RO296

Alameda-Contra Costa Transit District

April 28, 2005

Mr. Barney Chan
Alameda County Health Division
Division of Environmental Protection
Department of Environmental Health
1131 Harbor Bay Parkway, Second Floor
Alameda, CA 94502

Dear Mr. Chan:

Subject: Quarterly Groundwater Monitoring Report – February 2005 Sampling
AC Transit, 1100 Seminary Avenue, Oakland, CA

AC Transit hereby submits the enclosed quarterly groundwater monitoring report for the February 2005 sampling event at the 1100 Seminary Avenue, Oakland, facility. The report was prepared by our consultants, Cameron-Cole.

On February 22, 2005, groundwater sampling of six monitoring wells (MW-1 through MW-3 and MW-9 through MW-11) was performed by Cameron-Cole in accordance with directives from your office. Groundwater samples were collected and analyzed for total petroleum hydrocarbons (TPH) as gasoline and diesel using EPA Method 8015, benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl-tert butyl ether (MTBE) using EPA Method 8260B and nitrate and sulfate using Standard Methods 300.0A. Field parameters collected during sampling included pH, temperature, electrical conductivity, dissolved oxygen, ferrous iron and oxidation reduction potential. In addition, monitoring well MW-2 is being purged dry monthly and during each quarterly sampling event.

Sample results continue to show that TPH and related compounds are primarily restricted to monitoring wells MW-1, MW-2 and MW-3, installed near the former underground tank farm. Free phase product has not been measured in well MW-2 since the second quarter of 2002.

We have not received a response to our previous requests for your approval to allow us to change the monitoring frequency from quarterly to semi-annual. Unless we hear otherwise from your agency, we will begin the semi-annual monitoring schedule starting in August of this year. If you have any questions regarding this report or other matters pertaining to this site, please call me at (510) 577-8869.

Sincerely,

Suzanne Patton

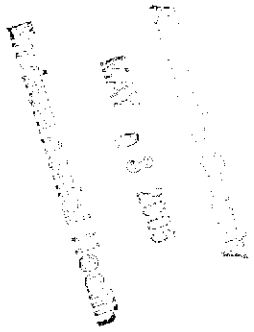
Suzanne Patton, P.E.
Environmental Engineer
enclosure

MONITORING REPORT
FOR THE AC TRANSIT FACILITY
LOCATED AT 1100 SEMINARY AVENUE,
OAKLAND, CALIFORNIA

April 2005

Prepared For:

Ms. Suzanne Patton
AC Transit
10626 E. 14th Street
Oakland, California 94603



Prepared By:

Cameron-Cole
101 W. Atlantic, Building 90
Alameda, California 94501

CAMERON-COLE

Project No: 2016

MONITORING REPORT
FOR THE AC TRANSIT FACILITY
LOCATED AT 1100 SEMINARY AVENUE,
OAKLAND, CALIFORNIA

April 2005

Prepared For:

Ms. Suzanne Patton
AC Transit
10626 E. 14th Street
Oakland, California 94603

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Principle Hydrogeologist

STATE OF CALIFORNIA
REGISTERED GEOLOGIST
8076
Exp. 5/04
B. WRIGHT
REGISTERED GEOLOGIST

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INTRODUCTION

This report presents the results of the February 2005 sampling event for the AC Transit facility located at 1100 Seminary Avenue, Oakland, California (Site) (Figure 1). Cameron-Cole performed groundwater sampling of monitor wells MW-1 through MW-3 and MW-9 through MW-11, in accordance with directives from the Alameda County Health Care Services Agency (ACHCS).

OBJECTIVES AND SCOPE OF WORK

Work performed during quarterly sampling included measuring depth to water and presence of free phase hydrocarbons in the monitor wells and collecting water samples. Field parameters collected during sampling included pH, temperature, electric conductivity, dissolved oxygen (DO), ferrous iron (Fe^{2+}) and oxygen reduction potential (ORP). Groundwater samples were collected for laboratory analysis using United States Environmental Protection Agency (USEPA) Method 8015 for total petroleum hydrocarbons (TPH) gasoline/diesel, USEPA Method 8021B for benzene, toluene, ethylbenzene, and xylene (BTEX) and methyl-tert butyl ether (MTBE) and methods of chemical analysis for water and waste (MCAWW) 300.0A for nitrate and sulfate.

Chain-of-custody documents and certified analytical reports are presented in Appendix A. Field data sheets are included in Appendix B.

Groundwater Elevations and Flow Direction

Prior to purging and sample collection, all six Site monitor wells were inspected and measured for presence of free phase hydrocarbons and depth to groundwater. Measurements of depths to groundwater are presented on Table 1 and were used to construct the groundwater elevation contours shown in Figure 2. As shown, groundwater flow is to the west at a gradient of 0.006 feet/foot.

Groundwater Sampling Activities

The monitor wells were purged a minimum of three casing volumes, using a centrifugal pump and samples were collected using disposable polyethylene bailers. During well purging, field parameters for pH, electrical conductivity, DO, ORP, Fe^{2+} and temperature were monitored using calibrated field meters.

In addition, MW-2 is now being purged of ten casing volumes monthly and during all quarterly sampling events to expedite the removal of free phase hydrocarbons from the vicinity of the well. Field data sheets of the over-purge events are included in Appendix B.

Groundwater samples were transferred to appropriate laboratory supplied and preserved containers and placed in an ice-filled cooler for shipment under chain-of-custody to a State of California certified laboratory.

Groundwater Analytical Results

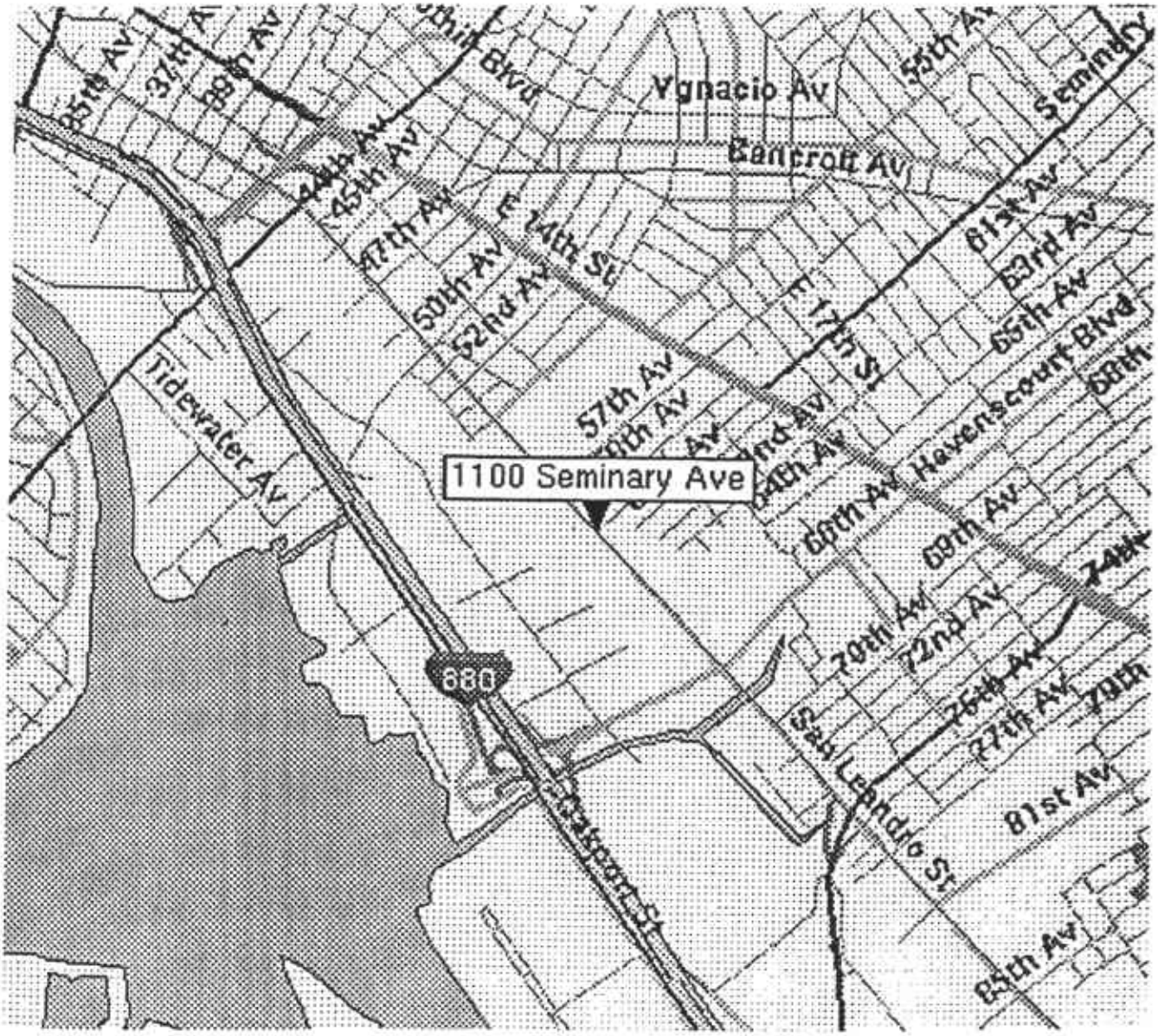
Table 2 presents groundwater historic and first quarter 2005 analytical results. Concentrations of benzene above the State of California maximum contaminant level (MCL) of 1.0 part per billion (ppb) were detected in monitor wells MW-1, MW-2 and MW-3. Toluene was detected above the MCL of 150 ppb in monitor well MW-2. Ethylbenzene was detected above the MCL of 300 ppb in monitor well MW-2. Total xylenes were detected above the MCL of 1,750 ppb in MW-2. TPH-gasoline was detected above the reporting limit in monitor wells MW-1, MW-2, MW-3 and MW-11. TPH-diesel was detected above the reporting limit in wells MW-1, MW-2, MW-3. A lab control spike and lab control spike duplicate passed the USEPA's criteria for acceptance.

