	
04/08/04	17.15		64.75	13,000	NA	160	76	170	231	430		
08/10/04	20.98		60.92	10,000	NA	76	13	<5.0[3]	500	92		
11/11/04	21.95		59.95	20,000	NA	530	240	370	1,730	420		
01/19/05	20.33		61.57	17,000	NA	590	150	250	990	580		

*Handwritten notes:*  
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10700 MacArthur Blvd., Oakland, California

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater							Total	
				Elevation (ft msl)	TPHG (µg/L)	TPHD (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	
MW-3	03/03/95	13.99	76.30	62.31	2,500	1,600	540	92	36	200	NA	
	07/24/95	13.33		62.97	NA	NA	NA	NA	NA	NA	NA	
	11/22/95	20.94	80.32	59.38	14,000	5,400	5,700	230	430	650	820*	
	12/06/95	17.48		62.84	NA	NA	NA	NA	NA	NA	NA	
	01/04/96	20.01		60.31	NA	NA	NA	NA	NA	NA	NA	
	01/31/97	16.63		63.69	1,100	<50	130	8	5	5	NA	
	10/10/97	20.62		59.70	3,400	1,100	830	4	100	<10	160*	
	01/20/98	15.40		64.92	3,900	550	7.9	4.1	<0.5	3.7	<5.0*	
	04/28/98	10.51		69.81	800	1,000	82	5.2	5.7	5.4	240*	
	07/31/98	13.46		66.86	2,200	610	510	7.6	16	5.27	310*	
	11/02/98	17.11		63.21	4,900	1,600	220	16	13	13.7	180*	
	06/10/99	15.24		65.08	1,000	120	<0.5	<0.5	<0.5	1.1	120*[1]	
	10/18/00	15.41		64.91	<50	<50	<0.5	<0.5	<0.5	<0.5	12	
	04/08/04	13.70		66.62	<50	NA	<0.50	<0.50	<0.50	<0.50	19	
	08/10/04	16.96		63.36	580	NA	19	<1.0[3]	<1.0[3]	3.3	300	
	11/11/04	17.40		62.92	3,000	NA	810	<5.0[3]	43	<5.0[3]	690	
01/19/05	13.28		67.04	92	NA	18	<0.50	0.77	<0.50	17		

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Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	TPHG (µg/L)	TPHD (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)
MW-4	11/22/95	14.99	76.42	61.43	<50	200	<0.5	1.5	<0.5	1.7	6.4*
	12/06/95	11.21		65.21	NA	NA	NA	NA	NA	NA	NA
	01/04/96	14.62		61.80	NA	NA	NA	NA	NA	NA	NA
	01/31/97	8.18		68.24	<50	<50	<0.5	2	<0.5	2	11*
	10/10/97	14.14		62.28	<50	<50	<0.5	<0.5	<0.5	<2	<5.0*
	01/20/98	7.05		69.37	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0*
	04/28/98	5.88		70.54	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0*
	07/31/98	8.40		68.02	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0*
	11/02/98	16.08		60.34	NA	NA	NA	NA	NA	NA	NA
	06/10/99	14.81		61.61	NA	NA	NA	NA	NA	NA	NA
	10/18/00	12.71		63.71	<50	<50	<0.5	0.59	0.82	0.53	<5.0*
	03/12/02	8.92		67.50	<50	<50	<0.5	0.61	0.72	2.5	1.8
	11/19/02	13.24		-13.24	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50
	01/09/03	11.00		-11.00	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50
	04/14/03	11.03		-11.03	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50
	07/21/03	13.10		-13.10	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50
	10/09/03	13.33		-13.33	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50
	01/15/04	12.14		-12.14	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50
	04/08/04	10.76		65.66	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50
	08/10/04	12.62		63.80	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50
	11/11/04	11.93		64.49	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50
	01/19/05	10.34		66.08	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50

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				Elevation (ft msl)	TPHG (µg/L)	TPHD (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
MW-5	11/22/95	19.56	80.52	60.96	<50	280	<0.5	1.8	<0.5	3	2.2*
	12/06/95	15.84		64.68	NA	NA	NA	NA	NA	NA	NA
	01/04/96	19.36		61.16	NA	NA	NA	NA	NA	NA	NA
	01/31/97	13.31		67.21	80	<50	<0.5	0.6	<0.5	2	6*
	10/10/97	17.80		62.72	<50	<50	<0.5	<0.5	<0.5	<2	<5*
	01/20/98	12.58		67.94	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0*
	04/28/98	9.45		71.07	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0*
	07/31/98	7.38		73.14	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0*
	11/02/98	15.98		64.54	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0*
	06/10/99	14.60		65.92	NA	NA	NA	NA	NA	NA	NA
	10/18/00	17.77		62.75	<50	<50	<0.5	0.75	<0.5	0.79	28
	03/12/02	15.72		64.80	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0*
	11/19/02	NM		NM							Well Damaged
	01/09/03	NM		NM							Well Damaged
	04/14/03	NM		NM							Well Damaged
	07/21/03	NM		NM							Well Damaged
	10/09/03	NM		NM							Well Damaged
	01/15/04	NM		NM							Well Damaged
	04/08/04	16.80		63.72	<100	NA	<0.50	<0.50	<0.50	<0.50	<0.50
	08/10/04	18.58		61.94	89	NA	<0.50	<0.50	<0.50	<0.50	<0.50
11/11/04	NM		NM							Well Damaged	
01/19/05	NM		NM							Well Damaged	



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				Elevation (ft msl)	TPHG (µg/L)	TPHD (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	
MW-6	11/22/95	21.73	81.64	59.91	<50	140	<0.5	1.2	<0.5	1.5	5.3*	
	12/06/95	18.03		63.61	NA	NA	NA	NA	NA	NA	NA	
	01/04/96	21.67		59.97	NA	NA	NA	NA	NA	NA	NA	
	01/31/97	16.01		65.63	70	<50	<0.5	2	<0.5	<1	5*	
	10/10/97	20.55		61.09	80	<50	<0.5	<0.5	<0.5	<2	<5*	
	01/20/98	15.74		65.90	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0*	
	04/28/98	10.78		70.86	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0*	
	07/31/98	13.97		67.67	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0*	
	11/02/98	17.97		63.67	NA	NA	NA	NA	NA	NA	NA	
	06/10/99	16.92		64.72	NA	NA	NA	NA	NA	NA	NA	
	10/18/00	NM		NM				Unable to Locate				
	03/12/02	NM		NM				Unable to Locate				
	11/19/02	NM		NM				Unable to Locate				
	01/09/03	NM		NM				Unable to Locate				
	04/14/03	NM		NM				Unable to Locate				
	07/21/03	NM		NM				Unable to Locate				
	10/19/03	NM		NM				Unable to Locate				
	01/15/04	NM		NM				Unable to Locate				
	04/08/04	NM		NM				Well Obstructed - Not Sampled				
	08/10/04	NM		NM				Dry - Not Sampled				
11/11/04	17.20		64.44				Dry - Not Sampled					
01/19/05	NM		NM				Dry - Not Sampled					

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				Elevation (ft msl)	TPHG (µg/L)	TPHD (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	
MW-7	11/22/95	19.38	78.86	59.48	<50	180	<0.5	0.57	<0.5	0.62	0.73*	
	12/06/95	19.72		59.14	NA	NA	NA	NA	NA	NA	NA	
	01/04/96	19.76		59.10	NA	NA	NA	NA	NA	NA	NA	
	01/31/97	15.25		63.61	70	<50	0.7	1	<0.5	<1	8*	
	10/10/97	19.03		59.83	<50	<50	<0.5	<0.5	<0.5	<2	15*	
	01/20/98	17.11		61.75	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0*	
	04/28/98	8.22		70.64	<50	<50	<0.5	<0.5	<0.5	<0.5	9.3*	
	07/31/98	11.53		67.33	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0*	
	11/02/98	15.15		63.71	NA	NA	NA	NA	NA	NA	NA	
	06/10/99	14.23		64.63	NA	NA	NA	NA	NA	NA	NA	
	10/18/00	17.59	61.27	NA	<50	<0.5	<0.5	<0.5	<0.5	<5.0*		
	03/12/02	16.54	62.32	<50	<50	<0.5	<0.5	<0.5	<0.5	2.9		
	11/19/02	19.59	-19.59	<50	NA	<0.50	<0.50	<0.50	<0.50	3.8		
	01/09/03	18.38	-18.38	<50	NA	<0.50	<0.50	<0.50	<0.50	2.7		
	04/14/03	18.17	-18.17	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50		
	07/21/03	20.29	-20.29	<50	NA	<0.50	<0.50	<0.50	<0.50	1.8		
	10/09/03	19.48	-19.48	<50	NA	<0.50	<0.50	<0.50	<0.50	2.9		
	01/15/04	18.45	79.81	61.36	<50	NA	<0.50	<0.50	<0.50	<0.50	2.6	
	04/08/04	17.28		62.53	<50	NA	<0.50	<0.50	<0.50	<0.50	0.81	
	08/10/04	18.85		60.96	<50	NA	<0.50	<0.50	<0.50	<0.50	2.1	
11/11/04	19.85	59.96		<50	NA	<0.50	<0.50	<0.50	<0.50	1.0		
01/19/05	19.59	60.22		<50	NA	<0.50	<0.50	<0.50	<0.50	1.5		

