

AC Transit

Alameda-Contra Costa Transit District

10626 East 14th Street, Oakland, California 94603 ☐ (510) 577-8804
FAX ☐ (510) 577-8859



December 24, 2001

Ms. eva chu
Alameda County Health Division
Division of Environmental Protection
Department of Environmental Health
1131 Harbor Bay Parkway, Second Floor
Alameda, CA 94502

DEC 27 2001

Dear Ms. chu:

Subject: Quarterly Groundwater Monitoring Report,
AC Transit, 1177 47th Street, Emeryville

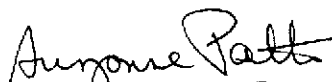
AC Transit hereby submits the enclosed quarterly groundwater monitoring report for the AC Transit facility located at 1177 47th Street in Emeryville. The report was prepared by our consultant, Cameron-Cole, LLC, and contains the results of the September 2001 sampling event.

Ground water samples were collected from eight on-site monitoring wells and analyzed for total extractable petroleum hydrocarbons (TPH) using modified EPA Method 8015 and benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tert-butyl ether (MTBE), and gasoline using EPA Method 8021B. Three monitoring wells (MW-11, MW-12, and MW-13) installed on September 17, 2001, were included in the sampling event. Depth to ground water was measured in all 16 monitoring wells and ground water contour maps were developed for the report.

Analytical results indicate that TPH was detected in all sampled wells except well MW-13 at concentrations that ranged from 260 to 15,000 ppb. Benzene was detected above the California maximum contaminant level of 1 ppb in wells W-1 and MW-6 at concentrations of 27 ppb and 180 ppb, respectively. MTBE was detected in three monitoring wells (MW-1, MW-2, and MW-10) with concentrations ranging from 29 ppb to 44 ppb.

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, P.E.
Environmental Engineer

enclosure



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

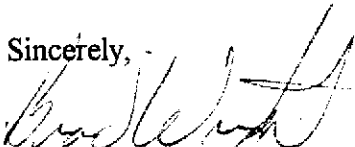
Re: Soil Boring Log for SB-5 Installed at the AC Transit Facility Located at 1177 47th Street, Emeryville California

Dear Sue:

Enclosed is a copy of the soil boring log for boring SB-5 installed at the above referenced facility. This log is to be inserted into your copy of the report entitled "Groundwater Monitoring Report of the AC Transit Facility Located at 1177 47th Street Emeryville, California" dated May 2001.

Should you have any questions feel free to call me at (510) 337-8661.

Sincerely,



Brad Wright, RG, CHG
Senior Geologist

Attachment

cc. eva chu, Alameda County

Ro-402

Do HPOCS + e6 for MW-11

well MW-12 screened from 15-30 lbs.

May need well screened assuming unconfined aquifer. The add'l MW can be just dg of DST by emergency generator along storm drain line.

**GROUNDWATER MONITORING REPORT
FOR THE AC TRANSIT FACILITY
LOCATED AT 1177 47th STREET,
EMERYVILLE, CALIFORNIA**

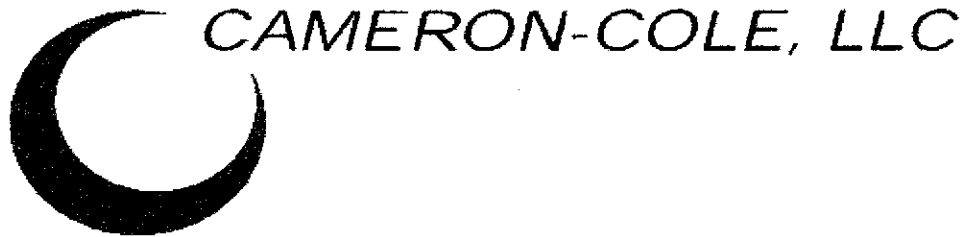
November 26, 2001

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

Prepared By:
Cameron-Cole
101 W. Atlantic Avenue
Building 90
Alameda, California 94501

510 | 337-8661

Project No: 2015-1



**GROUNDWATER MONITORING
REPORT FOR THE
AC TRANSIT FACILITY
LOCATED AT 1177 47th STREET,
EMERYVILLE, CALIFORNIA**

DEC 27 2001

November 26, 2001

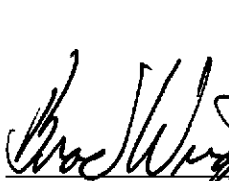
Prepared For:

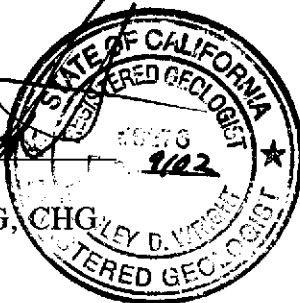
Ms. Suzanne Patton
AC Transit
10626 E. 14th Street
Oakland, California 94603

Prepared By:

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

Project No: 2015-1


Reviewed By
Brad Wright, RG, CHG
Senior Geologist





Written By
Brady Hanson
Geologist I

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INTRODUCTION

This report presents the results from the September 2001 sampling event for the AC Transit Facility located at 1177 47th Street, Emeryville, California (Site). Groundwater sampling of monitor wells MW-1, MW-2, MW-3, MW-6, MW-7, MW-9 through MW-13 and W-1 was conducted in accordance with directives from Alameda County Health Care Services (ACHCS). In a letter dated June 28, 2001, ACHCS suggested discontinued groundwater monitoring for wells MW-4, MW-5, MW-8, W-3 and W-4, as well as the monitoring frequency of the remaining wells to be reduced to a semi-annual basis. AC Transit retained Cameron-Cole to perform this work.

Additional characterization activities performed during the third quarter 2001 included installation of two monitor wells for purposes of assessing the extent from a past release of diesel in soil and groundwater in the vicinity of Tank Farm No. 1. The scope of work associated with the installation of two monitor wells was described in the document "Workplan for Additional Subsurface Investigation at the AC Transit 1177 47th Street Facility, Emeryville, California" dated August 8, 2000. The workplan was accepted by the ACHCS in a letter dated November 20, 2000, with a request to install one additional monitor well immediately downgradient of former Tank Farm Number 2. A letter of addendum to the workplan dated July 30, 2001, presented the scope of work for the installation of the additional requested monitor well. The addendum to the workplan was approved by the ACHCS in a letter dated August 2, 2001, with requested modifications to sample the new wells quarterly.

ADDITIONAL SUBSURFACE INVESTIGATIONS

On September 17, 2001, three monitor wells (MW-11 through MW-13) were installed under permit from the Alameda County Public Works Agency. The locations of the wells are presented in Figure 1 and copies of the well permits and Department of Water Resources Well Completion Reports are presented in Appendix A. MW-11 is located immediately down

gradient from former tank farm No. 2. MW-12 and MW-13 are located near the western property boundary and downgradient, in the direction of measured groundwater flow.

The wells were installed using hollow stem auger drilling equipment. During borehole installation a continuous core was collected and logged by an onsite geologist. In addition to describing lithology, the geologist performed field monitoring on core samples using a flame ionization detector (FID). Sediments encountered during well installation were consistent with those described during previous investigations. At MW-11, pea gravel back fill was encountered immediately below ground surface to a depth of 15 feet. The pea gravel was saturated at approximately 8 feet below ground surface, and was underlain by a moist silty clay. Sediments encountered at MW-12 and MW-13 consisted of alternating intervals of silty clay and silty sand. Saturated conditions were limited to thin silty sand lenses occurring at depths 19.5 feet to 30 feet and 21 feet in wells MW-12 and MW-13, respectively.

The monitor wells were constructed using two-inch diameter PVC well screen and casing. A graded sand filterpack was placed from the bottom of each well to 1.5 feet above the screened interval. A bentonite bridge was placed above the filter pack, followed by a sanitary seal consisting of neat cement to just below grade. Each well was protected with a traffic rated vault box and locking watertight compression cap. The tops of casing elevation of the three newly installed wells were surveyed relative to existing well MW-7. Monitor well logs which include the lithology, construction details and FID readings are presented in Appendix B.

GROUNDWATER MONITORING

Work performed during this sampling event included measuring depth to water in the monitor wells and groundwater sampling. Groundwater samples were analyzed for total extractable petroleum hydrocarbons (TEPH) using Environmental Protection Agency (EPA) Method 8015 Modified and benzene, toluene, ethylbenzene, xylenes (BTEX), methyl tertiary-butyl ether

(MTBE), and gasoline by EPA Method 8021B.

A site map displaying the monitor well locations is presented as Figure 1. Chain-of-custody documents, field data sheets and certified analytical reports are included in Appendix C.

Groundwater Elevations and Flow Direction

On September 20, 2001, all 16 Site monitor wells were inspected and measured for the 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. A hydrocarbon sheen was detected in MW-6. As shown on Figure 2, groundwater flow is to the west at a gradient of 0.02 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 in the 11 wells sampled. During well purging, field parameters for pH, electrical conductivity and temperature were monitored using calibrated field meters. For the newly installed monitor wells MW-11, MW-12 and MW-13, a minimum of 10 casing volumes were purged during the development of each well. Prior to purging, a surge block was used on each new well.

Groundwater samples were collected in 40-milliliter glass vials preserved with hydrochloric acid and one-liter non-preserved amber glass containers and placed in an ice-filled cooler for shipment under chain-of-custody to a State of California certified laboratory. Two trip blanks were submitted on September 20 and 21, 2001 for analysis by EPA Method 8021B.

Groundwater Analytical Results

Table 2 presents groundwater analytical results for the September 2001 sampling event. TPH was detected in all Site monitor wells sampled except for MW-13. Concentrations of TPH above laboratory reporting limits ranged from 260 to 15,000 parts per billion (ppb). Benzene was detected above the maximum contaminant level (MCL) for benzene of 1.0 ppb in wells W-1 and MW-6, at concentrations of 27 ppb, and 180 ppb, respectively. Toluene, ethylbenzene and xylenes were detected in monitor well MW-6 at concentrations below the MCLs. Ethylbenzene and xylenes were found in W-1 at concentrations below the MCLs. MTBE was detected above the MCL of 13 ppb, in MW-1, MW-2 and MW-10 at 29 ppb, 35 ppb, 44 ppb, respectively.

No analytes were detected in the trip blanks or method blanks. A lab control spike and lab control spike duplicate passed the EPA's criteria for acceptance.