SUMMARY OF RESULTS

- Groundwater flow direction is towards the west at a gradient of 0.006 feet/foot.
- Chemical concentrations in excess of MCLs were limited to benzene in wells MW-1 MW-2 and MW-3 and toluene, ethylbenzene and xylenes in well MW-2.
- Gasoline was found to be present in groundwater samples taken from wells MW-1 (325 ppb), MW-2 (55,200 ppb), MW-3 (3,480 ppb) and MW-11 (114 ppb).
- Diesel was found to be present in groundwater samples taken from MW-1, MW-2 and MW-3 at concentrations of 170 ppb, 42,000 ppb and 390 ppb, respectively.
- The free phase product level previously measured in well MW-2 has not been detected since the second quarter 2002.

PROJECTED WORK AND RECOMMENDATIONS

Because of the consistency of quarterly groundwater monitoring data collected since February 2000, it was recommended that the groundwater monitoring program be modified to a semi-annual schedule. To date ACHCS has not commented on this recommendation. Quarterly monitoring will continue until ACHCS provides authorization to proceed with semi-annual monitoring.



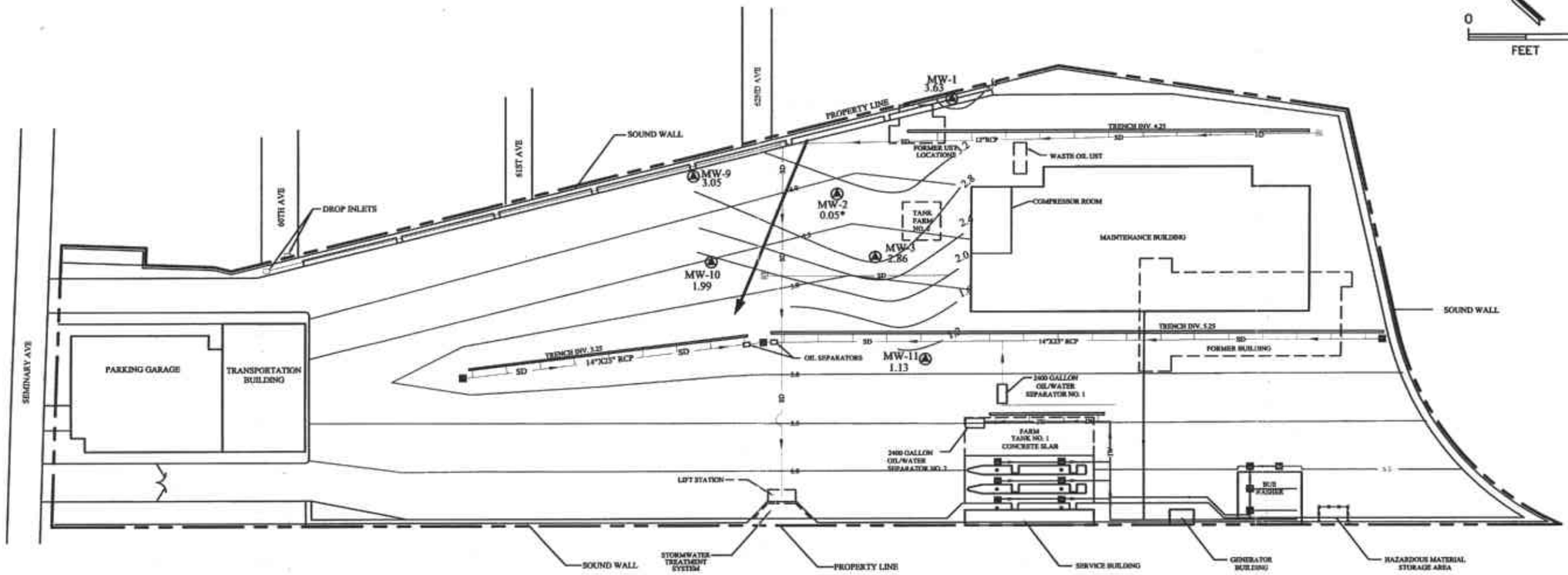
CAMERON-COLE

AC TRANSIT - OAKLAND, CALIFORNIA

FIGURE 1
SITE LOCATION MAP
1100 SEMINARY ROAD

SCALE	DATE
NO SCALE	3/22/00

LOCMAP



LEGEND

1.0	GROUNDWATER ELEVATION CONTOUR
1.99	GROUNDWATER ELEVATION (FT. MSL)
	REPORTED GROUNDWATER FLOW
SD	STORM DRAIN PIPELINE
6.0	CONTOUR
IW	INDUSTRIAL WASTE PIPELINE
	SURFACE DRAINAGE TRENCH
	EXISTING MONITORING WELL
	MANHOLE
	CATCH BASIN
0.05*	MW-2 NOT INCLUDED

BY	DATE
DRAWN SPS	3/23/05
CHECKED	
APPROVED	
APPROVED	
APPROVED	

CAMERON-COLE

FIGURE 2

AC TRANSIT - OAKLAND, CALIFORNIA

1100 SEMINARY ROAD-POTENTIOMETRIC SURFACE MAP
FEBRUARY 2005

SCALE: 1" = 120'

DWG. NO.: 2011-18

TABLE 1
GROUNDWATER LEVEL MEASUREMENTS
AC Transit Facility
1100 Seminary Avenue, Oakland, California

