

✓ No 232



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January 14, 2005  
Project No. 2007-0057-01

ALAMEDA COUNTY  
JAN 20 2005  
RECEIVED

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, Fourth Quarter 2004, for former USA Service Station No. 57, located at 10700 MacArthur Boulevard, Oakland, California


Dear Mr. Gholami:


Stratus Environmental, Inc. (Stratus) is submitting the attached report which presents the results of the fourth quarter 2004 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.

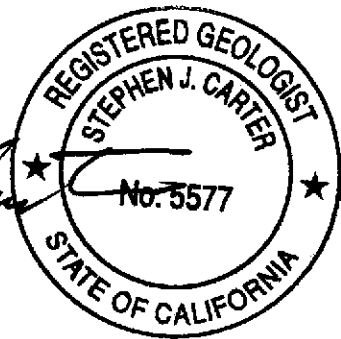
If you have any questions regarding this report, please contact Steve Carter at (530) 676-6008.

Sincerely,

STRATUS ENVIRONMENTAL, INC.

  
Gowri S. Kowtha, P.E.  
Senior Engineer

  
Stephen J. Carter, R.G.  
Project Manager



Attachment: Quarterly Groundwater Monitoring Report, Fourth Quarter 2004

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

Date January 14, 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, R.G.  
Consultant Project No: 2007-0057-01  
Primary Agency/Regulatory ID No: Amir Gholami, Alameda County Department of Environmental Health / 4490

### WORK PERFORMED THIS QUARTER (Fourth 2004):

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 November 11, 2004. Well MW-5 was damaged and well MW-6 was dry.
2. Stratus compiled and evaluated groundwater monitoring data.
3. Stratus prepared and submitted a *Dual Phase Extraction Test Report* (dated October 15, 2004).

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

1. The next sampling event is tentatively scheduled for February 2005. Groundwater samples will be collected for laboratory analysis from wells S-1, S-2, and MW-3 through MW-8.
2. 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.
3. Upon concurrence by ACEHD with the recommendations in the *Dual Phase Extraction Test Report*, Stratus will initiate the proposed interim remedial action.

Current Phase of Project:	<u>Monitoring</u>
Frequency of Groundwater Sampling:	<u>All Wells = Quarterly</u>
Frequency of Groundwater Monitoring:	<u>Quarterly</u>
Groundwater Sampling Date:	<u>November 11, 2004</u>
Is Free Product (FP) Present on Site:	<u>No</u>
FP Recovered This Quarter:	<u>NA</u>
Cumulative FP Recovered to Date:	<u>NA</u>
Approximate Depth to Groundwater:	<u>11.93 to 21.95 feet below top of well casing</u>
Groundwater Flow Direction:	<u>To the southeast, and away from a groundwater high centered around well MW-3</u>
Groundwater Gradient:	<u>0.048 to 0.071 ft/ft</u>

## DISCUSSION:

At the time of the fourth quarter 2004 monitoring event, groundwater elevations had decreased between 0.44 and 1.0 feet in wells S-1, S-2, MW-3, MW-7, and MW-8, and increased 0.69 feet in well MW-4 since the previous monitoring event (August 10, 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 on November 11, 2004, was generally to the southeast, and away from an apparent groundwater high centered around well MW-3. Gradients ranged from 0.048 to 0.071 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 also reported in well MW-7. The highest concentration of TPHG (20,000 µg/L) was reported in well S-2, and the highest concentrations of benzene (810 µg/L) and MTBE (690 µg/L) were reported in well MW-3. TBA was reported in wells S-1 (14 µg/L) and MW-3 (1,400 µg/L). 1,2-DCA was reported in wells S-1 (7.3 µg/L) and MW-3 (140 µg/L). DIPE, ETBE, TAME, EDB, methanol, or ethanol were not reported in any of the wells. Concentrations reported during the fourth quarter 2004 are generally consistent with historical analytical data. The laboratory noted that the pH in the samples for wells S-1, S-2, and MW-3 were above the EPA recommended limit of 2. As the reported results for these wells appear 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 November 11, 2004, 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 (Fourth Quarter 2004)
- Figure 3 Groundwater Analytical Summary (Fourth Quarter 2004)
- 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 Station No. 57

10700 MacArthur Blvd., Oakland, California

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater			Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total	
				Elevation (ft msl)	TPHG (µg/L)	TPHD (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	

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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-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	

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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-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		

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Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater							Total Xylenes (µg/L)	MTBE (µg/L)
				Elevation (ft msl)	TPHG (µg/L)	TPHD (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (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		

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Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater		TPHG (µg/L)	TPHD (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)
				Elevation (ft msl)								
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	<0.50
	08/10/04	18.58		61.94	89	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
11/11/04	NM	NM								Well Damaged		



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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-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		
	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								

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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-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	2.6
	04/08/04	17.28			62.53	<50	NA	<0.50	<0.50	<0.50	0.81
	08/10/04	18.85			60.96	<50	NA	<0.50	<0.50	<0.50	2.1
11/11/04	19.85			59.96	<50	NA	<0.50	<0.50	<0.50	1.0	

**TABLE 1**

**GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**

Former USA 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		

**TABLE 1**

**GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**

Former USA 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>msl = Mean sea level</p> <p>MTBE = Methyl tert-butyl ether</p> <p>µg/L = micrograms per liter</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>NA = Not analyzed</p> <p>NM = Not measured</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>											

**TABLE 2**

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

Former USA 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
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
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

**TABLE 2**

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

Former USA 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
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

**TABLE 2**

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

Former USA 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	04/08/04	Well Obstructed - Not Sampled								
	08/10/04	Dry - Not Sampled								
	11/11/04	Dry - 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
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

