October 7, 2005

Peter Van Alyea
Redwood Oil Company
455 Yolanda Avenue, Suite 200
Santa Rosa, CA 95404

Ground Water Monitoring Report
August, 2005
Former Redwood Oil Bulk Plant
105 X Street
Eureka, California
ECM Project #99-110-04

Dear Mr. Van Alyea:

This report provides the results of semi-annual ground water monitoring at the Former Redwood Oil Bulk Plant at 105 X Street in Eureka, California (Figure 1, Appendix A). On August 17, 2005, ECM Group personnel visited the site. Ground water elevations were measured in the six monitoring wells, and ground water samples were collected from five of the six monitoring wells (MW-1, MW-2, MW-3, MW-5, and MW-6) in accordance with the site monitoring program.[1] The well locations are shown on Figure 2 (Appendix A).

Ground water levels were measured in each of the wells. Free-phase hydrocarbons were not observed in any of the wells. Wellheads and well vaults were observed to be in good condition. Water level data is shown in Table 1 (Appendix B) and a ground water elevation contour map is included as Figure 2 (Appendix A).

The samples were forwarded under chain of custody record to Entech Analytical Labs, of Santa Clara, California for analysis. Analytical results for ground water are included in Tables 2 and 3 (Appendix B). Ground water samples were collected in accordance with ECM Standard Operating Procedure - Ground Water Sampling (Appendix E). The chain of custody document and laboratory analytical reports are included as Appendix C. The water sampling data sheets are included as Appendix D. Purge water and decon rinseate were transported to an ROC holding tank for proper disposal.

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[1] Monitoring and Reporting Program No. R1-2004-0113 for Redwood Oil Company, 105 X Street, Eureka, CA, December 2, 2004.

Analytical results for this sampling event were generally consistent with results from prior sampling events. Analyses were performed in accordance with the site monitoring schedule. Samples form wells MW-1, MW-2, MW-3 and MW-5 were analyzed for gasoline, BTEX compounds, and MTBE. The sample from MW-6 was analyzed for MTBE.

Samples from the first quarter of 2005 contained MTBE at an historical high for samples collected from well MW-1. Concentrations from the August 17, 2005 sampling event contained lower concentrations of MTBE, consistent with samples collected prior to the first quarter of 2005. Very low concentrations of toluene and xylenes were also detected in the August 17, 2005 sample.

Low concentrations of gasoline, toluene, xylenes, and MTBE were detected in the sample from well MW-2. Results were consistent with previous results for samples from MW-2.

Low concentrations of gasoline, BTEX, compounds, and MTBE were reported in the sample from well MW-3. Concentrations were significantly lower than concentrations in samples previously collected from well MW-3. MW-3 is located on perimeter of the September, 2004 remedial excavation, and decreased contaminant concentrations may be a result of the excavation.

Well MW-4 is located upgradient from the impacted area of the site and is sampled on an annual basis in February. MTBE has previously been detected at very low concentrations in samples from MW-4.

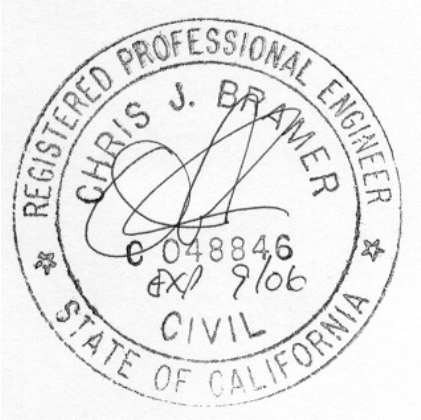
Low concentrations of gasoline and very low concentrations of xylenes and MTBE were detected in the sample from well MW-5. MTBE concentrations have decreased in each of the last two samples collected from MW-5. MW-5 is located approximately 10 to 15 ft downgradient from the 2004 remedial excavation. Reduced concentrations may be a result of the excavation.

The sample from well MW-6 was analyzed for MTBE. MTBE was detected at a low concentration, consistent with results from previous samples.

Thank you for the opportunity to provide environmental services to Redwood Oil Company. Please call if you have any questions.

Sincerely,
ECM Group

David Hazard
Environmental Scientist



Chris Bramer
Professional Engineer #C048846

Appendices:
A - Figures
B - Tables
C - Chain of Custody and Laboratory Analytical Reports
D - Water Sampling Data Sheets
E - Standard Operating Procedure

cc: Kasey Ashley, North Coast Regional Water Quality Control Board
Mark Inglis, Chevron Products Co.

