GROUNDWATER MONITORING REPORT – FOURTH QUARTER 2008

FORMER OLYMPIC SERVICE STATION
1436 GRANT AVENUE
SAN LORENZO, CALIFORNIA

AGENCY CASE NO. RO0373

Prepared by:
Conestoga-Rovers & Associates

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1.0 INTRODUCTION

On behalf of George Jaber of Encinal Properties, Conestoga-Rovers & Associates (CRA) has prepared this monitoring report for the site referenced. The site is a former Olympic Oil service station located at 1436 Grant Avenue in San Lorenzo, California (Figure 1). San Lorenzo Auto Repair currently operates on the site. Soil and groundwater investigations, as well as five quarterly groundwater monitoring and sampling events occurred on the site from 1999 to 2002. No additional work appears to have occurred between 2002 and 2007. Alameda County Environmental Health Department (ACEHD) requested reinstatement of the groundwater monitoring program in a letter dated December 4, 2006, and monitoring/sampling resumed in February 2007. The property is owned by Mr. George Jaber of Encinal Properties and Mr. Tony Malonzo operates the auto repair shop at the site. Commercial properties are located south and southwest of the site. A school is located north of the site and the remaining properties in the vicinity of the site are residential.

On July 10, 1998, four (4) steel, single-walled underground storage tanks (USTs) were removed from the site. These USTs consisted of one (1) 10,000-gallon gasoline, one (1) 8,000-gallon gasoline, one (1) 5,000-gallon diesel and one (1) 250-gallon used-oil tank (Figure 2). Six (6) dispensers, located on two islands north of the auto repair building, were also removed. Fourth Quarter 2008 activities are summarized below.

1.1 SITE INFORMATION

Site Address	1436 Grant Avenue, San Lorenzo
Site Use	San Lorenzo Auto Repair
Client and Contact	Encinal Properties, George Jaber
Consultant and Contact Person	CRA, Robert C. Foss and Eric A. Syrstad
Lead Agency and Contact	ACEH, Steven Plunkett
Agency Case No.	RO#0373

2.0 SITE ACTIVITIES AND RESULTS

2.1 CURRENT QUARTER'S ACTIVITIES

On November 4, 2008, Muskan Environmental Sampling (Muskan) monitored and sampled groundwater in wells MW-1, MW-2 and MW-3 (Figure 2). Monitoring well construction details are presented in Table 1. Groundwater monitoring and analytical data are summarized in Table 2. The associated field data sheets are presented as Appendix A. The laboratory analytical report is presented as Appendix B. CRA's standard field procedures for groundwater monitoring and sampling are presented as Appendix C.

2.2 CURRENT QUARTER'S RESULTS

Groundwater Flow Direction	West-southwest
Hydraulic Gradient	0.004
Average Depth to Water	7.03 ft
Is Free Product Present on Site	No
Current Remediation Techniques	Monitored Natural Attenuation

During the Fourth Quarter 2008 event, groundwater was measured between 6.84 and 7.28 feet below top of casing and flowed toward the west-southwest at a gradient of approximately 0.004 foot per foot (ft/ft) (Figure 2). As illustrated by the rose diagram on Figure 2, the First Quarter 2007 through Fourth Quarter 2008 groundwater flow direction has been consistently toward the west-southwest.

Total petroleum hydrocarbons as gasoline (TPHg) was not detected in any of the wells. TPH as diesel (TPHd) was detected only in well MW-2 at a concentration of 80 micrograms per Liter (µg/L). No BTEX constituents were detected in any of the wells. MTBE was detected at concentrations of 260 µg/L (MW-1), 5.9 µg/L (MW-2), and 40 µg/L (MW-3). The only other fuel oxygenate detected was 26 µg/L of TBA in well MW-1. CRA recommends a continuation of the groundwater monitoring program to track petroleum hydrocarbon concentration trends as site delineation continues. However, CRA also proposes a reduction to the analytical program based on recent and historical data reported below the laboratory detection limit. The details of this request will be described in a forthcoming letter.

3.0 ACTIVITIES PLANNED FOR THE FIRST QUARTER OF 2009

Muskan will monitor depth to water and collect samples from all three (3) wells at the site. CRA will prepare a table summarizing the groundwater elevation and analytical data and a generate a potentiometric map that will be submitted in a monitoring report along with the field data sheets, standard field procedures and the laboratory analytical report.

CRA, under its former name of Cambria Environmental Technology, Inc., submitted the *Site Assessment and Preferential Pathway Study Workplan* to ACEHD on March 2, 2007. On May 31, 2007, CRA submitted the *Site Assessment Workplan Addendum* requested by the ACEHD. CRA submitted the *Site Assessment Workplan, Addendum 2* as requested by ACEHD on September 28, 2007 and received approval of the scope of work in an ACEHD letter dated January 22, 2008. Results of the investigation are documented in the CRA report titled, *Site Investigation, Preferential Pathway and Workplan Report*, dated April 29, 2008. CRA and Mr. Jaber are awaiting response from ACEHD on the workplan before proceeding with scheduling of additional investigation activities.