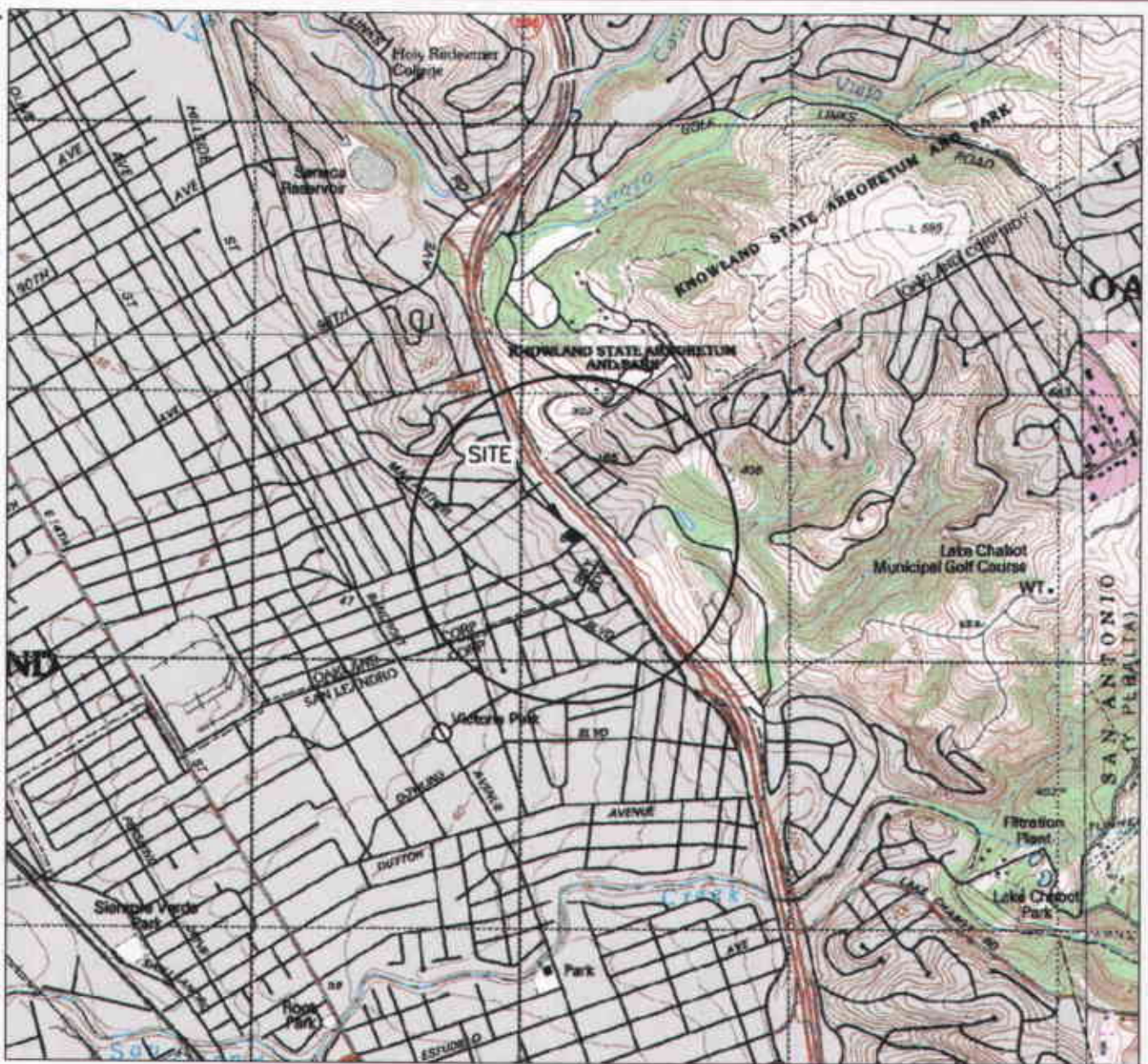
**TABLE 2**

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

Former USA 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)
<p><u>Note:</u>                      Oxygenates analyzed using EPA Method 8260B                      µg/L = micrograms per liter                      NA = Not analyzed</p> <p>[1] Reporting limits were increased due to high concentrations of target analytes                      [2] Reporting limits were increased due to sample foaming</p> <p>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</p>										





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, 2008  
 .JMP  
 USA3758a Quarterly

*STRATUS*  
 ENVIRONMENTAL, INC.