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APPENDIX A

FIGURES

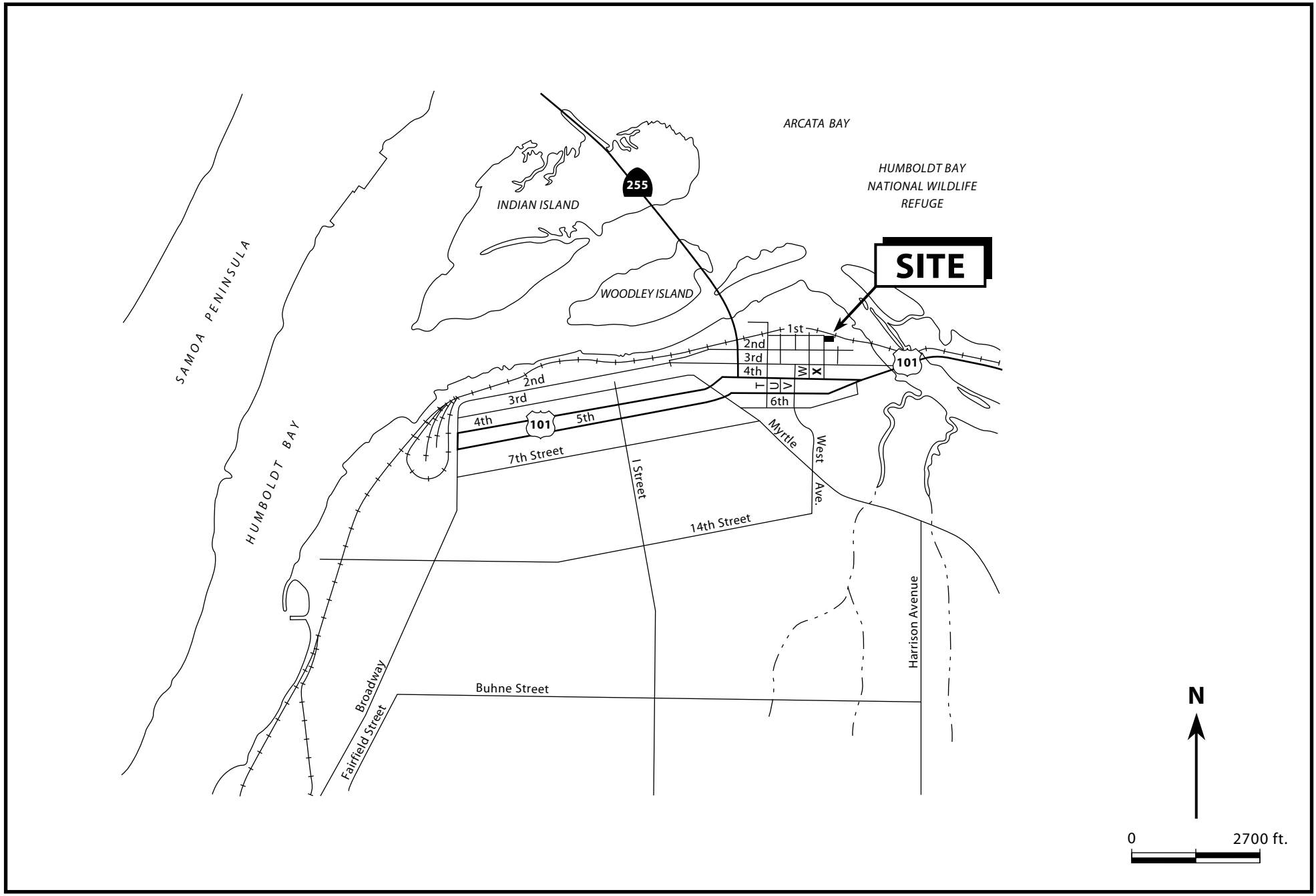

Figure 1. Site Location Map - Former Redwood Oil Bulk Plant, 105 X Street, Eureka, California

99-110-04 [Site Loc map] 4/16/02

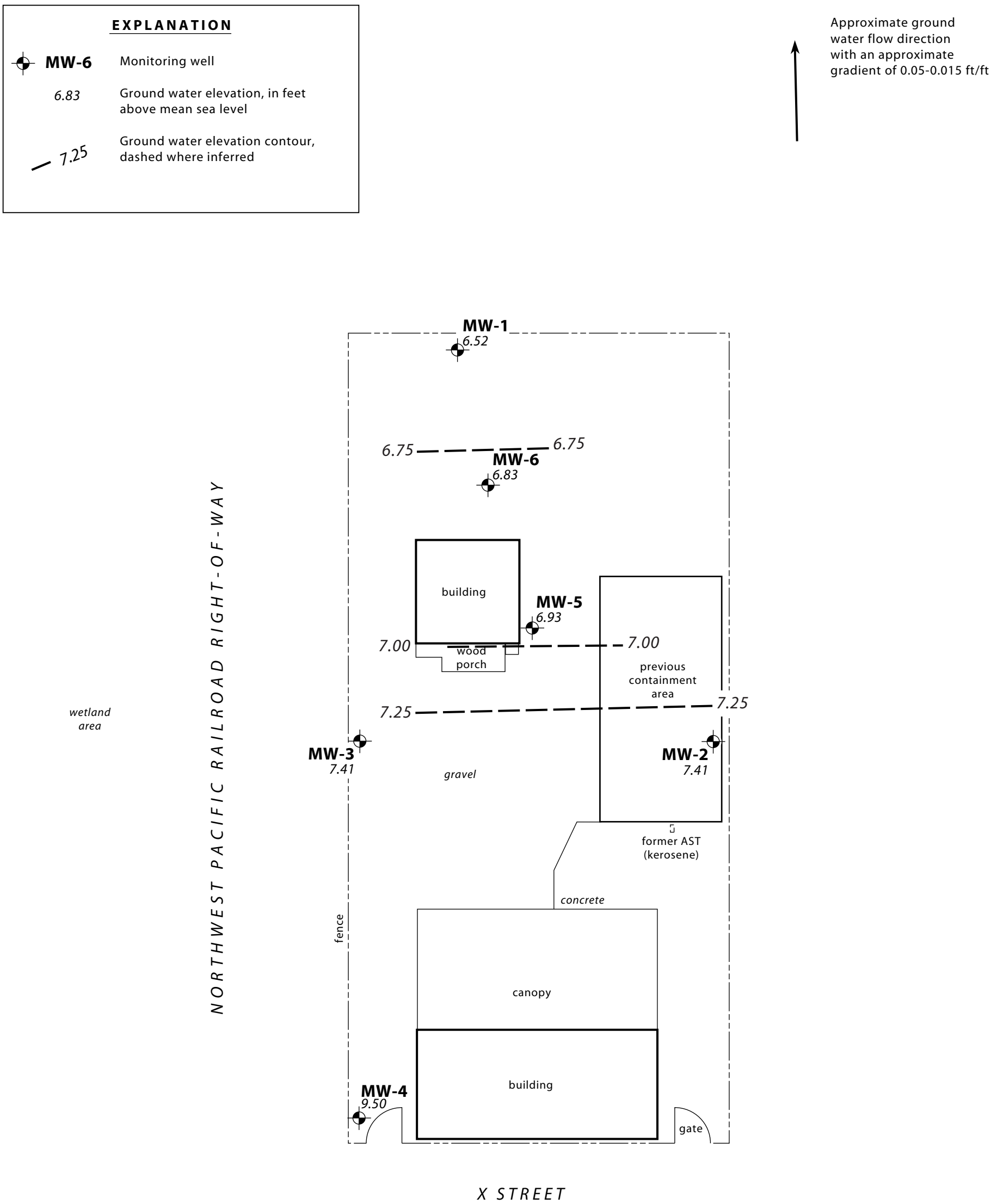

Figure 2. Monitoring Well Location and Groundwater Elevation Contour Map - August 17, 2005 - Former Redwood Oil Bulk Plant, 105 X Street, Eureka, California

99-110-04 [GW 8/05] 10/3/05

APPENDIX B

TABLES

Table 1. Monitoring Well Survey Data, Well Construction Details and Depth to Ground Water - 105 X Street, Eureka, California.

Well ID	Sample Date	DTW (Ft)	TOC (Ft, msl)	GWE (Ft, msl)	Screen Interval	Sand Pack Interval	Bentonite/ Grout Interval	Notes
MW-1	5/14/2001	2.45	9.30	6.85	2 - 12	2 - 12	0 - 2	
	8/13/2001	2.92		6.38				
	11/9/2001	2.63		6.67				
	2/14/2002	1.84		7.46				
	5/1/2002	1.85		7.45				
	8/8/2002	2.91		6.39				
	11/15/2002	2.26		7.04				
	2/14/2003	1.78		7.52				
	5/23/2003	2.14		7.16				
	8/26/2003	2.85		6.45				
	11/17/2003	2.66		6.64				
	2/23/2004	1.38		7.92				
	5/13/2004	2.34		6.96				
	8/17/2004	2.76		6.54				
	11/23/2004	2.17		7.13				
	2/23/2005	1.68		7.62				
	8/17/2005	**2.78**		**6.52**				
MW-2	5/14/2001	3.28	10.96	7.68	2 - 12	2 - 12	0 - 2	
	8/13/2001	3.63		7.33				
	11/9/2001	3.41		7.55				
	2/14/2002	2.90		8.06				
	5/1/2002	2.85		8.11				
	8/8/2002	3.71		7.25				
	11/15/2002	2.92		8.04				
	2/14/2003	2.88		8.08				
	5/23/2003	3.11		7.85				
	8/26/2003	3.65		7.31				
	11/17/2003	3.40		7.56				
	2/23/2004	2.45		8.51				
	5/13/2004	3.28		7.68				
	8/17/2004	3.49		7.47				
	11/23/2004	2.99		7.97				
	2/23/2005	3.86		7.10				
	8/17/2005	**3.55**		**7.41**				

Table 1. Monitoring Well Survey Data, Well Construction Details and Depth to Ground Water - 105 X Street, Eureka, California.