**TABLE 1**

**GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**

Former USA Service Station No. 57  
10700 MacArthur Blvd., Oakland, California

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater							Total	
				Elevation (ft msl)	TPHG (µg/L)	TPHD (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	
MW-8	11/22/95	33.33	79.55	46.22	<50	360	<0.5	1.3	<0.5	2.1	2.1*	
	12/06/95	17.57		61.98	NA	NA	NA	NA	NA	NA	NA	
	01/04/96	20.08		59.47	NA	NA	NA	NA	NA	NA	NA	
	01/31/97	18.72		60.83	80	<50	0.6	1	<0.5	1	8*	
	10/10/97	20.26		59.29	50	<50	<0.5	<0.5	<0.5	<2	<5*	
	01/20/98	15.91		63.64	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0*	
	04/28/98	10.39		69.16	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0*	
	07/31/98	12.93		66.62	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0*	
	11/02/98	16.90		62.65	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0*	
	06/10/99	14.98		64.57	NA	NA	NA	NA	NA	NA	NA	
	10/18/00	16.27		63.28	<50	<50	<0.5	<0.5	1.1	6.3	8.6*	
	03/12/02	14.56		64.99	<50	<50	<0.5	0.63	0.55	1.7	0.94	
	11/19/02	21.14		-21.14	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	
	01/09/03	17.90	-17.90	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50		
	04/14/03	17.84	-17.84	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50		
	07/21/03	19.79	-19.79	<100[2]	NA	<0.50	<0.50	<0.50	<0.50	<0.50		
	10/09/03	21.02	-21.02	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50		
	01/15/04	18.10	80.50	62.40	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	
	04/08/04	17.51		62.99	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	
	08/10/04	20.76		59.74	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	
11/11/04	21.38	59.12		<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50		
01/19/05	17.20	63.30		<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50		

**TABLE 1**

**GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**

Former USA Service Station No. 57  
10700 MacArthur Blvd., Oakland, California

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	TPHG (µg/L)	TPHD (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)
<p>Note:</p> <p>* = MTBE analyzed using EPA Method 8020/8021B</p> <p>MTBE = Methyl tert-butyl ether</p> <p>TPHD = Total petroleum hydrocarbons as diesel</p> <p>TPHG = Total petroleum hydrocarbons as gasoline</p> <p>TPHG analyzed using EPA Method 8015B and the remaining analytes using EPA Method 8260B</p> <p>[1] Laboratory indicates the chromatogram does not match the diesel hydrocarbon range pattern.</p> <p>[2] Reporting limits were increased due to sample foaming.</p> <p>[3] Reporting limits were increased due to high concentrations of target analytes.</p> <p>Monitoring wells surveyed by Morrow Surveying on February 10, 2004.</p> <p>Data prior to November 19, 2002 provided by GHH Engineering.</p>											

msl = Mean sea level  
µg/L = micrograms per liter  
NA = Not analyzed  
NM = Not measured

**TABLE 2**

**GROUNDWATER ANALYTICAL RESULTS  
FOR OXYGENATES AND ADDITIONAL COMPOUNDS**

Former USA Service Station No. 57  
10700 MacArthur Blvd., Oakland, California

Well Number	Date Collected	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Methanol (µg/L)	Ethanol (µg/L)
S-1	11/19/02	190	<10	<1.0	<1.0	<1.0	NA	NA	NA	NA
	01/09/03	11	<5.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
	04/14/03	27	<20[2]	<2.0[2]	<2.0[2]	<2.0[2]	NA	NA	NA	NA
	07/21/03	11	<10[2]	<1.0	<1.0	<1.0	NA	NA	NA	NA
	10/09/03	8.8	6.4	<1.0	<1.0	<1.0	<1.0	<2.0	NA	NA
	01/15/04	6.0	10	<1.0	<1.0	<1.0	<1.0	<2.0	NA	NA
	04/08/04	12	8.5	<1.0	<1.0	<1.0	<1.0	<2.0	<5,000	<5,000
	08/10/04	73	28	<1.0	<1.0	<1.0	16	<2.0	<5,000	<5,000
	11/11/04	150	14	<1.0	<1.0	<1.0	7.3	<2.0	<5,000	<5,000
01/19/05	140	14	<1.0	<1.0	<1.0	3.8	<2.0	<5,000	<5,000	
S-2	11/19/02	750	<200[1]	<20[1]	<20[1]	<20[1]	NA	NA	NA	NA
	01/09/03	270	<100[1]	<10[1]	<10[1]	<10[1]	NA	NA	NA	NA
	04/14/03	400	95	<5.0[1]	<5.0[1]	<5.0[1]	NA	NA	NA	NA
	07/21/03	410	110	<5.0[1]	<5.0[1]	<5.0[1]	NA	NA	NA	NA
	10/09/03	180	57	<5.0[1]	<5.0[1]	<5.0[1]	<5.0[1]	<20[1]	NA	NA
	01/15/04	130	48	<4.0[1]	<4.0[1]	<4.0[1]	<4.0[1]	<16[1]	NA	NA
	04/08/04	430	130	<5.0[1]	<5.0[1]	<5.0[1]	<5.0[1]	<20[1]	<5,000	<5,000
	08/10/04	92	<100[1]	<10[1]	<10[1]	<10[1]	74	<40[1]	<5,000	<5,000
	11/11/04	420	<200[1]	<20[1]	<20[1]	<20[1]	<20[1]	<80[1]	<5,000	<5,000
01/19/05	580	200	<5.0[1]	<5.0[1]	<5.0[1]	8.2	<20[1]	<5,000	<5,000	
MW-3	04/08/04	19	7.6	<1.0	<1.0	<1.0	<1.0	<2.0	<5,000	<5,000
	08/10/04	300	2,000	2.2	<2.0[1]	<2.0[1]	270	<8.0[1]	<5,000	<5,000
	11/11/04	690	1,400	<10[1]	<10[1]	<10[1]	140	<40[1]	<5,000	<5,000
	01/19/05	17	19	<1.0	<1.0	<1.0	1.4	<2.0	<5,000	<5,000

**TABLE 2**

**GROUNDWATER ANALYTICAL RESULTS  
FOR OXYGENATES AND ADDITIONAL COMPOUNDS**

Former USA Service Station No. 57  
10700 MacArthur Blvd., Oakland, California

Well Number	Date Collected	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Methanol (µg/L)	Ethanol (µg/L)
MW-4	11/19/02	<0.50	<5.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
	01/09/03	<0.50	<5.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
	04/14/03	<0.50	<5.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
	07/21/03	<0.50	<5.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
	10/09/03	<0.50	<5.0	<1.0	<1.0	<1.0	<1.0	<2.0	NA	NA
	01/15/04	<0.50	7.8	<1.0	<1.0	<1.0	<1.0	<2.0	NA	NA
	04/08/04	<0.50	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<5,000	<5,000
	08/10/04	<0.50	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<5,000	<5,000
	11/11/04	<0.50	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<5,000	<5,000
	01/19/05	<0.50	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<5,000	<5,000
MW-5	11/19/02									Well Damaged
	01/09/03									Well Damaged
	04/14/03									Well Damaged
	07/21/03									Well Damaged
	10/09/03									Well Damaged
	01/15/04									Well Damaged
	04/08/04	<0.50	<10	<1.0	<1.0	<1.0	<1.0	<4.0[2]	<5,000	<5,000
	08/10/04	<0.50	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<5,000	<5,000
	11/11/04									Well Damaged
01/19/05									Well Damaged	

**TABLE 2**

**GROUNDWATER ANALYTICAL RESULTS  
FOR OXYGENATES AND ADDITIONAL COMPOUNDS**

Former USA Service Station No. 57  
10700 MacArthur Blvd., Oakland, California

Well Number	Date Collected	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Methanol (µg/L)	Ethanol (µg/L)
MW-6	11/19/02					Unable to Locate				
	01/09/03					Unable to Locate				
	04/14/03					Unable to Locate				
	07/21/03					Unable to Locate				
	10/19/03					Unable to Locate				
	01/15/04					Unable to Locate				
	04/08/04					Well Obstructed - Not Sampled				
	08/10/04					Well Obstructed - Not Sampled				
	11/11/04					Well Obstructed - Not Sampled				
	01/19/05					Well Obstructed - Not Sampled				
MW-7	11/19/02	3.8	<5.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
	01/09/03	2.7	<5.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
	04/14/03	<0.50	<5.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
	07/21/03	1.8	<5.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
	10/09/03	2.9	<5.0	<1.0	<1.0	<1.0	<1.0	<2.0	NA	NA
	01/15/04	2.6	7.9	<1.0	<1.0	<1.0	<1.0	<2.0	NA	NA
	04/08/04	0.81	9.0	<1.0	<1.0	<1.0	<1.0	<2.0	<5,000	<5,000
	08/10/04	2.1	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<5,000	<5,000
	11/11/04	1.0	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<5,000	<5,000
	01/19/05	1.5	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<5,000	<5,000

**TABLE 2**

**GROUNDWATER ANALYTICAL RESULTS  
FOR OXYGENATES AND ADDITIONAL COMPOUNDS**

Former USA Service Station No. 57  
10700 MacArthur Blvd., Oakland, California

Well Number	Date Collected	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Methanol (µg/L)	Ethanol (µg/L)
MW-8	11/19/02	<0.50	<5.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
	01/09/03	<0.50	<5.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
	04/14/03	<0.50	<5.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
	07/21/03	<0.50	<10[2]	<1.0	<1.0	<1.0	NA	NA	NA	NA
	10/09/03	<0.50	<5.0	<1.0	<1.0	<1.0	<1.0	<2.0	NA	NA
	01/15/04	<0.50	9.9	<1.0	<1.0	<1.0	<1.0	<2.0	NA	NA
	04/08/04	<0.50	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<5,000	<5,000
	08/10/04	<0.50	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<5,000	<5,000
	11/11/04	<0.50	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<5,000	<5,000
	01/19/05	<0.50	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<5,000	<5,000

Note:

Oxygenates analyzed using EPA Method 8260B

µg/L = micrograms per liter

NA = Not analyzed

[1] Reporting limits were increased due to high concentrations of target analytes