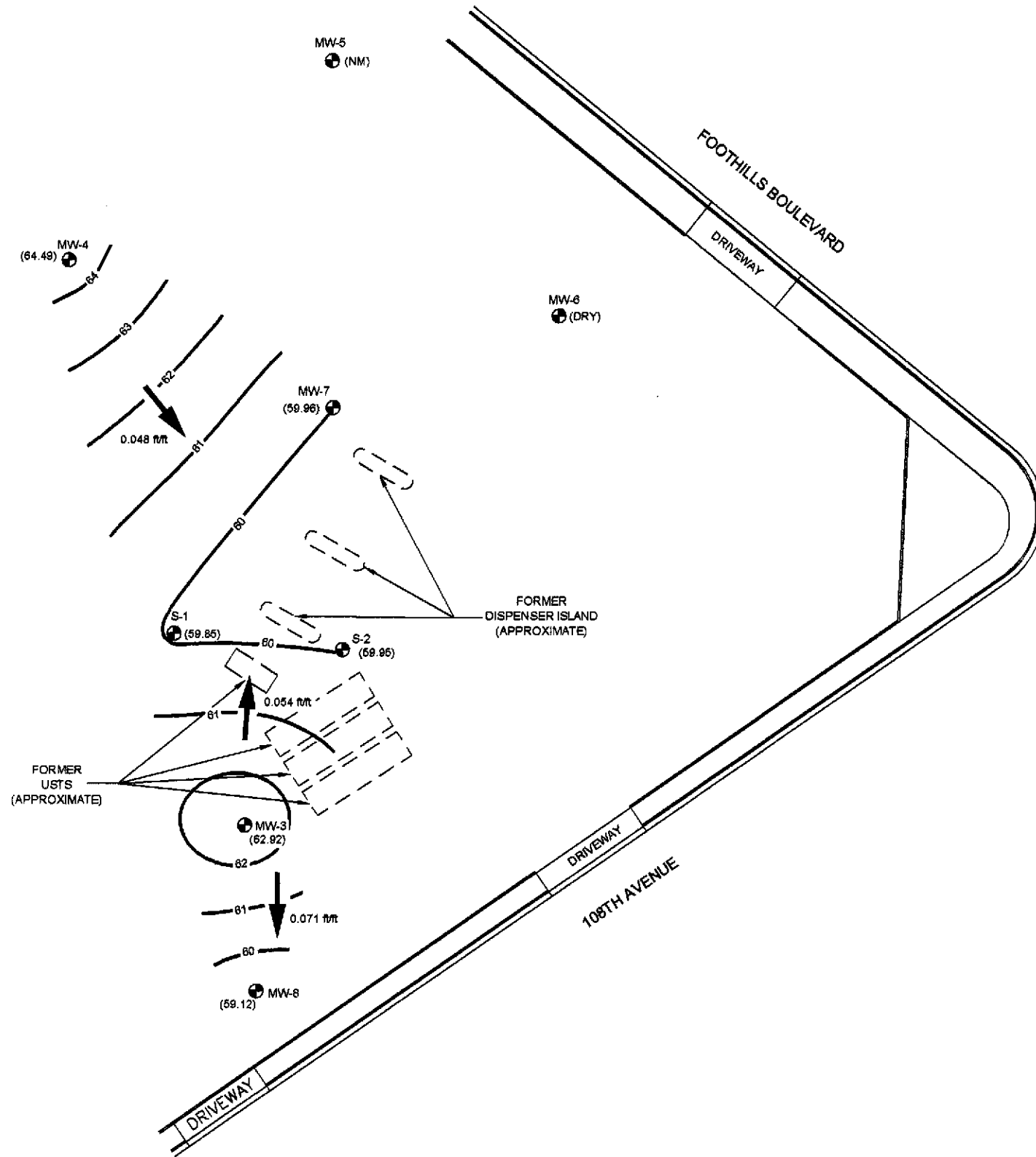
FORMER USA SERVICE STATION NO. 57  
 10500 MACARTHUR BOULEVARD  
 OAKLAND, CALIFORNIA  
 SITE LOCATION MAP

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



LEGEND

- MW-3 MONITORING WELL LOCATION
- (69.85) GROUND WATER ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- 62 — WATER TABLE CONTOUR IN FEET RELATIVE TO MEAN SEA LEVEL
- INFERRED DIRECTION OF GROUND WATER FLOW
- (NM) NOT MEASURED (WELL DAMAGED)
- WELLS MEASURED: 11/11/04



USA 57 00057-01 Rev 001  
USA 57 00057-01 Rev 001  
USA 57 00057-01 Rev 001

**STRATUS**  
ENVIRONMENTAL, INC.

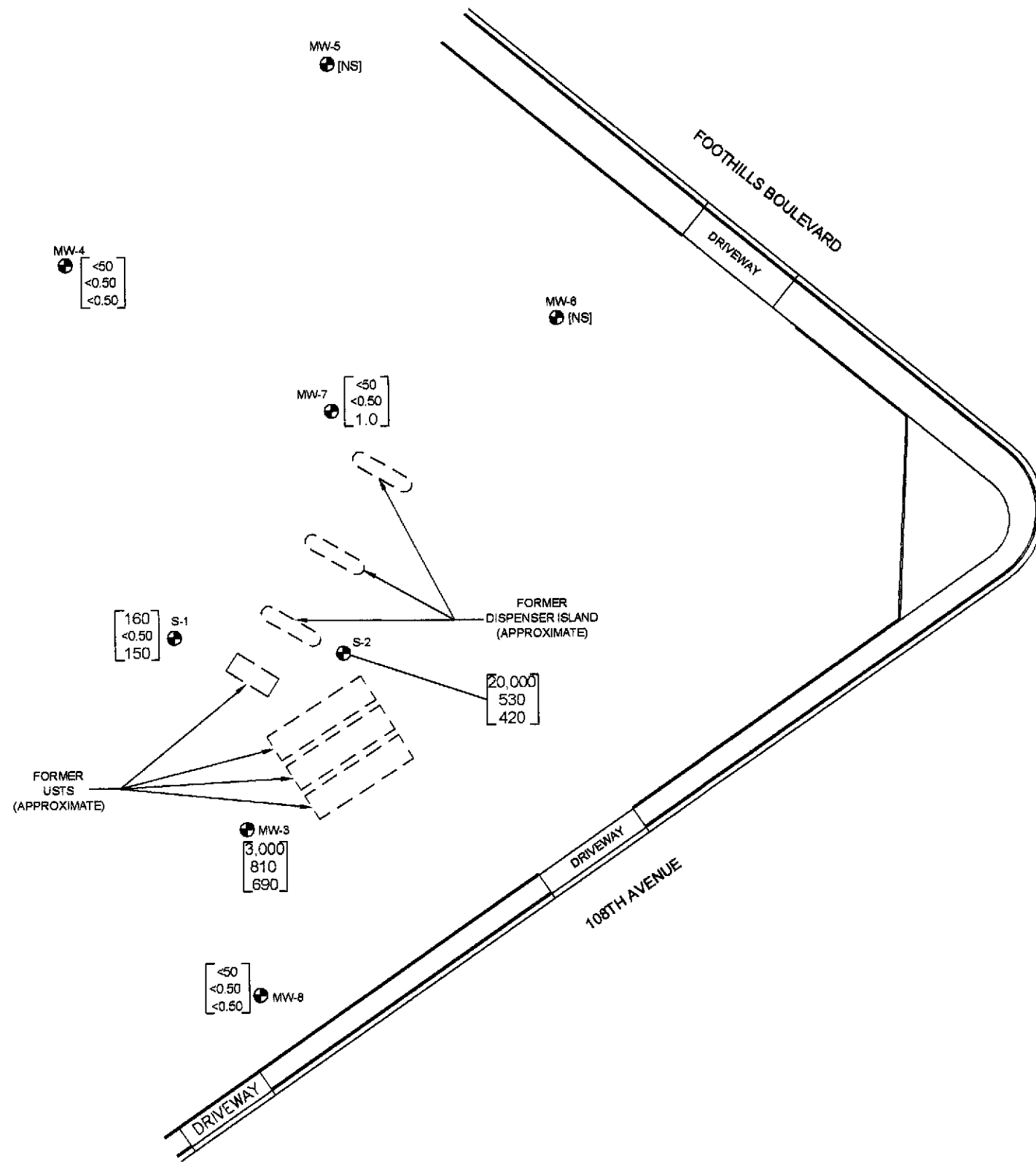


FORMER USA SERVICE STATION NO. 57  
10500 MACARTHUR BOULEVARD  
OAKLAND, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP  
4th QUARTER 2004