Well ID	Sample Date	DTW (Ft)	TOC (Ft, msl)	GWE (Ft, msl)	Screen Interval	Sand Pack Interval	Bentonite/ Grout Interval	Notes
MW-3	5/14/2001	2.81	10.37	7.56	2 - 12	2 - 12	0 - 2	
	8/13/2001	3.29		7.08				
	11/9/2001	2.98		7.39				
	2/14/2002	2.12		8.25				
	5/1/2002	1.99		8.38				
	8/8/2002	3.42		6.95				
	11/15/2002	2.44		7.93				
	2/14/2003	2.11		8.26				
	5/23/2003	2.38		7.99				
	8/26/2003	3.39		6.98				
	11/17/2003	2.60		7.77				
	2/23/2004	1.60		8.77				
	5/13/2004	2.72		7.65				
	8/17/2004	3.19		7.18				
	11/23/2004	2.29		8.08				
	2/23/2005	1.66		8.71				
	8/17/2005	**2.96**		**7.41**				
MW-4	5/14/2001	3.19	11.20	8.01	2 - 12	2 - 12	0 - 2	
	8/13/2001	3.63		7.57				
	11/9/2001	3.39		7.81				
	2/14/2002	2.57		8.63				
	5/1/2002	2.42		8.78				
	8/8/2002	3.89		7.31				
	11/15/2002	3.12		8.08				
	2/14/2003	2.58		8.62				
	5/23/2003	2.88		8.32				
	8/26/2003	3.94		7.26				
	11/17/2003	3.10		8.10				
	2/23/2004	2.19		9.01				
	5/13/2004	3.14		8.06				
	8/17/2004	2.04		9.16				
	11/23/2004	2.93		8.27				
	2/23/2005	2.39		8.81				
	8/17/2005	**3.70**		**7.50**				

Table 1. Monitoring Well Survey Data, Well Construction Details and Depth to Ground Water - 105 X Street, Eureka, California.

Well ID	Sample Date	DTW (Ft)	TOC (Ft, msl)	GWE (Ft, msl)	Screen Interval	Sand Pack Interval	Bentonite/ Grout Interval	Notes
MW-5	2/14/2003	2.39	10.26	7.87	2 - 12	2 - 12	0 - 2	
	5/23/2003	2.66		7.60				
	8/26/2003	3.36		6.90				
	11/17/2003	3.09		7.17				
	2/23/2004	1.90		8.36				
	5/13/2004	2.93		7.33				
	8/17/2004	3.25		7.01				
	11/23/2004	2.64		7.62				
	2/23/2005	2.19		8.07				
	8/17/2005	**3.33**		**6.93**				
MW-6	2/14/2003	2.03	9.69	7.66	2 - 12	2 - 12	0 - 2	
	5/23/2003	2.33		7.36				
	8/26/2003	3.03		6.66				
	11/17/2003	2.81		6.88				
	2/23/2004	1.56		8.13				
	5/13/2004	2.56		7.13				
	8/17/2004	2.96		6.73				
	11/23/2004	2.37		7.32				
	2/23/2005	2.17		7.52				
	8/17/2005	**2.86**		**6.83**				

Explanation:

DTW = Depth to Water
ft = feet
TOC = Top of Casing
GWE = Ground Water Elevation
msl = Mean Sea Level

Table 2. Analytical Results for Ground Water - Monitoring Wells - 105 X Street, Eureka, California.

Sample ID	Date Sampled	TPPH (D)	TPPH(MO)	TPPH (G)	Benzene	Toluene	Ethylbenzene	Xylenes	Notes
		<---------- ppb ---------->							
MW-1	5/14/2001	<50	<170	<50	<0.5	<0.5	<0.5	<0.5	
	8/13/2001	<50	<170	<50	<0.5	<0.5	<0.5	<0.5	
	11/9/2001	<50	<170	<50	<0.5	<0.5	<0.5	0.51	
	2/14/2002	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	5/1/2002	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	8/8/2002	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	11/15/2002	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	2/14/2003	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	8/26/2003	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	2/23/2004	<50	<170	130	<0.50	<0.50	<0.50	<0.50	
	8/17/2004	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	2/23/2005	---	---	230	---	---	---	---	Sample flagged by lab. See lab report for details.
	4/21/2005	---	---	130	<1	1.7	<1	2.0	
	8/17/2005	**---**	**---**	**<50**	**<0.50**	**0.67**	**<0.50**	**1.0**	
MW-2	5/14/2001	190	<170	660	<0.5	<0.5	<0.5	<0.5	
	8/13/2001	140	<170	890	<0.5	<0.5	<0.5	<0.5	
	11/9/2001	<50	<170	300	<0.5	<0.5	<0.5	0.5	
	2/14/2002	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	5/1/2002	<50	<170	180	<0.50	<0.50	<0.50	<0.50	
	8/8/2002	<50	<170	190	<0.50	<0.50	<0.50	<0.50	
	11/15/2002	<50	<170	290	<0.50	<0.50	<0.50	<0.50	
	2/14/2003	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	8/26/2003	<50	<170	140	<0.50	<0.50	<0.50	<0.50	
	2/23/2004	<50	<170	<50	<0.50	<0.50	<0.50	0.5	
	8/17/2004	51	<170	240	<0.50	<0.50	<0.50	<0.50	
	2/23/2005	---	---	<50	---	---	---	---	
	8/17/2005	**---**	**---**	**83**	**<0.50**	**0.51**	**<0.50**	**0.99**	

Table 2. Analytical Results for Ground Water - Monitoring Wells - 105 X Street, Eureka, California.

Sample ID	Date Sampled	TPPH (D)	TPPH(MO)	TPPH (G)	Benzene	Toluene	Ethylbenzene	Xylenes	Notes
		<---------- ppb ---------->							
MW-3	5/14/2001	930	<170	2,900	28	45	140	69	
	8/13/2001	730	<170	3,600	31	49	140	99	
	11/9/2001	220	<170	2,700	26	39	120	78	
	2/14/2002	660	<170	3,400	20	59	120	82	
	5/1/2002	520	<170	3,600	15	52	150	107	
	8/8/2002	240	<170	1,200	13	17	53	29.7	
	11/15/2002	310	<170	1,900	13	20	64	44.9	
	2/14/2003	730	<170	5,400	31	88	210	112	
	8/26/2003	200	<170	2,000	17	21	67	38.3	
	2/23/2004	360	<170	3,100	21	39	110	62.9	
	8/17/2004	110	<170	1,500	14	11	42	25.9	
	2/23/2005	---	---	1,600	2.8	8.6	69	28	
	8/17/2005	**---**	**---**	**350**	**<0.50**	**1.0**	**1.9**	**3.2**	
MW-4	5/14/2001	<50	<170	<50	<0.5	<0.5	<0.5	<0.5	
	8/13/2001	<50	<170	<50	<0.5	<0.5	<0.5	<0.5	
	11/9/2001	<50	<170	<50	<0.5	<0.5	<0.5	<0.5	
	2/14/2002	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	5/1/2002	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	8/8/2002	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	11/15/2002	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	2/14/2003	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	8/26/2003	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	2/23/2004	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	8/17/2004	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	2/23/2005	---	---	---	---	---	---	---	MW-4 analyzed for MTBE only, as of 12/2/04.