Well	Date	Top of Casing Elevation (ft-msl)*	Product Thickness (feet)	DTW (feet)	Measured Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected for Product Thickness**
MW-1	7-Jan-99	6.25	None	5.13	1.12	
	7-Feb-00		None	3.75	2.5	
	25-May-00		None	3.69	2.56	
	22-Aug-00		None	4.79	1.46	
	20-Nov-00		None	4.92	1.33	
	1-Mar-01		None	2.75	3.50	
	14-May-01		None	3.67	2.58	
	26-Jul-01		None	4.73	1.52	
	16-Oct-01		None	5.35	0.90	
	21-Feb-02		None	3.30	2.95	
	29-May-02		None	3.70	2.55	
	17-Sep-02		None	4.85	1.40	
	14-Nov-02		None	4.59	1.66	
	5-Feb-03		None	3.37	2.88	
	14-May-03		None	3.17	3.08	
	22-Aug-03		None	4.52	1.73	
	20-Nov-03		None	4.61	1.64	
	9-Feb-04		None	3.05	3.20	
	25-May-04		None	3.22	3.03	
	16-Aug-04		None	4.65	1.60	
	18-Nov-04		None	3.81	2.44	
	22-Feb-05		**None**	**2.62**	**3.63**	
MW-2	7-Jan-99	5.53	2.27	6.91	-1.38	0.44
	8-Jun-99		2.23	5.83	-0.3	1.48
	9-Jun-99		0	3.9	1.63	1.63
	10-Jun-99		0	3.9	1.63	1.63
	15-Jun-99		0.42	3.92	1.61	1.95
	8-Jul-99		0.2	4.3	1.23	1.39
	7-Feb-00		Sheen	3.8	1.73	
	25-May-00		0.12	3.23	2.3	2.40
	22-Aug-00		0.23	4.45	1.08	1.10
	20-Nov-00		0.23	4.70	0.83	0.85
	1-Mar-01		0.13	2.75	2.78	2.79
	14-May-01		Sheen	3.30	2.23	
	26-Jul-01		None	3.27	2.26	
	16-Oct-01		0.02	5.25	0.28	0.28
	21-Feb-02		0.01	3.32	2.21	2.21
	29-May-02		0.02	2.98	2.55	2.55
	17-Sep-02		None	4.83	0.70	
	14-Nov-02		None	5.43	0.10	
	5-Feb-03		None	3.85	1.68	
	14-May-03		None	2.94	2.59	
	22-Aug-03		None	4.20	1.33	
	20-Nov-03		None	4.68	0.85	
	9-Feb-04		None	2.94	2.59	
	25-May-04		None	2.90	2.63	
	16-Aug-04		None	4.30	1.23	
	18-Nov-04		None	4.67	0.86	
	22-Feb-05		**None**	**5.48**	**0.05**	

TABLE 1
GROUNDWATER LEVEL MEASUREMENTS
AC Transit Facility
1100 Seminary Avenue, Oakland, California

Well	Date	Top of Casing Elevation (ft-msl)*	Product Thickness (feet)	DTW (feet)	Measured Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected for Product Thickness**
MW-3	7-Jan-99	4.76	None	4.11	0.65	
	7-Feb-00		None	3.1	1.66	
	25-May-00		None	2.41	2.35	
	22-Aug-00		None	3.45	1.31	
	20-Nov-00		None	3.42	1.34	
	1-Mar-01		None	2.00	2.76	
	14-May-01		None	2.64	2.12	
	26-Jul-01		None	3.17	1.59	
	16-Oct-01		None	3.97	0.79	
	21-Feb-02		None	2.20	2.56	
	29-May-02		None	2.52	2.24	
	17-Sep-02		None	3.65	1.11	
	14-Nov-02		None	3.47	1.29	
	5-Feb-03		None	2.19	2.57	
	14-May-03		None	2.12	2.64	
	22-Aug-03		None	3.25	1.51	
	20-Nov-03		None	3.40	1.36	
	9-Feb-04		None	2.06	2.70	
	25-May-04		None	2.10	2.66	
	16-Aug-04		None	3.36	1.40	
	18-Nov-04		None	2.68	2.08	
	22-Feb-05		**None**	**1.90**	**2.86**	
MW-9	7-Feb-00	5.8	None	4.37	1.43	
	25-May-00		None	4.95	0.85	
	22-Aug-00		None	5.18	0.62	
	20-Nov-00		None	4.70	1.10	
	1-Mar-01		None	3.03	2.77	
	14-May-01		None	4.56	1.24	
	26-Jul-01		None	5.17	0.63	
	16-Oct-01		None	5.19	0.61	
	21-Feb-02		None	4.79	1.01	
	29-May-02		None	4.07	1.73	
	17-Sep-02		None	4.94	0.86	
	14-Nov-02		None	4.87	0.93	
	5-Feb-03		None	3.88	1.92	
	14-May-03		None	3.77	2.03	
	22-Aug-03		None	4.73	1.07	
	20-Nov-03		None	4.46	1.34	
	9-Feb-04		None	3.23	2.57	
	25-May-04		None	3.53	2.27	
	16-Aug-04		None	4.20	1.60	
	18-Nov-04		None	3.91	1.89	
	22-Feb-05		**None**	**2.75**	**3.05**	

TABLE 1
GROUNDWATER LEVEL MEASUREMENTS
AC Transit Facility
1100 Seminary Avenue, Oakland, California

Well	Date	Top of Casing Elevation (ft-msl)*	Product Thickness (feet)	DTW (feet)	Measured Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected for Product Thickness**
MW-10	7-Feb-00	4.65	None	3.19	1.46	
	25-May-00		None	3.11	1.54	
	22-Aug-00		None	4.35	0.30	
	20-Nov-00		None	4.18	0.47	
	1-Mar-01		None	3.14	1.51	
	14-May-01		None	3.27	1.38	
	26-Jul-01		None	3.95	0.70	
	16-Oct-01		None	4.57	0.08	
	21-Feb-02		None	3.29	1.36	
	29-May-02		None	3.30	1.35	
	17-Sep-02		None	4.11	0.54	
	14-Nov-02		None	3.86	0.79	
	5-Feb-03		None	3.36	1.29	
	14-May-03		None	3.23	1.42	
	22-Aug-03		None	4.52	0.13	
	20-Nov-03		None	3.56	1.09	
	9-Feb-04		None	2.51	2.14	
	25-May-04		None	2.90	1.75	
	16-Aug-04		None	3.90	0.75	
	18-Nov-04		None	2.52	2.13	
	22-Feb-05		**None**	**2.66**	**1.99**	
MW-11	7-Feb-00	4.19	None	4.97	-0.78	
	25-May-00		None	7.58	-3.39	
	22-Aug-00		None	3.01	1.18	
	20-Nov-00		None	2.88	1.31	
	1-Mar-01		None	1.91	2.28	
	14-May-01		None	4.49	-0.3	
	26-Jul-01		None	2.95	1.24	
	16-Oct-01		None	3.35	0.84	
	21-Feb-02		None	1.85	2.34	
	29-May-02		None	2.36	1.83	
	17-Sep-02		None	3.11	1.08	
	14-Nov-02		None	2.55	1.64	
	5-Feb-03		None	2.75	1.44	
	14-May-03		None	1.98	2.21	
	22-Aug-03		None	2.86	1.33	
	20-Nov-03		None	2.73	1.46	
	9-Feb-04		None	2.60	1.59	
	25-May-04		None	2.06	2.13	
	16-Aug-04		None	2.91	1.28	
	18-Nov-04		None	2.75	1.44	
	22-Feb-05		**None**	**3.06**	**1.13**	

Notes:

* ft-msl: feet-mean sea level
** used 0.8 specific gravity of product
DTW: Depth to Water

TABLE 2
ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ppb)
AC Transit Facility
1100 Seminary Avenue, Oakland, California