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 11/11/04  
 TPHG ANALYZED BY EPA METHOD 8015B  
 BENZENE & MTBE ANALYZED BY EPA METHOD 8260B

USA, FT. Quantick, Figure 3.dwg  
Dec 08, 2004  
REV  
JMP  
USA, FT. Quantick

**STRATUS**  
ENVIRONMENTAL, INC.



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

**GROUNDWATER ANALYTICAL SUMMARY**  
 4th QUARTER 2004

FIGURE  
**3**  
 PROJECT NO.  
 2007-0057-01

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



Site Address: 10700 MacArthur Blvd  
 City Oakland, CA  
 Sampled By Vince Z.

Site Number: USA 57  
 Project No 2007-0057-01  
 Project PM Gowri Kevatha  
 Date Sampled 11-11-04

Site Contact Phone No.

**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	0730	17.40	<del>17.40</del>	42.85	25.4	4	2	50	40			<del>X</del>		36.84	MW-3	1410	1.65
MW-4	0740	11.93		42.85	30.52	4	2	61	61			<del>X</del>		34.75	MW-4	0955	<del>1.65</del> 6.39
MW-5	Damaged			37.60	Damaged	4	2	N/A	N/A			<del>X</del>	N/A	—	MW-5	DRY	—
MW-6	0750	17.22		17.50	Dry	4	2	0	DRY			<del>X</del>	N/A	—	MW-6	DRY	—
MW-7	0758	19.85		41.85	2.2	4	2	44	44			<del>X</del>		28.80	MW-7	1053	3.17
MW-8	0725	21.38		37.70	16.32	4	2	32	28			<del>X</del>		35.75	MW-8	1422	5.96
S-1	0739	19.81		40.80	20.99	3	1	42 <sup>2.0</sup>	20		<del>X</del>	<del>X</del>	Both	29.10	S-1	1249	2.30
S-2	0800	21.95		42.85	20.90	3	1	42 <sup>2.0</sup>	22			<del>X</del>		29.70	S-2	1135	.70

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

Multiplier Values  
 2"=0.5 4"=2.0 6"=4.0



Site Address 10700 MacArthur  
 City Oakland, CA  
 Site Sampled by Vince Z.

Site Number USA 57  
 Project No. 2007-0057-01  
 Project PM Gowri Hawtho  
 Date Sampled 11-11-07

**ORIGINAL**

Well ID <u>MW-4</u>					Well ID <u>MW-5</u>				
purge start time <u>0915 No Odor</u>					purge start time <u>Damaged</u>				
	Temp C	pH	cond	gallons		Temp C	pH	cond	gallons
time	<u>23.4</u>	<u>8.04</u>	<u>149.4</u>	<u>Q</u>					
time	<u>22.4</u>	<u>7.66</u>	<u>174.2</u>	<u>30</u>					
time	<u>18.9</u>	<u>7.39</u>	<u>170.6</u>	<u>61</u>					
time									
purge stop time <u>0944</u>					purge stop time <u>not sampled</u>				
Well ID <u>MW-7</u>					Well ID <u>MW-8</u>				
purge start time <u>1022 No Odor</u>					purge start time <u>1340 odor</u>				
	Temp C	pH	cond	gallons		Temp C	pH	cond	gallons
time	<u>20.1</u>	<u>7.42</u>	<u>189.0</u>	<u>Q</u>	time	<u>20.0</u>	<u>7.09</u>	<u>487.0</u>	<u>Q</u>
time	<u>20.0</u>	<u>7.26</u>	<u>179.4</u>	<u>21</u>	time	<u>20.2</u>	<u>6.91</u>	<u>470.0</u>	<u>16</u>
time	<u>18.1</u>	<u>7.20</u>	<u>171.1</u>	<u>44</u>	time	<u>Dry @ 28 gals.</u>			
time					time	<u>20.4</u>	<u>6.63</u>	<u>411</u>	
purge stop time <u>1040</u>					purge stop time <u>1353</u>				
Well ID <u>S-1 odor - (lite sheen)</u>					Well ID <u>MW-3</u>				
purge start time <u>1205</u>					purge start time <u>1312 odor</u>				
	Temp C	pH	cond	gallons		Temp C	pH	cond	gallons
time	<u>20.5</u>	<u>7.02</u>	<u>374</u>	<u>Q</u>	time	<u>20.0</u>	<u>6.68</u>	<u>181.7</u>	<u>Q</u>
time	<u>20.5</u>	<u>6.93</u>	<u>367</u>	<u>10</u>	time	<u>20.9</u>	<u>6.70</u>	<u>189.8</u>	<u>25</u>
time	<u>Pump Stopped - H2nd bailed to *20</u>				time	<u>Dry @ 40 ga</u>			
time	<u>19.3</u>	<u>6.88</u>	<u>175.5</u>	<u>*20</u>	time	<u>18.9</u>	<u>6.69</u>	<u>190.6</u>	
purge stop time <u>N/A</u>					purge stop time <u>N/A</u>				
Well ID <u>S-2</u>					Well ID				
purge start time <u>1109 odor</u>					purge start time				
	Temp C	pH	cond	gallons		Temp C	pH	cond	gallons
time	<u>20.4</u>	<u>7.06</u>	<u>172.9</u>	<u>Q</u>	time				
time	<u>19.9</u>	<u>7.09</u>	<u>163.9</u>	<u>12</u>	time				
time	<u>19.7</u>	<u>6.75</u>	<u>154.7</u>	<u>22</u>	time				
time					time				
purge stop time <u>1117</u>					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**