Table 2. Analytical Results for Ground Water - Monitoring Wells - 105 X Street, Eureka, California.

Sample ID	Date Sampled	TPPH (D)	TPPH(MO)	TPPH (G)	Benzene	Toluene	Ethylbenzene	Xylenes	Notes
		<---------- ppb ---------->							
MW-5	2/14/2003	89	<170	190	<0.50	<0.50	<0.50	<0.50	
	5/23/2003	110	<170	300	<0.50	<0.50	<0.50	<0.50	
	8/26/2003	<50	<170	170	<0.50	<0.50	<0.50	<0.50	
	11/17/2003	51	<170	230	<0.50	<0.50	<0.50	<0.50	
	2/23/2004	94	<170	260	<0.50	<0.50	<0.50	<0.50	
	5/13/2004	62	<170	170	<0.50	<0.50	<0.05	<0.50	
	8/17/2004	62	<170	190	<0.50	<0.50	<0.50	<0.50	
	11/23/2004	460	---	200	<0.5	<0.5	<0.5	<1	
	2/23/2005	---	---	320	---	---	---	---	Sample was flagged. See lab report for details.
	8/17/2005	**---**	**---**	**120**	**<0.50**	**<0.50**	**<0.50**	**0.93**	
MW-6	2/14/2003	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	5/23/2003	<50	<170	58	<0.50	<0.50	<0.50	<0.50	
	8/26/2003	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	11/17/2003	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	2/23/2004	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	5/13/2004	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	8/17/2004	<50	<170	<50	<0.50	<0.50	<0.50	<0.50	
	11/23/2004	<50	---	25	<0.5	<0.5	<0.5	<1	
	2/23/2005	---	---	---	---	---	---	---	MW-6 analyzed for MTBE only, as of 12/2/04.
	8/17/2005	**---**	**---**	**---**	**---**	**---**	**---**	**---**	

Explanation:

TPH(D) = Total Petroleum Hydrocarbons as Diesel
TPH(MO) = Total Petroleum Hydrocarbons as Motor Oil
TPH(G) = Total Petroleum Hydrocarbons as Gasoline
ppb = parts per billion

Table 3. Analytical Results for Ground Water - Oxygenates - 105 X Street, Eureka, California.

Sample ID	Sample Date	t-Butyl alcohol (TBA)	MTBE	Diisopropyl ether (DIPE)	Ethyl t-butyl ether (ETBE)	t-Amyl methyl ether (TAME)	Notes
MW-1	5/14/2001	<10.0	3.9	<1.0	<1.0	<1.0	
	8/13/2001	<20	11	<1.0	<1.0	<1.0	
	11/9/2001	<20	14	<1.0	<1.0	<1.0	
	2/14/2002	<20	3.3	<1.0	<1.0	<1.0	
	5/1/2002	<20	3	<1.0	<1.0	<1.0	
	8/8/2002	<20	14	<1.0	<1.0	<1.0	
	11/15/2002	<20	3.8	<1.0	<1.0	<1.0	
	2/14/2003	<20	48	<1.0	<1.0	8.4	
	8/26/2003	<20	12	<1.0	<1.0	<1.0	
	2/23/2004	<10	76	<1.0	<1.0	42	
	8/17/2004	<10	8.1	<1.0	<1.0	<1.0	
	2/23/2005	---	220	---	---	---	
	4/21/2005	---	110	---	---	---	
	8/17/2005	---	**8.1**	---	---	---	
MW-2	5/14/2001	16	73	<1.0	<1.0	<1.0	
	8/13/2001	<20	130	<1.0	<1.0	1.2	
	11/9/2001	<20	98	<1.0	<1.0	<1.0	
	2/14/2002	<20	12	<1.0	<1.0	<1.0	
	5/1/2002	22	120	<1.0	<1.0	<1.0	
	8/8/2002	<20	53	<1.0	<1.0	<1.0	
	11/15/2002	<20	29	<1.0	<1.0	<1.0	
	2/14/2003	<20	36	<1.0	<1.0	<1.0	
	8/26/2003	<20	21	<1.0	<1.0	<1.0	
	2/23/2004	<10	<1.0	<1.0	<1.0	<1.0	
	8/17/2004	<10	9.2	<1.0	<1.0	<1.0	
	2/23/2005	---	16	---	---	---	
	8/17/2005	---	**19**	---	---	---	

Table 3. Analytical Results for Ground Water - Oxygenates - 105 X Street, Eureka, California.

Sample ID	Sample Date	t-Butyl alcohol (TBA)	MTBE	Diisopropyl ether (DIPE)	Ethyl t-butyl ether (ETBE)	t-Amyl methyl ether (TAME)	Notes
MW-3	5/14/2001	<50	8.1	<2.5	<2.5	<2.5	
	8/13/2001	<20	<20	<1.0	<1.0	<1.0	
	11/9/2001	<20	<20	<1.0	<1.0	<1.0	
	2/14/2002	<20	4.9	<1.0	<1.0	<1.0	
	5/1/2002	<20	4.4	<1.0	<1.0	<1.0	
	8/8/2002	<20	6.3	<10	<1.0	1.4	
	11/15/2002	<20	6.1	<1.0	<1.0	<3.0	
	2/14/2003	<20	<12	<1.0	<1.0	<1.0	
	8/26/2003	<20	<10	<1.0	<1.0	1.2	
	2/23/2004	<10	<6.0	<1.0	<1.0	<1.0	
	8/17/2004	<10	<8.0	<1.0	<1.0	<1.0	
	2/23/2005	---	6.0	---	---	---	
	8/17/2005	---	**3.1**	---	---	---	
MW-4	5/14/2001	<10.0	<0.50	<1.0	<1.0	<1.0	
	8/13/2001	<20	<1.0	<1.0	<1.0	<1.0	
	11/9/2001	<20	<1.0	<1.0	<1.0	<1.0	
	2/14/2002	<20	<1.0	<1.0	<1.0	<1.0	
	5/1/2002	<20	<1.0	<1.0	<1.0	<1.0	
	8/8/2002	<20	5.9	<1.0	<1.0	<1.0	
	11/15/2002	<20	4.7	<1.0	<1.0	<1.0	
	2/14/2003	<20	8.8	<1.0	<1.0	<1.0	
	8/26/2003	<20	6.9	<1.0	<1.0	<1.0	
	2/23/2004	<10	6.7	<1.0	<1.0	<1.0	
	8/17/2004	<10	4	<1.0	<1.0	<1.0	
	2/23/2005	---	3.1	---	---	---	

Table 3. Analytical Results for Ground Water - Oxygenates - 105 X Street, Eureka, California.