All of Which is Respectfully Submitted,
CONESTOGA-ROVERS & ASSOCIATES

Michael Werner
Staff Geologist

Robert C. Foss

Robert C. Foss, P.G.
Senior Project Geologist

FIGURES

04/06/07

H:\ENCINAL PROPERTY-SAN LORENZO\FIGURES\VICINITY-MAP.AI

FIGURE
1

0 1/8 1/4 1/2 1

SCALE : 1" = 1/4 MILE

Olympic Service Station

1436 Grant Avenue

San Lorenzo, California

CONESTOGA-ROVERS
& ASSOCIATES

Vicinity Map

12/08/08

EXPLANATION

- MW-1 — Monitoring well location
- BH-A — Soil boring location
- Confirmation soil sample location (July 1998)
- Confirmation soil sample location (December 1998)
- 8.20 — Groundwater elevation contour line
- Well ID / ELEV / TPHd / TPHg / Benzene / MTBE — Well designation; Groundwater elevation; Hydrocarbon concentrations in micrograms per liter (µg/L)
- 0.004 — Groundwater flow direction and gradient

CHANNEL STREET

GRANT AVENUE

underground fuel piping

former UST excavation

former dispenser islands

former waste oil tank excavation

T-3E-7.0 T-2E-8.0 T-1E-7.5

PL-2-2.0 PL-1-1.5

T-3W-10.0

D-2D-2.0 D-2G-1.5 D1G-OEX-3.5 D-1D-2.0 D-1G-1.5

WO-1-7.5 WO-OEX-12

planter

Office and Garage

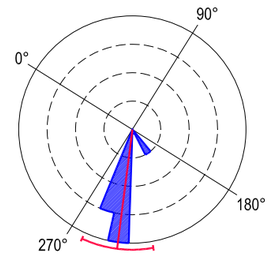
Arroyo Center parking lot

Arroyo Center Buildings

MW-1	MW-2	MW-3
8.43	8.33	8.17
<50	80	<50
<50	<50	<50
<5.0	<0.5	<1.0
260	5.9	40

8.40 8.40 8.35 8.35 8.30 8.30 8.25 8.25 8.20 8.20

BH-A BH-B BH-C



Historical Groundwater Flow Direction
1Q07 through 4Q08

N

0 10 20 40

Scale (ft)

Groundwater Elevation Contour and Hydrocarbon Concentration Map

November 4, 2008

CONESTOGA-ROVERS & ASSOCIATES

Former Olympic Service Station

1436 Grant Avenue
San Lorenzo, California

FIGURE

2

H:\ENCINAL PROPERTY\SAN LORENZO\FIGURES\ENCINAL_4Q08-HCGW.DWG

TABLES

TABLE 1

MONITORING WELL CONSTRUCTION DETAILS
ENCINAL PROPERTIES
FORMER OLYMPIC SERVICE STATON
1436 GRANT AVENUE
SAN LORENZO, CALIFORNIA

Well ID	*Date Installed*	*Borehole diameter (in)*	*Depth of borehole (ft)*	*Casing diameter (in)*	*Screened interval (ft bgs)*	*Slot Size (in)*	*Filter Pack (ft bgs)*	*Bentonite seal (ft bgs)*	*Cement (ft bgs)*
MW-1	9/24/1999	8	26.5	2	5-26.5	0.020	3.5-26.5	3-3.5	1.5-3
MW-2	9/24/1999	8	20.0	2	5-20	0.020	3.5-20	3-3.5	1.5-3
MW-3	9/24/1999	8	21.5	2	5-21	0.020	3.5-21.5	3-3.5	1.5-3

Abbreviations / Notes

ft = feet

in = inches

ft bgs = feet below grade surface

ft above msl = feet above mean sea level

TOC = top of casing

TOC elevations were surveyed on March 8, 2007 by Virgil Chavez Land Surveying.
Prior to this date, TOC elevation were relative to a project datum determined by Aqua Science Engineers, Inc. in 1998.

TABLE 1

MONITORING WELL CONSTRUCTION DETAILS
ENCINAL PROPERTIES
FORMER OLYMPIC SERVICE STATON
1436 GRANT AVENUE
SAN LORENZO, CALIFORNIA

TOC elevation (ft above msl)
15.71
15.17
15.13

TABLE 2

GROUNDWATER ANALYTICAL DATA
ENCINAL PROPERTIES
FORMER OLYMPIAN SERVICE STATION
1436 GRANT AVENUE, SAN LORENZO, CALIFORNIA