**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 11/13/04

Job#: 2007-0057-01/USA 57

Methanol by GC/MSD - Direct Injection  
EPA Method SW8260B-DI

Client ID :	Lab ID :	Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
MW-3	STR04111564-01A	Methanol	ND	5,000 µg/L	11/11/04	11/17/04
		Ethanol	ND	5,000 µg/L	11/11/04	11/17/04
MW-4	STR04111564-02A	Methanol	ND	5,000 µg/L	11/11/04	11/17/04
		Ethanol	ND	5,000 µg/L	11/11/04	11/17/04
MW-7	STR04111564-03A	Methanol	ND	5,000 µg/L	11/11/04	11/17/04
		Ethanol	ND	5,000 µg/L	11/11/04	11/17/04
MW-8	STR04111564-04A	Methanol	ND	5,000 µg/L	11/11/04	11/17/04
		Ethanol	ND	5,000 µg/L	11/11/04	11/17/04
S-1	STR04111564-05A	Methanol	ND	5,000 µg/L	11/11/04	11/17/04
		Ethanol	ND	5,000 µg/L	11/11/04	11/17/04
S-2	STR04111564-06A	Methanol	ND	5,000 µg/L	11/11/04	11/17/04
		Ethanol	ND	5,000 µg/L	11/11/04	11/17/04

Reported in micrograms per liter, per client request.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer  
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11/22/04

Report Date



# Alpha Analytical, Inc.

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 11/13/04

Job#: 2007-0057-01/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	3,000	1,000 µg/L	11/11/04	11/17/04
MW-3	Tertiary Butyl Alcohol (TBA)	1,400	100 µg/L	11/11/04	11/17/04
Lab ID :	Methyl tert-butyl ether (MTBE)	690	5.0 µg/L	11/11/04	11/17/04
STR04111564-01A	Di-isopropyl Ether (DIPE)	ND	10 µg/L	11/11/04	11/17/04
	Ethyl Tertiary Butyl Ether (ETBE)	ND	10 µg/L	11/11/04	11/17/04
	1,2-Dichloroethane	140	10 µg/L	11/11/04	11/17/04
	Benzene	810	5.0 µg/L	11/11/04	11/17/04
	Tertiary Amyl Methyl Ether (TAME)	ND	10 µg/L	11/11/04	11/17/04
	Toluene	ND	5.0 µg/L	11/11/04	11/17/04
	1,2-Dibromoethane (EDB)	ND	40 µg/L	11/11/04	11/17/04
	Ethylbenzene	43	5.0 µg/L	11/11/04	11/17/04
	m,p-Xylene	ND	5.0 µg/L	11/11/04	11/17/04
	o-Xylene	ND	5.0 µg/L	11/11/04	11/17/04
Client ID :	TPH Purgeable	ND	50 µg/L	11/11/04	11/16/04
MW-4	Tertiary Butyl Alcohol (TBA)	ND	10 µg/L	11/11/04	11/16/04
Lab ID :	Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	11/11/04	11/16/04
STR04111564-02A	Di-isopropyl Ether (DIPE)	ND	1.0 µg/L	11/11/04	11/16/04
	Ethyl Tertiary Butyl Ether (ETBE)	ND	1.0 µg/L	11/11/04	11/16/04
	1,2-Dichloroethane	ND	1.0 µg/L	11/11/04	11/16/04
	Benzene	ND	0.50 µg/L	11/11/04	11/16/04
	Tertiary Amyl Methyl Ether (TAME)	ND	1.0 µg/L	11/11/04	11/16/04
	Toluene	ND	0.50 µg/L	11/11/04	11/16/04
	1,2-Dibromoethane (EDB)	ND	2.0 µg/L	11/11/04	11/16/04
	Ethylbenzene	ND	0.50 µg/L	11/11/04	11/16/04
	m,p-Xylene	ND	0.50 µg/L	11/11/04	11/16/04
	o-Xylene	ND	0.50 µg/L	11/11/04	11/16/04
Client ID :	TPH Purgeable	ND	50 µg/L	11/11/04	11/16/04
MW-7	Tertiary Butyl Alcohol (TBA)	ND	10 µg/L	11/11/04	11/16/04
Lab ID :	Methyl tert-butyl ether (MTBE)	1.0	0.50 µg/L	11/11/04	11/16/04
STR04111564-03A	Di-isopropyl Ether (DIPE)	ND	1.0 µg/L	11/11/04	11/16/04
	Ethyl Tertiary Butyl Ether (ETBE)	ND	1.0 µg/L	11/11/04	11/16/04
	1,2-Dichloroethane	ND	1.0 µg/L	11/11/04	11/16/04
	Benzene	ND	0.50 µg/L	11/11/04	11/16/04
	Tertiary Amyl Methyl Ether (TAME)	ND	1.0 µg/L	11/11/04	11/16/04
	Toluene	ND	0.50 µg/L	11/11/04	11/16/04
	1,2-Dibromoethane (EDB)	ND	2.0 µg/L	11/11/04	11/16/04
	Ethylbenzene	ND	0.50 µg/L	11/11/04	11/16/04
	m,p-Xylene	ND	0.50 µg/L	11/11/04	11/16/04
	o-Xylene	ND	0.50 µg/L	11/11/04	11/16/04