Well	Date	TPH-G	TPH-D	TPH	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE	Nitrate	Sulfate	DO	Fe
	MCL (ppb)				1.0	150	300	1,750	13				
MW-1	7-Jan-99	<100	470	NA	17.0	2	31.0	18	<50	150	3,400	360	53
	7-Feb-00	390	<60	1,300	13.0	<10	<10	<10	<20	<50	1,200	1,220	11,800
	25-May-00	<50	<50	1,000	12.0	<1.0	<1.0	<1.0	<2.0	140	1,500	1,950	1,380
	22-Aug-00	<50	<50	600	6.3	<1.0	2.3	<1.0	<2.0	75	2,100	6,850	2,350
	20-Nov-00	<50	<50	630	2.8	<1.0	1.1	<1.0	<2.0	<50	4,500	11,210	1,170
	1-Mar-01	<50	<50	900	29.0	1.2	16.0	6	<2.0	<50	2,800	6,020	2,920
	14-May-01	<50	<50	540	4.1	<1.0	3.1	<1.0	<2.0	<50	2,500	13,970	1,870
	26-Jul-01	190	<50	500	<1.0	<1.0	<1.0	<1.0	<2.0	75	3,700	8,480	1,950
	16-Oct-01	<50	<50	650	16.0	1.1	4.6	1.6	<2.0	<50	3,600	9,480	2,560
	21-Feb-02	560	<50	550	21	1.0	19	15	<2.0	<50	3,000	5,890	2,200
	29-May-02	130	<50	510	<1.0	<1.0	<1.0	<1.0	<2.0	<50	2,300	6,820	1,300
	17-Sep-02	140	<50	330	<1.0	<1.0	<1.0	<1.0	<2.0	<50	5,200	5,840	>3300
	14-Nov-02	150	570	NA	4.8	0.57	2.7	1.1	<1.0	<200	12,000	4,720	>3300
	5-Feb-03	250	210	NA	16.0	<0.5	0.93	<1.0	<1.0	<200	6,500	5,630	>3300
	14-May-03	220	<50	NA	9.9	<0.5	1.6	<1.0	<1.0	<200	5,200	3,280	2,750
	22-Aug-03	150	770	NA	<0.5	<1.0	<1.0	<1.0	<1.0	<200	6,300	2,980	2,570
	20-Nov-03	300	320	NA	3.0	<0.5	0.56	<1.0	<1.0	<200	7,900	3,030	2,680
	9-Feb-04	210	370	NA	<0.5	0.50	0.52	<1.0	<1.0	<200	7,000	4,190	>3300
	26-May-04	470	<50	NA	5.0	<0.5	7.2	1.9	<1.0	<200	2,400	3,780	>3300
	16-Aug-04	75	<50	NA	<0.5	<0.5	<0.5	<1.0	<1.0	<200	11,000	4,120	2,560
	18-Nov-04	207	200	NA	6.8	<0.5	2.80	1.0	<0.5	<200	14,000	50	2,840
	22-Feb-05	**325**	**170**	**NA**	**17.3**	**<0.5**	**3.80**	**5.0**	**<0.5**	**<200**	**7,600**	**3,040**	**2,750**
MW-2	8-Jun-99	11,000	434,000	117,000	1,000,000	<100,000	260,000	<300,000	<5,000,000	NA	NA	NA	NA
	7-Feb-00	51,000	160,000	<5000	19,000	<500	920	<500	<1000	51	<1000	6,660	7,300
	25-May-00	<1200	<50000	65,000	11,000	<500	670	530	<1000	330	<1000	5,670	0
	22-Aug-00	<2500	<2500	150,000	23,000	<500	1,100	1,100	<1000	370	<1000	4,530	3,680
	20-Nov-00	<1200	<25000	430,000	18,000	<500	840	610	<1000	<250	<500	1,700	3,300
	3-Mar-01	<500	<25000	610,000	14,000	<830	<830	<830	<1700	<250	<5000	7,880	3,300
	14-May-01	<1000	280,000	51,000	19,000	240	1,100	1,200	<330	<50	<1000	3,330	>3300
	26-Jul-01	54,000	590,000	<25000	19,000	<500	1,300	1,500	<1000	<50	<1000	9,960	>3300
	16-Oct-01	43,000	560,000	<25000	18,000	280	1,100	1,300	<100	<50	1,500	17,630	>3300
	21-Feb-02	46,000	180,000	<12000	18,000	<500	950	1,500	<1000	<100	<2000	3,650	>3300
	29-May-02	49,000	130,000	<5000	17,000	350	970	1,700	<500	<50	1,000	2,220	>3300
	17-Sep-02	60,000	<25000	470,000	21,000	<500	1,600	2,700	<1000	<50	<1000	4,270	>3300
	14-Nov-02	36,000	490,000	NA	14,000	280	970	2,200	<400	<200	<500	6,050	>3300
	5-Feb-03	47,000	28,000	NA	15,000	360	1,200	2,100	<100	<200	<500	6,940	>3300
	14-May-03	39,000	200,000	NA	13,000	370	1,000	2,000	<100	<200	<500	2,140	>3300
	22-Aug-03	43,000	480,000	NA	22,000	490	1,500	2,100	<400	<200	<500	1,960	>3300
	20-Nov-03	59,000	320,000	NA	22,000	<100	1,700	3,200	<200	<200	<500	2,100	>3300
	9-Feb-04	19,000	55,000	NA	5,400	160	800	1,800	<100	<200	1,200	4,730	>3300
	26-May-04	60,000	520,000	NA	22,000	410	1,700	2,800	<250	<200	<500	4,520	>3300
	16-Aug-04	63,000	42,000	NA	20,000	520	1,600	2,400	<250	<200	<2500	3,560	>3300
	18-Nov-04	38,200	126,000	NA	21,900	430	1,400	3,700	<2.5	<200	<500	330	3,300
	22-Feb-05	**55,200**	**42,000**	**NA**	**26,400**	**389**	**2,020**	**3,430**	**<50**	**2,000**	**<500**	**1,350**	**>3300**

TABLE 2
ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ppb)
AC Transit Facility
1100 Seminary Avenue, Oakland, California

Well	Date	TPH-G	TPH-D	TPH	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE	Nitrate	Sulfate	DO	Fe
	MCL (ppb)				1.0	150	300	1,750	13				
MW-3	7-Jan-99	199	2,680	NA	450	<10	250	190	<500	170	3,300	880	0
	7-Feb-00	2,000	<150	3,100	26	<2	5	2	<4	<50	47,300	6,480	17,800
	25-May-00	<50	<50	1,000	35	<1.0	6	4	<2.0	<50	21,700	4,640	600
	22-Aug-00	<50	<50	2,400	240	<10	<10	<10	<20	<50	19,300	3,970	20
	20-Nov-00	<50	<50	2,400	<25	<25	<25	<25	<50	<50	26,500	4,120	20
	1-Mar-01	<50	<50	1,200	100	<5.0	8.3	<5.0	<10	<50	27,000	1,510	50
	14-May-01	<50	<50	860	8.4	<1.0	1.2	<1.0	<2.0	<50	21,100	9,800	0
	26-Jul-01	1,200	<50	790	140	<5.0	12	<5.0	<10	<50	18,700	8,650	80
	16-Oct-01	1,000	<50	1,600	5.1	<1.0	4.3	<1.0	<2.0	<50	29,800	11,360	640
	21-Feb-02	1,700	<50	990	200	<10	29.0	12	<20	<50	20,500	5,730	0
	29-May-02	630	<50	840	68	<1.0	4.2	3.3	<2.0	<50	14,300	5,870	1,070
	17-Sep-02	<50	<50	1,100	4.1	<1.0	1.8	1.0	<2.0	<50	17,000	6,820	2,820
	14-Nov-02	2,800	460	NA	200	1.1	28	9.0	<2.0	<200	19,000	9,780	1,210
	5-Feb-03	720	270	NA	55	<0.5	20	7.1	<1.0	<200	22,000	8,320	>3300
	14-May-03	540	130	NA	18	<0.5	3.6	1.0	<1.0	<200	19,000	8,460	1,980
	22-Aug-03	400	540	NA	2.7	<1.0	1.6	<1.0	<1.0	<200	18,000	6,620	190
	20-Nov-03	240	520	NA	8.8	<0.5	2.2	<1.0	<1.0	<200	16,000	5,820	100
	9-Feb-04	700	700	NA	5.6	<0.5	3.8	1.3	<1.0	<200	17,000	4,080	0
	26-May-04	700	<100	NA	83.0	<0.5	11.0	1.7	<1.0	<200	18,000	4,210	0
	16-Aug-04	440	<500	NA	6.0	<0.5	1.6	<1.0	<1.0	<200	14,000	3,960	100
	18-Nov-04	728	230	NA	44.8	1.1	14.9	8.4	<0.5	<200	11,000	850	300
	22-Feb-05	**3,480**	**390**	**NA**	**1130**	**1.9**	**174**	**89.4**	**<0.5**	**<200**	**5,300**	**1,910**	**300**
MW-9	7-Feb-00	<50	<50	240	<1	<1	<1	<1	<2	230	183,000	6,940	9,000
	25-May-00	<50	<50	130	<1.0	<1.0	<1.0	<1.0	<2.0	250	172,000	6,020	1,200
	22-Aug-00	<50	<50	120	<1.0	<1.0	<1.0	<1.0	<2.0	280	157,000	7,250	0
	20-Nov-00	<50	<50	130	<1.0	<1.0	<1.0	<1.0	<2.0	340	147,000	9,690	0
	1-Mar-01	<50	<50	150	<1.0	<1.0	<1.0	<1.0	<2.0	230	116,000	4,210	0
	14-May-01	<50	<50	110	<1.0	<1.0	<1.0	<1.0	<2.0	100	140,000	8,290	0
	26-Jul-01	<50	<50	71	<1.0	<1.0	<1.0	<1.0	<2.0	130	143,000	7,560	0
	16-Oct-01	<50	<50	120	<1.0	<1.0	<1.0	<1.0	<2.0	89	141,000	967	50
	21-Feb-02	<50	<50	89	<1.0	<1.0	<1.0	<1.0	<2.0	94	137,000	3,500	70
	29-May-02	<50	<50	95	<1.0	<1.0	<1.0	<1.0	<2.0	94	141,000	4,590	90
	17-Sep-02	<50	<50	96	<1.0	<1.0	<1.0	<1.0	<2.0	100	143,000	3,860	2,130
	14-Nov-02	<50	82	NA	<0.5	<0.5	<0.5	<1.0	<1.0	<200	130,000	10,120	670
	5-Feb-03	<50	82	NA	<0.5	<0.5	<0.5	<1.0	<1.0	<200	140,000	8,630	2,870
	14-May-03	<50	140	NA	<0.5	<0.5	<0.5	<1.0	1.3	<200	130,000	8,760	2,570
	22-Aug-03	<50	220	NA	<0.5	<1.0	<1.0	<1.0	<1.0	<200	140,000	6,140	0
	20-Nov-03	<50	80	NA	<0.5	<0.5	<0.5	<1.0	1.8	<200	140,000	6,030	200
	9-Feb-04	<50	65	NA	<0.5	<0.5	<0.5	<1.0	<1.0	<200	98,000	5,800	0
	26-May-04	<50	<250	NA	<0.5	<0.5	<0.5	<1.5	<1.0	<200	88,000	5,200	0
	16-Aug-04	<50	<50	NA	<0.5	<0.5	<0.5	<1.0	1.3	<200	100,000	4,960	0
	18-Nov-04	<50	<50	NA	<0.5	<0.5	<0.5	<1.0	2.8	<200	110,000	1,040	0
	22-Feb-05	**<50**	**<0.5**	**NA**	**<0.5**	**<0.5**	**<0.5**	**<1.0**	**1.5**	**<200**	**101,000**	**1,220**	**0**