Well ID / TOC (ft above msl)	Date Sampled	DTW (ft)	GWE (ft above msl)	Oil & Grease	TPHmo	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	SVOCs & HVOCs	DIPE	TAME	ETBE	TBA	Ethanol	EDB	1,2- DCA	Notes
				← Concentrations in micrograms per liter (µg/L) →																	
Final ESL (F-1a) : Groundwater is a current or potential drinking water resource				NE	NE	100	100	1	40	30	20	5	--	NE	NE	NE	NE	NE	NE	0.5	
Final ESL (E-1) Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion	**Residential**			NE	NE	use soil gas	use soil gas	540	380,000	170,000	160,000	24,000	--	NE	NE	NE	use soil gas	NE	NE	200	
	Commercial			NE	NE	use soil gas	use soil gas	1,800	530,000	170,000	160,000	80,000	--	NE	NE	NE	use soil gas	NE	NE	690	
Grab Groundwater Samples																					
Pit Water	9/13/1998	--	--	--	--	2,100	3,600	350	130	39	380	17,000	--	--	--	--	--				
BH-A	4/30/2002	17/8	--	--	<100	<100	180	<0.50	<0.50	8.8	<0.50	82	--	<0.50	<0.50	<0.50	<5.0				
BH-B	4/30/2002	16/8	--	--	<100	<200	2,300	120	11	60	150	2,000	--	<5.0	<5.0	<5.0	<50				
BH-C	4/30/2002	16/8	--	--	<100	<150	1,200	57	0.72	43	87	240	--	<0.50	1.0	<0.50	<5.0				
B-1-gw	2/25/2008	3/3.95	--	--	--	260,000	4,600	330	<5.0	33	<5.0	370	--	<5.0	<5.0	<5.0	<20	<500	<5.0	<5.0	*
B-2-gw	2/25/2008	7.5/6.95	--	--	--	1,900	540	12	<2.5	<2.5	<2.5	220	--	<2.5	<2.5	<2.5	<10	<250	<2.5	<2.5	*
B-3-gw	2/26/2008	8/NA	--	--	--	<50	<50	<0.5	<0.5	<0.5	<0.5	4.0	--	<0.5	<0.5	<0.5	<2.0	<50	<0.5	<0.5	*
B-4-gw	2/25/2008	7.5/7.80	--	--	--	6,800	7,300	150	<50	150	<50	2,700	--	<50	<50	<50	1,700	<5,000	<50	<50	*
B-5-gw	2/26/2008	8/6.40	--	--	--	250	320	<10	<10	13	<10	630	--	<10	<10	<10	<40	<1,000	<10	<10	*
B-6-gw	2/26/2008	8/6.95	--	--	--	120	<50	<5.0	<5.0	<5.0	<5.0	240	--	<5.0	<5.0	<5.0	<20	<500	<5.0	<5.0	*
B-7-gw	2/26/2008	8/6.55	--	--	--	84	<50	<0.5	<0.5	<0.5	<0.5	27	--	<0.5	<0.5	<0.5	<2.0	<50	<0.5	<0.5	*
B-8-gw	2/25/2008	8/6.10	--	--	--	1,000	930	37	<2.5	64	23	160	--	<2.5	<2.5	<2.5	<10	<250	<2.5	<2.5	*
																					*
Quarterly Groundwater Samples																					
MW-1	10/6/1999	8.35	6.65	--	--	84	3,900	<25	<25	<25	<25	3,500	--	--	--	--	--	--	--	--	*
15.00	1/13/2000	7.90	7.10	--	--	<50	<1,300	18	<13	<13	<13	1,700	--	--	--	--	--	--	--	--	
	4/12/2000	7.08	7.92	--	--	56	<1,000	66	<10	<10	<10	1,600	--	--	--	--	--	--	--	--	*
	7/19/2000	7.66	7.34	--	--	52	<1,000	<10	<10	<10	<10	1,200	--	--	--	--	--	--	--	--	*
	10/25/2000	7.91	7.09	--	--	76	4,100	120	<25	<25	<25	6,100	--	--	--	--	--	--	--	--	*
	2/16/2007	6.32	8.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	3/1/2007	5.88	9.12	--	<250	<50	<50	<1.2	<1.2	<1.2	<1.2	78	--	<1.2	<1.2	<1.2	<12	<120	<1.2	<1.2	*
15.71	5/1/2007	7.24	8.47	--	<250	<50	<50	<5.0	<5.0	<5.0	<5.0	250	--	<5.0	<5.0	<5.0	<50	<500	<5.0	<5.0	*
	8/1/2007	7.77	7.94	--	--	<50	<50	<25	<25	<25	<25	520	--	<25	<25	<25	<250	<2500	<25	<25	*
	11/1/2007	7.71	8.00	--	--	<50	<50	<12	<12	<12	<12	460	--	<12	<12	<12	<120	<1,200	<12	<12	
	2/1/2008	5.71	10.00	--	--	<50	<50	<2.5	<2.5	<2.5	<2.5	110	--	<2.5	<2.5	<2.5	<10	<250	<2.5	<2.5	*
	5/2/2008	7.52	8.19	--	<250	<50	<50	<5.0	<5.0	<5.0	<5.0	240	--	<5.0	<5.0	<5.0	<20	<500	<5.0	<5.0	
	8/1/2008	8.02	7.69	--	--	<50	<50	<10	<10	<10	<10	500	--	<10	<10	<10	<40	<1,000	<10	<10	*
	11/4/2008	**7.28**	**8.43**	--	--	**<50**	**<50**	**<5.0**	**<5.0**	**<5.0**	**<5.0**	**260**	--	**<5.0**	**<5.0**	**<5.0**	**26**	**<500**	**<5.0**	**<5.0**	
MW-2	10/6/1999	7.87	6.59	<1,000	<500	<50	70	<0.5	<0.5	<0.5	<0.5	11	ND	--	--	--	--	--	--	--	*
14.46	1/13/2000	7.46	7.00	<1,000	<500	<50	<50	<0.5	<0.5	<0.5	<0.5	6.2	ND	--	--	--	--	--	--	--	
	4/12/2000	6.67	7.79	1,100	<500	<50	<50	<0.5	<0.5	<0.5	<0.5	39	--	--	--	--	--	--	--	--	
	7/19/2000	7.23	7.23	1,300	<500	<50	<1,000	<10	<10	<10	<10	990	--	--	--	--	--	--	--	--	
	10/25/2000	7.52	6.94	--	<500	<50	370	<2.5	<2.5	<2.5	<2.5	690	--	--	--	--	--	--	--	--	

TABLE 2

GROUNDWATER ANALYTICAL DATA
ENCINAL PROPERTIES
FORMER OLYMPIAN SERVICE STATION
1436 GRANT AVENUE, SAN LORENZO, CALIFORNIA