# Alpha Analytical, Inc.

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Client ID :	TPH Purgeable	ND		50 µg/L	11/11/04	11/17/04
MW-8	Tertiary Butyl Alcohol (TBA)	ND		10 µg/L	11/11/04	11/17/04
Lab ID :	Methyl tert-butyl ether (MTBE)	ND		0.50 µg/L	11/11/04	11/17/04
STR04111564-04A	Di-isopropyl Ether (DIPE)	ND		1.0 µg/L	11/11/04	11/17/04
	Ethyl Tertiary Butyl Ether (ETBE)	ND		1.0 µg/L	11/11/04	11/17/04
	1,2-Dichloroethane	ND		1.0 µg/L	11/11/04	11/17/04
	Benzene	ND		0.50 µg/L	11/11/04	11/17/04
	Tertiary Amyl Methyl Ether (TAME)	ND		1.0 µg/L	11/11/04	11/17/04
	Toluene	ND		0.50 µg/L	11/11/04	11/17/04
	1,2-Dibromoethane (EDB)	ND		2.0 µg/L	11/11/04	11/17/04
	Ethylbenzene	ND		0.50 µg/L	11/11/04	11/17/04
	m,p-Xylene	ND		0.50 µg/L	11/11/04	11/17/04
	o-Xylene	ND		0.50 µg/L	11/11/04	11/17/04
Client ID :	TPH Purgeable	160		50 µg/L	11/11/04	11/17/04
S-1	Tertiary Butyl Alcohol (TBA)	14		10 µg/L	11/11/04	11/17/04
Lab ID :	Methyl tert-butyl ether (MTBE)	150		0.50 µg/L	11/11/04	11/17/04
STR04111564-05A	Di-isopropyl Ether (DIPE)	ND		1.0 µg/L	11/11/04	11/17/04
	Ethyl Tertiary Butyl Ether (ETBE)	ND		1.0 µg/L	11/11/04	11/17/04
	1,2-Dichloroethane	7.3		1.0 µg/L	11/11/04	11/17/04
	Benzene	ND		0.50 µg/L	11/11/04	11/17/04
	Tertiary Amyl Methyl Ether (TAME)	ND		1.0 µg/L	11/11/04	11/17/04
	Toluene	ND		0.50 µg/L	11/11/04	11/17/04
	1,2-Dibromoethane (EDB)	ND		2.0 µg/L	11/11/04	11/17/04
	Ethylbenzene	ND		0.50 µg/L	11/11/04	11/17/04
	m,p-Xylene	ND		0.50 µg/L	11/11/04	11/17/04
	o-Xylene	ND		0.50 µg/L	11/11/04	11/17/04
Client ID :	TPH Purgeable	20,000		2,000 µg/L	11/11/04	11/17/04
S-2	Tertiary Butyl Alcohol (TBA)	ND	V	200 µg/L	11/11/04	11/17/04
Lab ID :	Methyl tert-butyl ether (MTBE)	420		10 µg/L	11/11/04	11/17/04
STR04111564-06A	Di-isopropyl Ether (DIPE)	ND	V	20 µg/L	11/11/04	11/17/04
	Ethyl Tertiary Butyl Ether (ETBE)	ND	V	20 µg/L	11/11/04	11/17/04
	1,2-Dichloroethane	ND	V	20 µg/L	11/11/04	11/17/04
	Benzene	530		10 µg/L	11/11/04	11/17/04
	Tertiary Amyl Methyl Ether (TAME)	ND	V	20 µg/L	11/11/04	11/17/04
	Toluene	240		10 µg/L	11/11/04	11/17/04
	1,2-Dibromoethane (EDB)	ND	V	80 µg/L	11/11/04	11/17/04
	Ethylbenzene	370		10 µg/L	11/11/04	11/17/04
	m,p-Xylene	1,200		10 µg/L	11/11/04	11/17/04
	o-Xylene	530		10 µg/L	11/11/04	11/17/04

Reported in micrograms per liter, per client request.

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

ND = Not Detected

*Roger Scholl*

*Randy Gardner*

*Walter Hinchman*

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*MS*

11/22/04

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 STR04111564

Project: 2007-0057-01/USA 57

Alpha's Sample ID	Client's Sample ID	Matrix	pH
04111564-01A	MW-3	Aqueous	5
04111564-02A	MW-4	Aqueous	2
04111564-03A	MW-7	Aqueous	2
04111564-04A	MW-8	Aqueous	2
04111564-05A	S-1	Aqueous	6
04111564-06A	S-2	Aqueous	5

11/22/04  
Report Date



# Alpha Analytical, Inc.

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

Date:  
24-Nov-04

## OC Summary Report

Work Order:  
04111564

### Method Blank

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

File ID: **D:\HPCHEM\MMS10\DATA\041116\04111638.D**

Batch ID: **MS10W1116C**

Analysis Date: **11/16/2004 22:02**

Sample ID: **MBLK MS10W1116C**

Units: **µg/L**

Run ID: **MSD\_10\_041116B**

Prep Date: **11/16/2004**

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	10.3		10		103	72	126			
Surr: Toluene-d8	9.97		10		99.7	71	128			
Surr: 4-Bromofluorobenzene	9.65		10		97	76	121			

### Laboratory Control Spike

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

File ID: **D:\HPCHEM\MMS10\DATA\041116\04111636.D**

Batch ID: **MS10W1116C**

Analysis Date: **11/16/2004 21:19**

Sample ID: **LCS MS10W1116C**

Units: **µg/L**

Run ID: **MSD\_10\_041116B**

Prep Date: **11/16/2004**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Benzene	10.5	0.5	10		105	83	119			
Toluene	10.6	0.5	10		106	80	120			
Ethylbenzene	10.6	0.5	10		106	80	120			
m,p-Xylene	10	0.5	10		100	77	125			
o-Xylene	10	0.5	10		100	77	124			
Surr: 1,2-Dichloroethane-d4	11.2		10		112	72	126			
Surr: Toluene-d8	10		10		100	71	128			
Surr: 4-Bromofluorobenzene	9.57		10		96	76	121			

### Sample Matrix Spike

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

File ID: **D:\HPCHEM\MMS10\DATA\041116\04111644.D**

Batch ID: **MS10W1116C**

Analysis Date: **11/17/2004 00:10**

Sample ID: **04111002-01AMS**

Units: **µg/L**

Run ID: **MSD\_10\_041116B**

Prep Date: **11/17/2004**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Benzene	55.9	1.3	50	5.07	102	59	145			
Toluene	51	1.3	50	0	102	39	161			
Ethylbenzene	51.1	1.3	50	0	102	57	145			
m,p-Xylene	48.4	1.3	50	0	97	37	163			
o-Xylene	48.4	1.3	50	0	97	47	156			
Surr: 1,2-Dichloroethane-d4	53.2		50		106	72	126			
Surr: Toluene-d8	49.2		50		98	71	128			
Surr: 4-Bromofluorobenzene	49.7		50		99	76	121			