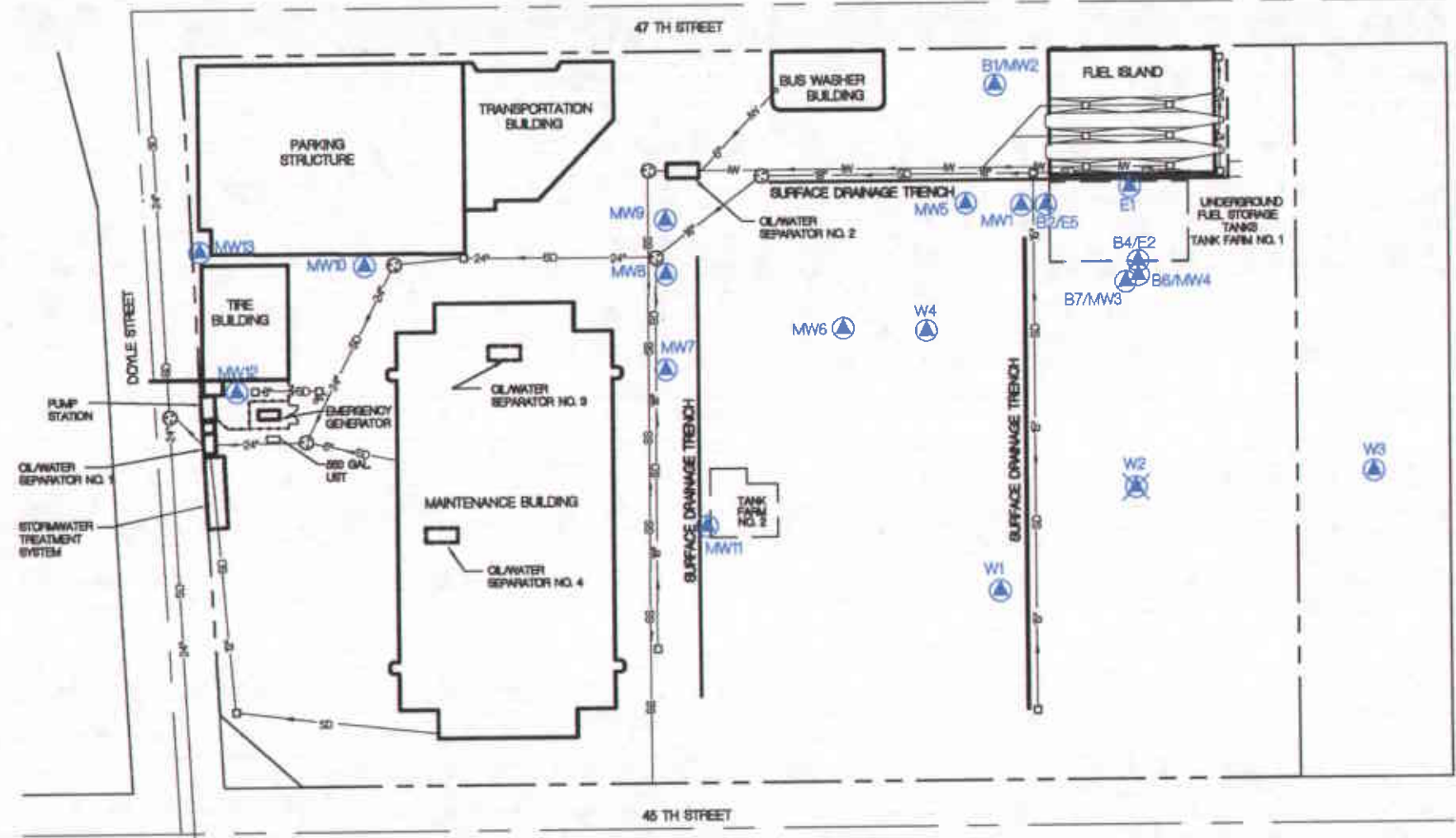
SUMMARY OF RESULTS

- MTBE was detected above the MCL in MW-1, MW-2 and MW-10.
- Benzene was detected in W-1, and MW-6 above the MCL of 1 ppb.
- A hydrocarbon sheen was present in MW-6.
- TPH was detected in all Site monitor wells sampled except MW-13.
- Groundwater flow is to the west at a gradient of 0.02 feet/foot.

- TPH was detected in new well MW-11 at 460 ppb and 88 ppb by EPA Methods 8015M and 8021, respectively.
- TPH was detected in new well MW-12 at 540. TPH as gasoline and MTBE were detected at 960 ppb and 11 ppb, respectively.
- MTBE was detected in new well MW-13 at 7.4 ppb.

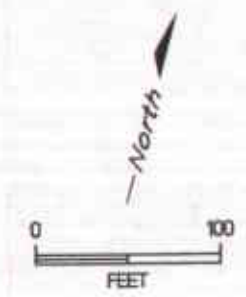
PROJECTED WORK AND RECOMMENDATIONS

- Quarterly groundwater monitoring of newly installed wells MW-11 through MW-13 is scheduled for December 2001. This event will include Site-wide depth to groundwater level measurements, including inspection of each monitor well for free-phase hydrocarbon.
- Semi-Annual groundwater monitoring is tentatively scheduled for March 2002. This event will not include sampling of wells MW-4, 5, 8, and W-3 and 4.



LEGEND

	MANHOLE
	CATCH BASIN
	MONITORING WELL
	ABANDONED MONITORING WELL
	STORM DRAIN PIPELINE
	SANITARY SEWER PIPELINE
	INDUSTRIAL WASTE PIPELINE
	CHAIN LINK FENCE



BY	DATE
DESIGN C.JJ	10-03-01
CHECKED	
APPROVED	
APPROVED	
APPROVED	



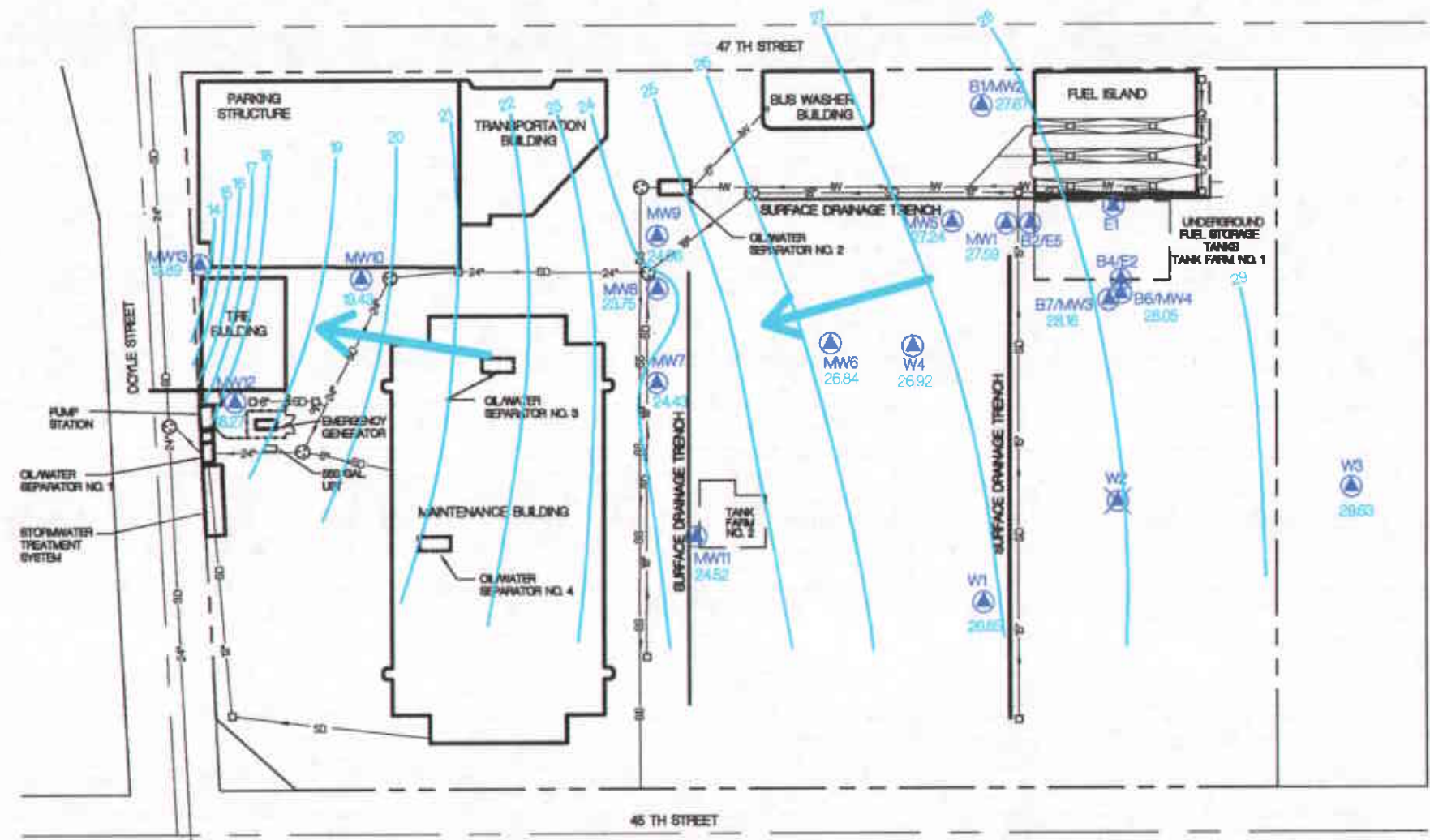
CAMERON-COLE

EMERYVILLE FACILITY - OAKLAND, CALIFORNIA

**FIGURE 1
AC TRANSIT - MONITORING WELL LOCATION MAP**

SCALE: 1" = 100'

DWG NO: 2015-01



LEGEND

	MANHOLE
	CATCH BASIN
	MONITORING WELL
	ABANDONED MONITORING WELL
	POTENTIOMETRIC SURFACE ELEVATION
	POTENTIOMETRIC SURFACE CONTOUR
	STORM DRAIN PIPELINE
	SANITARY SEWER PIPELINE
	INDUSTRIAL WASTE PIPELINE
	CHAIN LINK FENCE

BY	DATE
Drawn C.J.J.	10-08-01
Checked	
Approved	
Approved	



EMERYVILLE FACILITY - OAKLAND, CALIFORNIA

FIGURE 2

AC TRANSIT - POTENTIOMETRIC SURFACE MAP

SCALE: 1" = 100'

DWG NO: 2015-02

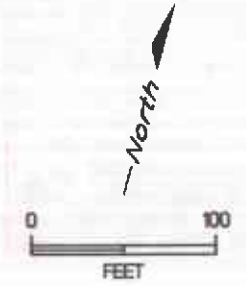


TABLE 1
GROUNDWATER LEVEL MEASUREMENTS
AC TRANSIT
1177 47TH STREET, EMERYVILLE, CALIFORNIA

Well	Date	Top of Casing Elevation (ft-msl)	Product Thicknes s (feet)	DTW (feet)	Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected from Product Thickness* (ft-msl)
MW-1	8/31/99	32.56	None	3.24	29.32	NA
	11/23/99		None	4.55	28.01	NA
	3/1/00		None	3.65	28.91	NA
	5/17/00		None	4.08	28.48	NA
	8/30/00		None	5.18	27.38	NA
	12/18/00		None	4.86	27.7	NA
	3/20/01		None	4.22	28.34	NA
	6/7/01		None	4.88	27.68	NA
	9/20/01		None	4.97	27.59	NA
MW-2	8/31/99	32.12	None	5.24	26.88	NA
	11/23/99		None	4.03	28.09	NA
	3/1/00		None	3.11	29.01	NA
	5/17/00		None	3.66	28.46	NA
	8/30/00		None	4.65	27.47	NA
	12/18/00		None	4.06	28.06	NA
	3/20/01		None	3.91	28.21	NA
	6/7/01		None	4.40	27.72	NA
	9/20/01		None	4.45	27.67	NA
MW-3	8/31/99	34.06	None	6.15	27.91	NA
	11/23/99		None	5.78	28.28	NA
	3/1/00		None	4.82	29.24	NA
	5/17/00		None	5.29	28.77	NA
	8/30/00		None	6.20	27.86	NA
	12/18/00		None	5.65	28.41	NA
	3/20/01		None	5.18	28.88	NA
	6/7/01		None	6.01	28.05	NA
	9/20/01		None	5.5	28.16	NA
MW-4	8/31/99	34.11	None	6.22	27.89	NA
	11/23/99		None	6.01	28.10	NA
	3/1/00		None	4.74	29.37	NA
	5/17/00		None	5.33	28.78	NA
	8/30/00		None	6.26	27.85	NA
	12/18/00		None	5.66	28.45	NA
	3/20/01		None	5.46	28.65	NA
	6/7/01		None	6.02	28.09	NA
	9/20/01		None	6.06	28.05	NA
MW-5	8/31/99	31.70	None	4.51	27.19	NA
	11/23/99		None	4.00	27.70	NA
	3/1/00		None	3.31	28.39	NA
	5/17/00		None	3.59	28.11	NA
	8/30/00		None	4.53	27.17	NA
	12/18/00		None	3.97	27.73	NA
	3/20/01		None	3.68	28.02	NA
	6/7/01		None	4.37	27.33	NA
	9/20/01		None	4.46	27.24	NA