Sample ID	Sample Date	t-Butyl alcohol (TBA)	MTBE	Diisopropyl ether (DIPE)	Ethyl t-butyl ether (ETBE)	t-Amyl methyl ether (TAME)	Notes
MW-5	2/14/2003	<20	32	<1.0	<1.0	<1.0	
	5/23/2003	<20	52	<1.0	<1.0	1	
	8/26/2003	<20	43	<1.0	<1.0	<1.0	
	11/17/2003	<20	57	<1.0	<1.0	1.6	
	2/23/2004	<10	20	<1.0	<1.0	<1.0	
	5/13/2004	<10	22	<1.0	<1.0	<1.0	
	8/17/2004	<10	55	<1.0	<1.0	2.6	
	11/23/2004	<10	33	<5	<5	<5	
	2/23/2005	---	8.8	---	---	---	
	8/17/2005	---	**3.1**	---	---	---	
MW-6	2/14/2003	<20	10	<1.0	<1.0	<1.0	
	5/23/2003	<20	41	<1.0	<1.0	1.7	
	8/26/2003	<20	25	<1.0	<1.0	<1.0	
	11/17/2003	<20	25	<1.0	<1.0	<1.0	
	2/23/2004	<10	5.3	<1.0	<1.0	<1.0	
	5/13/2004	<10	15	<1.0	<1.0	<1.0	
	8/17/2004	<10	25	<1.0	<1.0	<1.0	
	11/23/2004	<10	19	<5	<5	<5	
	2/23/2005	---	9.8	---	---	---	
	8/17/2005	---	**11**	---	---	---	

Explanation:

MTBE = Methyl Tertiary-butyl Ether

APPENDIX C

CHAIN OF CUSTODY
AND
LABORATORY ANALYTICAL REPORTS

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

Jim Green
ECM Group
290 W. Channel Rd.
Benicia, CA 94510

Certificate ID: 44932 - 8/29/2005 12:08:01 PM

Order Number: 44932
Project Name: Eureka
Project Number: 99-110-04

Date Received: 08/19/2005
P.O. Number: 99-110-04
Global ID: T0602393494

Certificate of Analysis - Final Report

On August 19, 2005, samples were received under chain of custody for analysis.
Entech analyzes samples "as received" unless otherwise noted. The following results are included:

Matrix	Test	Comments
Liquid	EDF	
	EPA 8260B EPA 624	
	TPH as Gasoline - GC-MS	

Entech Analytical Labs, Inc. is certified for environmental analyses by the State of California (#2346).
If you have any questions regarding this report, please call us at 408-588-0200 ext. 225.

Sincerely,

Laurie Glantz-Murphy
Laboratory Director

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

ECM Group
290 W. Channel Rd.
Benicia, CA 94510
Attn: Jim Green

Certificate of Analysis - Data Report

Date Received: 8/19/2005
Project ID: 99-110-04
Project Name: Eureka
GlobalID: T0602393494
P.O. Number: 99-110-04
Sample Collected by: Client

Lab # : 44932-001 **Sample ID: MW-1** **Matrix:** Liquid **Sample Date:** 8/17/2005 2:00 PM

EPA 5030C EPA 8260B EPA 624 — **8260Petroleum**

Parameter	Result	Qual	D/P-F	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Toluene	0.67		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Ethyl Benzene	ND		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Xylenes, Total	1.0		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Methyl-t-butyl Ether	8.1		1	1.0	µg/L	N/A	N/A	8/26/2005	WM1050826

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	97.6	70 - 125
Dibromofluoromethane	114	70 - 125
Toluene-d8	107	70 - 125

Analyzed by: MTu
Reviewed by: ECunniffe

EPA 5030C GC-MS — **TPH as Gasoline - GC-MS**

Parameter	Result	Qual	D/P-F	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	50	µg/L	N/A	N/A	8/26/2005	WM1050826

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	104	70 - 125
Dibromofluoromethane	104	70 - 125
Toluene-d8	105	70 - 125

Analyzed by: MTu
Reviewed by: ECunniffe

Detection Limit = Detection Limit for Reporting.
D/P-F = Dilution and/or Prep Factor includes sample volume adjustments.
ND = Not Detected at or above the Detection Limit.
Qual = Data Qualifier

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

ECM Group
290 W. Channel Rd.
Benicia, CA 94510
Attn: Jim Green

Date Received: 8/19/2005
Project ID: 99-110-04
Project Name: Eureka
GlobalID: T0602393494
P.O. Number: 99-110-04
Sample Collected by: Client

Certificate of Analysis - Data Report

Lab # : 44932-002 **Sample ID: MW-2** **Matrix:** Liquid **Sample Date:** 8/17/2005 2:40 PM

EPA 5030C EPA 8260B EPA 624 — **8260Petroleum**

Parameter	Result	Qual	D/P-F	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Toluene	0.51		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Ethyl Benzene	ND		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Xylenes, Total	0.99		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Methyl-t-butyl Ether	19		1	1.0	µg/L	N/A	N/A	8/26/2005	WM1050826

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	101	70 - 125
Dibromofluoromethane	114	70 - 125
Toluene-d8	108	70 - 125

Analyzed by: MTu
Reviewed by: ECunniffe

EPA 5030C GC-MS — **TPH as Gasoline - GC-MS**

Parameter	Result	Qual	D/P-F	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	83		1	50	µg/L	N/A	N/A	8/26/2005	WM1050826

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	108	70 - 125
Dibromofluoromethane	104	70 - 125
Toluene-d8	105	70 - 125

Analyzed by: MTu
Reviewed by: ECunniffe

Detection Limit = Detection Limit for Reporting.
D/P-F = Dilution and/or Prep Factor includes sample volume adjustments.
ND = Not Detected at or above the Detection Limit.
Qual = Data Qualifier

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

ECM Group
290 W. Channel Rd.
Benicia, CA 94510
Attn: Jim Green

Date Received: 8/19/2005
Project ID: 99-110-04
Project Name: Eureka
GlobalID: T0602393494
P.O. Number: 99-110-04
Sample Collected by: Client

Certificate of Analysis - Data Report

Lab # : 44932-003 **Sample ID: MW-3** **Matrix:** Liquid **Sample Date:** 8/17/2005 2:15 PM

EPA 5030C EPA 8260B EPA 624 — **8260Petroleum**

Parameter	Result	Qual	D/P-F	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Toluene	1.0		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Ethyl Benzene	1.9		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Xylenes, Total	3.2		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Methyl-t-butyl Ether	3.1		1	1.0	µg/L	N/A	N/A	8/26/2005	WM1050826

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	99.2	70 - 125
Dibromofluoromethane	112	70 - 125
Toluene-d8	108	70 - 125

Analyzed by: MTu
Reviewed by: ECunniffe

EPA 5030C GC-MS — **TPH as Gasoline - GC-MS**

Parameter	Result	Qual	D/P-F	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	350		1	50	µg/L	N/A	N/A	8/26/2005	WM1050826