TABLE 2
ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ppb)
AC Transit Facility
1100 Seminary Avenue, Oakland, California

Well	Date	TPH-G	TPH-D	TPH	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE	Nitrate	Sulfate	DO	Fe
	MCL (ppb)				1.0	150	300	1,750	13				
MW-10	7-Feb-00	<50	<50	470	<1	<1	<1	<1	<2	53	114,000	1,200	55,000
	25-May-00	<50	<50	220	<1.0	<1.0	<1.0	<1.0	<2.0	480	136,000	1,940	0
	22-Aug-00	<50	<50	140	<1.0	<1.0	<1.0	<1.0	<2.0	69	126,000	4,350	0
	20-Nov-00	<50	<50	300	<1.0	<1.0	<1.0	<1.0	<2.0	<50	76,200	3,790	0
	1-Mar-01	<50	<50	250	<1.0	<1.0	<1.0	<1.0	<2.0	<250	106,000	7,440	0
	14-May-01	<50	<50	74	<1.0	<1.0	<1.0	<1.0	<2.0	<50	135,000	6,790	0
	26-Jul-01	<50	<50	120	<1.0	<1.0	<1.0	<1.0	<2.0	<50	125,000	9,680	1,970
	16-Oct-01	<50	<50	190	<1.0	<1.0	<1.0	<1.0	<2.0	<50	90,100	28,000	570
	21-Feb-02	<50	<50	190	<1.0	<1.0	<1.0	<1.0	<2.0	<50	77,700	4,280	0
	29-May-02	<50	<50	110	<1.0	<1.0	<1.0	<1.0	<2.0	<50	126,000	7,230	270
	17-Sep-02	<50	<50	170	<1.0	<1.0	<1.0	<1.0	<2.0	<50	107,000	4,230	>3300
	14-Nov-02	<50	270	NA	<0.5	<0.5	<0.5	<1.0	1.5	<200	64,000	1,680	1,400
	5-Feb-03	<50	160	NA	<0.5	<0.5	<0.5	<1.0	<1.0	<200	110,000	5,260	>3300
	14-May-03	<50	<50	NA	<0.5	<0.5	<0.5	<1.0	<1.0	<200	93,000	2,990	1,720
	22-Aug-03	<50	320	NA	<0.5	<1.0	<1.0	<1.0	<1.0	<200	120,000	1,950	0
	20-Nov-03	<50	300	NA	<0.5	<0.5	<0.5	<1.0	1.7	<200	65,000	1,750	0
	9-Feb-04	<50	250	NA	<0.5	<0.5	<0.5	<1.0	1.1	<200	110,000	1,650	0
	26-May-04	<500	<50	NA	<0.5	<0.5	<0.5	<1.5	<1.0	<200	160,000	1,630	0
	16-Aug-04	<50	<50	NA	<0.5	<0.5	<0.5	<1.0	<1.0	<200	120,000	2,840	0
	18-Nov-04	<50	<50	NA	<0.5	<0.5	<0.5	<1.0	0.9	<200	86,000	660	0
	22-Feb-05	**<50**	**<50**	**NA**	**1.0**	**<0.5**	**<0.5**	**<1.0**	**0.9**	**2,000**	**106,000**	**1,570**	**0**

TABLE 2
ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ppb)
AC Transit Facility
1100 Seminary Avenue, Oakland, California

Well	Date	TPH-G	TPH-D	TPH	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE	Nitrate	Sulfate	DO	Fe
	MCL (ppb)				1.0	150	300	1,750	13				
MW-11	7-Feb-00	<50	<50	400	<1	<1	<1	<1	25	800	167,000	7,300	16,200
	25-May-00	<50	<50	200	<1.0	<1.0	<1.0	<1.0	16	480	207,000	6,540	0
	22-Aug-00	<50	<50	170	<1.0	<1.0	<1.0	<1.0	9.3	610	168,000	4,640	20
	20-Nov-00	<50	<50	190	<1.0	<1.0	<1.0	<1.0	7.5	550	143,000	2,380	0
	1-Mar-01	<50	<50	250	<1.0	<1.0	<1.0	<1.0	15.0	170	80,300	5,860	0
	14-May-01	<50	<50	160	<1.0	<1.0	<1.0	<1.0	14.0	230	103,000	6,060	2,910
	26-Jul-01	<50	<50	220	5.9	<1.0	<1.0	2.7	20.0	180	71,300	7,360	>3300
	16-Oct-01	<50	<50	170	<1.0	<1.0	<1.0	<1.0	12.0	190	101,000	8,810	>3300
	21-Feb-02	<50	<50	170	<1.0	<1.0	<1.0	<1.0	2.2	110	75,600	4,280	0
	29-May-02	<50	<50	290	<1.0	<1.0	<1.0	<1.0	2.3	140	98,700	8,350	0
	17-Sep-02	<50	<500	1,900	<1.0	<1.0	<1.0	<1.0	3.8	54	141,000	6,260	90
	14-Nov-02	<50	740	NA	0.88	<0.5	<0.5	1.2	5.3	<200	120,000	8,380	0
	5-Feb-03	<50	410	NA	<0.5	<0.5	<0.5	<1.0	3.4	<200	8,800	9,590	0
	14-May-03	<50	<50	NA	<0.5	<0.5	<0.5	<1.0	2.5	<200	91,000	1,560	1,960
	22-Aug-03	<50	540	NA	<0.5	<1.0	<1.0	<1.0	2.2	<200	130,000	2,210	1,720
	20-Nov-03	<50	290	NA	<0.5	<0.5	<0.5	<1.0	1.8	<200	120,000	2,300	1,910
	9-Feb-04	<50	270	NA	<0.5	<0.5	<0.5	<1.0	<1.0	<200	120,000	10,400	0
	26-May-04	<50	<50	NA	<0.5	<0.5	<0.5	<1.5	<1.0	<200	140,000	10,100	0
	16-Aug-04	<50	100	NA	<0.5	<0.5	<0.5	<1.0	<1.0	<200	130,000	8,610	0
	18-Nov-04	70	<50	NA	3.3	<0.5	0.80	1.7	0.7	<200	120,000	900	300
	22-Feb-05	**114**	**<5.0**	**NA**	**<0.5**	**<0.5**	**2.20**	**3.9**	**<0.5**	**<200**	**122,000**	**3,850**	**310**