TABLE 1
GROUNDWATER LEVEL MEASUREMENTS
AC TRANSIT
1177 47TH STREET, EMERYVILLE, CALIFORNIA

Well	Date	Top of Casing Elevation (ft-msl)	Product Thicknes s (feet)	DTW (feet)	Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected from Product Thickness* (ft-msl)
MW-6	8/31/99	31.02	None	4.40	26.62	NA
	11/23/99		None	3.81	27.21	NA
	3/1/00		None	2.88	28.14	NA
	5/17/00		None	3.44	27.58	NA
	8/30/00		None	4.40	26.62	NA
	12/18/00		None	3.61	27.41	NA
	3/20/01		None	3.16	27.86	NA
	6/7/01		None	4.18	26.84	NA
	9/20/01		Shcen	4.22	26.60	NA
MW-7	8/31/99	29.62	None	5.47	24.15	NA
	11/23/99		None	4.93	24.69	NA
	3/1/00		None	4.06	25.56	NA
	5/17/00		None	4.69	24.93	NA
	8/30/00		None	5.50	24.12	NA
	12/18/00		None	5.78	23.84	NA
	3/20/01		None	4.83	24.79	NA
	6/7/01		None	4.80	24.82	NA
	9/20/01		None	5.19	24.43	NA
MW-8	8/31/99	29.43	None	5.35	24.08	NA
	11/23/99		None	4.75	24.68	NA
	3/1/00		None	4.48	24.95	NA
	5/17/00		None	4.78	24.65	NA
	8/30/00		None	5.02	24.41	NA
	12/18/00		None	5.23	24.20	NA
	3/20/01		None	4.70	24.73	NA
	6/7/01		None	5.13	24.30	NA
	9/20/01		None	5.68	23.75	NA
MW-9	8/31/99	29.18	None	4.15	25.03	NA
	11/23/99		None	3.93	25.25	NA
	3/1/00		None	3.69	25.49	NA
	5/17/00		None	3.56	25.62	NA
	8/30/00		None	4.64	24.54	NA
	12/18/00		None	4.02	25.16	NA
	3/20/01		None	3.92	25.26	NA
	6/7/01		None	4.28	24.90	NA
	9/20/01		None	5.12	24.06	NA
MW-10	8/31/99	29.13	None	9.59	19.54	NA
	11/23/99		None	9.44	19.69	NA
	3/1/00		None	9.06	20.07	NA
	5/17/00		None	9.31	19.82	NA
	8/30/00		None	9.68	19.45	NA
	12/18/00		None	9.41	19.72	NA
	3/20/01		None	9.23	19.90	NA
	6/7/01		None	9.60	19.53	NA
	9/20/01		None	9.70	19.43	NA
MW-11	9/20/01	28.93	None	4.41	24.52	NA
MW-12	9/20/01	28.66	None	10.41	18.27	NA
MW-13	9/20/01	22.715	None	8.83	13.89	NA

TABLE 1
GROUNDWATER LEVEL MEASUREMENTS
AC TRANSIT
1177 47TH STREET, EMERYVILLE, CALIFORNIA

Well	Date	Top of Casing Elevation (ft-msl)	Product Thicknes s (feet)	DTW (feet)	Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected from Product Thickness* (ft-msl)
W-1	3/2/00	33.43	None	4.08	29.35	NA
	5/17/00		None	5.41	28.02	NA
	8/30/00		None	6.71	26.72	NA
	12/18/00		None	5.73	27.70	NA
	3/20/01		None	5.16	28.27	NA
	6/7/01		None	6.10	27.33	NA
	9/20/01		None	6.58	26.85	NA
W-2	5/17/00	34.21	None	5.60	28.61	NA
	8/30/00		None	7.37	26.84	NA
	12/18/00		None	6.44	27.77	NA
	1/23/01					abandoned
W-3	5/17/00	37.46	None	6.38	31.08	NA
	8/30/00		None	8.16	29.30	NA
	12/18/00		None	7.19	30.27	NA
	3/20/01		None	5.70	31.76	NA
	6/7/01		None	7.51	29.95	NA
	9/20/01		None	7.83	29.63	NA
W-4	3/2/00	31.72	None	3.34	28.38	NA
	5/17/00		None	3.86	27.86	NA
	8/30/00		None	4.99	26.73	NA
	12/18/00		None	4.20	27.52	NA
	3/20/01		None	3.75	27.97	NA
	6/7/01		None	4.67	27.05	NA
	9/20/01		None	4.80	26.92	NA

Notes:

* used 0.8 specific gravity of product

ft-msl: feet mean sea level

DTW: Depth to water

NA: not applicable

TABLE 2
ANALYTICAL RESULTS GROUNDWATER SAMPLES
AC TRANSIT
1177 47TH STREET, EMERYVILLE, CALIFORNIA

Well	Date	G D		Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
		TPH-8015	TPH-8021					
MCL (ppb)		None	None	1.0	150	700	1750	13
MW-1	8/31/99	310	NA	<1.0	2.4	1	1.6	NA
	11/23/99	250	NA	<1.0	<1.0	<1.0	<1.0	NA
	3/1/00	310	62	<1.0	<1.0	<1.0	<2.0	687
	5/17/00	390	63	<1.0	<1.0	<1.0	<2.0	74
	8/31/00	180	<50	<1.0	<1.0	<1.0	<2.0	49
	12/18/00	310	<50	<1.0	<1.0	<1.0	<2.0	44
	3/21/01	240	<50	<1.0	<1.0	<1.0	<2.0	17
	6/7/01	540	<50	<1.0	<1.0	<1.0	<2.0	32
	9/20/01	290	<50	<1.0	<1.0	<1.0	<2.0	29
MW-2	8/31/99	180	NA	<1.0	<1.0	<1.0	1.2	NA
	11/23/99	120	NA	<1.0	<1.0	<1.0	<5.0	NA
	3/1/00	510	<50	<1.0	<1.0	<1.0	<2.0	81
	5/17/00	1,100	<50	<1.0	<1.0	<1.0	<2.0	87
	8/31/00	620	<50	<1.0	<1.0	<1.0	<2.0	65
	12/19/00	830	<50	<1.0	<1.0	<1.0	<2.0	70
	3/21/01	900	<50	<2.0	<2.0	<2.0	<4.0	33
	6/7/01	810	<50	<1.0	<1.0	<1.0	<2.0	43
	9/20/01	1,200	<50	<1.0	<1.0	<1.0	<2.0	35
MW-3	8/31/99	2,700	NA	<1.0	<1.0	<1.0	<1.0	NA
	11/23/99	640	NA	<1.0	<1.0	<1.0	<1.0	NA
	3/1/00	<250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	5/17/00	620	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	8/31/00	1,800	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	12/18/00	NA	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	3/21/01	1,700	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	6/7/01	770	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	9/21/01	260	<50	<1.0	<1.0	<1.0	<2.0	<5.0
MW-4	8/31/99	<50	NA	<1.0	<1.0	<1.0	1.6	NA
	11/23/99	<50	NA	<1.0	<1.0	<1.0	<1.0	NA
	3/1/00	<250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	5/17/00	80	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	8/31/00	<250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	12/18/00	<250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	3/20/01	<250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	6/7/01	<250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	9/21/01	<250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
MW-5	8/31/99	250	NA	<1.0	<1.0	<1.0	1	NA
	11/23/99	300	NA	<1.0	<1.0	<1.0	<5.0	NA
	3/1/00	340	<50	<1.0	<1.0	<1.0	<2.0	100
	5/17/00	230	<50	<1.0	<1.0	<1.0	<2.0	86
	8/31/00	220	<50	<1.0	<1.0	<1.0	<2.0	59
	12/18/00	360	<50	<1.0	<1.0	<1.0	<2.0	57
	3/20/01	250	<50	<5.0	<5.0	<5.0	<10	87
	6/7/01	600	<50	<1.0	<1.0	<1.0	<2.0	74
	9/21/01	600	<50	<1.0	<1.0	<1.0	<2.0	74

TABLE 2
ANALYTICAL RESULTS GROUNDWATER SAMPLES
AC TRANSIT
1177 47TH STREET, EMERYVILLE, CALIFORNIA

Well	Date	TPH-8015	TPH-8021	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
MCL (ppb)		None	None	1.0	150	700	1750	13
MW-6	8/31/99	140,000	NA	77	18	31	49	NA
	11/23/99	6,100	NA	45	14	6.9	48	NA
	3/1/00	22,000	2800	6.8	<2.0	<2.0	<10	<5.0
	5/17/00	1,800	6200	77	16	39	37	<5.0
	8/31/00	76,000	5300	60	13	43	45.7	<5.0
	12/19/00	6,300	1300	26.0	4.9	8.4	11.5	<5.0
	3/21/01	5,100	1900	49.0	9.5	13	12	<10
	6/7/01	14,000	2600	47.0	10	13	19	<10
	9/21/01	15,000	4000	180	14	24	40	<50
MW-7	8/31/99	1,400	NA	<1.0	2.9	2.3	2.7	NA
	11/23/99	530	NA	<1.0	<1.0	<1.0	<1.0	NA
	3/1/00	640	860	<1.0	<1.0	<1.0	<2.0	<20
	5/17/00	430	410	<1.0	<1.0	<1.0	<2.0	9.5
	8/31/00	950	1100	<1.0	<1.0	<1.0	<2.0	<5.0
	12/18/00	1,100	820	<1.0	<1.0	<1.0	<2.0	<5.0
	3/20/01	770	1000	<1.0	1.4	<1.0	<2.0	<5.0
	6/7/01	1,400	870	<1.0	<1.0	<1.0	<2.0	<5.0
	9/21/01	940	1000	<1.0	<1.0	<2.0	<5.0	<5.0
MW-8	8/31/99	230	NA	<1.0	<1.0	1.2	<1.0	NA
	11/23/99	220	NA	<1.0	<1.0	<1.0	<1.0	NA
	3/1/00	260	150	<1.0	<1.0	<1.0	<2.0	<5.0
	5/17/00	660	310	<1.0	<1.0	<1.0	<2.0	<5.0
	8/31/00	460	300	<1.0	<1.0	<1.0	1.4	<5.0
	12/18/00	370	230	<1.0	<1.0	<1.0	<2.0	<5.0
	3/20/01	1,700	64	<1.0	<1.0	<1.0	<2.0	<5.0
	6/7/01	1,300	180	<1.0	<1.0	<1.0	<2.0	<5.0
	9/21/01	1,300	180	<1.0	<1.0	<1.0	<2.0	<5.0
MW-9	8/31/99	2,800	NA	<1.0	<1.0	<1.0	1.1	NA
	11/23/99	1,300	NA	<1.0	<1.0	<1.0	<1.0	NA
	3/1/00	510	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	5/17/00	990	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	8/31/00	1,100	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	12/18/00	1,900	<50	<1.0	<1.0	<1.0	<2.0	5.9
	3/20/01	1,500	<50	<1.0	<1.0	<1.0	<2.0	5.5
	6/7/01	590	<50	<1.0	<1.0	<1.0	<2.0	8.1
	9/20/01	790	<50	<1.0	<1.0	<1.0	<2.0	8.5
MW-10	8/31/99	1,100	NA	<1.0	1.2	2.0	<1.0	NA
	11/23/99	1,200	NA	<1.0	<1.0	<1.0	<1.0	NA
	3/1/00	1,300	540	<1.0	<1.0	<1.0	<2.0	Na12
	5/17/00	990	460	<1.0	<1.0	<1.0	<2.0	6.9
	8/31/00	840	320	<1.0	<1.0	<1.0	<2.0	25
	12/18/00	900	290	<1.0	<1.0	<1.0	<2.0	<9.0
	3/21/01	620	220	<1.0	<1.0	<1.0	<2.0	<5.0
	6/7/01	1,300	360	<1.0	<1.0	<1.0	<2.0	15
	9/20/01	1,000	350	<1.0	<1.0	<1.0	<2.0	44