[2] Reporting limits were increased due to sample foaming

MTBE = Methyl tertiary butyl ether

TBA = Tertiary butyl alcohol

DIPE = Di-isopropyl ether

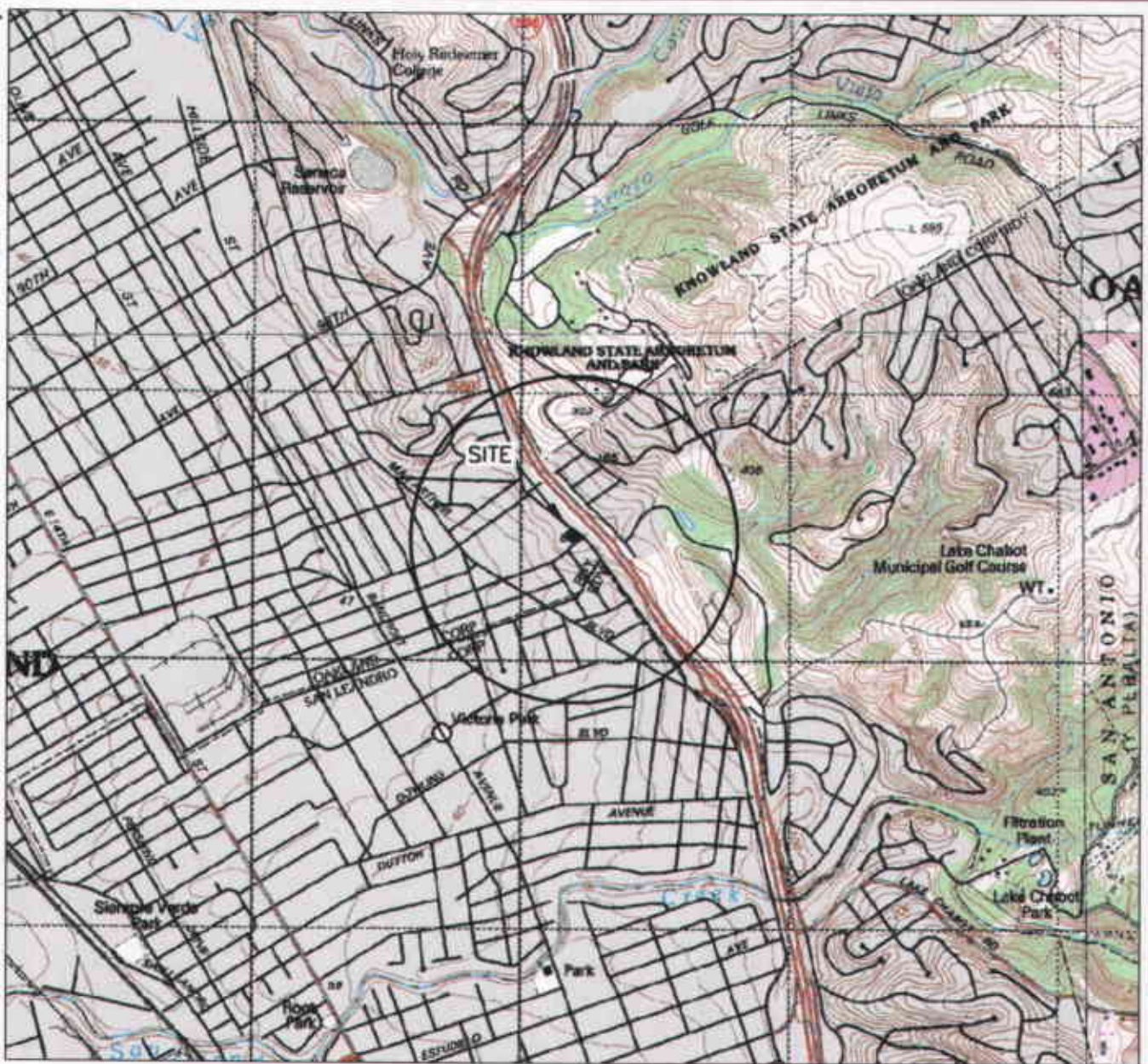
ETBE = Ethyl tertiary butyl ether

TAME = Tertiary amyl methyl ether

1,2-DCA = 1,2-Dichloroethane

EDB = 1,2-Dibromoethane





GENERAL NOTES:  
 BASE MAP FROM U.S.G.S.  
 OAKLAND, CA  
 7.5 MINUTE TOPOGRAPHIC  
 PHOTOREVISED 1980



QUADRANGLE LOCATION



SCALE 1:24,000

USA 3758a Location Map Aug Feb 22, 2000

**STRATUS**  
 ENVIRONMENTAL, INC.

FORMER USA SERVICE STATION NO. 57  
 10500 MACARTHUR BOULEVARD  
 OAKLAND, CALIFORNIA  
 SITE LOCATION MAP

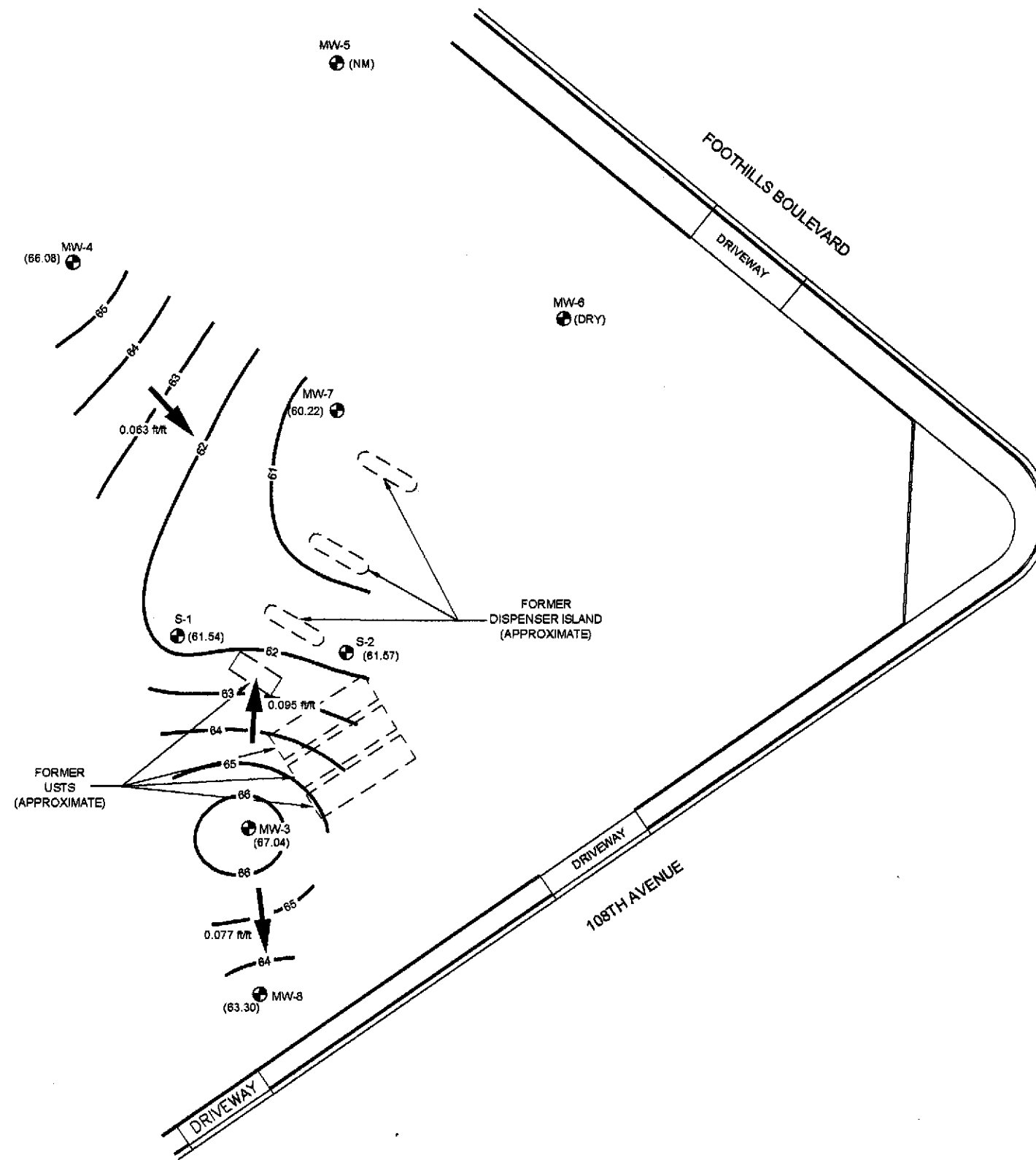
FIGURE  
**1**  
 PROJECT NO.  
 2007-0057-01

USA3758a Quarterly



LEGEND

- MW-3 MONITORING WELL LOCATION
- (61.54) GROUND WATER ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- WATER TABLE CONTOUR IN FEET RELATIVE TO MEAN SEA LEVEL
- INFERRED DIRECTION OF GROUND WATER FLOW
- (NM) NOT MEASURED (WELL DAMAGED)
- WELLS MEASURED: 1/19/05



USA 57 Contingency Plan Rev. 02/22/2005

**STRATUS**  
ENVIRONMENTAL, INC.



FORMER USA SERVICE STATION NO. 57  
10500 MACARTHUR BOULEVARD  
OAKLAND, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP  
1st QUARTER 2005