Well ID / *TOC* (*ft above msl*)	*Date Sampled*	*DTW (ft)*	*GWE (ft above msl)*	*Oil & Grease*	*TPHmo*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*Xylenes*	*MTBE*	*SVOCs & HVOCs*	*DIPE*	*TAME*	*ETBE*	*TBA*	*Ethanol*	*EDB*	*1,2- DCA*	*Notes*
				←						*Concentrations in micrograms per liter (µg/L)*											→
Final ESL (F-1a) : Groundwater is a current or potential drinking water resource				NE	NE	100	100	1	40	30	20	5	--	NE	NE	NE	NE	NE	NE	0.5	
Final ESL (E-1) Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion	**Residential**			NE	NE	use soil gas	use soil gas	540	380,000	170,000	160,000	24,000	--	NE	NE	NE	use soil gas	NE	NE	200	
	Commercial			NE	NE	use soil gas	use soil gas	1,800	530,000	170,000	160,000	80,000	--	NE	NE	NE	use soil gas	NE	NE	690	
MW-2	2/16/2007	5.89	8.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
(cont.)	3/1/2007	5.45	9.01	--	<250	<50	<50	<0.5	<0.5	<0.5	<0.5	9.8	--	<0.5	<0.5	<0.5	<5.0	<50	<0.5	<0.5	*
15.17	5/1/2007	6.83	8.34	--	<250	<50	<50	<5.0	<5.0	<5.0	<5.0	120	--	<5.0	<5.0	<5.0	<50	<500	<5.0	<5.0	*
	8/1/2007	7.35	7.82	--	--	<50	<50	<5.0	<5.0	<5.0	<5.0	130	--	<5.0	<5.0	<5.0	<50	<500	<5.0	<5.0	*
	11/1/2007	7.27	7.90	--	--	<50	<50	<0.5	<0.5	<0.5	<0.5	19	--	<0.5	<0.5	<0.5	<5.0	<50	<0.5	<0.5	
	2/1/2008	5.25	9.92	--	--	<50	<50	<0.5	<0.5	<0.5	<0.5	3.3	--	<0.5	<0.5	<0.5	<2.0	<50	<0.5	<0.5	*
	5/2/2008	7.12	8.05	--	--	<50	<50	<2.5	<2.5	<2.5	<2.5	83.0	--	<2.5	<2.5	<2.5	<10	<250	<2.5	<2.5	
	8/1/2008	7.59	7.58	--	--	<50	<50	<1.0	<1.0	<1.0	<1.0	52	--	<1.0	<1.0	<1.0	<4.0	<100	<1.0	<1.0	*
	11/4/2008	**6.84**	**8.33**	--	--	**80**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**5.9**	--	**<0.5**	**<0.5**	**<0.5**	**<2.0**	**<50**	**<0.5**	**<0.5**	*
MW-3	10/6/1999	7.90	6.51	--	--	300	3,900	900	89	160	560	790	--	--	--	--	--	--	--	--	
14.41	1/13/2000	7.50	6.91	--	--	210	740	110	4.8	35	18	290	--	--	--	--	--	--	--	--	
	4/12/2000	6.61	7.80	--	--	640	2,200	650	9.7	180	24	140	--	--	--	--	--	--	--	--	
	7/19/2000	7.24	7.17	--	--	270	2,700	420	<2.5	160	<2.5	99	--	--	--	--	--	--	--	--	*
	10/25/2000	7.52	6.89	--	--	150	710	180	<2.5	24	<2.5	71	--	--	--	--	--	--	--	--	*
	2/16/2007	5.90	8.51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	3/1/2007	5.44	8.97	--	<250	<50	82	20	<1.7	<1.7	<1.7	100	--	<1.7	<1.7	<1.7	<17	<170	<1.7	<1.7	*
15.13	5/1/2007	6.87	8.26	--	<250	<50	<50	<5.0	<5.0	<5.0	<5.0	88	--	<5.0	<5.0	<5.0	<50	<500	<5.0	<5.0	*
	8/1/2007	7.40	7.73	--	--	<50	130	12	<2.5	<2.5	<2.5	98	--	<2.5	<2.5	<2.5	<25	<250	<2.5	<2.5	*
	11/1/2007	7.35	7.78	--	--	<50	77	<2.5	<2.5	<2.5	<2.5	68	--	<2.5	<2.5	<2.5	<25	<250	<2.5	<2.5	*
	2/1/2008	5.28	9.85	--	--	<50	<50	<2.5	<2.5	<2.5	<2.5	97	--	<2.5	<2.5	<2.5	<10	<250	<2.5	<2.5	
	5/2/2008	7.15	7.98	--	--	<50	68	2.3	<1.7	<1.7	<1.7	86	--	<1.7	<1.7	<1.7	7.20	<170	<1.7	<1.7	
	8/1/2008	7.66	7.47	--	--	<50	85	3.5	<1.0	<1.0	<1.0	66	--	<1.0	<1.0	<1.0	7.2	<100	<1.0	<1.0	*
	11/4/2008	**6.96**	**8.17**	--	--	**<50**	**<50**	**<1.0**	**<1.0**	**<1.0**	**<1.0**	**40**	--	**<1.0**	**<1.0**	**<1.0**	**<4.0**	**<100**	**<1.0**	**<1.0**	

TABLE 2

GROUNDWATER ANALYTICAL DATA
ENCINAL PROPERTIES
FORMER OLYMPIAN SERVICE STATION
1436 GRANT AVENUE, SAN LORENZO, CALIFORNIA

Well ID / *TOC* (*ft above msl*)	*Date Sampled*	*DTW (ft)*	*GWE (ft above msl)*	*Oil & Grease*	*TPHmo*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*Xylenes*	*MTBE*	*SVOCs & HVOCs*	*DIPE*	*TAME*	*ETBE*	*TBA*	*Ethanol*	*EDB*	*1,2- DCA*	*Notes*
				←						*Concentrations in micrograms per liter (µg/L)*											→
Final ESL (F-1a) : Groundwater is a current or potential drinking water resource				NE	NE	100	100	1	40	30	20	5	--	NE	NE	NE	NE	NE	NE	0.5	
Final ESL (E-1) Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion	**Residential**			NE	NE	use soil gas	use soil gas	540	380,000	170,000	160,000	24,000	--	NE	NE	NE	use soil gas	NE	NE	200	
	Commercial			NE	NE	use soil gas	use soil gas	1,800	530,000	170,000	160,000	80,000	--	NE	NE	NE	use soil gas	NE	NE	690	