TABLE 2
ANALYTICAL RESULTS GROUNDWATER SAMPLES
AC TRANSIT
1177 47TH STREET, EMERYVILLE, CALIFORNIA

Well	Date	TPH-8015	TPH-8021	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
MCL (ppb)		None	None	1.0	150	700	1750	13
MW-11	9/20/01	450	88	<1.0	<1.0	<1.0	<2.0	<5.0
MW-12	9/20/01	540	960	<1.0	<1.0	<2.0	<5.0	11
MW-13	9/21/01	<250	<50	<1.0	<1.0	<1.0	<2.0	7.4
W-1	3/2/00	1,800	3400	20.0	5.3	30	23.8	<5.0
	5/17/00	1,100	7300	35.0	11	59	45	<1.0
	8/31/00	2,200	6200	20.0	7.9	36	38.2	<1.0
	12/19/00	1,700	5600	20.0	8.4	30	35.6	<5.0
	3/20/01	2,100	7200	32.0	13	56	40	<1.0
	6/7/01	2,100	7300	26.0	18	42	38.3	<1.0
	9/21/01	1,800	7100	27	<1.0	48	40	<1.0
W-2	5/17/00	19,000	870	<2.0	<1.0	<2.0	<4.0	<5.0
	8/31/00	7,400	2200	4.6	2.5	3.8	11	<5.0
	12/19/00	10,000	290	8.8	3.4	8.6	17.4	<5.0
W-3	5/17/00	<50	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	8/31/00	<50	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	12/18/00	<250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	3/20/01	630	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	6/7/01	1,200	<50	<1.0	<1.0	<1.0	<2.0	<5.0
W-4	3/2/00	190	<50	1.1	<1.0	<1.0	<2.0	<5.0
	5/17/00	230	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	8/31/00	240	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	12/19/00	320	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	3/21/01	220	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	6/7/01	430	<50	<1.0	<1.0	<1.0	<2.0	<5.0

Notes:

ppb: parts per billion
 TPH: Total Petroleum Hydrocarbons
 MTBE: methyl tert butylether
 MCL: Maximum Contaminant Level
 NA: not analyzed

APPENDIX A

**MONITOR WELL INSTALLATION PERMITS
AND
WELL COMPLETION REPORTS**

Aug 04 2001 11:17am From-CAMERON COLE

+510 337 3994

T-010 P.002/082 F-026

NOV-24-'97 MON 13:39 ID:ALAMEDA CO PUBLIC WK FRX NO:518/670-2062

MAJOR FILE



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION

331 TURNER COURT, SUITE 200, HAYWARD, CA 94545-3451

PHONE (510) 670-5555 ANDREAS GOSPREY FAX (510) 470-8842

(510) 670-5181 ALVIN BEAN

(510) 782-1939

395 Elmhurst St., Hayward, CA 94544

Phone 3 (510) 670-5554

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 1177 47th STREET
EMERYVILLE, CA

California Coordinates Source _____ ft. Accuracy ± _____ ft.
CCN _____ ft. CCE _____ ft.
APN _____

CLIENT
Name AC TRANSIT (SUB PARTN)
Address 18626 E. 14th ST. Phone 577-3869
City RAKLAND, CA Zip 74603

APPLICANT
Name CAMERON COLE, LLC (NATHAN KING)
Address 181 W 4th AVENUE, Rm 80 Phone 510 337 3994
City ALAMEDA, CA Zip 94501

TYPE OF PROJECT
Well Construction Geotechnical Investigation
Cathodic Protection General
Water Supply Contamination
Monitoring Well Destruction

PROPOSED WATER SUPPLY WELL USE
New Domestic Replacement Domestic
Municipal Irrigation
Industrial Other _____

DRILLING METHOD:
Mud Rotary Air Rotary Auger
Cable Other

DRILLER'S LICENSE NO. 057 485165

WELL PROJECTS Gregg Drilling
Drill Hole Diameter 6 in. Maximum _____
Casing Diameter 7 in. Depth 25 ft. Number _____
Surface Seal Depth 10 ft. Number _____

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum Depth _____ ft.
Hole Diameter _____ in.

ESTIMATED STARTING DATE 9/17/01
ESTIMATED COMPLETION DATE 9/18/01

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-88.

APPLICANT'S SIGNATURE Nathan King DATE 9/3/01

FOR OFFICE USE

PERMIT NUMBER W01-849
WELL NUMBER _____
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL

1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 30 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL

Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

E. CATHODIC

Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION

See attached.

G. SPECIAL CONDITIONS

APPROVED [Signature] DATE 9-14-01
FAXED
6-14-01

NOV 24 '97 14:37



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION

301 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
 PHONE (510) 870-5575 ANDREAS GOSWAMY FAX (510) 870-3867
 (510) 870-3188 ALYNN KENY

394 Glmhurst St, Hayward, CA 94544 Phone 8 (510) 670-5554

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 1177 47th STREET
EMERYVILLE, CA

California Coordinates Source _____ ft. Accuracy ± _____ ft.
 CGN _____ ft. CCE _____ ft.
 APN _____

CLIENT
 Name AC TRANSIT (SUB PATTON)
 Address 18626 E. 14th ST. Phone 577-3869
 City OAKLAND, CA Zip 94603

APPLICANT
 Name CAMPION - COLE, LLC (NATHAN KING) Fax 510 337 3884
 Address 181 WEST ADAMS, BLDG 20 Phone 510 337 3860 x 16
 City ALAMEDA, CA Zip 94501

TYPE OF PROJECT

Well Construction	<input type="checkbox"/>	Geotechnical Investigation	<input type="checkbox"/>
Cathodic Protection	<input type="checkbox"/>	General	<input type="checkbox"/>
Water Supply	<input type="checkbox"/>	Contamination	<input type="checkbox"/>
Monitoring	<input checked="" type="checkbox"/>	Well Destruction	<input type="checkbox"/>

PROPOSED WATER SUPPLY WELL USE

New Domestic	<input type="checkbox"/>	Replacement Domestic	<input type="checkbox"/>
Municipal	<input type="checkbox"/>	Irrigation	<input type="checkbox"/>
Industrial	<input type="checkbox"/>	Other _____	<input type="checkbox"/>

DRILLING METHOD:

Mud Rotary	<input type="checkbox"/>	Air Rotary	<input type="checkbox"/>	Auger	<input checked="" type="checkbox"/>
Cable	<input type="checkbox"/>	Other	<input type="checkbox"/>		

DRILLER'S LICENSE NO. 057 485165

WELL PROJECTS Gregg Drilling

Drill Hole Diameter	<u>6</u> in.	Maximum	
Casing Diameter	<u>3</u> in.	Depth	<u>25</u> ft.
Surface Seal Depth	<u>10</u> ft.	Number	<u> </u>

GEOTECHNICAL PROJECTS

Number of Borings	<u> </u>	Maximum	
Hole Diameter	<u> </u> in.	Depth	<u> </u> ft.

ESTIMATED STARTING DATE 9/17/01
 ESTIMATED COMPLETION DATE 9/18/01

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Nathan King DATE 9/31/01

FOR OFFICE USE

PERMIT NUMBER W01-851
 WELL NUMBER _____
 APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL

1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL

Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, treated cement grout shall be used in place of compacted cuttings.

E. CATHODIC

Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION

See attached.

G. SPECIAL CONDITIONS

APPROVED _____ DATE 9/14/01

FAXED
9/14/01

NOV 24 '97 14:37

Aug-31-2001 11:17am From-CAMERON COLE

+510 337 3884

T-010 P.002/002 F-026

NOV-24-'97 MON 13:39 ID:ALAMEDA CO PUBLIC WK FAX NO:5107821939



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION

331 TURNER COURT, SUITE 300, BAYWARD, CA 94545-2691

PHONE (510) 670-3373 ANDREA GODFREY FAX (510) 670-3843

(510) 670-3288 ALVIN ISAAC

394 Glenhurst St, Hayward, CA 94544

(510) 782-1939

Phone 8 (510) 670-5554

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 1177 47th STREET
EMERYVILLE, CA

California Coordinates Source _____ ft. Accuracy ± _____ ft.
CCN _____ ft. CCE _____ ft.
APN _____

CLIENT

Name AC TRANSIT (SUB PARTN)
Address 10626 E 14th ST Phone 577-3869
City OAKLAND, CA Zip 94603

APPLICANT

Name CAMERON-COLE, LLC (NATHAN KING) Fax 510 337 3854
Address 101 WEST ADAM ST. BOX 90 Phone 510 337 8400 x16
City ALAMEDA, CA Zip 94501

TYPE OF PROJECT

Well Construction	<input type="checkbox"/>	Geotechnical Investigation	<input type="checkbox"/>
Cathodic Protection	<input type="checkbox"/>	General	<input type="checkbox"/>
Water Supply	<input type="checkbox"/>	Contamination	<input type="checkbox"/>
Monitoring	<input checked="" type="checkbox"/>	Well Destruction	<input type="checkbox"/>

PROPOSED WATER SUPPLY WELL USE

New Domestic	<input type="checkbox"/>	Replacement Domestic	<input type="checkbox"/>
Municipal	<input type="checkbox"/>	Irrigation	<input type="checkbox"/>
Industrial	<input type="checkbox"/>	Other _____	<input type="checkbox"/>

DRILLING METHOD:

Mud Rotary	<input type="checkbox"/>	Air Rotary	<input type="checkbox"/>	Auger	<input checked="" type="checkbox"/>
Cable	<input type="checkbox"/>	Other	<input type="checkbox"/>		

DRILLER'S LICENSE NO. 057 485165

WELL PROJECTS

Gregg Drilling
Drill Hole Diameter 6 in. Maximum _____
Casing Diameter 2 in. Depth 25 ft.
Surface Seal Depth 10 ft. Number _____

GEOTECHNICAL PROJECTS

Number of Borings _____ Maximum Depth _____ ft.
Hole Diameter _____ in.

ESTIMATED STARTING DATE 9/17/01
ESTIMATED COMPLETION DATE 9/18/01

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Nathan King DATE 9/31/01

FOR OFFICE USE

PERMIT NUMBER W21-850

WELL NUMBER _____

APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL

1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.

2. Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.

3. Permit is void if project has begun within 90 days of approval date.

B. WATER SUPPLY WELLS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.

2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.

2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL

Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, treated cement grout shall be used in place of compacted cuttings.