FIGURE  
**2**

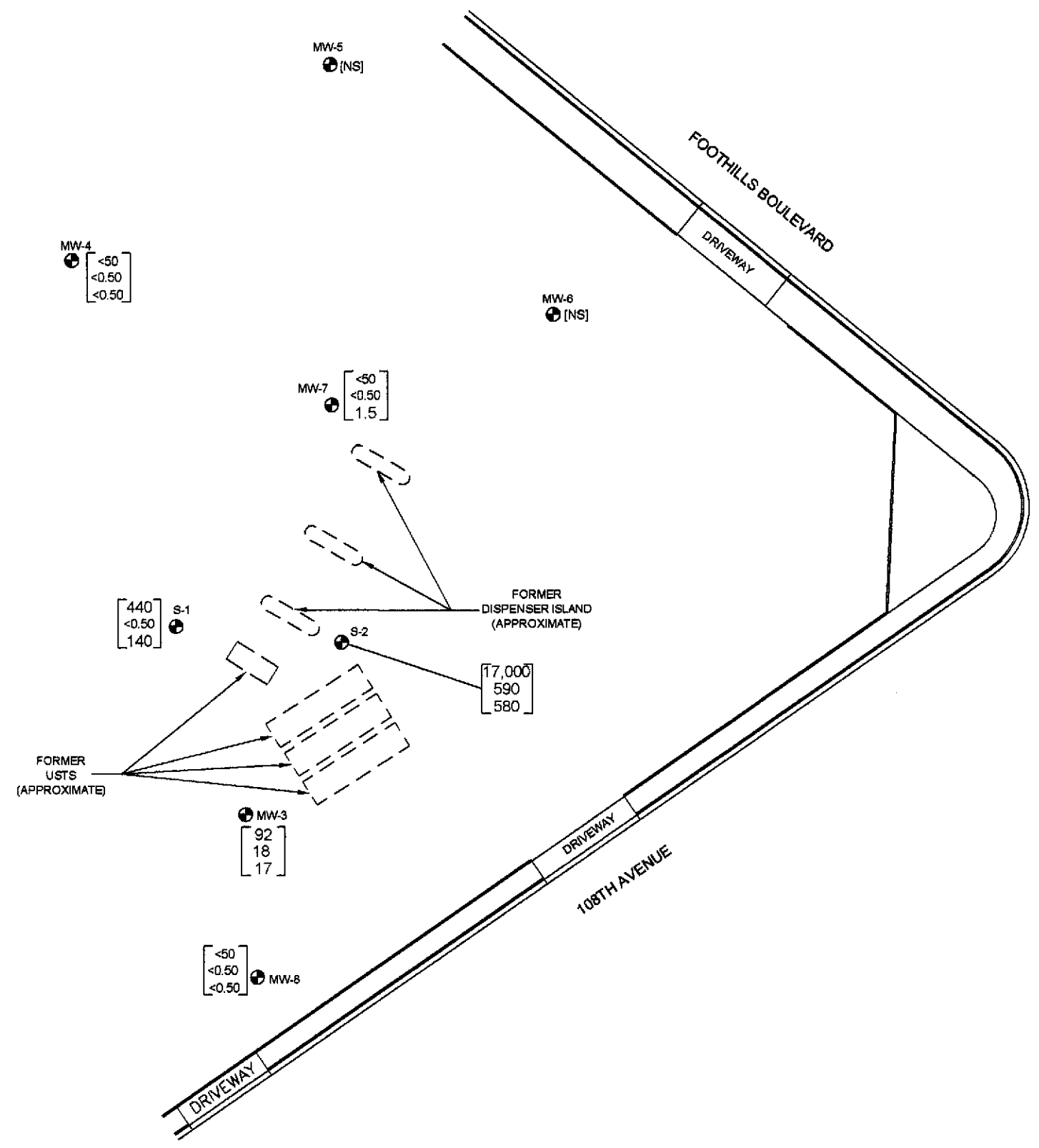
PROJECT NO.  
2007-0057-01



LEGEND

- MW-3 MONITORING WELL LOCATION
- [NS] NOT SAMPLED
- [ <50 ] TOTAL PETROLEUM HYDROCARBONS AS GASOLINE IN  $\mu\text{g/L}$
- [ <0.50 ] BENZENE CONCENTRATION IN  $\mu\text{g/L}$
- [ <0.50 ] METHYL TERTIARY BUTYL ETHER CONCENTRATION IN  $\mu\text{g/L}$

SAMPLES COLLECTED ON 1/19/05  
 TPHG ANALYZED BY EPA METHOD 8015B  
 BENZENE & MTBE ANALYZED BY EPA METHOD 8260B



USA SERVICE STATION NO. 57  
 10500 MACARTHUR BOULEVARD  
 OAKLAND, CALIFORNIA  
 REV  
 JMP  
 Feb 22, 2005  
 USA SERVICE STATION NO. 57

**STRATUS**  
 ENVIRONMENTAL, INC.



FORMER USA SERVICE STATION NO. 57  
 10500 MACARTHUR BOULEVARD  
 OAKLAND, CALIFORNIA

**GROUNDWATER ANALYTICAL SUMMARY**  
 1st QUARTER 2005

FIGURE  
**3**

PROJECT NO.  
 2007-0057-01

**APPENDIX A**  
**FIELD DATA SHEETS**



Global ID: T0600101808  
 Site Address 10700 Macarthur Blvd  
 City Oakland, CA  
 Sampled By: Vince Zalutka

Site Number USA 57  
 Project No U 57  
 Project PM  
 Date 01/19/05

**ORIGINAL**

Water Level Data					Purge Volume Calculations					Well Purge Method				Sample Record			Field Data
Well ID	Time	Depth to water feet	Top of Screen feet	Total Depth of well feet	Casing Water Column (A)	Well Diameter (Inches)	Multiplier Value (B)	Three Casing Volumes (Gallons)	Actual Water Purged (Gallons)	No Purge	Bailer	Pump	Other	DTW At Sample Time	Sample I.D.	Sample time	Dissolved Oxygen (mg/L)
MW-3	0523	13.28		42.8	29.52	4	2	60	60			X		34.65	MW-3	0935	1.15
MW-4	0527	10.34		42.45	32.11	4	2	64	64			X		34.86	MW-4	0800	6.36
MW-5	Damaged	—	—	37.6	N/A	4	2	N/A	—	X				—	MW-5	—	—
MW-6	DRY	—	—	17.5	N/A	4	2	N/A	—	X				—	MW-6	—	—
MW-7	0530	19.59		41.85	22.26	4	2	44	44			X		25.78	MW-7	0703	2.82
MW-8	0510	17.20		37.7	20.5	4	2	41	20			X	DRY	34.31	MW-8	1048	4.60
S-1	0517	18.12		40.8	22.68	3	1	22.5	22.5			X	DRY	18.60	S-1	1033	2.84
S-2	0533	20.33		42.85	22.52	3	1	22.5	22.5			X	DRY	20.82	S-2	1015	1.83

★  
 Obstructed  
 see 2/19/05

(A) Casing water Column  
 Depth wtr. Depth to Bottom

Multiplier Values  
 2" = 0.5 3" = 1.0 4" = 2.0 6" = 4.4

★ MW-3 was missing a cover & cap - completely open to the environment. I installed 4" cap/back



Site Address 10700 Macarthur Blvd  
 City Oakland, CA  
 Sampled By: Vince Zalutka

Site Number USA 57  
 Project No U 57  
 Project PM 0  
 Date 01/19/05

**ORIGINAL**

Well ID MW-3 0935					Well ID MW-4 0800				
purge start time 0847 No Odor					purge start time 0719 No Odor				
	Temp C	pH	cond	gallons		Temp C	pH	cond	gallons
time	19.5	6.92	288	Q	time	20.1	6.94	486	Q
time	20.8	6.72	124.5	30	time	21.2	6.63	591	32
time	18.8	7.16	203	60	time	19.5	7.00	673	64
time					time				
purge stop time Pump Stopped - End Time 0924					purge stop time 0745				
Well ID MW-5					Well ID <sup>9c 2/22/05</sup> Obstructed MW-6				
purge start time BROKEN WELL					purge start time DRY WELL				
	Temp C	pH	cond	gallons		Temp C	pH	cond	gallons
time					time				
time					time				
time					time				
time					time				
purge stop time					purge stop time				
Well ID MW-7 0703					Well ID MW-8 1048				
Purge start time 0628 ODDOR					Purge start time 0952 No Odor				
	Temp C	pH	cond	gallons		Temp C	pH	cond	gallons
time	19.5	6.73	936	Q	time	19.3	6.45	590	Q
time	20.3	6.73	886	20	time	20.1	6.38	618	20
time	18.2	6.66	946	44	time	DRY @ 20 gal			
time					time	18.3	6.20	603	20
purge stop time 0647					purge stop time N/A DRY				
Well ID S-1 1033					Well ID S-2 1015				
purge start time 0828 No Odor					purge start time 0601 ODDOR				
	Temp C	pH	cond	gallons		Temp C	pH	cond	gallons
time	18.8	6.25	898	Q	time	19.9	5.77	922	Q
time	DRY @		11 gal		time	19.9	5.84	914	11
time	19.1	6.21	584	11	time	DRY @ 12 gal			
time					time	20.1	6.31	572	12
purge stop time					purge stop time				

**APPENDIX B**

**SAMPLING AND ANALYSIS PROCEDURES**



## **SAMPLING AND ANALYSIS PROCEDURES**

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The sampling and analysis procedures as well as the quality assurance plan are contained in this appendix. The procedures and adherence to the quality assurance plan will provide for consistent and reproducible sampling methods; proper application of analytical methods; accurate and precise analytical results; and finally, these procedures will provide guidelines so that the overall objectives of the monitoring program are achieved.