Notes:
ppb: parts per billion
TPH-G: total petroleum hydrocarbons as gasoline
TPH-D: total petroleum hydrocarbons as diesel
TPH: total petroleum hydrocarbons as motor oil or unknown hydrocarbon
MCL: Maximum Contaminant Level
MTBE: Methyl-tert,butylether
DO: Dissolved Oxygen
Fe: Ferrous Iron
NA: Not Analyzed

APPENDIX A

CERTIFIED ANALYTICAL REPORTS

CHAIN-OF-CUSTODY DOCUMENTS

North State Labs
CA ELAP # 1753
815 Dubuque Avenue • South San Francisco, CA 94080 • (650) 266-4563 • FAX (650) 266-4560

Case Narrative

Client: Cameron-Cole, LLC
Project: AC TRANSIT SEMINARY/1100 SEMINARY RD
Lab No: 05-0253
Date Received: 02/22/05 Date reported: 03/02/05

Seven water samples were received for the analysis of diesel and gasoline by method 8015B, BTEX and MTBE by method 8021B. All results for QC/QA samples were within acceptance limits. No MS/MSD were analyzed for diesel analysis due to insufficient sample volume submitted; the LCS/LCSD results were reported instead. The nitrate and sulfate analyses were subcontracted to state certified laboratories. All samples that showed the presence of MTBE were analyzed by GC/MS for confirmation. The diesel range hydrocarbons results for samples 05-0253-03 and -05 were positive, but the fuel pattern best matched gasoline. These samples do not show the presence of diesel fuel, and the results reported as diesel range hydrocarbons are due to gasoline range hydrocarbon overlap. For sample 05-0253-02 the diesel result is a mixture of gasoline/diesel hydrocarbons.

John A. Murphy
Laboratory Director

North State Labs
CA ELAP # 1753
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C E R T I F I C A T E O F A N A L Y S I S

Lab Number: 05-0253
Client: Cameron-Cole, LLC
Project: AC TRANSIT SEMINARY

Date Reported: 03/02/2005

Gasoline,BTEX and MTBE by Methods 8015B/8021B
Diesel Range Hydrocarbons by Method 8015B

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 05-0253-01 Client ID: MW-11				02/22/2005	W
Benzene	SW8020F	ND<0.5	UG/L		02/23/2005
Ethylbenzene	SW8020F	2.2	UG/L		02/23/2005
Gasoline Range Organics	SW8020F	114	UG/L		02/23/2005
Methyl-tert-butyl ether	SW8020F	*ND<0.5	UG/L		02/23/2005
Toluene	SW8020F	ND<0.5	UG/L		02/23/2005
Xylenes	SW8020F	3.9	UG/L		02/23/2005
Diesel Fuel #2	CATFH	ND<0.05	MG/L		03/01/2005
Sample: 05-0253-02 Client ID: MW-2				02/22/2005	W
Benzene	SW8020F	26400	UG/L		02/23/2005
Ethylbenzene	SW8020F	2020	UG/L		02/23/2005
Gasoline Range Organics	SW8020F	55200	UG/L		02/23/2005
Methyl-tert-butyl ether	SW8020F	*ND<50	UG/L		02/23/2005
Toluene	SW8020F	389	UG/L		02/23/2005
Xylenes	SW8020F	3430	UG/L		02/23/2005
Diesel Fuel #2	CATFH	**42	MG/L		03/01/2005
Sample: 05-0253-03 Client ID: MW-1				02/22/2005	W
Benzene	SW8020F	17.3	UG/L		02/23/2005
Ethylbenzene	SW8020F	3.8	UG/L		02/23/2005
Gasoline Range Organics	SW8020F	325	UG/L		02/23/2005
Methyl-tert-butyl ether	SW8020F	*ND<0.5	UG/L		02/23/2005
Toluene	SW8020F	ND<0.5	UG/L		02/23/2005

*Conf.by GC/MS method 8260B.**See narrative.

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C E R T I F I C A T E O F A N A L Y S I S

Lab Number: 05-0253
Client: Cameron-Cole, LLC
Project: AC TRANSIT SEMINARY

Date Reported: 03/02/2005

Gasoline,BTEX and MTBE by Methods 8015B/8021B
Diesel Range Hydrocarbons by Method 8015B

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 05-0253-03 Client ID: MW-1				02/22/2005	W
Xylenes	SW8020F	5	UG/L		02/23/2005
Diesel Fuel #2	CATFH	**0.17	MG/L		03/01/2005
Sample: 05-0253-04 Client ID: TRIP BLK				02/22/2005	W
Benzene	SW8020F	ND<0.5	UG/L		02/24/2005
Ethylbenzene	SW8020F	ND<0.5	UG/L		02/24/2005
Methyl-tert-butyl ether	SW8020F	ND<0.5	UG/L		02/24/2005
Toluene	SW8020F	ND<0.5	UG/L		02/24/2005
Xylenes	SW8020F	ND<1.0	UG/L		02/24/2005
Sample: 05-0253-05 Client ID: MW-3				02/22/2005	W
Benzene	SW8020F	1130	UG/L		02/23/2005
Ethylbenzene	SW8020F	174	UG/L		02/23/2005
Gasoline Range Organics	SW8020F	3480	UG/L		02/23/2005
Methyl-tert-butyl ether	SW8020F	*ND<0.5	UG/L		02/23/2005
Toluene	SW8020F	1.9	UG/L		02/23/2005
Xylenes	SW8020F	89.4	UG/L		02/23/2005
Diesel Fuel #2	CATFH	**0.39	MG/L		03/01/2005

*Conf.by GC/MS method 8260B.**See narrative.

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C E R T I F I C A T E O F A N A L Y S I S

Lab Number: 05-0253
Client: Cameron-Cole, LLC
Project: AC TRANSIT SEMINARY

Date Reported: 03/02/2005

Gasoline,BTEX and MTBE by Methods 8015B/8021B
Diesel Range Hydrocarbons by Method 8015B

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 05-0253-06 Client ID: MW-10				02/22/2005	W
Benzene	SW8020F	1	UG/L		02/23/2005
Ethylbenzene	SW8020F	ND<0.5	UG/L		02/23/2005
Gasoline Range Organics	SW8020F	ND<50	UG/L		02/23/2005
Methyl-tert-butyl ether	SW8020F	*0.9	UG/L		02/23/2005
Toluene	SW8020F	ND<0.5	UG/L		02/23/2005
Xylenes	SW8020F	ND<1.0	UG/L		02/23/2005
Diesel Fuel #2	CATFH	ND<0.05	MG/L		03/02/2005
Sample: 05-0253-07 Client ID: MW-9				02/22/2005	W
Benzene	SW8020F	ND<0.5	UG/L		02/23/2005
Ethylbenzene	SW8020F	ND<0.5	UG/L		02/23/2005
Gasoline Range Organics	SW8020F	ND<50	UG/L		02/23/2005
Methyl-tert-butyl ether	SW8020F	*1.5	UG/L		02/23/2005
Toluene	SW8020F	ND<0.5	UG/L		02/23/2005
Xylenes	SW8020F	ND<1.0	UG/L		02/23/2005
Diesel Fuel #2	CATFH	ND<0.05	MG/L		03/02/2005

*Conf.by GC/MS method 8260B.**See narrative.