Abbreviations / Notes

TOC = Top of casing
DTW = Depth to water
GWE = Groundwater elevation in feet above mean sea level
ft above msl = feet above mean sea level
17/8 = Depth to first encountered groundwater/depth of static groundwater
<n = Not detected above laboratory reporting limit
-- = Not sampled, not analyzed, not available
Oil and grease by EPA Method 5520 E&F
TPHd = Total Petroleum Hydrocarbons as diesel range by EPA Method 8015
TPHg = Total Petroleum Hydrocarbons as gasoline range by EPA Method 8015
TPHmo = Total Petroleum Hydrocarbons as motor oil by EPA Method 8015
Benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8020
MTBE = Methyl tertiary butyl ether by EPA Method 8260
Di-isopropyl ether (DIPE), tertiary-amyl methyl ether (TAME), ethyl tertiary-butyl ether (ETBE), tertiary-butyl alcohol (TBA) by EPA Method 8260B
SVOCs = Semi-volatile organic compounds by EPA Method 8270, refer to corresponding analytical laboratory report for a full list of compounds
HVOCs = Halogenated volatile organic compoundy by EPA Method 8010, refer to corresponding analytical laboratory report for a full list of compounds
* = See Analytical Laboratory Report for laboratory sample description and TPH chromatogram interpretation.
TOC elevations were surveyed on March 8, 2007 by Virgil Chavez Land Surveying. Prior to this date, TOC elevation were relative to a project datum determined by Aqua Science Engineers, Inc. in 1998

1,2 dichloroethane (1,2 DCA), and Ethanol
1,2-dibromoethane (EDB)

APPENDIX A

FIELD DATA SHEETS

MUSKAN
ENVIRONMENTAL
SAMPLING

WELL GAUGING SHEET

Client: Conestoga-Rovers and Associates

Site Address: 1436 Grant Avenue, San Lorenzo, CA

Date: 11/4/2008 **Signature:**

Well ID	Time	Depth to SPH	Depth to Water	SPH Thickness	Depth to Bottom	Comments
MW-1	9:10		7.28		24.36	
MW-2	9:00		6.84		19.35	
MW-3	9:05		6.96		19.05	

MUSKAN
ENVIRONMENTAL
SAMPLING

WELL SAMPLING FORM

Date:	11/4/2008
Client:	Conestoga-Rovers and Associates
Site Address:	1436 Grant Avenue, San Lorenzo, CA
Well ID:	MW-1
Well Diameter:	2"
Purging Device:	Disposable Bailer
Sampling Method:	Disposable Bailer

Total Well Depth:	24.36	**Fe=**	**mg/L**
Depth to Water:	7.28	**ORP=**	**mV**
Water Column Height:	17.08	**DO=**	**mg/L**
Gallons/ft:	0.16		
1 Casing Volume (gal):	2.73		
3 Casing Volumes (gal):	8.20		

COMMENTS:
very turbid, silty

TIME:	CASING VOLUME (gal)	TEMP (Celsius)	pH	COND. (µS)
10:25	2.7	21.2	7.43	1804
10:30	5.5	21.2	7.50	1809
10:35	8.2	21.1	7.49	1804

Sample ID:	Sample Date:	Sample Time:	Container Type	Preservative	Analytes	Method
MW-1	11/4/2008	10:40	40 ml VOA, 1 L Amber	HCl, ICE	TPHg TPHd 9 Oxy's	8015 with silica gel clean up, 8021, 8260
				Signature:		

MUSKAN
ENVIRONMENTAL
SAMPLING

WELL SAMPLING FORM

Date:	11/4/2008
Client:	Conestoga-Rovers and Associates
Site Address:	1436 Grant Avenue, San Lorenzo, CA
Well ID:	MW-2
Well Diameter:	2"
Purging Device:	Disposable Bailer
Sampling Method:	Disposable Bailer

Total Well Depth:	19.35	**Fe=**	**mg/L**
Depth to Water:	6.84	**ORP=**	**mV**
Water Column Height:	12.51	**DO=**	**mg/L**
Gallons/ft:	0.16		
1 Casing Volume (gal):	2.00		
3 Casing Volumes (gal):	6.00		

COMMENTS:
very turbid, silty

TIME:	CASING VOLUME (gal)	TEMP (Celsius)	pH	COND. (µS)
9:30	2.0	20.6	7.25	1568
9:35	4.0	20.7	7.23	1566
9:40	6.0	21.0	7.30	1580

Sample ID:	Sample Date:	Sample Time:	Container Type	Preservative	Analytes	Method
MW-2	11/4/2008	9:45	40 ml VOA, 1 L Amber	HCl, ICE	TPHg TPHd 9 Oxy's	8015 with silica gel clean up, 8021, 8260
				Signature:		

MUSKAN
ENVIRONMENTAL
SAMPLING

WELL SAMPLING FORM

Date:	11/4/2008
Client:	Conestoga-Rovers and Associates
Site Address:	1436 Grant Avenue, San Lorenzo, CA
Well ID:	MW-3
Well Diameter:	2"
Purging Device:	Disposable Bailer
Sampling Method:	Disposable Bailer

Total Well Depth:	19.05	**Fe=**	**mg/L**
Depth to Water:	6.96	**ORP=**	**mV**
Water Column Height:	12.09	**DO=**	**mg/L**
Gallons/ft:	0.16		
1 Casing Volume (gal):	1.93		
3 Casing Volumes (gal):	5.80		

COMMENTS:
very turbid, silty

TIME:	CASING VOLUME (gal)	TEMP (Celsius)	pH	COND. (µS)
9:55	1.9	20.3	7.44	1475
10:00	3.9	20.9	7.41	1473
10:05	5.8	20.5	7.46	1501

Sample ID:	Sample Date:	Sample Time:	Container Type	Preservative	Analytes	Method
MW-3	11/4/2008	10:10	40 ml VOA, 1 L Amber	HCl, ICE	TPHg TPHd 9 Oxy's	8015 with silica gel clean up, 8021, 8260
				Signature:		