E. CATHODIC

Fill bells above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION

See attached.

G. SPECIAL CONDITIONS

APPROVED _____

DATE 9-14-01

FAXED
6-14-01

NOV 24 '97 14:37

ALAMEDA CO PUBLIC WK

PAGE 002

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

APPENDIX B

**MONITOR WELL CONSTRUCTION LOGS
AND
FIELD MONITORING RESULTS**

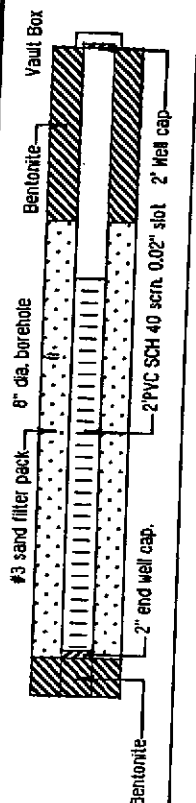
CAMERON-COLE

SOIL BORING/WELL LOG

Page 1 of 1

WELL NO. MW-11

CLIENT: AC TRANSIT		JOB NUMBER: 2010-1	
PROJECT: AC Transit, Emeryville Well Installation		LOCATION: 1177 47th St./ Emeryville, CA	
EXCAVATED BY: Gregg Drilling		OPERATOR: Rick	
DATE START: 9-17-01		METHOD: HSA (Rhino)	
DATE COMP: 9-17-01		REF. EL: 28.93	
LOGGED BY: Erik Gerking		APPROVED BY: Brad Wright	
		TOTAL DEPTH: 17 FT	
		DEPTH TO WATER: 4.41 FT	

WELL COMP	DPT	BLOWS	GRAPHIC LOG USCS CODE	DESCRIPTION	FID (ppm)	SAMPLE NUMBER	SAMPLE ANAL.
				0-8" Concrete. 8"-15.0' Pea Gravel Fill.			
			CH	15.0'-17.0' Silty clay : (0,10,40,50); mottled light olive brown (2.5Y5/4); high plasticity; stiff; fine to very fine grained sand; moist; hydrocarbon odor detected. Total Depth 17' First Encountered Groundwater @ 8.04'	5.2 ppm 15'		

CAMERON-COLE

SOIL BORING/WELL LOG

Page 1 of 1

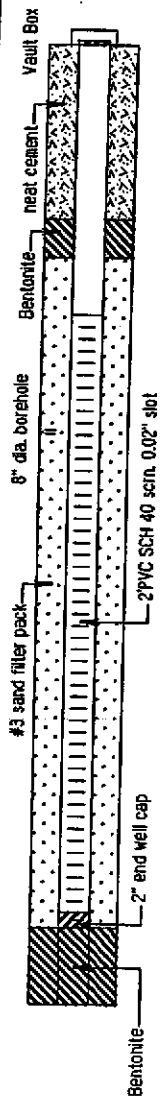
WELL NO. MW-12

CLIENT: AC TRANSIT			JOB NUMBER: 2010-1		
PROJECT: AC Transit, Emeryville Well Installation			LOCATION: 1177 47th St./ Emeryville, CA		
EXCAVATED BY: Gregg Drilling		OPERATOR: Rick		METHOD: HSA (Rhino)	
DATE START: 9-17-01		DATE COMP: 9-17-01		REF. EL: 28.68	TOTAL DEPTH: 30 FT
LOGGED BY: Erik Gerking			APPROVED BY: Brad Wright		DEPTH TO WATER: 10.41 FT

WELL COMP	DPT	BLOWS	GRAPHIC LOG USCS CODE	DESCRIPTION	FID (ppm)	SAMPLE NUMBER	SAMPLE ANAL.
	0-6"		CM	0-6" Concrete.			
	6"-6.5'			6"-6.5' Fill			
	6.5'-10.0'		CL	6.5'-10.0' Silty clay with sand: (0,25,45,30); hydrocarbon odor detection.			
	10.0'-16.5'		CH	10.0'-16.5' Silty clay: (0,10,50,40); dark greenish gray (5G4/1); high plasticity; stiff; moist; hydrocarbon odor detected.	0.2		
	11.0'-15.0'			11.0'-15.0' Dry.	10.5'		
	15.0'-16.5'			15.0'-16.5' Color change to reddish brown: (2.5Y5/4); with black mottles (2.5Y2.5/1).			
	16.5'-17.0'		CL	16.5'-17.0' Silty clay with sand: (0,20,50,30); light reddish brown (2.5Y6/4); medium plasticity; stiff; fine grained sand; moist.			
	17.0'-19.0'		CH	17.0'-19.0' Same as 15-16.5'.			
	19.0'-19.5'		CL	19.0'-19.5' Silty clay with sand: (0,25,45,30); reddish brown (2.5Y4/4); medium plasticity; medium stiff; moist.			
	19.5'-19.75'		CH	19.5'-19.75' Silty sand with gravel: (20,35,25,20); dark greenish; gray (5B64/1); loose; very fine to fine grained sand; fine angular gravel; moderately graded; saturated.			
	19.75'-25.0'			Same as 15-16.5'.			
	25.0'-30.0'		SM/SC	25.0'-30.0' Silty sand: (15,40,30,15); very dark greenish brown (10YR3/2); slight plasticity; fine to medium grained sand; fine angular-sub angular gravel; loose; saturated.			
27.5'-28.5'		CL	27.5'-28.5' Silty clay: (0,15,45,40); dark yellowish brown (10YR3/6); high plasticity; moist.				
28.5'-30.0'		SM/SC	28.5'-30.0' Same lithology as previously encountered SM SC.				
30'-30'			Total Depth 30'				
30'-30'			First Encountered Groundwater @ 19.5'				

CLIENT: AC TRANSIT		JOB NUMBER: 2010-1	
PROJECT: AC Transit, Emeryville Well Installation		LOCATION: 1177 47th St./ Emeryville, CA	
EXCAVATED BY: Gregg Drilling		OPERATOR: Rick	METHOD: HSA (Rhino)
DATE START: 9-17-01	DATE COMP: 9-17-01	REF. EL: 22.72	TOTAL DEPTH: 25 FT
LOGGED BY: Erik Gerking		APPROVED BY: Brad Wright	DEPTH TO WATER: 8.83 FT

WELL COMP	DPT	BLOWS	GRAPHIC LOG USCS CODE	DESCRIPTION	FID (ppm)	SAMPLE NUMBER	SAMPLE ANAL.
				0-6.5' Fill; Dark yellowish brown (10YR3/4).			
	5			6.5'-17.5' Silty clay: (0,15,40,45); brown (10YR3/3), high plasticity; stiff; very fine grained sand; moist. 7.5'-11.0' Color change to very dark gray (2.5YR3/1); and hydrocarbon odor detected.	17.5 ppm		
	10		CH	11.0'-17.5' Color change to black: (2.5Y2.5/1) with brown (2.4Y4/4); mottles.	7.5		
	15			17.5'-21.0' Silty clay with sand: (0,25,40,35); grayish brown (2.5Y5/2); with black mottles (2.5Y2.5/1); medium plasticity; soft; fine to very fine grained sand; top 4" very moist grading downward to slightly moist.			
	20		CL	20.0'-21.0' Color change to dark grayish brown (2.5Y4/2).			
			SC	21.0'-21.25' Silty sand: (5,50,30,15); dark gray (2.5Y4/1); loose; fine to coarse grained sand; fine sub-angular gravel; moderately graded; saturated.			
			CH	21.25'-25.0' Silty clay: (0,10,40,50); black (2.5Y2.5/1); high plasticity; stiff; very fine grained sand; slightly moist to dry.			
	25			Total Depth 25'			
				First Encountered Groundwater @ 21.0'			
	30						
	35						



APPENDIX C

**CHAIN-OF-CUSTODY DOCUMENTATION
FIELD DATA SHEETS
CERTIFIED ANALYTICAL REPORTS**

AC TRANSIT - EMERYVILLE
THIRD QUARTER 2001

FIELD PERSONNEL:

WELL OR LOCATION	DATE	TIME	MEASUREMENT	CODE	COMMENTS
MW-1	09-20-01	936	4.97	SWL	
MW-2		937	4.45		
MW-3		931	5.90		
MW-4		934	6.06		
MW-5		938	4.46	✓	
MW-6		————	————	OIL	
MW-6		957	4.22	OWI	sheen
MW-7		1001	5.19	SWL	
MW-8		1003	5.68		
MW-9		1006	5.12		
MW-10		1008	9.70		Needs 2" well cap
MW-11		948	4.51		
MW-12		1014	10.75		
MW-13		1021	9.03		
W-1	↓	929	6.58		
W-3	09-20-01	0920	7.83		
W-4	↓	941	4.80	✓	

SWL - Static Water Level
OIL - Oil Level
OWI - Oil/Water Interface
MTD - Measured Total Depth

LES-SSI MONITOR WELL SAMPLING FORM

Well ID: AW-7 MW-1

Project Name: ACT Emeryville
 LES-SSI
 Casing Diameter (in): 2
 Total Well Depth (ft): 14.50
 Depth to Water (ft), before purging: 4.88

Project Number: 2015-1
 Sample Date: 9-20-01
 Sample ID: MW-1

Development Method:

____ Bailer: ____ Teflon ____ Stainless Steel ____ PVC ____ ABS Plastic
 ____ Pump: ____ Dedicated Submersible Pump ____ Bladder Pump
 ____ Non-Dedicated Submersible Pump

Time	pH	Conduct. (umho/cm)	Temp. (Celsius)	Water Level (to 0.01 ft)	Cum. Vol. (gal)	Pump Rate (GPM)
1512	7.08	950	29.5	5.26	1.5	0.6
1514	7.00	860	28.9	5.65	3.0	
1516	6.95	825	28.9	6.21	4.5	↓
				Total	5.0	

Water Volume to be Purged (gal) = $(14.50 - 4.88) = 9.62 \times 0.165 = 1.59 \times 3 = 4.8$
 (Casing Length in Ft - Depth to Water in Ft) x X x 3

Where X = 1 Well Volume in gal/ft, X = 0.165 for 2 in. wells, X = 0.37 for 3 in. wells, X = 0.65 for 4 in. wells
 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 ____ 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: 8021/8015

Sample Appearance

____ OVA Reading (ppm)
 ____ Suspended Solids (describe):

Decontamination Performed:

Washed/Rinsed
 Meters/Sounder

Start: 1510
 Stop: 1517
 Sample: 1520

Comments / Calculations:

Signature: Erlich Goetz

Date: 9-21-01

LES-SSI MONITOR WELL SAMPLING FORM

Well ID: MW-2

Project Name: ACT Emeryville
 -LES-SSI
 Casing Diameter (in): 2"
 Total Well Depth (ft): 14.56
 Depth to Water (ft), before purging: 4.41

Project Number: 2015-1
 Sample Date: 9-20-01
 Sample ID: MW-2

Development Method:

Bailer: Teflon Stainless Steel PVC ABS Plastic
 Pump: Dedicated Submersible Pump Bladder Pump
 Non-Dedicated Submersible Pump

Time	pH	Conduct. (umho/cm)	Temp. (Celsius)	Water Level (to 0.01 ft)	Cum. Vol. (gal)	Pump Rate (GPM)
1432	7.21	710	28.2	4.75	1.5	0.55
1436	7.09	685	28.1	6.08	3.0	↓
1440	7.08	690	28.6	7.21	5.5	↓
				Total	5.5	