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C E R T I F I C A T E O F A N A L Y S I S

Quality Control/Quality Assurance

Lab Number: 05-0253
Client: Cameron-Cole, LLC
Project: AC TRANSIT SEMINARY

Date Reported: 03/02/2005
Gasoline,BTEX and MTBE by Methods 8015B/8021B
Diesel Range Hydrocarbons by Method 8015B

Analyte	Method	Reporting Limit	Unit	Blank	Avg MS/MSD Recovery	RPD
Gasoline Range Organics	SW8020F	50	UG/L	ND	125/126	1
Benzene	SW8020F	0.5	UG/L	ND	84/99	16
Toluene	SW8020F	0.5	UG/L	ND	108/107	1
Ethylbenzene	SW8020F	0.5	UG/L	ND	111/112	1
Xylenes	SW8020F	1.0	UG/L	ND	109/108	1
Methyl-tert-butyl ether	SW8020F	0.5	UG/L	ND	98/95	3
Diesel Fuel #2	CATFH	0.05	MG/L	ND	108/110	2

ELAP Certificate NO:1753
Reviewed and Approved

John A. Murphy, Laboratory Director

R055-03

North State Labs
815 Dubuque Avenue, South San Francisco, CA 94080
Phone: (650) 266-4563 Fax: (650) 266-4560

Chain of Custody / Request for Analysis
Lab Job No.:_____ Page 1 of 1

Client: North State Labs	Report to: John Murphy	Phone:	Turnaround Time: Std.
Mailing Address:	Billing to:	Fax:	
		email:	Date:
		PO# 05-0253	Sampler:

Project / Site Address / Global ID: 05-0253

Analysis Requested

EDF ☐ PDF ☐

Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time	Nitrate	Sulfate						Field Point ID
MW-11	water	1/250-1 PI	—	2.22.05 / 1220	X	X						R301329
MW-2	↓	↓	↓	/ 1055	X	X						R301330
MW-1				/ 1255	X	X						R301331
MW-3				/ ~~1000~~ 1255	X	X						R301332
MW-10				/ 1515	X	X						R301333
MW-9				/ 1430	X	X						R301334

Relinquished by: Stan M Gill	Date: 2.23.05	Time: 1600	Received by: Carmen (Courier)	Lab Comments/ Hazards
Relinquished by:	Date: 2.24.05	Time: 1045	Received by:	
Relinquished by:	Date:	Time:	Received by:	

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GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # R055-03 **Date:** 2/28/05

North State Environmental
815 Dubuque Ave
So. SanFrancisco CA 94080

Project: 05-0253

PO# 05-0253

Date Rec'd: 2/24/05
Date Started: 2/24/05
Date Completed: 2/25/05

Date Sampled: 2/22/05
Time:
Sampler:

mple ID	Lab ID	RL	Method	Analyte	Results	Units
IW - 11	R301329	1.0	300.0	Nitrate as NO_3	ND	mg/L
		1.0	300.0	Sulfate	122	mg/L
IW - 2	R301330	1.0	300.0	Nitrate as NO_3	2.0	mg/L
		1.0	300.0	Sulfate	ND	mg/L
IW - 1	R301331	1.0	300.0	Nitrate as NO_3	ND	mg/L
		1.0	300.0	Sulfate	7.6	mg/L
IW - 3	R301332	1.0	300.0	Nitrate as NO_3	ND	mg/L
		1.0	300.0	Sulfate	5.3	mg/L
IW - 10	R301333	1.0	300.0	Nitrate as NO_3	2.0	mg/L
		1.0	300.0	Sulfate	106	mg/L
IW - 9	R301334	1.0	300.0	Nitrate as NO_3	ND	mg/L
		1.0	300.0	Sulfate	101	mg/L

Rohit Bombaywala
Inorganic Supervisor

Certification # 2585

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

QC REPORT

Report# R055-03

North State Environmental
815 Dubuque Ave
So. SanFrancisco CA 94080

Analyte	Method	Batch #	Dates Analyzed	Orig.	Dupl.	MS %Rec	MSD %Rec		RPD	LCS %Rec	Blank	Comments
Nitrate as NO_3	300.0	IO1087	2/24/05			90.0	90.0	*	0.0		ND	Sample analyte concentration too high to spike.
Sulfate	300.0	IO1088	2/24/05			92.0	92.0	*	0.0		ND	Sample analyte concentration too high to spike.

* LCS/LCSD (see comments)

Rohit Bombaywala
Inorganic Supervisor

Certification # 2585

Donna Keller
Laboratory Director

North State Labs
CA ELAP # 1753
815 Dubuque Avenue • South San Francisco, CA 94080 • (650) 266-4563 • FAX (650) 266-4560

SAMPLE RECEIPT CHECKLIST

Client Name: Cameron - Cole Ref/Subm No: 05-0253 Date: 2.22.05

Checked By: SS

Matrix: Soil: ____ Water: X Other: ____

If Received via Shipment (If dropped off in person this section does not apply):

Carrier Name: ____

Shipping Container/Cooler In Good Condition? Yes: ____ No: ____

Custody Seals Intact on Shipping Container? Yes: ____ No: ____

Custody Seals intact on sample containers? Yes: ____ No: ____ Not Present: X

Chain of Custody present? Yes: X No: ____

Chain of Custody Signatures & Date/Time correct? Yes: X No: ____

Chain of custody agrees with sample labels? Yes: X No: ____

Samples in proper containers? Yes: X No: ____

Sample containers Intact? Yes: X No: ____

Sufficient sample volume for indicated tests? Yes: X No: ____

All Samples received within holding times? Yes: X No: ____

Temperature Blank present? Record Temp if present. Yes: ____ No: X Temp: ____

For water samples- VOAS have zero headspace? Yes: X No: ____ NA: ____

For water samples- pH acceptable on receipt? Yes: X No: ____ NA: ____

pH adjusted - Preservative used: HNO_3: ____ HCl: X H_2SO_4: ____ NaOH: ____ ZnOAc: ____
Lot: ____

Corrective Action Record:

Client Contacted: ____ Date Contacted: ____ Person Contacted: ____

Contacted by: ____ Regarding: ____

Comments: ____

Corrective Action: ____

05-0253

North State Labs
815 Dubuque Avenue, South San Francisco, CA 94080
Phone: (650) 266-4563 Fax: (650) 266-4560

Chain of Custody / Request for Analysis
Lab Job No.: _____ Page 1 of 2
Colsto

Client: Cameron - Cole	Report to: Emily Waters	Phone: 510 769 3570	Turnaround Time: std.
Mailing Address: 101 W. Atlantic Ave Bldg #90	Billing to: ← Same	Fax: 510 337 3994	Date: 2-22-05
		email:	Sampler: MO/LH
		PO# 2016	

Project / Site Address / Global ID: AC Transit Seminary / 1100 Seminary Ave

Analysis Requested

	Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time	8021B	TPH Gas BTEX	TPH Diesel BTEX	N. Hexane Sulfide				Field Point ID
1	MW-11	water	3 VOA	HCl	2-22-05/1020	X							
			↓	↓			X						
			2 1L Amber	NA				X					
	↓		1 Poly	↓	↓				X				
2	MW-2		3 VOA	HCl	2-22-05/1055	X							
			↓	↓			X						
			2 1L Amber	NA				X					
	↓	↓	1 Poly	↓	↓				X				
3	MW-1		3 VOA	HCl	2-22-05/1235	X							
			↓	↓			X						
			2 1L Amber	NA				X					
	↓	↓	1 Poly	↓	↓				X				
4	Trip Blank	→	3 VOA	HCl	2-22-05/1000	X							

EDF ☐ PDF ☒

Relinquished by: [signature]	Date: 2/22/05	Time: 4:15	Received by: Angie Adams	Lab Comments/ Hazards
Relinquished by: Angie Adams	Date: 2/22/05	Time: 4:50	Received by: [signature]	
Relinquished by:	Date:	Time:	Received by:	

TERMS: NET 30 OAC

05-0253

North State Labs

815 Dubuque Avenue, South San Francisco, CA 94080
Phone: (650) 266-4563 Fax: (650) 266-4560

Chain of Custody / Request for Analysis
Lab Job No.: _____ Page 2 of 2

Client: Cameron-Cole	Report to: Emily Wetens	Phone: 510 769 3570	Turnaround Time: Std
Mailing Address: 101 W Atlantic Ave Bldg #90	Billing to: Same	Fax: 510 337 3994	Date: 2-22-05
		email:	Sampler: MD/LH
		PO# 2016	

Project / Site Address / Global ID: AC Transit Seminary Rd

Analysis Requested: 8021B; TPH-Gas 5030m; TPH Diesel 8015m; Nitrate/Nitrite

EDF ☐ PDF ☒

	Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time	Field Point ID
5	MW-3	water	3 voa	HCl	2-22-05/1255	
			↓	↓		
			2 1L Amb	NA		
			1 Poly	↓		
6	MW-10		3 VOA	HCl	2-22-05/1515	
			↓	↓		
			2 1 Amb	N/A		
			1 poly	↓		
7	MW-9		3 VOA	HCl	2-22-05/1430	
			↓	↓		
			2 1 Amb	N/A		
			1 poly	↓		

Relinquished by: [signature]	Date: 2/22/05	Time: 4:15	Received by: Anji Adams	Lab Comments/ Hazards
Relinquished by: Anji Adams	Date: 2/23/05	Time: 7:50	Received by: [signature]	
Relinquished by:	Date:	Time:	Received by:	

TERMS: NET 30 OAC

APPENDIX B

SAMPLING EVENT DATA

Project Name: AC Transit - Seminary
Project Number: 2016
Well ID: MW-1
Casing Diameter (in): 2.0"
Sample Date: 2-22-05
Total Well Depth (ft): 15.30'
Sample ID: MW-1
Depth to Water (ft) before purging: 2.62'

Development Method:
NA Bailer: _____Teflon _____Stainless Steel _____PVC _____ABS Plastic
Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rat (GPM)
1232	6.86	11250	21.5	4.06	1.5	0.4
1236	6.80	11200	21.2	4.51	3.0	
1243	6.83	11250	21.2	4.83	6.0	
				total vol. =	6.5	

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
15.30 - 2.62 = 12.68 X 0.165 = 2.09 x 3 = 6.28
NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least 3 well casing volumes were removed prior to sampling.