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	103	70 - 125
Dibromofluoromethane	102	70 - 125
Toluene-d8	106	70 - 125

Analyzed by: MTu
Reviewed by: ECunniffe

Detection Limit = Detection Limit for Reporting.
D/P-F = Dilution and/or Prep Factor includes sample volume adjustments.
ND = Not Detected at or above the Detection Limit.
Qual = Data Qualifier

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

ECM Group
290 W. Channel Rd.
Benicia, CA 94510
Attn: Jim Green

Date Received: 8/19/2005
Project ID: 99-110-04
Project Name: Eureka
GlobalID: T0602393494
P.O. Number: 99-110-04
Sample Collected by: Client

Certificate of Analysis - Data Report

Lab # : 44932-004 **Sample ID: MW-5** **Matrix:** Liquid **Sample Date:** 8/17/2005 2:30 PM

EPA 5030C EPA 8260B EPA 624 — **8260Petroleum**

Parameter	Result	Qual	D/P-F	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Toluene	ND		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Ethyl Benzene	ND		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Xylenes, Total	0.93		1	0.50	µg/L	N/A	N/A	8/26/2005	WM1050826
Methyl-t-butyl Ether	3.1		1	1.0	µg/L	N/A	N/A	8/26/2005	WM1050826

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	101	70 - 125
Dibromofluoromethane	110	70 - 125
Toluene-d8	107	70 - 125

Analyzed by: MTu
Reviewed by: ECunniffe

EPA 5030C GC-MS — **TPH as Gasoline - GC-MS**

Parameter	Result	Qual	D/P-F	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	120		1	50	µg/L	N/A	N/A	8/26/2005	WM1050826

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	106	70 - 125
Dibromofluoromethane	100	70 - 125
Toluene-d8	104	70 - 125

Analyzed by: MTu
Reviewed by: ECunniffe

Detection Limit = Detection Limit for Reporting.
D/P-F = Dilution and/or Prep Factor includes sample volume adjustments.
ND = Not Detected at or above the Detection Limit.
Qual = Data Qualifier

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

ECM Group
290 W. Channel Rd.
Benicia, CA 94510
Attn: Jim Green

Date Received: 8/19/2005
Project ID: 99-110-04
Project Name: Eureka
GlobalID: T0602393494
P.O. Number: 99-110-04
Sample Collected by: Client

Certificate of Analysis - Data Report

Lab # : 44932-005 **Sample ID: MW-6** **Matrix:** Liquid **Sample Date:** 8/17/2005 1:45 PM

EPA 5030C EPA 8260B EPA 624 **8260Petroleum**

Parameter	Result	Qual	D/P-F	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Methyl-t-butyl Ether	11		1	1.0	µg/L	N/A	N/A	8/26/2005	WM1050826

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	102	70 - 125
Dibromofluoromethane	112	70 - 125
Toluene-d8	109	70 - 125

Analyzed by: MTu
Reviewed by: ECunniffe

Detection Limit = Detection Limit for Reporting.
D/P-F = Dilution and/or Prep Factor includes sample volume adjustments.
ND = Not Detected at or above the Detection Limit.
Qual = Data Qualifier

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Method Blank - Liquid - EPA 8260B - 8260Petroleum

Validated by: ECunniffe - 08/29/05

QC Batch ID: WM1050826

QC Batch Analysis Date: 8/26/2005

Parameter	Result	DF	PQLR	Units
Benzene	ND	1	0.50	µg/L
Ethyl Benzene	ND	1	0.50	µg/L
Methyl-t-butyl Ether	ND	1	1.0	µg/L
Toluene	ND	1	0.50	µg/L
Xylenes, Total	ND	1	0.50	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	**97.2**	70 - 125
Dibromofluoromethane	**111**	70 - 125
Toluene-d8	**109**	70 - 125

Method Blank - Liquid - GC-MS - TPH as Gasoline - GC-MS

Validated by: ECunniffe - 08/29/05

QC Batch ID: WM1050826

QC Batch Analysis Date: 8/26/2005

Parameter	Result	DF	PQLR	Units
TPH as Gasoline	ND	1	50	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	**103**	70 - 125
Dibromofluoromethane	**102**	70 - 125
Toluene-d8	**106**	70 - 125

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Laboratory Control Sample / Duplicate - Liquid - EPA 8260B - 8260Petroleum

Reviewed by: ECunniffe - 08/29/05

QC Batch ID: WM1050826

QC Batch ID Analysis Date: 8/26/2005

LCS

Parameter	Method Blank	Spike Amt	SpikeResult	Units	% Recovery	Recovery Limits
1,1-Dichloroethene	<0.50	20	16.3	µg/L	81.5	70 - 130
Benzene	<0.50	20	17.2	µg/L	86.0	70 - 130
Chlorobenzene	<0.50	20	17.0	µg/L	85.0	70 - 130
Methyl-t-butyl Ether	<1.0	20	19.7	µg/L	98.5	70 - 130
Toluene	<0.50	20	17.2	µg/L	86.0	70 - 130
Trichloroethene	<0.50	20	15.8	µg/L	79.0	70 - 130

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	**97.4**	70 - 125
Dibromofluoromethane	**104**	70 - 125
Toluene-d8	**102**	70 - 125

LCSD

Parameter	Method Blank	Spike Amt	SpikeResult	Units	% Recovery	RPD	RPD Limits	Recovery Limits
1,1-Dichloroethene	<0.50	20	14.7	µg/L	73.5	**10**	25.0	70 - 130
Benzene	<0.50	20	16.4	µg/L	82.0	**4.8**	25.0	70 - 130
Chlorobenzene	<0.50	20	16.0	µg/L	80.0	**6.1**	25.0	70 - 130
Methyl-t-butyl Ether	<1.0	20	18.5	µg/L	92.5	**6.3**	25.0	70 - 130
Toluene	<0.50	20	15.9	µg/L	79.5	**7.9**	25.0	70 - 130
Trichloroethene	<0.50	20	14.7	µg/L	73.5	**7.2**	25.0	70 - 130

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	**96.5**	70 - 125
Dibromofluoromethane	**105**	70 - 125
Toluene-d8	**102**	70 - 125

Laboratory Control Sample / Duplicate - Liquid - GC-MS - TPH as Gasoline - GC-MS

Reviewed by: ECunniffe - 08/29/05

QC Batch ID: WM1050826

QC Batch ID Analysis Date: 8/26/2005

LCS

Parameter	Method Blank	Spike Amt	SpikeResult	Units	% Recovery	Recovery Limits
TPH as Gasoline	<25	120	119	µg/L	95.3	65 - 135

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	**104**	70 - 125
Dibromofluoromethane	**100**	70 - 125
Toluene-d8	**105**	70 - 125

LCSD

Parameter	Method Blank	Spike Amt	SpikeResult	Units	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<25	120	116	µg/L	92.7	**2.7**	25.0	65 - 135

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	**103**	70 - 125
Dibromofluoromethane	**102**	70 - 125
Toluene-d8	**105**	70 - 125

Entech Analytical Labs, Inc.