### **Ground Water and Liquid-Phase Petroleum Hydrocarbon Depth Assessment**

A water/hydrocarbon interface probe is used to assess the liquid-phase petroleum hydrocarbon (LPH) thickness, if present, and a water level indicator is used to measure the ground water depth in monitoring wells that do not contain LPH. Depth to ground water or LPH is measured from a datum point at the top of each monitoring well casing. The datum point is typically a notch cut in the north side of the casing edge. If a water level indicator is used, the tip is subjectively analyzed for hydrocarbon sheen.

### **Subjective Analysis of Ground Water**

Prior to purging, a water sample is collected from the monitoring well for subjective assessment. The sample is retrieved by gently lowering a clean, disposable bailer to approximately one-half the bailer length past the air/liquid interface. The bailer is then retrieved, and the sample contained within the bailer is examined for floating LPH and the appearance of a LPH sheen.

### **Monitoring Well Purging and Sampling**

Monitoring wells are purged using a pump or bailer until pH, temperature, and conductivity of the purge water has stabilized and a minimum of three well volumes of water have been removed. If three well volumes can not be removed in one half hour's time the well is allowed to recharge to 80% of original level. After recharging, a ground water sample is then removed from each of the wells using a disposable bailer.

A Teflon bailer, electric submersible or bladder pump will be the only equipment used for well sampling. When samples for volatile organic analysis are being collected, the pump flow will be regulated at approximately 100 milliliters per minute to minimize pump effluent turbulence and aeration. Glass bottles of at least 40-milliliters volume and fitted with Teflon-lined septa will be used in sampling for volatile organics. These bottles will be filled completely to prevent air from remaining in the bottle. A positive meniscus forms when the bottle is completely full. A convex Teflon septum will be placed over the positive meniscus to eliminate air. After the bottle is capped, it is inverted and tapped to verify that it contains no air bubbles. The sample containers for other parameters will be filled, filtered as required, and capped.



The water sample is collected, labeled, and handled according to the Quality Assurance Plan. Water generated during the monitoring event is disposed of according to regulatory accepted method pertaining to the site.

## **QUALITY ASSURANCE PLAN**

Procedures to provide data quality should be established and documented so that conditions adverse to quality, such as deficiencies, deviations, nonconformants, defective material, services, and/or equipment, can be promptly identified and corrected.

### **General Sample Collection and Handling Procedures**

Proper collection and handling are essential to ensure the quality of a sample. Each sample is collected in a suitable container, preserved correctly for the intended analysis, and stored prior to analysis for no longer than the maximum allowable holding time. Details on the procedures for collection and handling of samples used on this project can be found in this section.

### **Soil and Water Sample Labeling and Preservation**

Label information includes a unique sample identification number, job identification number, date, and time. After labeling all soil and water samples are placed in a Ziploc<sup>®</sup> type bag and placed in an ice chest cooled to approximately 4° Celsius. Upon arriving at Stratus' office the samples are transferred to a locked refrigerator cooled to approximately 4° Celsius. Chemical preservation is controlled by the required analysis and is noted on the chain-of-custody form. Trip blanks supplied by the laboratory accompany the groundwater sample containers and groundwater samples.

Upon recovery, the sample container is sealed to minimize the potential of volatilization and cross-contamination prior to chemical analysis. Soil sampling tubes are typically closed at each end with Teflon<sup>®</sup> sheeting and plastic caps. The sample is then placed in a Ziploc<sup>®</sup> type bag and sealed. The sample is labeled and refrigerated at approximately 4° Celsius for delivery, under strict chain-of-custody, to the analytical laboratory.

### **Sample Identification and Chain-of-Custody Procedures**

Sample identification and chain-of-custody procedures document sample possession from the time of collection to ultimate disposal. Each sample container submitted for analysis has a label affixed to identify the job number, sampler, date and time of sample collection, and a sample number unique to that sample. This information, in addition to a description of the sample, field measurements made, sampling methodology, names of on-site personnel, and any other pertinent field observations, is recorded on the borehole log or in the field records. The samples are analyzed by a California-certified laboratory.

A chain-of-custody form is used to record possession of the sample from time of collection to its arrival at the laboratory. When the samples are shipped, the person in custody of them relinquishes the samples by signing the chain-of-custody form and

noting the time. The sample-control officer at the laboratory verifies sample integrity and confirms that the samples are collected in the proper containers, preserved correctly, and contain adequate volumes for analysis. These conditions are noted on a Laboratory Sample Receipt Checklist that becomes part of the laboratory report upon request.

If these conditions are met, each sample is assigned a unique log number for identification throughout analysis and reporting. The log number is recorded on the chain-of-custody form and in the legally-required log book maintained by the laboratory. The sample description, date received, client's name, and other relevant information is also recorded.

### **Equipment Cleaning**

Sample bottles, caps, and septa used in sampling for volatile and semivolatile organics will be triple rinsed with high-purity deionized water. After being rinsed, sample bottles will be dried overnight at a temperature of 200°C. Sample caps and septa will be dried overnight at a temperature of 60°C. Sample bottles, caps, and septa will be protected from solvent contact between drying and actual use at the sampling site. Sampling containers will be used only once and discarded after analysis is complete.

Plastic bottles and caps used in sampling for metals will be soaked overnight in a 1-percent nitric acid solution. Next, the bottles and caps will be triple rinsed with deionized water. Finally, the bottles and caps will be air dried before being used at the site. Plastic bottles and caps will be constructed of linear polyethylene or polypropylene. Sampling containers will be used only once and discarded after analysis is complete. Glass and plastic bottles used by Stratus to collect groundwater samples are supplied by the laboratory.

Before the sampling event is started, equipment that will be placed in the well or will come in contact with groundwater will be disassembled and cleaned thoroughly with detergent water, and then steam cleaned with deionized water. Any parts that may absorb contaminants, such as plastic pump valves, etc. will be cleaned as described above or replaced.

During field sampling, equipment surfaces that are placed in the well or contact groundwater will be steam cleaned with deionized water before the next well is purged or sampled. Equipment blanks will be collected and analyzed from non-disposable sampling equipment that is used for collecting groundwater samples at the rate of one blank per twenty samples collected.

### **Internal Quality Assurance Checks**

Internal quality assurance procedures are designed to provide reliability of monitoring and measurement of data. Both field and laboratory quality assurance checks are necessary to evaluate the reliability of sampling and analysis results. Internal quality assurance procedures generally include:

#### - Laboratory Quality Assurance

- Documentation of instrument performance checks
- Documentation of instrument calibration
- Documentation of the traceability of instrument standards, samples, and data
- Documentation of analytical and QC methodology (QC methodology includes use of spiked samples, duplicate samples, split samples, use of reference blanks, and check standards to check method accuracy and precision)

#### - Field Quality Assurance

- Documentation of sample preservation and transportation
- Documentation of field instrument calibration and irregularities in performance

Internal laboratory quality assurance checks will be the responsibility of the contract laboratories. Data and reports submitted by field personnel and the contract laboratory will be reviewed and maintained in the project files.

#### **Types of Quality Control Checks**

Samples are analyzed using analytical methods outlined in EPA Manual SW 846 and approved by the California Regional Water Quality Control Board-Central Valley Region in the Leaking Underground Fuel Tanks (LUFT) manual and appendices. Standard contract laboratory quality control may include analysis or use of the following:

- Method blanks – reagent water used to prepare calibration standards, spike solutions, etc. is analyzed in the same manner as the sample to demonstrate that analytical interferences are under control.
- Matrix spiked samples – a known amount of spike solution containing selected constituents is added to the sample at concentrations at which the accuracy of the analytical method is to satisfactorily monitor and evaluate laboratory data quality.
- Split samples – a sample is split into two separate aliquots before analysis to assess the reproducibility of the analysis.
- Surrogate samples – samples are spiked with surrogate constituents at known concentrations to monitor both the performance of the analytical system and the effectiveness of the method in dealing with the sample matrix.
- Control charts – graphical presentation of spike or split sample results used to track the accuracy or precision of the analysis.
- Quality control check samples – when spiked sample analysis indicates atypical instrument performance, a quality check sample, which is prepared independently of the calibration standards and contains the constituents of interest, is analyzed to confirm that measurements were performed accurately.

- Calibration standards and devices – traceable standards or devices to set instrument response so that sample analysis results represent the absolute concentration of the constituent.

Field QA samples will be collected to assess sample handling procedures and conditions. Standard field quality control may include the use of the following, and will be collected and analyzed as outlined in EPA Manual SW 846.

- Field blanks – reagent water samples are prepared at the sampling location by the same procedure used to collect field groundwater samples and analyzed with the groundwater samples to assess the impact of sampling techniques on data quality. Typically, one field blank per twenty groundwater samples collected will be analyzed per sampling event.
- Field replicates – duplicate or triplicate samples are collected and analyzed to assess the reproducibility of the analytical data. One replicate groundwater sample per twenty samples collected will be analyzed per sampling event, unless otherwise specified. Triplicate samples will be collected only when specific conditions warrant and generally are sent to an alternate laboratory to confirm the accuracy of the routinely used laboratory.
- Trip blanks – reagent water samples are prepared before field work, transported and stored with the samples and analyzed to assess the impact of sample transport and storage for data quality. In the event that any analyte is detected in the field blank, a trip blank will be included in the subsequent groundwater sampling event.

Data reliability will be evaluated by the certified laboratory and reported on a cover sheet attached to the laboratory data report. Analytical data resulting from the testing of field or trip blanks will be included in the laboratory's report. Results from matrix spike, surrogate, and method blank testing will be reported, along with a statement of whether the samples were analyzed within the appropriate holding time.

Stratus will evaluate the laboratory's report on data reliability and note significant QC results that may make the data biased or unacceptable. Data viability will be performed as outlined in EPA Manual SW 846. If biased or unacceptable data is noted, corrective actions (including re-sample/re-analyze, etc.) will be evaluated on a site-specific basis.