### Sample Matrix Spike Duplicate

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

File ID: **D:\HPCHEM\MMS10\DATA\041116\04111645.D**

Batch ID: **MS10W1116C**

Analysis Date: **11/17/2004 00:31**

Sample ID: **04111002-01AMSD**

Units: **µg/L**

Run ID: **MSD\_10\_041116B**

Prep Date: **11/17/2004**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Benzene	54.7	1.3	50	5.07	99	59	145	55.87	2.1(22)	
Toluene	50.1	1.3	50	0	100	39	161	51.02	1.9(22)	
Ethylbenzene	50.7	1.3	50	0	101	57	145	51.13	0.9(22)	
m,p-Xylene	47.6	1.3	50	0	95	37	163	48.4	1.7(23)	
o-Xylene	48.1	1.3	50	0	96	47	156	48.39	0.7(50)	
Surr: 1,2-Dichloroethane-d4	53.3		50		107	72	126			
Surr: Toluene-d8	49.5		50		99	71	128			
Surr: 4-Bromofluorobenzene	49.6		50		99	76	121			



# *Alpha Analytical, Inc.*

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

**Date:**  
*24-Nov-04*

## QC Summary Report

**Work Order:**  
04111564

**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.



# Alpha Analytical, Inc.

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

Date:  
24-Nov-04

## QC Summary Report

Work Order:  
04111564

### Method Blank

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

File ID: D:\HPCHEM\MS10\DATA\041116\04111638.D

Batch ID: MS10W1116D

Analysis Date: 11/16/2004 22:02

Sample ID: MBLK MS10W1116D

Units: µg/L

Run ID: MSD\_10\_041116B

Prep Date: 11/16/2004

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	ND	50								
Surr: 1,2-Dichloroethane-d4	10.3		10		103	72	126			
Surr: Toluene-d8	9.97		10		99.7	71	128			
Surr: 4-Bromofluorobenzene	9.65		10		97	76	121			

### Laboratory Control Spike

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

File ID: D:\HPCHEM\MS10\DATA\041116\04111634.D

Batch ID: MS10W1116D

Analysis Date: 11/16/2004 20:36

Sample ID: GLCS MS10W1116D

Units: µg/L

Run ID: MSD\_10\_041116B

Prep Date: 11/16/2004

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	418	50	400		105	67	136			
Surr: 1,2-Dichloroethane-d4	10.9		10		109	72	126			
Surr: Toluene-d8	9.58		10		96	71	128			
Surr: 4-Bromofluorobenzene	9.04		10		90	76	121			

### Sample Matrix Spike

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

File ID: D:\HPCHEM\MS10\DATA\041116\04111642.D

Batch ID: MS10W1116D

Analysis Date: 11/16/2004 23:28

Sample ID: 04111002-01AGS

Units: µg/L

Run ID: MSD\_10\_041116B

Prep Date: 11/16/2004

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	2240	250	2000		0 112	54	154			
Surr: 1,2-Dichloroethane-d4	51.9		50		104	72	126			
Surr: Toluene-d8	48.5		50		97	71	128			
Surr: 4-Bromofluorobenzene	47.5		50		95	76	121			

### Sample Matrix Spike Duplicate

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

File ID: D:\HPCHEM\MS10\DATA\041116\04111643.D

Batch ID: MS10W1116D

Analysis Date: 11/16/2004 23:49

Sample ID: 04111002-01AGSD

Units: µg/L

Run ID: MSD\_10\_041116B

Prep Date: 11/16/2004

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	2280	250	2000		0 114	54	154	2240	1.7(66)	
Surr: 1,2-Dichloroethane-d4	53		50		106	72	126			
Surr: Toluene-d8	48.5		50		97	71	128			
Surr: 4-Bromofluorobenzene	47.9		50		96	76	121			

### Comments:

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Reported in micrograms per liter, per client request.



# Alpha Analytical, Inc.

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

Date:  
24-Nov-04

## OC Summary Report

Work Order:  
04111564

### Method Blank

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

File ID: C:\HPCHEM\MS11\DATA\041117\04111703.D

Batch ID: 11152

Analysis Date: 11/17/2004 11:01

Sample ID: **MBLK-11152**

Units :  $\mu\text{g/L}$

Run ID: **MSD\_11\_041117A**

Prep Date: 11/17/2004

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Methanol	ND	5000								
Ethanol	ND	5000								
Surr: Hexafluoro-2-propanol	511		500		102	69	135			

### Laboratory Control Spike

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

File ID: C:\HPCHEM\MS11\DATA\041117\04111704.D

Batch ID: 11152

Analysis Date: 11/17/2004 11:22

Sample ID: **LCS-11152**

Units :  $\mu\text{g/L}$

Run ID: **MSD\_11\_041117A**

Prep Date: 11/17/2004

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Methanol	232	50	250		93	51	161			
Ethanol	227	5	250		91	47	137			
Surr: Hexafluoro-2-propanol	508		500		102	69	135			

### Sample Matrix Spike

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

File ID: C:\HPCHEM\MS11\DATA\041117\04111706.D

Batch ID: 11152

Analysis Date: 11/17/2004 12:03

Sample ID: **04111564-02AMS**

Units :  $\mu\text{g/L}$

Run ID: **MSD\_11\_041117A**

Prep Date: 11/17/2004

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Methanol	219	50	250	0	88	51	161			
Ethanol	212	5	250	0	85	47	137			
Surr: Hexafluoro-2-propanol	511		500		102	69	135			

### Sample Matrix Spike Duplicate

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

File ID: C:\HPCHEM\MS11\DATA\041117\04111707.D

Batch ID: 11152

Analysis Date: 11/17/2004 12:23

Sample ID: **04111564-02AMSD**

Units :  $\mu\text{g/L}$

Run ID: **MSD\_11\_041117A**

Prep Date: 11/17/2004

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Methanol	221	50	250	0	89	51	161	218.8	1.2(39)	
Ethanol	222	5	250	0	89	47	137	212	4.5(34)	
Surr: Hexafluoro-2-propanol	509		500		102	69	135			

### Comments:

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Reported in micrograms per liter, per client request.