APPENDIX B

LABORATORY ANALYTICAL REPORT

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Conestoga-Rovers & Associates 5900 Hollis St, Suite A Emeryville, CA 94608	Client Project ID: #629100; Encinal Properties Former Olympic Station	Date Sampled: 11/04/08
		Date Received: 11/04/08
	Client Contact: Bob Foss	Date Reported: 11/10/08
	Client P.O.:	Date Completed: 11/07/08

WorkOrder: 0811084

November 10, 2008

Dear Bob:

Enclosed within are:

1) The results of the **3** analyzed samples from your project: **#629100; Encinal Properties Former**
2) A QC report for the above samples,
3) A copy of the chain of custody, and
4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing

McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701
Website: www.mccampbell.com Email: main@mccampbell.com
Telephone: (877) 252-9262 Fax: (925) 252-9269

0811084

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAY

GeoTracker EDF ☒ PDF ☐ Excel ☐ Write On (DW) ☐

Report To: Bob Foss
Company: Conestoga-Rovers & Associates
5900 Hollis St., Ste. A
Emeryville, CA
Tele: (510) 420-3348
Project #: 629100
Project Location: 1436 Grant Ave., San Lorenzo, CA
Sampler Signature: Mnsky Environmental Sampling LLC

Bill To: Same Conestoga-Rovers & Associates
E-Mail: bfoss@craworld.com
Fax: (510) 420-9170
Project Name: Encinal Properties Former Olympic Station

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	Soil	Air	Sludge	Other	METHOD PRESERVED ICE	HCL	HNO_3	Other
MW-1	[redacted]	11-4-08	10:40	4	VOA Amb	X					X			
MW-2	[redacted]	"	9:45	"	"	X					X			
MW-3	[redacted]	"	10:10	"	"	X					X			
TB		"		1	VOA	X					X			

Analysis Request

MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)	MTBE / BTEX ONLY (EPA 602 / 8021)	TPH as Diesel (8015) with silica gel clean up	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	8081 (Cl Pesticides)	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic Cl Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	Lead	TPH 8015
		X													X
		X													X
		X													X

Other: BTEX EDB, EDC, MTBE, TAME, ETBE, DIPE, TBA, EtOH by 8260B

Comments: Filter Samples for Metals analysis: Yes / No

120/4

Relinquished By:	Date:	Time:	Received By:
	11/4/08	1209	
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

ICE/t° 7.0
GOOD CONDITION ✓
HEAD SPACE ABSENT
DECHLORINATED IN LAB NA
APPROPRIATE CONTAINERS ✓
PRESERVED IN LAB NO

	VOAS	O&G	METALS	OTHER
PRESERVATION			pH<2	

COMMENTS:

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0811084 **ClientCode: CETE**

☐ WriteOn ☑ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bob Foss
Conestoga-Rovers & Associates
5900 Hollis St, Suite A
Emeryville, CA 94608
(510) 420-0700 FAX: (510) 420-9170

Email: bfoss@craworld.com
cc:
PO:
ProjectNo: #629100; Encinal Properties Former Olympic Station

Bill to:
Accounts Payable
Conestoga-Rovers & Associates
5900 Hollis St, Ste. A
Emeryville, CA 94608

Requested TAT: 5 days

Date Received: **11/04/2008**
Date Printed: **11/11/2008**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
0811084-001	MW-1	Water	11/4/2008 10:40	☐	A	B	A									
0811084-002	MW-2	Water	11/4/2008 9:45	☐	A	B										
0811084-003	MW-3	Water	11/4/2008 10:10	☐	A	B										

Test Legend:

1	G-MBTEX_W	2	MBTEXOXY-8260B_W	3	PREDF REPORT	4		5	
6		7		8		9		10	
11		12							

The following SampIDs: 001A, 002A, 003A contain testgroup.

Prepared by: Samantha Arbuckle

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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Telephone: 877-252-9262 Fax: 925-252-9269

Sample Receipt Checklist

Client Name: **Conestoga-Rovers & Associates** Date and Time Received: **11/4/2008 3:33:29 PM**

Project Name: **#629100; Encinal Properties Former Olympic Statio** Checklist completed and reviewed by: Samantha Arbuckle

WorkOrder N°: **0811084** Matrix Water Carrier: Client Drop-In

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐
Chain of custody signed when relinquished and received?	Yes ☑	No ☐
Chain of custody agrees with sample labels?	Yes ☑	No ☐
Sample IDs noted by Client on COC?	Yes ☑	No ☐
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐
Sampler's name noted on COC?	Yes ☑	No ☐

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	NA ☐
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature	Cooler Temp: 7°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☑	No ☐	No VOA vials submitted ☐
Sample labels checked for correct preservation?	Yes ☑	No ☐	
TTLC Metal - pH acceptable upon receipt (pH<2)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☑	No ☐	

(Ice Type: WET ICE)

** NOTE: If the "No" box is checked, see comments below.*

Client contacted: Date contacted: Contacted by:

Comments:

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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Conestoga-Rovers & Associates	Client Project ID: #629100; Encinal Properties Former Olympic Station	Date Sampled: 11/04/08
		Date Received: 11/04/08
5900 Hollis St, Suite A	Client Contact: Bob Foss	Date Extracted: 11/07/08
Emeryville, CA 94608	Client P.O.:	Date Analyzed 11/07/08

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*

Extraction method: SW5030B Analytical methods: SW8015Cm Work Order: 0811084

Lab ID	Client ID	Matrix	TPH(g)	DF	% SS
001A	MW-1	W	ND	1	96
002A	MW-2	W	ND	1	100
003A	MW-3	W	ND	1	103