Water Volume to be Purged (gal) = $(14.56 - 4.41) = 10.15 \times 0.165 = 1.68 \times 3 = 5.02$
 (Casing Length in Ft - Depth to Water in Ft) x X x 3

Where X = 1 Well Volume in gal/ft, X = 0.165 for 2 in. wells, X = 0.37 for 3 in. wells, X = 0.65 for 4 in. wells

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:

Bailer: Teflon Stainless Steel 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: 2015/801

Sample Appearance

OVA Reading (ppm)
 Suspended Solids (describe):

Decontamination Performed:

Washed/Rinsed
Sanders Meters

start: 1430
 stop: 1440
 Sample: 1445

Comments / Calculations:

Signature: Eric H. Gorn

Project Name: ACT Emeryville
 Casing Diameter (in): 2"
 Total Well Depth (ft): 14.68
 Depth to Water (ft) before purging: 5.90

Project Number: 2015-1
 Sample Date: 9-21-01
 Sample ID: MW-3

Well ID: MW-3

Development Method:

 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)
1111	6.99	780	28.5	6.12	1.5	
1113	6.90	810	28.2	6.18	3.0	
1116	6.89	812	28.8	6.23	4.5	
				Total	4.5	

Water Volume to be Purged (gal): $(14.68 - 5.90) = 8.78 \times 0.165 = 1.4 \times 3 = 4.3$
 (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

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 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: 8021 8015

Sample Appearance

 OVA Reading (ppm)
 Suspended Solids (describe):

Decontamination Performed:

Start: 1109
~~1020~~
 Stop: 1116
 Sample: 1125

Comments / Calculations:

Strong Hydrocarbon Odor

Name: Erk R. Gerling

Date: 9-21-01

Project Name: AC Transit Emmersville Project Number: 2015-1
 Casing Diameter (in): 2" Sample Date: 9-21-01
 Total Well Depth (ft): 19.64 Sample ID: MW-6
 Depth to Water (ft) before purging: 4.22

Well ID: MW-6

Development Method:
 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)
<u>1246</u>	<u>6.84</u>	<u>1170</u>	<u>31.3</u>	<u>4.54</u>	<u>2.5</u>	<u>0.67</u>
<u>1249</u>	<u>6.85</u>	<u>1163</u>	<u>29.1</u>	<u>4.61</u>	<u>5.0</u>	<u>↓</u>
<u>1252</u>	<u>6.94</u>	<u>1168</u>	<u>28.9</u>	<u>4.72</u>	<u>8.0</u>	<u>↓</u>
				<u>Total</u>	<u>8.0</u>	

Water Volume to be Purged (gal): $(19.64 - 4.22) = 15.42 \times 0.165 = 2.54 \times 3 = 7.6$
 (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

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

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

Sample Collection Method:
 Bailer: Teflon Stainless Steel 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: 8021 8015

Sample Appearance
 _____ OVA Reading (ppm)
 _____ Suspended Solids (describe):

Decontamination Performed:
Start: 1240
stop: 1252

Comments / Calculations:
Sample: 1255

Name: Eric R. Gerdy Date: 9-21-01

Project Name: ACT Emmersville
Casing Diameter (in): 2"
Total Well Depth (ft): 24.53
Depth to Water (ft) before purging: 5.26

Project Number: 2015-1
Sample Date: 9-21-01
Sample ID: MW-7

Well ID: MW-7

Development Method:

 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)
0910	7.51	725	29.6	9.68	3	
0930	7.42	689	29.4	11.23	6	
0950 0945	7.42	691	29.4	12.57	9.5	
				Total	10	

Water Volume to be Purged (gal): $(24.53 - 5.20) \times 19.33 \times 0.165 = 3.19 \times 3 = 9.57$
(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

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 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: B021 2015

Sample Appearance

 OVA Reading (ppm)
 Suspended Solids (describe):

Decontamination Performed:

Start: 0850

Comments / Calculations:

Stop: 0955 0950

Sample: 1000

Name: Erik R. Gersh

Date: 9-21-01

LES-SSI MONITOR WELL SAMPLING FORM

Well ID: MW-9

Project Name: ACT Emergency Site LES-SSI
 Casing Diameter (in): 2"
 Total Well Depth (ft): 20.52
 Depth to Water (ft), before purging: 5.12

Project Number: 2015-1
 Sample Date: 9-20-01
 Sample ID: MW-9

Development Method:

Bailer: Teflon Stainless Steel PVC ABS Plastic
 Pump: Dedicated Submersible Pump Bladder Pump
 Non-Dedicated Submersible Pump

Time	pH	Conduct. (umho/cm)	Temp. (Celsius)	Water Level (to 0.01 ft)	Cum. Vol. (gal)	Pump Rate (GPM)
1355	7.51	701	27.9	6.02	2.5	0.6
1359	7.18	805	25.6	6.95	5.0	↓
1403	7.13	790	25.7	7.86	8.0	↓
				Total	8.0	

Water Volume to be Purged (gal) = $(20.52 - 5.12) \times 15.4 \times 0.165 = 2.54 \times 3 = 7.6$
 (Casing Length in Ft - Depth to Water in Ft) x X x 3

Where X = 1 Well Volume in gal/ft, X = 0.165 for 2 in. wells, X = 0.37 for 3 in. wells, X = 0.65 for 4 in. wells
 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:

Bailer: Teflon Stainless Steel 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: 8015/8021

Sample Appearance

OVA Reading (ppm)
 Suspended Solids (describe):

Decontamination Performed:

Washed/Rinsed Meters / Sonader
 Comments / Calculations:

Start: 1350
 Stop: 1403
 Sample: 1410

Signature: Eitch. Gosh

LES-SSI MONITOR WELL SAMPLING FORM

Well ID: MW-10

Project Name: LES-SSI
 Casing Diameter (in): 2"
 Total Well Depth (ft): 24.15'
 Depth to Water (ft), before purging: 9.70

ACT Bunneryville

Project Number: 2015-1
 Sample Date: 9-20-01
 Sample ID: MW-10

Development Method:

Bailer: Teflon Stainless Steel PVC ABS Plastic
 Pump: Dedicated Submersible Pump Bladder Pump
 Non-Dedicated Submersible Pump

Time	pH	Conduct. (umho/cm)	Temp. (Celsius)	Water Level (to 0.01 ft)	Cum. Vol. (gal)	Pump Rate (GPM)
1310	7.58	605	25.61	10.04	2.5	0.5
1314	7.49	575	24.5	10.21	5.0	↓
1318	7.39	505	24.1	10.29	7.5	↓
				Total	7.5	

Water Volume to be Purged (gal) = $(24.15 - 9.70) \times 0.165 \times 3 = 7.15$

Where X = 1 Well Volume in gal/ft, X = 0.165 for 2 in. wells, X = 0.37 for 3 in. wells, X = 0.65 for 4 in. wells

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:

Bailer: Teflon Stainless Steel 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:

8021 / 8015

Sample Appearance

OVA Reading (ppm)
 Suspended Solids (describe):

Decontamination Performed:

Saunders / meters
Washed / roused

Start: 1305

Stop: 1320

Comments / Calculations:

Sample: 1925

Signature:

Eric Gov

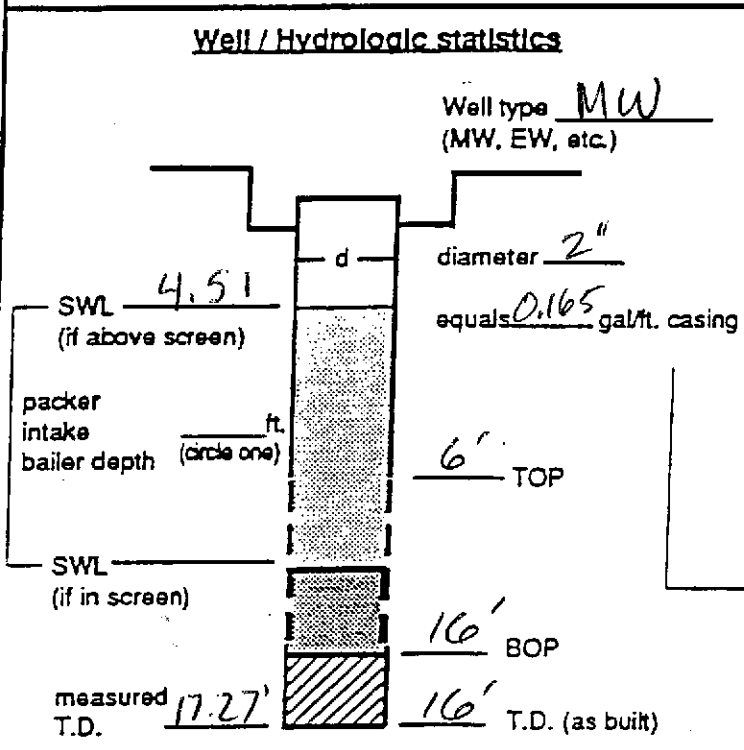
9-20-01

WELL DEVELOPMENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-11

PROJECT AC TRANSIT EMERYVILLE SAMPLER BH/GP DATE 09-20-01



Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	1138		
Stop	1218		
Sampled	1225		
(Final IWL)	4.87		

Purge calculation

$$0.165 \text{ gal/ft.} \cdot 12.76 \text{ ft.} = 2.17 \text{ gals} \times 10 = 21.7 \text{ gals.}$$

SWL to BOP or one packer to BOP volume = purge volume - 10 casings

Head purge calculation (Airlift only)

gal/ft. * ft. = gals.
packer to SWL

Actual gallons purged 24

Actual volumes purged 3+

Well yield \oplus HY
(see below)

Equipment Used / Sampling Method / Description of Event/Comments:
- Measured T.D. used for purge calculation -

Trip Blank collected @ 1100

Gallons purged *	TEMP (C) / (F) (circle one)	EC (us / cm)	Ph	TURBIDITY (NTU)		
1. 2	25.8	1112	7.60	>500		
2. 4	30.0	621	7.50	7500		
3. 6	29.6	593	7.53	7500		
4. 8	30.7	589	7.62	7500		
5. 10	29.6	640	7.56	7500		
6. 12	29.6	634	7.40	>500		
7. 14	30.8	642	7.49	524		
8. 16	30.4	648	7.47	523		
9. 18	31.2	660	7.46	66		
10. 20	31.2	655	7.45	47		
1.						
12.						

* Take measurement at approximately each casing volume purged.

\oplus HY - Minimal W.L. drop MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump. LY - Able to purge 3 volumes by returning later or next day. VLY - Minimal recharge - unable to purge 3 volumes.

WELL DEVELOPMENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-12

PROJECT AC TRANSIT EMERYVILLE SAMPLER BH DATE 9-20-01

Well / Hydrologic statistics	Action	Time	Pump rate	IWL (low yield)
Well type <u>MW</u> (MW, EW, etc.)	Start pump / Begin	1348		
<p>diameter <u>2"</u> equals <u>0.165</u> gal/ft. casing</p> <p>packer intake depth <u>15'</u> TOP</p> <p>SWL <u>10.75</u> (if above screen)</p> <p>SWL _____ (if in screen)</p> <p>measured T.D. <u>29.88'</u></p> <p><u>30'</u> BOP</p> <p><u>30'</u> T.D. (as built)</p>				
	Stop	1515		
	Sampled	1530		
	(Final IWL)	12.95		
Purge calculation				
$\uparrow \text{0.165 gal/ft.} \cdot \text{19.13 ft.} = \text{3.1 gals} \times 10 = \text{31 gals.}$ <p style="text-align: center;">SWL to BOP or one packer to BOP volume purge volume- 10 casings</p>				
Head purge calculation (Airlift only)				
$\text{gal/ft.} \cdot \text{ft.} = \text{gals.}$ <p style="text-align: center;">packer to SWL</p>				

Actual gallons purged 36

Actual volumes purged 3+

Well yield \oplus MY
(see below)

Equipment Used / Sampling Method / Description of Event/Comments:
measured T.D., used for purge calc.