3334 Victor Court (408) 588-0200
Santa Clara, CA 95054 (408) 588-0201 - Fax

Chain of Custody / Analysis Request

Attention to: Jim Green	Phone No.: 707 751-0655	Purchase Order No.:	Invoice to: (If Different)	Phone:
Company Name: ECM Group	Fax No.: 707 751-0653	Project No.: 99-110-04	Company: Redwood Oil Co.	Quote No.:
Mailing Address: PO Box 802	Email Address: ecmgrp@aol.com	Project Name: Eureka	Billing Address: (If Different)	
City: Benicia	State: CA / Zip Code: 94510	Project Location:	City: / State: / Zip:	

Sampler: Mike Jackson
Field Org. Code:
Global ID:

Turn Around Time
- ❑ Same Day
- ❑ 1 Day
- ❑ 2 Day
- ❑ 3 Day
- ❑ 4 Day
- ❑ 5 Day
- ☒ 10 Day

Order ID: L4932

Client ID / Field Point	Lab. No.	Sample Date	Sample Time	Matrix	No. of Containers	EPA 8260B	BTEX ☒ MTBE ☒ TPH Gas ☒ by 8260B	5 Oxygenates (MTBE, TBA, ETBA, DIPE, TAME) ❑ Lead Scavengers (1,2-DCA & EDB) ❑ Ethanol ❑	Base/Neutral/Acid Organics 8270C ❑ PAH - 8270C ❑ PAH - 8270C SIM ❑ MTBE 8260B	TPH Extractable: Diesel ❑ Motor Oil ❑ Other ❑ w/ Si-Gel Cleanup ❑	Pesticides-8081 ❑ PCBs - 8082 ❑	TPH as Gas/BTEX ❑ MTBE ❑ by 8015M/8020	Methanol by 8015M	Anions: F ❑ Cl ❑ Br ❑ SO4 ❑ NO3 ❑ NO2 ❑ PO4 ❑	pH ❑ TSS ❑ SC ❑ TOC ❑ TRPH ❑ O & G ❑	Metals - Circle Below Total ❑ Dissolved ❑ STLC ❑ TCLP ❑	Remarks
MW-1	L4932-001	8/17/05	14:00	W	4		X										
MW-2	002	↓	14:40	W	4		X										
MW-3	003		14:15	W	4		X										
MW-5	004		14:30	W	4		X										
MW-6	005	↓	13:45	W	4					X							
MW-4	006	8/17/05	15:00	W	4												Please Hold

Relinquished by:	Received by:	Date:	Time:
[signature]	[signature]	8/19/05	1043
[signature]	[signature]	8/19/05	1217

Special Instructions or Comments

- ❑ EDD Report
- ☒ EDF Report
- ❑ Plating
- ❑ LUFT-5
- ❑ RCRA-8
- ❑ PPM-13
- ❑ CAM-17

Metals:
Al, As, Sb, Ba, Be, Bi, B, Cd, Ce, Ca, Cr, Co, Cs, Cu, Fe, Pb, Mg, Mn,
Ga, Ge, Hg, In, Li, Mo, Ni, P, K, Si, Ag, Na, S, Se, Sr, Ta, Te, Tl, Sn, Ti, Zn, V, W, Zr

APPENDIX D

WATER SAMPLING DATA SHEETS

WATER LEVEL & PRODUCT MEASUREMENTS

ECM group

PROJECT NAME & NUMBER: EUREKA
99-110-04

DATE: 8/17/05
BY: MSJ

WELL ID	TIME MEASURED	DEPTH TO PRODUCT (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH	COMMENTS: (well condition, odor, etc.)
MW-1			2.78	9.82	2"
MW-2			3.55	10.10	2" WATER IN BOX
MW-3			2.96	10.10	2" WATER IN BOX
MW-4			3.70	9.82	2"
MW-5			3.33	11.51	2"
MW-6			2.86	11.25	2"

WATER SAMPLING DATA

Job Name EUREKA Job Number 99-110-04

Well Number MW-1 Date 8/17/05 Time

Well Diameter 2" Well Depth (spec.) Well Depth (sounded) 9.82

Depth to Water (static) 2.78 TOC elev.

G.W. Elev. Maximum Drawdown Limit (if applicable)

Formulas/Conversions
r = well radius in ft
h = ht of water col. in ft
vol. in cyl. = πr²h
7.48 gal/ft³
V₂" casing = 0.163 gal/ft
V₃" casing = 0.367 gal/ft
V₄" casing = 0.653 gal/ft
V₅" casing = 0.826 gal/ft
V₆" casing = 1.47 gal/ft

Initial height of water in casing 7.04 Volume 1.14 gallons

Total to be evacuated = 3 x Initial Volume 3.44 gallons

Stop Time	Start Time	Bailed	Pumped	Cum. Gal.

Pumped or Bailed Dry? ___Yes X No After _____ gallons Recovery Rate

Water color Odor

Description of sediments or material in sample:

Additional Comments:

CHEMICAL DATA

Reading No.	1	2	3	4	5	6	7
Time							
Gallons							
Temp. (degree F)	68.7	65.9	65.1				
pH	6.52	6.40	6.30				
EC (umhos/cm)	121	130	141				
Special Conditions							

SAMPLES COLLECTED

Sample ID ml	Bottle/ cap	Filtered (size, u)	Preservative (type)	Refrig. (R, NR)	Lab (Init)	Analysis Requested

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

14:00

WATER SAMPLING DATA

Job Name EUREKA Job Number 99-110-04

Well Number MW-2 Date 8/17/05 Time

Well Diameter 2" Well Depth (spec.) Well Depth (sounded) 10.10

Depth to Water (static) 3.55 TOC elev.

G.W. Elev. Maximum Drawdown Limit (if applicable)

Formulas/Conversions
r = well radius in ft
h = ht of water col. in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft³
V₂" casing = 0.163 gal/ft
V₃" casing = 0.367 gal/ft
V₄" casing = 0.653 gal/ft
V₅.₅" casing = 0.826 gal/ft
V₆" casing = 1.47 gal/ft

Initial height of water in casing 6.55 Volume 1.06 gallons

Total to be evacuated = 3 x Initial Volume 3.20 gallons

Stop Time	Start Time	Bailed	Pumped	Cum. Gal.

Pumped or Bailed Dry? ___Yes X No After _____ gallons Recovery Rate

Water color Odor

Description of sediments or material in sample:

Additional Comments:

CHEMICAL DATA

Reading No.	1	2	3	4	5	6	7
Time							
Gallons							
Temp. (degree F)	70.3	69.0	68.1				
pH	6.17	6.09	6.03				
EC (umhos/cm)	172	159	150				
Special Conditions							

SAMPLES COLLECTED

Sample ID ml	Bottle/ cap	Filtered (size, u)	Preservative (type)	Refrig. (R, NR)	Lab (init)	Analysis Requested

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

14:40

WATER SAMPLING DATA

Job Name EUREKA Job Number 99-110-04

Well Number MW-3 Date 8/16/05 Time

Well Diameter 2" Well Depth (spec.) Well Depth (sounded) 10.10

Depth to Water (static) 2.96 TOC elev.