**APPENDIX C**

**CERTIFIED ANALYTICAL REPORTS AND  
CHAIN-OF-CUSTODY DOCUMENTATION**



# Alpha Analytical, Inc.

COPY

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778  
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

## ANALYTICAL REPORT

Stratus Environmental  
3330 Cameron Park Drive  
Cameron Park, CA 956828861

Attn: Gowri Kowtha  
Phone: (530) 676-6002  
Fax: (530) 676-6005  
Date Received 01/21/05

FEB 07 2005

Job#: USA 57

GC/MSD by Direct Injection  
EPA Method SW8260B-DI

Client ID	Lab ID	Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID : MW-3						
Lab ID : STR05012163-01A		Methanol	ND	5,000 µg/L	01/19/05	01/23/05
		Ethanol	ND	5,000 µg/L	01/19/05	01/23/05
Client ID : MW-4						
Lab ID : STR05012163-02A		Methanol	ND	5,000 µg/L	01/19/05	01/23/05
		Ethanol	ND	5,000 µg/L	01/19/05	01/23/05
Client ID : MW-7						
Lab ID : STR05012163-03A		Methanol	ND	5,000 µg/L	01/19/05	01/23/05
		Ethanol	ND	5,000 µg/L	01/19/05	01/23/05
Client ID : MW-8						
Lab ID : STR05012163-04A		Methanol	ND	5,000 µg/L	01/19/05	01/23/05
		Ethanol	ND	5,000 µg/L	01/19/05	01/23/05
Client ID : S-1						
Lab ID : STR05012163-05A		Methanol	ND	5,000 µg/L	01/19/05	01/23/05
		Ethanol	ND	5,000 µg/L	01/19/05	01/23/05
Client ID : S-2						
Lab ID : STR05012163-06A		Methanol	ND	5,000 µg/L	01/19/05	01/23/05
		Ethanol	ND	5,000 µg/L	01/19/05	01/23/05

Reported in micrograms per liter, per client request.

ND = Not Detected

*Roger Scholl*

*Randy Gardner*

*Walter Hinchman*

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / info@alpha-analytical.com

*[Signature]*

1/28/05

Report Date



# Alpha Analytical, Inc.

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## ANALYTICAL REPORT

Stratus Environmental  
3330 Cameron Park Drive  
Cameron Park, CA 956828861

Attn: Gowri Kowtha  
Phone: (530) 676-6002  
Fax: (530) 676-6005  
Date Received 01/21/05

Job#: USA 57

Total Petroleum Hydrocarbons - Purgeable (TPH-P) EPA Method SW8015B/DHS LUFT Manual  
Volatile Organic Compounds (VOCs) EPA Method SW8260B

	Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID :	TPH Purgeable	92	50 µg/L	01/19/05	01/25/05
MW-3	Tertiary Butyl Alcohol (TBA)	19	10 µg/L	01/19/05	01/25/05
Lab ID :	Methyl tert-butyl ether (MTBE)	17	0.50 µg/L	01/19/05	01/25/05
STR05012163-01A	Di-isopropyl Ether (DIPE)	ND	1.0 µg/L	01/19/05	01/25/05
	Ethyl Tertiary Butyl Ether (ETBE)	ND	1.0 µg/L	01/19/05	01/25/05
	1,2-Dichloroethane	1.4	1.0 µg/L	01/19/05	01/25/05
	Benzene	18	0.50 µg/L	01/19/05	01/25/05
	Tertiary Amyl Methyl Ether (TAME)	ND	1.0 µg/L	01/19/05	01/25/05
	Toluene	ND	0.50 µg/L	01/19/05	01/25/05
	1,2-Dibromoethane (EDB)	ND	2.0 µg/L	01/19/05	01/25/05
	Ethylbenzene	0.77	0.50 µg/L	01/19/05	01/25/05
	m,p-Xylene	ND	0.50 µg/L	01/19/05	01/25/05
	o-Xylene	ND	0.50 µg/L	01/19/05	01/25/05
Client ID :	TPH Purgeable	ND	50 µg/L	01/19/05	01/25/05
MW-4	Tertiary Butyl Alcohol (TBA)	ND	10 µg/L	01/19/05	01/25/05
Lab ID :	Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	01/19/05	01/25/05
STR05012163-02A	Di-isopropyl Ether (DIPE)	ND	1.0 µg/L	01/19/05	01/25/05
	Ethyl Tertiary Butyl Ether (ETBE)	ND	1.0 µg/L	01/19/05	01/25/05
	1,2-Dichloroethane	ND	1.0 µg/L	01/19/05	01/25/05
	Benzene	ND	0.50 µg/L	01/19/05	01/25/05
	Tertiary Amyl Methyl Ether (TAME)	ND	1.0 µg/L	01/19/05	01/25/05
	Toluene	ND	0.50 µg/L	01/19/05	01/25/05
	1,2-Dibromoethane (EDB)	ND	2.0 µg/L	01/19/05	01/25/05
	Ethylbenzene	ND	0.50 µg/L	01/19/05	01/25/05
	m,p-Xylene	ND	0.50 µg/L	01/19/05	01/25/05
	o-Xylene	ND	0.50 µg/L	01/19/05	01/25/05
Client ID :	TPH Purgeable	ND	50 µg/L	01/19/05	01/25/05
MW-7	Tertiary Butyl Alcohol (TBA)	ND	10 µg/L	01/19/05	01/25/05
Lab ID :	Methyl tert-butyl ether (MTBE)	1.5	0.50 µg/L	01/19/05	01/25/05
STR05012163-03A	Di-isopropyl Ether (DIPE)	ND	1.0 µg/L	01/19/05	01/25/05
	Ethyl Tertiary Butyl Ether (ETBE)	ND	1.0 µg/L	01/19/05	01/25/05
	1,2-Dichloroethane	ND	1.0 µg/L	01/19/05	01/25/05
	Benzene	ND	0.50 µg/L	01/19/05	01/25/05
	Tertiary Amyl Methyl Ether (TAME)	ND	1.0 µg/L	01/19/05	01/25/05
	Toluene	ND	0.50 µg/L	01/19/05	01/25/05
	1,2-Dibromoethane (EDB)	ND	2.0 µg/L	01/19/05	01/25/05
	Ethylbenzene	ND	0.50 µg/L	01/19/05	01/25/05
	m,p-Xylene	ND	0.50 µg/L	01/19/05	01/25/05
	o-Xylene	ND	0.50 µg/L	01/19/05	01/25/05



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Client ID :	TPH Purgeable	ND	50 µg/L	01/19/05	01/25/05
MW-8	Tertiary Butyl Alcohol (TBA)	ND	10 µg/L	01/19/05	01/25/05
Lab ID :	Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	01/19/05	01/25/05
STR05012163-04A	Di-isopropyl Ether (DIPE)	ND	1.0 µg/L	01/19/05	01/25/05
	Ethyl Tertiary Butyl Ether (ETBE)	ND	1.0 µg/L	01/19/05	01/25/05
	1,2-Dichloroethane	ND	1.0 µg/L	01/19/05	01/25/05
	Benzene	ND	0.50 µg/L	01/19/05	01/25/05
	Tertiary Amyl Methyl Ether (TAME)	ND	1.0 µg/L	01/19/05	01/25/05
	Toluene	ND	0.50 µg/L	01/19/05	01/25/05
	1,2-Dibromoethane (EDB)	ND	2.0 µg/L	01/19/05	01/25/05
	Ethylbenzene	ND	0.50 µg/L	01/19/05	01/25/05
	m,p-Xylene	ND	0.50 µg/L	01/19/05	01/25/05
	o-Xylene	ND	0.50 µg/L	01/19/05	01/25/05
Client ID :	TPH Purgeable	440	50 µg/L	01/19/05	01/25/05
S-1	Tertiary Butyl Alcohol (TBA)	14	10 µg/L	01/19/05	01/25/05
Lab ID :	Methyl tert-butyl ether (MTBE)	140	0.50 µg/L	01/19/05	01/25/05
STR05012163-05A	Di-isopropyl Ether (DIPE)	ND	1.0 µg/L	01/19/05	01/25/05
	Ethyl Tertiary Butyl Ether (ETBE)	ND	1.0 µg/L	01/19/05	01/25/05
	1,2-Dichloroethane	3.8	1.0 µg/L	01/19/05	01/25/05
	Benzene	ND	0.50 µg/L	01/19/05	01/25/05
	Tertiary Amyl Methyl Ether (TAME)	ND	1.0 µg/L	01/19/05	01/25/05
	Toluene	ND	0.50 µg/L	01/19/05	01/25/05
	1,2-Dibromoethane (EDB)	ND	2.0 µg/L	01/19/05	01/25/05
	Ethylbenzene	1.4	0.50 µg/L	01/19/05	01/25/05
	m,p-Xylene	ND	0.50 µg/L	01/19/05	01/25/05
	o-Xylene	ND	0.50 µg/L	01/19/05	01/25/05
Client ID :	TPH Purgeable	17,000	500 µg/L	01/19/05	01/25/05
S-2	Tertiary Butyl Alcohol (TBA)	200	50 µg/L	01/19/05	01/25/05
Lab ID :	Methyl tert-butyl ether (MTBE)	580	2.5 µg/L	01/19/05	01/25/05
STR05012163-06A	Di-isopropyl Ether (DIPE)	ND	V	5.0 µg/L	01/19/05
	Ethyl Tertiary Butyl Ether (ETBE)	ND	V	5.0 µg/L	01/19/05
	1,2-Dichloroethane	8.2	5.0 µg/L	01/19/05	01/25/05
	Benzene	590	2.5 µg/L	01/19/05	01/25/05
	Tertiary Amyl Methyl Ether (TAME)	ND	V	5.0 µg/L	01/19/05
	Toluene	150	2.5 µg/L	01/19/05	01/25/05
	1,2-Dibromoethane (EDB)	ND	V	20 µg/L	01/19/05
	Ethylbenzene	250	2.5 µg/L	01/19/05	01/25/05
	m,p-Xylene	710	2.5 µg/L	01/19/05	01/25/05
	o-Xylene	280	2.5 µg/L	01/19/05	01/25/05

Reported in micrograms per liter, per client request.