Gallons purged	TEMP (°C/°F) (circle one)	EC (µs / cm)	Ph	TURBIDITY (NTU)		
1. 3	26.9	1572	7.31	7500		
2. 6	27.7	1006	7.26	7500		
3. 9	27.2	912	7.11	7500		
4. 12	27.8	878	7.04	7500		
5. 15	27.6	863	7.03	7500		
6. 18	28.8	841	6.98	7500		
7. 21	27.5	853	7.01	7500		
8. 24	27.4	836	7.11	7500		
9. 27	26.5	827	7.07	7500		
10. 30	26.4	833	7.03	7500		
11. 33	26.1	829	7.06	64		
12. 36	26.4	825	7.04	41		

* Take measurement at approximately each casing volume purged.

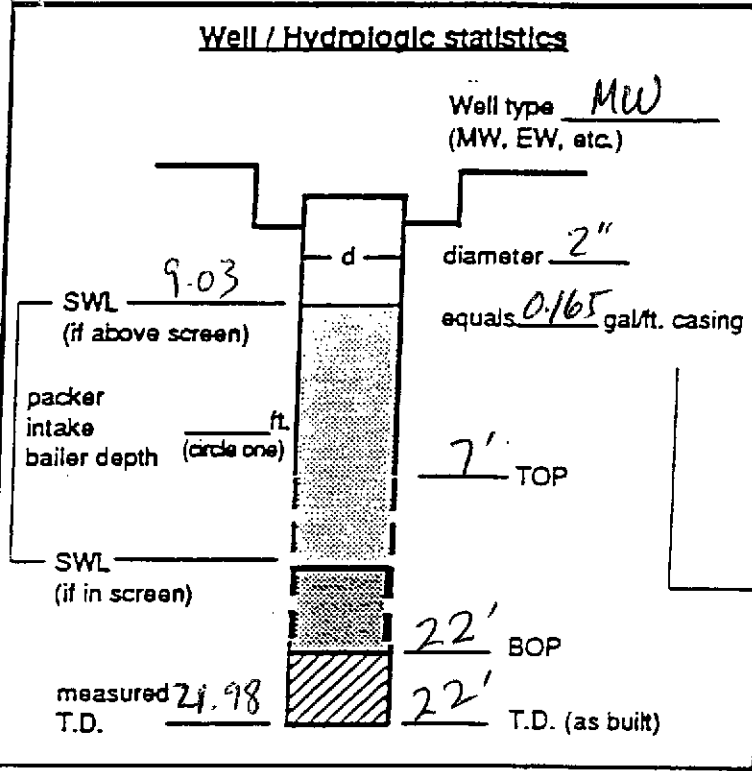
\oplus HY - Minimal W.L. drop MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump. LY - Able to purge 3 volumes by returning later or next day. VLY - Minimal recharge - unable to purge 3 volumes.

WELL DEVELOPMENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-13

PROJECT AC TRANSFER KIMBERLYVILLE SAMPLER RA DATE 9-21-01



Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	0900		
Stop	1115		
Sampled	1130		
(Final IWL)	13.53		

Purge calculation

$0.165 \text{ gal/ft.} \times 12.95 \text{ ft.} = 2.14 \text{ gals} \times 10 = 21.4 \text{ gals.}$

SWL to BOP or packer to BOP one volume purge volume - 10 casings

Head purge calculation (Airlift only)

_____ gal/ft. * _____ ft. = _____ gals.

packer to SWL

Actual gallons purged 24

Actual volumes purged 3+

Well yield \oplus LY
(see below)

Equipment Used / Sampling Method / Description of Event/Comments:

T.D. as measured used for purge calc.

Gallons purged	TEMP (°F) (circle one)	EC (µs / cm)	Ph	TURBIDITY (NTU)		
1. 2	26.8	2200	7.33	>500		
2. 4	27.2	2150	7.30	>500		
3. 6	26.6	1921	7.20	7500		
4. 8	26.8	1753	7.25	7500		
5. 10	27.1	1669	7.23	7500		
6. 12	29.9	1472	7.33	>500		
7. 14	28.8	1455	7.41	>500		
8. 16	20.0	1124	7.18	7500		
9. 18	31.5	1001	7.23	>500		
10. 20	31.8	1102	7.21	548		
11. 22	31.7	919	7.24	184		
12. 24	31.8	856	7.26	91		

* Take measurement at approximately each casing volume purged.

\oplus HY - Minimal W.L. drop MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump. LY - Able to purge 3 volumes by returning later or next day. VL - Minimal recharge - unable to purge 3 volumes.

Project Name: ACT Emeryville Project Number: 2015-1
 Casing Diameter (in): 2 Sample Date: 9-21-01
 Total Well Depth (ft): 16.43 Sample ID: W-1
 Depth to Water (ft) before purging: 4.98

Well ID: W-1

Development Method:

 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)
1023	6.89	785	25.2	5.05	2	
1027	6.91	779	24.9	5.15	4	
1030	6.91	778	24.9	5.28	6	
				Total	6	

Water Volume to be Purged (gal): $(16.43 - 4.98) \times 0.165 = 1.89 \times 3 = 5.67$
 (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

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 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: 8021 8015

Sample Appearance

 OVA Reading (ppm)
 Suspended Solids (describe):

Decontamination Performed:

Comments / Calculations:

Start: 1020
 Stop: 1030
 Sample: 1040

Name: Erin O'Leary

Date: 9-21-01



STL Sacramento
880 Riverside Parkway
West Sacramento, CA 95605-1500

Tel: 916 373 5600
Fax: 916 371 8420
www.stl-inc.com

October 22, 2001

STL SACRAMENTO PROJECT NUMBER: G1I220130

Brad Wright
Cameron-Cole LLC
101 West Atlantic Avenue
Building #90
Alameda, CA 94501

Dear Mr. Wright,

This report contains the analytical results for the samples received under chain of custody by STL Sacramento on September 21, 2001. These samples are associated with your AC Transit Emeryville project.

The test results in this report meet all NELAC requirements for parameters that accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The case narrative is an integral part of this report.

If you have any questions, please feel free to call me at (916) 374-4414.

Sincerely,

A handwritten signature in cursive script that reads "Bonnie J. McNeill".

Bonnie J. McNeill
Project Manager

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STL SACRAMENTO PROJECT NUMBER G11220130

Case Narrative

STL Sacramento Quality Assurance Program

Sample Description Information

Chain of Custody Documentation

WATER, 8015M, TPH Gas/8021B, BTEX + MTBE

Samples: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13

Sample Data Sheets

Method Blank Reports

Laboratory QC Reports

WATER, 8015 MOD, Diesel/Motor Oil

Samples: 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13

Sample Data Sheets

Method Blank Reports

Laboratory QC Reports

CASE NARRATIVE

STL SACRAMENTO PROJECT NUMBER GII220130

General Comments

Samples were received at 2 degrees Centigrade.

WATER, 8015M, TPH Gas

Sample(s): 7, 9, 10, 13

These samples had surrogate recovery above control limits due to visible chromatographic interference.

WATER, 8021B, BTEX + MTBE by 8021B

Sample(s): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

The LCS/LCSD is outside of control limits for MTBE. All samples that had hits of MTBE were confirmed on a different instrument which had LCS/LCSD in control for MTBE.

WATER, 8015 MOD, Diesel/Motor Oil

Sample(s): 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13

There was insufficient sample volume to prepare an MS/SD pair with this batch. A second LCS was prepared instead.

There were no other anomalies associated with this project.

STL Sacramento
Quality Control Definitions

QC Parameter	Definition
QC Batch	A set of up to 20 field samples plus associated laboratory QC samples that are similar in composition (matrix) and that are processed within the same time period with the same reagent and standard lots.
Duplicate Control Sample (DCS)	Consist of a pair of LCSs analyzed within the same QC batch to monitor precision and accuracy independent of sample matrix effects. This QC is performed only if required by client or when insufficient sample is available to perform MS/MSD.
Duplicate Sample (DU)	A second aliquot of an environmental sample, taken from the same sample container when possible, that is processed independently with the first sample aliquot. The results are used to assess the effect of the sample matrix on the precision of the analytical process. The precision estimated using this sample is not necessarily representative of the precision for other samples in the batch.
Laboratory Control Sample (LCS)	A volume of reagent water for aqueous samples or a contaminant-free solid matrix (Ottawa sand) for soil and sediment samples which is spiked with known amounts of representative target analytes and required surrogates. An LCS is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects.
Matrix Spike and Matrix Spike Duplicate (MS/MSD)	A field sample fortified with known quantities of target analytes that are also added to the LCS. Matrix spike duplicate is a second matrix spike sample. MSs/MSDs are carried through the entire analytical process and are used to determine sample matrix effect on accuracy of the measurement system. The accuracy and precision estimated using MS/MSD is only representative of the precision of the sample that was spiked.
Method Blank (MB)	A sample composed of all the reagents (in the same quantities) in reagent water carried through the entire analytical process. The method blank is used to monitor the level of contamination introduced during sample preparation steps.
Surrogate Spike	Organic constituents not expected to be detected in environmental media and are added to every sample and QC at a known concentration. Surrogates are used to determine the efficiency of the sample preparation and the analytical process.

Source: STL Sacramento Laboratory Quality Manual

STL Sacramento Certifications:

Alaska (UST-055), Arizona (#AZ00616), Arkansas, California (NELAP # 01119CA) (ELAP #I-2439), Connecticut (#PH-0691), Florida (E87570), Hawaii, Louisiana (AI # 30612), New Jersey (Lab ID 44005), Nevada (#CA 044), New York (LAB ID 11666 serial # 107407), Oregon (LAB ID CA 044), South Carolina (LAB ID 87014, Cert. # 870140), Utah (E-168), Virginia (#00178), Washington (# C087), West Virginia (# 9930C), Wisconsin (Lab 998204680), USNAVY, USACE, USDA Foreign Plant (Permit # 37-82605), USDA Foreign Soil (Permit # S-46613)..