G.W. Elev. Maximum Drawdown Limit (if applicable)

Formulas/Conversions
r = well radius in ft
h = ht of water col. in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft³
V_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{5.5}$" casing = 0.926 gal/ft
V_6" casing = 1.47 gal/ft

Initial height of water in casing 7.14 Volume 1.16 gallons

Total to be evacuated = 3 x Initial Volume 3.49 gallons

Stop Time	Start Time	Bailed	Pumped	Cum. Gal.

Pumped or Bailed Dry? ___Yes X No After _____ gallons Recovery Rate

Water color Odor

Description of sediments or material in sample:

Additional Comments:

CHEMICAL DATA

Reading No.	1	2	3	4	5	6	7
Time							
Gallons							
Temp. (degree F)	69.8	68.2	66.8				
pH	6.30	6.32	6.25				
EC (umhos/cm)	197	203	188				
Special Conditions							

SAMPLES COLLECTED

Sample ID ml	Bottle/ cap	Filtered (size, u)	Preservative (type)	Refrig. (R, NR)	Lab (Init)	Analysis Requested

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

14:15

WATER SAMPLING DATA

Job Name EUREKA Job Number 99-110-04

Well Number MW-4 Date 8/17/05 Time

Well Diameter 2" Well Depth (spec.) Well Depth (sounded) 9.82

Depth to Water (static) 3.70 TOC elev.

G.W. Elev. Maximum Drawdown Limit (if applicable)

Formulas/Conversions
r = well radius in ft
h = ht of water col. in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft³
V_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft

Initial height of water in casing 6.12 Volume 0.99 gallons

Total to be evacuated = 3 x Initial Volume 3.00 gallons

Stop Time	Start Time	Bailed	Pumped	Cum. Gal.

Pumped or Bailed Dry? ___Yes X No After _____ gallons Recovery Rate

Water color Odor

Description of sediments or material in sample:

Additional Comments:

CHEMICAL DATA

Reading No.	1	2	3	4	5	6	7
Time							
Gallons							
Temp. (degree F)	65.2	63.4	62.8				
pH	6.20	6.22	6.19				
EC (umhos/cm)	153	122	116				
Special Conditions							

SAMPLES COLLECTED

Sample ID ml	Bottle/ cap	Filtered (size, u)	Preservative (type)	Refrig. (R, NR)	Lab (Init)	Analysis Requested

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

15:00

WATER SAMPLING DATA

Job Name EUREKA Job Number 99-110-04

Well Number MW-5 Date 8/17/05 Time

Well Diameter 2" Well Depth (spec.) Well Depth (sounded) 11.51

Depth to Water (static) 3.33 TOC elev.

G.W. Elev. Maximum Drawdown Limit (if applicable)

Formulas/Conversions
r = well radius in ft
h = ht of water col. in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft³
V₂" casing = 0.163 gal/ft
V₃" casing = 0.367 gal/ft
V₄" casing = 0.653 gal/ft
V₆" casing = 0.826 gal/ft
V₈" casing = 1.47 gal/ft

Initial height of water in casing 8.18 Volume 1.33 gallons

Total to be evacuated = 3 x Initial Volume 4.00 gallons

Stop Time	Start Time	Bailed	Pumped	Cum. Gal.

Pumped or Bailed Dry? ___Yes X No After _____ gallons Recovery Rate

Water color Odor

Description of sediments or material in sample:

Additional Comments:

CHEMICAL DATA

Reading No.	1	2	3	4	5	6	7
Time							
Gallons							
Temp. (degree F)	69.2	66.1	65.1				
pH	6.19	7.20	7.20				
EC (umhos/cm)	187	180	179				
Special Conditions							

SAMPLES COLLECTED

Sample ID ml	Bottle/ cap	Filtered (size, u)	Preservative (type)	Refrig. (R, NR)	Lab (Init)	Analysis Requested

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal.

14:30

WATER SAMPLING DATA

Job Name EUREKA Job Number 99-110-04

Well Number MW-6 Date 8/17/05 Time

Well Diameter 2" Well Depth (spec.) Well Depth (sounded) 11.25

Depth to Water (static) 2.86 TOC elev.

G.W. Elev. Maximum Drawdown Limit (if applicable)

Formulas/Conversions
r = well radius in ft
h = ht of water col. in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft³
V₂" casing = 0.163 gal/ft
V₃" casing = 0.367 gal/ft
V₄" casing = 0.653 gal/ft
V₅.₅" casing = 0.826 gal/ft
V₆" casing = 1.47 gal/ft

Initial height of water in casing 8.32 Volume 1.36 gallons

Total to be evacuated = 3 x Initial Volume 4.10 gallons

Stop Time	Start Time	Bailed	Pumped	Cum. Gal.

Pumped or Bailed Dry? ___Yes X No After _____ gallons Recovery Rate

Water color Odor

Description of sediments or material in sample:

Additional Comments:

CHEMICAL DATA

Reading No.	1	2	3	4	5	6	7
Time							
Gallons							
Temp. (degree F)	69.4	66.5	65.0				
pH	6.61	6.31	6.25				
EC (umhos/cm)	196	188	184				
Special Conditions							

SAMPLES COLLECTED

Sample ID ml	Bottle/ cap	Filtered (size, u)	Preservative (type)	Refrig. (R, NR)	Lab (Init)	Analysis Requested

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

13:45

APPENDIX E

ECM STANDARD OPERATING PROCEDURE

ECM STANDARD OPERATING PROCEDURE

GROUND WATER SAMPLING

The following describes sampling procedures used by ECM field personnel to collect and handle ground water samples. Before samples are collected, careful consideration is given to the type of analysis to be performed so that precautions are taken to prevent loss of volatile components or contamination of the sample, and to preserve the sample for subsequent analysis. Wells will be sampled no less than 24 hours after well development. Collection methods specific to ground water sampling are presented below.

Prior to sampling, each well is purged of a minimum of three well casing volumes of water using a steam-cleaned PVC bailer, or a pre-cleaned pump. Temperature, pH and electrical conductivity are measured at least three times during purging. Purging is continued until these parameters have stabilized (i.e., changes in temperature, pH or conductivity do not exceed 10%).

Ground water samples are collected from the wells/borings with steam-cleaned or disposable Teflon bailers. The water samples are decanted into the appropriate container for the analysis to be performed. Pre-preserved sample containers may be used or the analytic laboratory may add preservative to the sample upon arrival. Duplicate samples are collected from each well as a back-up sample and/or to provide quality control. The samples are labeled to include the project number, sample ID, date, preservative, and the field person's initials. The samples are placed in polyethylene bags and in an ice chest (maintained at 4˚C with blue ice or ice) for transport under chain-of-custody to the laboratory.

The chain-of-custody form includes the project number, analysis requested, sample ID, date analysis and the ECM field person's name. The form is signed and dated (with the transfer time) by each person who yields or receives the samples beginning with the field personnel and ending with the laboratory personnel.