V = Reporting Limits were increased due to high concentrations of target analytes.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
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1/28/05

Report Date





# Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

## VOC pH Report

Work Order STR05012163

Project: USA 57

Alpha's Sample ID	Client's Sample ID	Matrix	pH
05012163-01A	MW-3	Aqueous	2
05012163-02A	MW-4	Aqueous	2
05012163-03A	MW-7	Aqueous	2
05012163-04A	MW-8	Aqueous	2
05012163-05A	S-1	Aqueous	4
05012163-06A	S-2	Aqueous	2

1/28/05  
Report Date



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Date:  
31-Jan-05

## QC Summary Report

Work Order:  
05012163

### Method Blank

Type **MBLK** Test Code: **EPA Method SW8260B-DI**

File ID: C:\HPCHEM\MS11\DATA\050123\05012391.D

Batch ID: **11545**

Analysis Date: **01/23/2005 19:35**

Sample ID: **MBLK-11545**

Units : **µg/L**

Run ID: **MSD\_11\_050123A**

Prep Date: **01/23/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Methanol	ND	5000								
Ethanol	ND	5000								
Surr: Hexafluoro-2-propanol	456		500		91	69	135			

### Laboratory Control Spike

Type **LCS** Test Code: **EPA Method SW8260B-DI**

File ID: C:\HPCHEM\MS11\DATA\050123\05012304.D

Batch ID: **11545**

Analysis Date: **01/23/2005 18:15**

Sample ID: **LCS-11545**

Units : **µg/L**

Run ID: **MSD\_11\_050123A**

Prep Date: **01/23/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Methanol	263	50	250		105	51	161			
Ethanol	253	5	250		101	47	137			
Surr: Hexafluoro-2-propanol	491		500		98	69	135			

### Sample Matrix Spike

Type **MS** Test Code: **EPA Method SW8260B-DI**

File ID: C:\HPCHEM\MS11\DATA\050123\05012306.D

Batch ID: **11545**

Analysis Date: **01/23/2005 18:55**

Sample ID: **05012164-02AMS**

Units : **µg/L**

Run ID: **MSD\_11\_050123A**

Prep Date: **01/23/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Methanol	237	50	250		0 95	51	161			
Ethanol	232	5	250		0 93	47	137			
Surr: Hexafluoro-2-propanol	464		500		93	69	135			

### Sample Matrix Spike Duplicate

Type **MSD** Test Code: **EPA Method SW8260B-DI**

File ID: C:\HPCHEM\MS11\DATA\050123\05012307.D

Batch ID: **11545**

Analysis Date: **01/23/2005 19:15**

Sample ID: **05012164-02AMSD**

Units : **µg/L**

Run ID: **MSD\_11\_050123A**

Prep Date: **01/23/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Methanol	228	50	250		0 91	51	161	237.5	4.2(39)	
Ethanol	232	5	250		0 93	47	137	232.3	0.3(34)	
Surr: Hexafluoro-2-propanol	467		500		93	69	135			

### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Reported in micrograms per liter, per client request.



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Date:  
31-Jan-05

## QC Summary Report

Work Order:  
05012163

### Method Blank

Type **MBLK** Test Code: **EPA Method SW8015B/DHS LUFT Manual**

File ID: **D:\MSDCHEM\MS12\DATA\050125\05012506.D**

Batch ID: **MS12W0125B**

Analysis Date: **01/25/2005 10:15**

Sample ID: **MBLK MS12W0125B**

Units: **µg/L**

Run ID: **MSD\_12\_050125A**

Prep Date: **01/25/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	ND	50								
Surr: 1,2-Dichloroethane-d4	9.56		10		96	76	128			
Surr: Toluene-d8	9.19		10		92	84	113			
Surr: 4-Bromofluorobenzene	9.31		10		93	79	119			

### Laboratory Control Spike

Type **LCS** Test Code: **EPA Method SW8015B/DHS LUFT Manual**

File ID: **D:\MSDCHEM\MS12\DATA\050125\05012504.D**

Batch ID: **MS12W0125B**

Analysis Date: **01/25/2005 09:33**

Sample ID: **GLCS MS12W0125B**

Units: **µg/L**

Run ID: **MSD\_12\_050125A**

Prep Date: **01/25/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	410	50	400		102	78	127			
Surr: 1,2-Dichloroethane-d4	9.07		10		91	76	128			
Surr: Toluene-d8	9.41		10		94	84	113			
Surr: 4-Bromofluorobenzene	9.77		10		98	79	119			

### Sample Matrix Spike

Type **MS** Test Code: **EPA Method SW8015B/DHS LUFT Manual**

File ID: **D:\MSDCHEM\MS12\DATA\050125\05012509.D**

Batch ID: **MS12W0125B**

Analysis Date: **01/25/2005 11:19**

Sample ID: **05012127-01AGS**

Units: **µg/L**

Run ID: **MSD\_12\_050125A**

Prep Date: **01/25/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	2290	250	2000		0	115	70	139		
Surr: 1,2-Dichloroethane-d4	49.5		50		99	76	128			
Surr: Toluene-d8	46.4		50		93	84	113			
Surr: 4-Bromofluorobenzene	47.5		50		95	79	119			

### Sample Matrix Spike Duplicate

Type **MSD** Test Code: **EPA Method SW8015B/DHS LUFT Manual**

File ID: **D:\MSDCHEM\MS12\DATA\050125\05012510.D**

Batch ID: **MS12W0125B**

Analysis Date: **01/25/2005 11:41**

Sample ID: **05012127-01AGSD**

Units: **µg/L**

Run ID: **MSD\_12\_050125A**

Prep Date: **01/25/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	2200	250	2000		0	110	70	139	2292	4.0(12)
Surr: 1,2-Dichloroethane-d4	48.1		50		96	76	128			
Surr: Toluene-d8	47		50		94	84	113			
Surr: 4-Bromofluorobenzene	47.8		50		96	79	119			

### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Reported in micrograms per liter, per client request.



# Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778  
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:  
31-Jan-05

## OC Summary Report

Work Order:  
05012163

### Method Blank

Type **MBLK** Test Code: **EPA Method SW8260B**

File ID: **D:\MSDCHEM\MS12\DATA\050125\05012506.D**

Batch ID: **MS12W0125A**

Analysis Date: **01/25/2005 10:15**

Sample ID: **MBLK MS12W0125A**

Units: **µg/L**

Run ID: **MSD\_12\_050125A**

Prep Date: **01/25/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Tertiary Butyl Alcohol (TBA)	ND	10								
Methyl tert-butyl ether (MTBE)	ND	0.5								
Di-isopropyl Ether (DIPE)	ND	1								
Ethyl Tertiary Butyl Ether (ETBE)	ND	1								
1,2-Dichloroethane	ND	1								
Benzene	ND	0.5								
Tertiary Amyl Methyl Ether (TAME)	ND	1								
Toluene	ND	0.5								
1,2-Dibromoethane (EDB)	ND	2								
Ethylbenzene	ND	0.5								
m,p-Xylene	ND	0.5								
o-Xylene	ND	0.5								
Surr: 1,2-Dichloroethane-d4	9.56		10		96	76	127			
Surr: Toluene-d8	9.19		10		92	84	113			
Surr: 4-Bromofluorobenzene	9.31		10		93	79	119			

### Laboratory Control Spike

Type **LCS** Test Code: **EPA Method SW8260B**

File ID: **D:\MSDCHEM\MS12\DATA\050125\05012505.D**

Batch ID: **MS12W0125A**

Analysis Date: **01/25/2005 09:54**

Sample ID: **LCS MS12W0125A**

Units: **µg/L**

Run ID: **MSD\_12\_050125A**

Prep Date: **01/25/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Benzene	9.92	0.5	10		99	81	122			
Toluene	9.09	0.5	10		91	80	120			
Ethylbenzene	9.44	0.5	10		94	80	120			
m,p-Xylene	9.5	0.5	10		95	80	129			
o-Xylene	9.84	0.5	10		98	80	129			
Surr: 1,2-Dichloroethane-d4	9.45		10		95	76	127			
Surr: Toluene-d8	9.48		10		95	84	113			
Surr: 4-Bromofluorobenzene	9.73		10		97	79	119			

### Sample Matrix Spike

Type **MS** Test Code: **EPA Method SW8260B**

File ID: **D:\MSDCHEM\MS12\DATA\050125\05012507.D**

Batch ID: **MS12W0125A**

Analysis Date: **01/25/2005 10:37**

Sample ID: **05012127-01AMS**

Units: **µg/L**

Run ID: **MSD\_12\_050125A**

Prep Date: **01/25/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Benzene	50.5	1.3	50	0	101	74	124			
Toluene	47.2	1.3	50	0	94	76	119			
Ethylbenzene	48.4	1.3	50	0	97	77	124			
m,p-Xylene	48.7	1.3	50	0	97	73	130			
o-Xylene	50.4	1.3	50	0	101	74	131			
Surr: 1,2-Dichloroethane-d4	47.9		50		96	76	127			
Surr: Toluene-d8	47.9		50		96	84	113			
Surr: 4-Bromofluorobenzene	48.6		50		97	79	119			