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	NA	NA

* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation:

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
"When Quality Counts"
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Conestoga-Rovers & Associates	Client Project ID: #629100; Encinal Properties Former Olympic Station	Date Sampled: 11/04/08
		Date Received: 11/04/08
5900 Hollis St, Suite A	Client Contact: Bob Foss	Date Extracted: 11/06/08
Emeryville, CA 94608	Client P.O.:	Date Analyzed: 11/06/08

Oxygenates and BTEX by GC/MS*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0811084

Lab ID	0811084-001B	0811084-002B	0811084-003B		Reporting Limit for DF =1	
Client ID	MW-1	MW-2	MW-3			
Matrix	W	W	W			
DF	10	1	2		S	W
Compound	**Concentration**				ug/kg	µg/L
tert-Amyl methyl ether (TAME)	ND<5.0	ND	ND<1.0		NA	0.5
Benzene	ND<5.0	ND	ND<1.0		NA	0.5
t-Butyl alcohol (TBA)	26	ND	ND<4.0		NA	2.0
1,2-Dibromoethane (EDB)	ND<5.0	ND	ND<1.0		NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND<5.0	ND	ND<1.0		NA	0.5
Diisopropyl ether (DIPE)	ND<5.0	ND	ND<1.0		NA	0.5
Ethanol	ND<500	ND	ND<100		NA	50
Ethylbenzene	ND<5.0	ND	ND<1.0		NA	0.5
Ethyl tert-butyl ether (ETBE)	ND<5.0	ND	ND<1.0		NA	0.5
Methyl-t-butyl ether (MTBE)	260	5.9	40		NA	0.5
Toluene	ND<5.0	ND	ND<1.0		NA	0.5
Xylenes	ND<5.0	ND	ND<1.0		NA	0.5
Surrogate Recoveries (%)						
%SS1:	100	103	100			
%SS2:	87	84	87			
%SS3:	82	77	81			
Comments						

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

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Angela Rydelius, Lab Manager

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Telephone: 877-252-9262 Fax: 925-252-9269

Conestoga-Rovers & Associates	Client Project ID: #629100; Encinal Properties Former Olympic Station	Date Sampled: 11/04/08
		Date Received: 11/04/08
5900 Hollis St, Suite A	Client Contact: Bob Foss	Date Extracted: 11/04/08
Emeryville, CA 94608	Client P.O.:	Date Analyzed 11/06/08

Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up*

Extraction method SW3510C/3630C Analytical methods: SW8015B Work Order: 0811084

Lab ID	Client ID	Matrix	TPH-Diesel (C10-C23)	DF	% SS
0811084-001A	MW-1	W	ND	1	112
0811084-002A	MW-2	W	80,e10/e1	1	93
0811084-003A	MW-3	W	ND	1	113

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	NA	NA

* water samples are reported in µg/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract/matrix interference.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation:

e10) fuel oil; and/or e1) unmodified or weakly modified diesel is significant

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Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
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QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 39405 WorkOrder: 0811084

EPA Method: SW8021B/8015Cm **Extraction: SW5030B** **Spiked Sample ID: 0811091-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex)£	ND	60	91.1	93	1.98	87.9	91.4	3.91	70 - 130	20	70 - 130	20
MTBE	ND	10	97.7	97	0.713	95.2	99.3	4.25	70 - 130	20	70 - 130	20
Benzene	ND	10	93	90.7	2.53	89.9	91.3	1.65	70 - 130	20	70 - 130	20
Toluene	ND	10	93.2	91	2.38	89.6	90.7	1.28	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	97.4	95.2	2.33	93.4	94.9	1.62	70 - 130	20	70 - 130	20
Xylenes	ND	30	106	106	0	103	105	1.36	70 - 130	20	70 - 130	20
%SS:	97	10	98	94	4.38	93	92	1.55	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 39405 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0811084-001A	11/04/08 10:40 AM	11/07/08	11/07/08 3:42 AM	0811084-002A	11/04/08 9:45 AM	11/07/08	11/07/08 4:12 AM
0811084-003A	11/04/08 10:10 AM	11/07/08	11/07/08 4:42 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content, or inconsistency in sample containers.

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QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 39406 WorkOrder: 0811084

EPA Method: SW8260B **Extraction: SW5030B** **Spiked Sample ID: 0811158-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	109	104	4.29	112	111	0.161	70 - 130	30	70 - 130	30
Benzene	ND	10	113	111	1.63	117	115	1.87	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	105	98.4	6.59	95.1	98.5	3.59	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	10	124	120	3.63	114	112	2.08	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	10	117	112	4.32	121	120	0.971	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	102	100	2.08	107	106	0.832	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	117	112	4.19	123	123	0	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	102	98.9	3.10	104	105	0.441	70 - 130	30	70 - 130	30
Toluene	ND	10	118	113	4.43	123	120	2.36	70 - 130	30	70 - 130	30
%SS1:	101	25	102	101	1.43	97	99	1.24	70 - 130	30	70 - 130	30
%SS2:	87	25	91	89	1.95	86	86	0	70 - 130	30	70 - 130	30
%SS3:	85	2.5	96	92	4.96	92	92	0	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 39406 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0811084-001B	11/04/08 10:40 AM	11/06/08	11/06/08 5:08 PM	0811084-002B	11/04/08 9:45 AM	11/06/08	11/06/08 4:00 AM
0811084-003B	11/04/08 10:10 AM	11/06/08	11/06/08 5:51 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND conta significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

QA/QC Officer

McCampbell Analytical, Inc.
"When Quality Counts"

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Telephone: 877-252-9262 Fax: 925-252-9269