# Alpha Analytical, Inc.

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

## Sample Receipt Checklist

Date Report is due to Client : 11/23/2004

Date of Notice : 11/15/2004 8:54:17

Please take note of any NO check marks. If we receive no response concerning these items within 24 hours of the date of this notice, all of the samples will be analyzed as requested.

Client Name **Stratus Environmental**

Project ID : **2007-0057-01/USA 57**

Project Manager : **Gowri Kowtha**

Client's Phone **(530) 676-6002**

Client's FAX **(530) 676-6005**

Work Order Number **STR04111564**

Date Received : **11/13/2004**

Received by: **Laura Long**

### Chain of Custody (COC) Information

Carrier name **FedEx**

Chain of custody present ?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Custody seals intact on shipping container/cooler ?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	
Custody seals intact on sample bottles ?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>	
Chain of custody signed when relinquished and received ?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody agrees with sample labels ?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sample ID noted by Client on COC ?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Date and time of collection noted by Client on COC ?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Samplers's name noted on COC ?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Internal Chain of Custody (COC) requested ?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		
Sub Contract Lab Used :	None <input checked="" type="checkbox"/>	SEM <input type="checkbox"/>	Other (see comments) <input type="checkbox"/>	

### Sample Receipt Information

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		

### Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Container/Temp Blank temperature in compliance (0-6°C)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Cooler Temperature 4 °C
Water - VOA vials have zero headspace / no bubbles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>	
Sample labels checked for correct preservation?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
TOC Water - pH acceptable upon receipt (H2SO4 pH<2)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	

### Analytical Requirement Information

Are non-Standard or Modified methods requested ?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		
Are there client specific Project requirements ?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	If YES : see the Chain of Custody (COC)	

Comments :

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 : STR04111564

Report Due By : 5:00 PM On : 23-Nov-04

**Client:**

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

**Gowri Kowtha**  
 TEL : (530) 676-6002  
 FAX : (530) 676-6005

Job : 2007-0057-01/USA 57  
 PO :

Client's COC # : 05747

EDD Required : Yes

Sampled by : Vince Z

Cooler Temp : 4 °C

15-Nov-04

Report Attention : Gowri Kowtha  
 CC Report :

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

Alpha Sample ID	Client Sample ID	Collection Matrix	Collection Date	No. of Bottles				Requested Tests						Sample Remarks		
				ORG	SUB	TAT	PWS #	ALCOHOL_W	TPH/P_W	VOC_W						
STR04111564-01A	MW-3	AQ	11/11/04 14:10	5	0	6		MeOH/EtOH	GAS-C	BTEX/OXY_C						
STR04111564-02A	MW-4	AQ	11/11/04 09:55	5	0	6		MeOH/EtOH	GAS-C	BTEX/OXY_C						
STR04111564-03A	MW-7	AQ	11/11/04 10:53	5	0	6		MeOH/EtOH	GAS-C	BTEX/OXY_C						
STR04111564-04A	MW-8	AQ	11/11/04 14:22	5	0	6		MeOH/EtOH	GAS-C	BTEX/OXY_C						
STR04111564-05A	S-1	AQ	11/11/04 12:49	5	0	6		MeOH/EtOH	GAS-C	BTEX/OXY_C						
STR04111564-06A	S-2	AQ	11/11/04 11:35	5	0	6		MeOH/EtOH	GAS-C	BTEX/OXY_C						

Comments: Saturday delivery. Kept on ice and secure until logged in on 11/15/04. Send copy of receipt checklist with final report. Global ID T0600101808. :

Received by:	<i>Laura Long</i>	Print Name	Laura Long	Company	Alpha Analytical, Inc.	Date/Time	11/15/04 9:00
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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 355 Cameron Park Dr. #550  
 City, State, Zip Cameron Park, CA  
 Phone Number 530-676-6004 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

Client Name USA 57 P.O. # \_\_\_\_\_ Job # 2007-0057-01  
 Address 10700 MacArthur Blvd. EMail Address \_\_\_\_\_  
 City, State, Zip Oakland, CA Phone # \_\_\_\_\_ Fax # \_\_\_\_\_

Time Sampled \_\_\_\_\_ Date Sampled \_\_\_\_\_ Matrix\* See Key Below \_\_\_\_\_  
 Office Use Only \_\_\_\_\_ Sampled by Vince Z. Report Attention Gowri Kautha  
 Lab ID Number \_\_\_\_\_ Sample Description \_\_\_\_\_ TAT \_\_\_\_\_ Field Filtered \_\_\_\_\_  
 Total and type of containers \*\* See below \_\_\_\_\_

Analyses Required							05747-						
TPHS-BTEX	5oxy's	EDB	EDC	Ethanol	Methanol			Required QC Level? I II III IV					
								EDD/EDF? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>					
								Global ID # <u>T0600101808</u>					
								REMARKS					
1410	1104	AQ	STR04111504-01	MW-3	STD	5.V	X	X	X	X	X		
0955	1104		02	MW-4									
1053	1104		03	MW-7									
1422	1104		04	MW-8									
1249	1104		05	S-1									
1135	1104	AQ	06	S-2	STP	5.V	X	X	X	X	X		

**ADDITIONAL INSTRUCTIONS:**

Signature	Print Name	Company	Date	Time
<i>Vince Z.</i>	Vincent Zolotka	Stratus Env.	11-12-04	1535
<i>Lisa Boyle</i>	Lisa Boyle	ALPHA	11-12-04	1535
<i>Laura Long</i>	Laura Long	Alpha	11/15/04	900

\*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.