### Sample Matrix Spike Duplicate

Type **MSD** Test Code: **EPA Method SW8260B**

File ID: **D:\MSDCHEM\MS12\DATA\050125\05012508.D**

Batch ID: **MS12W0125A**

Analysis Date: **01/25/2005 10:58**

Sample ID: **05012127-01AMSD**

Units: **µg/L**

Run ID: **MSD\_12\_050125A**

Prep Date: **01/25/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Benzene	49.8	1.3	50	0	99.7	74	124	50.46	1.3(13)	
Toluene	46.4	1.3	50	0	93	76	119	47.16	1.7(13)	
Ethylbenzene	47.8	1.3	50	0	96	77	124	48.38	1.2(13)	
m,p-Xylene	47.9	1.3	50	0	96	73	130	48.67	1.6(14)	
o-Xylene	49.7	1.3	50	0	99	74	131	50.41	1.5(13)	
Surr: 1,2-Dichloroethane-d4	47.5		50		95	76	127			
Surr: Toluene-d8	47.7		50		95	84	113			
Surr: 4-Bromofluorobenzene	49.2		50		98	79	119			



# Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:

31-Jan-05

## OC Summary Report

Work Order:

05012163

Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Billing Information :

# CHAIN-OF-CUSTODY RECORD

# CA

## Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406

### WorkOrder : STR05012163

### Report Due By : 5:00 PM On : 31-Jan-05

**Client:**

Stratus Environmental  
3330 Cameron Park Drive  
Suite 550  
Cameron Park, CA 95682-8861

Gowri Kowtha

TEL : (530) 676-6002  
FAX : (530) 676-6005  
EMail

EDD Required : Yes PDF Required : No

Sampled by : Vince Z

**Report Attention :** Gowri Kowtha

Job : USA 57

**CC Report :**

PO :

Client's COC # : 05740

Cooler Temp : 4 °C

21-Jan-05

QC Level : S3 = Final Rpt, MBLK, LCS, MS/MSD With Surrogates

Alpha Sample ID	Client Sample ID	Collection Matrix	Collection Date	No. of Bottles			ALCOHOL_W	TPHP_W	VOC_W	Requested Tests	Sample Remarks
				ORG	SUB	TAT					
STR05012163-01A	MW-3	AQ	01/19/05 09:35	5	0	6	MeOH, EtOH	GAS-C	BTXE,OXY S,EDB,1,2- DCA		
STR05012163-02A	MW-4	AQ	01/19/05 08:00	5	0	6	MeOH, EtOH	GAS-C	BTXE,OXY S,EDB,1,2- DCA		
STR05012163-03A	MW-7	AQ	01/19/05 07:03	5	0	6	MeOH, EtOH	GAS-C	BTXE,OXY S,EDB,1,2- DCA		
STR05012163-04A	MW-8	AQ	01/19/05 10:48	5	0	6	MeOH, EtOH	GAS-C	BTXE,OXY S,EDB,1,2- DCA		
STR05012163-05A	S-1	AQ	01/19/05 10:33	5	0	6	MeOH, EtOH	GAS-C	BTXE,OXY S,EDB,1,2- DCA		
STR05012163-06A	S-2	AQ	01/19/05 10:15	5	0	6	MeOH, EtOH	GAS-C	BTXE,OXY S,EDB,1,2- DCA		

Comments: Security seals. Frozen ice.:

Received by: *Latricia Edrosa* Signature: *Latricia Edrosa* Print Name: Latricia Edrosa Company: Alpha Analytical, Inc. Date/Time: 1/21/05 3:19pm

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report. Matrix Type : AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Billing Information :

# CHAIN-OF-CUSTODY RECORD

# CA

## Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406

### WorkOrder : STR05012163

### Report Due By : 5:00 PM On : 31-Jan-05

**Client:**

Stratus Environmental  
3330 Cameron Park Drive  
Suite 550  
Cameron Park, CA 95682-8861

Gowri Kowtha

TEL : (530) 676-6002  
FAX : (530) 676-6005  
EMail

EDD Required : Yes PDF Required : No

Sampled by : Vince Z

**Report Attention :** Gowri Kowtha

Job : USA 57

**CC Report :**

PO :

Client's COC # : 05740

Cooler Temp : 4 °C

21-Jan-05

QC Level : S3 = Final Rpt, MBLK, LCS, MS/MSD With Surrogates

Alpha Sample ID	Client Sample ID	Collection Matrix	Collection Date	No. of Bottles				ALCOHOL_W	TPHP_W	VOC_W	Requested Tests	Sample Remarks
				ORG	SUB	TAT	PWS #					
STR05012163-01A	MW-3	AQ	01/19/05 09:35	5	0	6	MeOH, EtOH	GAS-C	BTXE,OXY S,EDB,1,2- DCA			
STR05012163-02A	MW-4	AQ	01/19/05 08:00	5	0	6	MeOH, EtOH	GAS-C	BTXE,OXY S,EDB,1,2- DCA			
STR05012163-03A	MW-7	AQ	01/19/05 07:03	5	0	6	MeOH, EtOH	GAS-C	BTXE,OXY S,EDB,1,2- DCA			
STR05012163-04A	MW-8	AQ	01/19/05 10:48	5	0	6	MeOH, EtOH	GAS-C	BTXE,OXY S,EDB,1,2- DCA			
STR05012163-05A	S-1	AQ	01/19/05 10:33	5	0	6	MeOH, EtOH	GAS-C	BTXE,OXY S,EDB,1,2- DCA			
STR05012163-06A	S-2	AQ	01/19/05 10:15	5	0	6	MeOH, EtOH	GAS-C	BTXE,OXY S,EDB,1,2- DCA			

Comments: Security seals. Frozen ice.:

Received by: *Latricia Edrosa* Signature: *Latricia Edrosa* Print Name: Latricia Edrosa Company: Alpha Analytical, Inc. Date/Time: 1/21/05 3:19pm

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report. Matrix Type : AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

**Billing Information:**

Name Stratus Env. Inc.  
 Address 3330 Cameron Park Dr. #550  
 City, State, Zip CAMERON PARK, CA  
 Phone Number 530-676-6009 Fax 530-676-6005



**Alpha Analytical, Inc.**

255 Glendale Avenue, Suite 21  
 Sparks, Nevada 89431-5778  
 Phone (775) 355-1044  
 Fax (775) 355-0406

**Samples Collected From Which State?**

AZ  CA  NV  WA   
 ID  OR  OTHER  Page # 1 of 1

Analyses Required

05740

Client Name		P.O. #		Job #		Analyses Required						Required QC Level?					
USA 57						TPH6-BTEX	SOXYS	EDB	EDC	ETHANOL	METHANOL	I II III IV					
Address 10700 MacArthur Blvd		E-Mail Address										EDD / EDF? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>				Global ID # <u>TD600101808</u>	
City, State, Zip Oakland, CA		Phone #		Fax #													
Time Sampled	Date Sampled	Matrix* See Key Below	Office Use Only	Sampled by	Report Attention	TAT	Field Filtered	Total and type of containers ** See below		REMARKS							
0935	2005 0119	AQ	STRO5012163-01	Vince Z.		Std		5.0		X	X	X	X	X	X		
0900	0119		-02														
0703	0119		-03														
1048	0119		-04														
1033	0119		-05														
1015	0119	AQ	-06			Std		5.0		X	X	X	X	X	X		

**ADDITIONAL INSTRUCTIONS:**

Signature	Print Name	Company	Date	Time
<i>Vincent Zalutka</i>	Vincent Zalutka	Stratus Env., Inc.	1-20-05	12:10
<i>Lisa Brylow</i>	Lisa Brylow	ALPHA	1-20-05	12:10
<i>Laticia Edrosa</i>	Laticia Edrosa	Alpha	1-21-05	3:19pm

\*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other \*\*; L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other  
 NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.



**Billing Information:**

Name Stratus Env. Inc.  
 Address 3330 Cameron Park Dr. #550  
 City, State, Zip CAMERON PARK, CA  
 Phone Number 530-676-6009 Fax 530-676-6005



**Alpha Analytical, Inc.**  
 255 Glendale Avenue, Suite 21  
 Sparks, Nevada 89431-5778  
 Phone (775) 355-1044  
 Fax (775) 355-0406

**Samples Collected From Which State?**  
 AZ \_\_\_ CA  NV \_\_\_ WA \_\_\_  
 ID \_\_\_ OR \_\_\_ OTHER \_\_\_ Page # 1 of 1

Analyses Required 05740

Client Name		P.O. #		Job #		Analyses Required						Required QC Level?			
USA 57						TPH6-BTEX	SOX's	EDB	EDC	ETHANOL	METHANOL	I II III IV			
Address 10700 MacArthur Blvd		E-Mail Address										EDD / EDF? YES <input checked="" type="checkbox"/> NO			
City, State, Zip Oakland, CA		Phone #		Fax #								Global ID # <u>TD600101808</u>			
Time Sampled	Date Sampled	Matrix* See Key Below	Office Use Only	Sampled by	Report Attention	TAT	Field Filtered	Total and type of containers ** See below	REMARKS						
0935	2005 0119	AQ	STRO5012163-01	Vince Z.		std		5.0	X	X	X	X	X	X	
0900	0119		-02												
0703	0119		-03												
1048	0119		-04												
1033	0119		-05												
1015	0119	AQ	-06			std		5.0	X	X	X	X	X	X	

**ADDITIONAL INSTRUCTIONS:**

Signature	Print Name	Company	Date	Time
<i>Vincent Zalutka</i>	Vincent Zalutka	Stratus Env., Inc.	1-20-05	12:10
<i>Lisa Brylow</i>	Lisa Brylow	ALPHA	1-20-05	12:10
<i>Laticia Edrosa</i>	Laticia Edrosa	Alpha	1-21-05	3:19pm

\*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other \*\* L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other  
 NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.