QC SUMMARY REPORT FOR SW8015B

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 39341 WorkOrder 0811084

EPA Method SW8015B **Extraction SW3510C/3630C** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH-Diesel (C10-C23)	N/A	1000	N/A	N/A	N/A	83.4	85.7	2.81	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	108	111	2.47	N/A	N/A	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 39341 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0811084-001A	11/04/08 10:40 AM	11/04/08	11/06/08 2:46 AM	0811084-002A	11/04/08 9:45 AM	11/04/08	11/06/08 8:38 PM
0811084-003A	11/04/08 10:10 AM	11/04/08	11/06/08 5:03 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644

QA/QC Officer

APPENDIX C

STANDARD FIELD PROCEDURES

Conestoga-Rovers & Associates

STANDARD FIELD PROCEDURES FOR GROUNDWATER MONITORING AND SAMPLING

This document presents standard field methods for groundwater monitoring, purging and sampling, and well development. These procedures are designed to comply with Federal, State and local regulatory guidelines. Cambria's specific field procedures are summarized below.

Groundwater Elevation Monitoring

Prior to performing monitoring activities, the historical monitoring and analytical data of each monitoring well shall be reviewed to determine if any of the wells are likely to contain non-aqueous phase liquid (NAPL) and to determine the order in which the wells will be monitored (i.e. cleanest to dirtiest). Groundwater monitoring should not be performed when the potential exists for surface water to enter the well (i.e. flooding during a rainstorm).

Prior to monitoring, each well shall be opened and the well cap removed to allow water levels to stabilize and equilibrate. The condition of the well box and well cap shall be observed and recommended repairs noted. Any surface water that may have entered and flooded the well box should be evacuated prior to removing the well cap. In wells with no history of NAPL, the static water level and total well depth shall be measured to the nearest 0.01 foot with an electronic water level meter. Wells with the highest contaminant concentrations shall be measured last. In wells with a history of NAPL, the NAPL level/thickness and static water level shall be measured to the nearest 0.01 foot using an electronic interface probe. The water level meter and/or interface probe shall be thoroughly cleaned and decontaminated at the beginning of the monitoring event and between each well. Monitoring equipment shall be washed using soapy water consisting of Liqui-nox™ or Alconox™ followed by one rinse of clean tap water and then two rinses of distilled water.

Groundwater Purging and Sampling

Prior to groundwater purging and sampling, the historical analytical data of each monitoring well shall be reviewed to determine the order in which the wells should be purged and sampled (i.e. cleanest to dirtiest). No purging or groundwater sampling shall be performed on wells with a measurable thickness of NAPL or floating NAPL globules. If a sheen is observed, the well should be purged and a groundwater sample collected only if no NAPL is present. Wells shall be purged either by hand using a disposal or PVC bailer or by using an aboveground pump (e.g. peristaltic or Wattera™) or down-hole pump (e.g. Grundfos™ or DC Purger pump).

Groundwater wells shall be purged approximately three to ten well-casing volumes (depending on the regulatory agency requirements) or until groundwater parameters of temperature, pH, and conductivity have stabilized to within 10% for three consecutive readings. Temperature, pH, and conductivity shall be measured and recorded at least once per well casing volume removed. The total volume of groundwater removed shall be recorded along with any other notable physical characteristic such as color and odor. If required, field parameters such as turbidity, dissolved oxygen (DO), and oxidation-reduction potential (ORP) shall also be measured prior to collection of each groundwater sample.

Groundwater samples shall be collected after the well has been purged. If the well is slow to recharge, a sample shall be collected after the water column is allowed to recharge to 80% of the pre-purging static water level. If the well does not recover to 80% in 2 hours, a sample shall be collected once there is enough groundwater in the well. Groundwater samples shall be collected using clean disposable bailers or pumps (if an operating remediation system exists on site and the project manager approves of its use for sampling) and shall be decanted into clean containers supplied by the analytical laboratory. New latex gloves and disposable tubing or bailers shall be

used for sampling each well. If a PVC bailer or down-hole pump is used for groundwater purging, it shall be decontaminated before purging each well by using soapy water consisting of Liqui-nox™ or Alconox™ followed by one rinse of clean tap water and then two rinses of distilled water. If a submersible pump with non-dedicated discharge tubing is used for groundwater purging, both the inside and outside of pump and discharge tubing shall be decontaminated as described above.

Sample Handling

Except for samples that will be tested in the field, or that require special handling or preservation, samples shall be stored in coolers chilled to 4° C for shipment to the analytical laboratory. Samples shall be labeled, placed in protective foam sleeves or bubble wrap as needed, stored on crushed ice at or below 4° C, and submitted under chain-of-custody (COC) to the laboratory. The laboratory shall be notified of the sample shipment schedule and arrival time. Samples shall be shipped to the laboratory within a time frame to allow for extraction and analysis to be performed within the standard sample holding times.

Sample labels shall be filled out using indelible ink and must contain the site name; field identification number; the date, time, and location of sample collection; notation of the type of sample; identification of preservatives used; remarks; and the signature of the sampler. Field identification must be sufficient to allow easy cross-reference with the field datasheet.

All samples submitted to the laboratory shall be accompanied by a COC record to ensure adequate documentation. A copy of the COC shall be retained in the project file. Information on the COC shall consist of the project name and number; project location; sample numbers; sampler/recorder's signature; date and time of collection of each sample; sample type; analyses requested; name of person receiving the sample; and date of receipt of sample.

Laboratory-supplied trip blanks shall accompany the samples and be analyzed to check for cross-contamination, if requested by the project manager.

Waste Handling and Disposal

Groundwater extracted during sampling shall be stored onsite in sealed U.S. DOT H17 55-gallon drums and shall be labeled with the contents, date of generation, generator identification, and consultant contact. Extracted groundwater may be disposed offsite by a licensed waste handler or may be treated and discharged via an operating onsite groundwater extraction/treatment system.