Sample Collection Method:
X Bailer: _____Teflon _____Stainless Steel X PVC _____ABS Plastic
_____Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: 8260B (8021B) 3 VOA; TPH GAS 8015M 3 VOA; TPH Diesel 8015M 2 1L amber; Nitrate/Sulfate 1 150 ml poly

Sample Appearance
_____OVA Reading (ppm)
_____Suspended Solids (describe):

Decontamination Performed:
Washed Rinsed ⇒ Sounder/meter

Start: 1228
Stop: 1244
Sample: 1255
Fe: 2.75
DO: 3.04
ORP: -0.69

Comments / Calculations:
- centrifugal Pump used to purge
- Disp. Bailer to Sample

Name: LL

Project Name: AC Transit - Seminary
Project Number: 2016
Well ID: MW-3
Casing Diameter (in): 2
Sample Date: 2-22-05
Total Well Depth (ft): 17.90
Sample ID: MW-3
Depth to Water (ft) before purging: 5.0

Development Method:

NA Bailer: _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
1237	7.59	330	20.1	5.21	2.5	0.4
1243	7.61	345	20.2	5.66	4.0	↓
1248	7.60	336	20.1	6.01	6.0	↓
				Total Vol = 8 gal		

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
17 - 1.90 = 15.10 x .165 2.5 x 3 = 7.5

NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least 3 well casing volumes were removed prior to sampling.

Sample Collection Method:

X Bailer: _____Teflon _____Stainless Steel X PVC _____ABS Plastic

_____Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: 8260B (8021B) TPH GAS 8015M TPH Diesel 8015M Nitrate/Sulfate

Sample Appearance
_____OVA Reading (ppm)
_____Suspended Solids (describe):

Decontamination Performed:
Washed Rinsed ⇒ Sounder/meter

Start: 1220
Stop: 1250

Comments / Calculations:
- centrifugal Pump used to purge
- Disp. Bailer to Sample

Sample: 1255
Fe: 0.30 mg/L
DO: 1.91 mg/L
ORP: -79

Name: MD

Project Name: AC Transit - Seminary
Project Number: 2016
Well ID: MW-2
Casing Diameter (in): 2.0"
Sample Date: 2-22-05
Total Well Depth (ft): 23.30'
Sample ID: MW-2
Depth to Water (ft) before purging: 5.48'

Development Method:

NA Bailer: _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rat (GPM)
1026	6.71	2820	25.9	5.85	2.0	0.30
1032	6.68	2750	26.2	6.51	5.0	↓
1042	6.68	2690	26.2	7.22	8.0	↓
				total vol =	9.0	

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
23.30 – 5.48 = 17.82 x 0.165 = 2.94 x 3 = 8.82 + overpurge
+ overpurge = 30 + 9.0 = 39 gal

NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least 3 well casing volumes were removed prior to sampling.

Sample Collection Method:

X Bailer: _____Teflon _____Stainless Steel X PVC _____ABS Plastic

_____Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected:	8260B (8021B)	TPH GAS 8015M	TPH Diesel 8015M	Nitrate/Sulfate
Sample Appearance	3 VOA	3 VOA	2 1L Amber	1 150 poly

_____OVA Reading (ppm)
_____Suspended Solids (describe):

Decontamination Performed:
Washed Rinsed ⇒ Sounder/meter

Overpurge: Start: 1055 Stop: 1155

Start: 1020 Stop: 1051

Comments / Calculations:
- centrifugal Pump used to purge
- Disp. Bailer to Sample

Sample: 1055
Fe : 3.65 mg/L
DO : 10.35 mg/L
ORP : -90 MV

Name: LH

Project Name: AC Transit - Seminary
Project Number: 2016
Well ID: MW-9
Casing Diameter (in): 2.0"
Sample Date: 2-22-05
Total Well Depth (ft): 19.70'
Sample ID: MW-9
Depth to Water (ft) before purging: 2.75'

Development Method:

NA **Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
1406	7.36	570	20.1	4.70	2.0	0.4
1412	7.45	582	19.8	5.56	4.5	↓
1421	7.46	587	19.3	7.82	8.0	
				tot vol.	8.5 gal	

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
19.70' - 2.75' = 16.95 x 0.165 = 2.80 x 3 = 8.40

NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least 3 well casing volumes were removed prior to sampling.

Sample Collection Method:

X **Bailer:** _____Teflon _____Stainless Steel X PVC _____ABS Plastic

_____**Pump:** _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: 8260B (8021B) TPH GAS 8015M TPH Diesel 8015M Nitrate/Sulfate

Sample Appearance
_____OVA Reading (ppm)
_____Suspended Solids (describe):

Decontamination Performed:
Washed Rinsed ⇒ Sounder/meter

Start: 1401
Stop: 1423
Sample: 1430
Fe: 0.0
DO: 1.22
ORP: 0.52 mV

Comments / Calculations:
- centrifugal Pump used to purge
- Disp. Bailer to Sample

Name: LH

Project Name: AC Transit - Seminary
Project Number: 2016
Well ID: MW-10
Casing Diameter (in): 2"
Sample Date: 2-22-05
Total Well Depth (ft): 11.40
Sample ID: MW-10
Depth to Water (ft) before purging: 2.66'

Development Method:

NA Bailer: _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

_____Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
1453	6.88	345	20.2	3.01	1	0.3
1457	6.91	355	20.2	3.34	2	↓
1502	6.92	357	20.1	4.21	3.5	↓
				tbl vol. =	4.5 gal	

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
11.40 - 2.66 = 8.74 X 0.165 = 1.44 x 3 = 4.32
NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least 3 well casing volumes were removed prior to sampling.

Sample Collection Method:

X Bailer: _____Teflon _____Stainless Steel X PVC _____ABS Plastic

_____Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: 8260B (8021B) | TPH GAS 8015M | TPH Diesel 8015M | Nitrate/Sulfate

Sample Appearance
_____OVA Reading (ppm)
_____Suspended Solids (describe):

Decontamination Performed:
Washed Rinsed ⇒ Sounder/meter

Start: 1450
Stop: 1504
Sample: 1515
Fe: 0.0
DO: 1.57
ORP: -7.29

Comments / Calculations:
- centrifugal Pump used to purge
- Disp. Bailer to Sample

Name: LH

Project Name: AC Transit - Seminary
Project Number: 2016
Well ID: MW-4
Casing Diameter (in): 2"
Sample Date: 2-22-05
Total Well Depth (ft): 13.44
Sample ID: MW-4
Depth to Water (ft) before purging: 3.05

Development Method:

NA Bailer: _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

_____Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
1057	7.26	1381	19.0	4.51	1.5	.05
1112	7.28	1360	19.5	4.81	2.5	
1150	7.25	1341	19.1	4.98	4.0	

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
13.44 - 3.05 = 10.39 x .165 = 1.7 x 3 = 5.1 gal
NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least 3 well casing volumes were removed prior to sampling.

Sample Collection Method:

X Bailer: _____Teflon _____Stainless Steel X PVC _____ABS Plastic

_____Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: 8260B (8021B) TPH GAS 8015M TPH Diesel 8015M Nitrate/Sulfate

Sample Appearance
_____OVA Reading (ppm)
_____Suspended Solids (describe):

Decontamination Performed:
Washed Rinsed ⇒ Sounder/meter

Start: 1040
Stop: 1215
Sample: 1220
Fe: 0.31 mg/l
DO: 3.85 mg/l
ORP: 47 mV

Comments / Calculations:
- centrifugal Pump used to purge
- Disp. Bailer to sample

Name: MD