Sample Summary G1I220130

<u>WO#</u>	<u>Sample #</u>	<u>Client Sample ID</u>	<u>Sampling Date</u>	<u>Received Date</u>
EKXXA	1	TRIP BLANK	9/20/01 11:00 AM	9/21/01 06:50 PM
EKXXK	2	MW-11	9/20/01 12:25 PM	9/21/01 06:50 PM
EKXXQ	3	MW-10	9/20/01 01:25 PM	9/21/01 06:50 PM
EKXXR	4	MW-9	9/20/01 02:10 PM	9/21/01 06:50 PM
EKXXV	5	MW-2	9/20/01 02:45 PM	9/21/01 06:50 PM
EKXXW	6	MW-1	9/20/01 03:20 PM	9/21/01 06:50 PM
EKXXX	7	MW-12	9/20/01 03:30 PM	9/21/01 06:50 PM
EKXX0	8	TRIP BLANK(TB-02)	9/21/01 08:00 AM	9/21/01 06:50 PM
EKXX1	9	MW-7	9/21/01 10:00 AM	9/21/01 06:50 PM
EKX0A	10	W-1	9/21/01 10:40 AM	9/21/01 06:50 PM
EKX0C	11	MW-13	9/21/01 11:30 AM	9/21/01 06:50 PM
EKX0D	12	MW-3	9/21/01 11:25 AM	9/21/01 06:50 PM
EKX0G	13	MW-6	9/21/01 12:55 PM	9/21/01 06:50 PM

Notes(s):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity, pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weigh

Chain of Custody Record



QUA-4124 0797

Client: **CAMELON - COLLE** Project Manager: **BRAD WRIGHT** Date: **9-20-01** Chain of Custody Number: _____
 Address: **101 W. ATLANTIC AVE Bldg 70** Telephone Number (Area Code)/Fax Number: **510-337-8660** Lab Number: _____
 City: **ATAMENGA** State: **CA** Zip Code: **94501** Site Contact: _____ Lab Contact: **BONNIE M.** Analysis (Attach list if more space is needed): _____
 Project Name: **AC TRANSIT EMERYVILLE** Carrier/Waybill Number: _____
 Contract/Purchase Order/Quote No.: _____

Page 1 of 2

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix			Containers & Preservatives							Special Instructions/ Conditions of Receipt			
			Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc2	NaOH				
* TRIP BLANK	9-20-01	1100	X													* GAS/BTEX/MTBE DIESEL/MOTOR OIL
MW-11		1225					2									
MW-10		1325														
MW-9		1410														
MW-2		1445														
* MW-1		1520														*
MW-12		1530														
** TRIP BLANK (TB-02)	9-21-01	0800	X													DU
MW-7		1000					2									
W-1		1040														
MW-13		1130														
MW-3		1125														

Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal: Return To Client Disposal By Lab Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: 24 Hours 48 Hours 7 Days 14 Days 21 Days Other

QC Requirements (Specify): **STANDARD**

1. Relinquished By: Beady A Hanson	Date: 9-21-01	Time: 1630	1. Received By: courier	Date: 9/21/01	Time: 1630
2. Relinquished By:	Date:	Time:	2. Received By: [Signature]	Date: 9-21-01	Time: 1850
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments: *** only rec'd 1 AGB** **** 1 with larger than bubble**
 DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy
069-2001

(916) 373-5600

STL Sacramento

Chain of Custody Record



5 of 59

QUA-4124 0797

Client: **CAMELON-COLE**
 Project Manager: **BRAD WRIGHT**
 Date: **9/21/01**
 Chain of Custody Number: _____
 Address: **101 W. ATLANTIC AVE.**
 Telephone Number (Area Code)/Fax Number: **510-337-8660**
 Lab Number: _____
 City: **ALAMEDA** State: **CA** Zip Code: **94501**
 Site Contact: _____ Lab Contact: **BONNIE M.**
 Project Name: **AC TRANSIT EMERYVILLE**
 Carrier/Waybill Number: _____
 Analysis (Attach list if more space is needed): _____
 Page **2** of **2**

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix			Containers & Preservatives						Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt	
			Aqueous	Sed.	Sol.	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc2			NaOH
MW-6	9-21-01	1255	X			2		6						GAS/BTEX/MTBE DIESEL/MOTOR OIL

[Handwritten initials]

Possible Hazard Identification:
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal:
 Return To Client Disposal By Lab Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required:
 24 Hours 48 Hours 7 Days 14 Days 21 Days Other _____

QC Requirements (Specify): **STANDARD**

1. Relinquished By: [Signature]	Date: 9-21-01	Time: 1630	1. Received By: Carrier	Date: 9/21/01	Time: 1630
2. Relinquished By: _____	Date: _____	Time: _____	2. Received By: [Signature]	Date: 9-21-01	Time: 1850
3. Relinquished By: _____	Date: _____	Time: _____	3. Received By: _____	Date: _____	Time: _____

Comments: _____

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

STL Sacramento

(916) 373-5600

WATER, 8015M, TPH Gas
8021B, BTEX + MTBE

CAMERON-COLE LLC

Client Sample ID: TRIP BLANK

GC Volatiles

Lot-Sample #...: G1I220130-001 Work Order #...: EKXXA1AD Matrix.....: WATER
Date Sampled...: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
Prep Batch #...: 1289307
Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
TPH (as Gasoline)	ND	50	ug/L
Unknown Hydrocarbon	ND	50	ug/L
		<u>PERCENT</u>	<u>RECOVERY</u>
<u>SURROGATE</u>	<u>RECOVERY</u>	<u>LIMITS</u>	
4-Bromofluorobenzene	1.01	(70 - 130)	

CAMERON-COLE LLC

Client Sample ID: TRIP BLANK

GC Volatiles

Lot-Sample #....: GII220130-001 Work Order #....: EKXXA1AE Matrix.....: WATER
 Date Sampled....: 09/20/01 Date Received...: 09/21/01
 Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
 Prep Batch #....: 1289309
 Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	2.0	ug/L
o-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether	ND	5.0	ug/L
	<u>PERCENT</u>	<u>RECOVERY</u>	
<u>SURROGATE</u>	<u>RECOVERY</u>	<u>LIMITS</u>	
a,a,a-Trifluorotoluene	103	(70 - 130)	

CAMERON-COLE LLC

Client Sample ID: MW-11

GC Volatiles

Lot-Sample #...: G1I220130-002 Work Order #...: EKXXK1AD Matrix.....: WATER
Date Sampled...: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
Prep Batch #...: 1289307
Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
TPH (as Gasoline)	ND	50	ug/L
Unknown Hydrocarbon	88	50	ug/L
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>	
	<u>RECOVERY</u>	<u>LIMITS</u>	
4-Bromofluorobenzene	108	(70 - 130)	

CAMERON-COLE LLC

Client Sample ID: MW-11

GC Volatiles

Lot-Sample #...: G1I220130-002 Work Order #...: EKXXK1AC Matrix.....: WATER
 Date Sampled...: 09/20/01 Date Received...: 09/21/01
 Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
 Prep Batch #...: 1289309
 Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	2.0	ug/L
o-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether	ND	5.0	ug/L
	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	
<u>SURROGATE</u>			
a,a,a-Trifluorotoluene	105	(70 - 130)	

CAMERON-COLE LLC

Client Sample ID: MW-10

GC Volatiles

Lot-Sample #...: G1I220130-003 Work Order #...: EKXXQ1AD Matrix.....: WATER
Date Sampled...: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
Prep Batch #...: 1289307
Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
TPH (as Gasoline)	350	50	ug/L
Unknown Hydrocarbon	ND	50	ug/L
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>	
	<u>RECOVERY</u>	<u>LIMITS</u>	
4-Bromofluorobenzene	110	(70 - 130)	

NOTE (S) :

The gasoline pattern appears degraded.

CAMERON-COLE LLC

Client Sample ID: MW-10

GC Volatiles

Lot-Sample #....: G1I220130-003 Work Order #....: EKXXQ1AC Matrix.....: WATER
 Date Sampled....: 09/20/01 Date Received...: 09/21/01
 Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
 Prep Batch #....: 1289309
 Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	2.0	ug/L
o-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether	44 D	10	ug/L
	<u>PERCENT</u>	<u>RECOVERY</u>	
<u>SURROGATE</u>	<u>RECOVERY</u>	<u>LIMITS</u>	
a, a, a-Trifluorotoluene	106	(70 - 130)	

NOTE(S):

D Result was obtained from the analysis of a dilution.

MTBE is reported from a second analysis performed on GC61 on 03OCT01.

CAMERON-COLE LLC

Client Sample ID: MW-9

GC Volatiles

Lot-Sample #...: G1I220130-004 Work Order #...: EKXXR1AD Matrix.....: WATER
Date Sampled...: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
Prep Batch #...: 1289307
Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
TPH (as Gasoline)	ND	50	ug/L
Unknown Hydrocarbon	ND	50	ug/L
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>	
	<u>RECOVERY</u>	<u>LIMITS</u>	
4-Bromofluorobenzene	104	(70 - 130)	

CAMERON-COLE LLC

Client Sample ID: MW-9

GC Volatiles

Lot-Sample #....: G1I220130-004 Work Order #....: EKXXR1AC Matrix.....: WATER
Date Sampled....: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
Prep Batch #....: 1289309
Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	2.0	ug/L
o-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether	8.5	5.0	ug/L

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
a, a, a-Trifluorotoluene	101	(70 - 130)

NOTE (S) :

MTBE is reported from a second analysis performed on GC61 on 03OCT01.

CAMERON-COLE LLC

Client Sample ID: MW-2

GC Volatiles

Lot-Sample #....: G1I220130-005 Work Order #....: EKXXVIAD Matrix.....: WATER
Date Sampled....: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
Prep Batch #....: 1289307
Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
TPH (as Gasoline)	ND	50	ug/L
Unknown Hydrocarbon	ND	50	ug/L
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>	
		<u>LIMITS</u>	
4-Bromofluorobenzene	106	(70 - 130)	

CAMERON-COLE LLC

Client Sample ID: MW-2

GC Volatiles

Lot-Sample #....: G1I220130-005 Work Order #....: EKXXV1AC Matrix.....: WATER
Date Sampled....: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
Prep Batch #....: 1289309
Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	2.0	ug/L
o-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether	35	5.0	ug/L

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>
a,a,a-Trifluorotoluene	103	(70 - 130)

NOTE(S):

MTBE is reported from a second analysis performed on GC61 on 03OCT01.

CAMERON-COLE LLC

Client Sample ID: MW-1

GC Volatiles

Lot-Sample #....: G1I220130-006 Work Order #....: EKXXW1AD Matrix.....: WATER
Date Sampled...: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
Prep Batch #....: 1289307
Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
TPH (as Gasoline)	ND	50	ug/L
Unknown Hydrocarbon	ND	50	ug/L

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
4-Bromofluorobenzene	107	(70 - 130)

CAMERON-COLE LLC

Client Sample ID: MW-1

GC Volatiles

Lot-Sample #....: G1I220130-006 Work Order #....: EKXXW1AC Matrix.....: WATER
Date Sampled....: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
Prep Batch #....: 1289309
Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	2.0	ug/L
o-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether	29	5.0	ug/L

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>
a, a, a-Trifluorotoluene	102	(70 - 130)

NOTE(S):

MTBE is reported from a second analysis performed on GC61 on 03OCT01.

CAMERON-COLE LLC

Client Sample ID: MW-12

GC Volatiles

Lot-Sample #...: G1I220130-007 Work Order #...: EKXXX1AD Matrix.....: WATER
Date Sampled...: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
Prep Batch #...: 1289307
Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
TPH (as Gasoline)	960	50	ug/L
Unknown Hydrocarbon	ND	50	ug/L

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
4-Bromofluorobenzene	170 *	(70 - 130)

NOTE(S):

* Surrogate recovery is outside stated control limits.
The gasoline pattern appears degraded.

CAMERON-COLE LLC

Client Sample ID: MW-12

GC Volatiles

Lot-Sample #....: G1I220130-007 Work Order #....: EKXXX1AC Matrix.....: WATER
 Date Sampled....: 09/20/01 Date Received...: 09/21/01
 Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
 Prep Batch #....: 1289309
 Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Benzene	ND	1.0	ug/L
Ethylbenzene	ND G	2.0	ug/L
Toluene	ND	1.0	ug/L
m-Xylene & p-Xylene	ND G	5.0	ug/L
o-Xylene	ND G	5.0	ug/L
Methyl tert-butyl ether	11	5.0	ug/L

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
a,a,a-Trifluorotoluene	111	(70 - 130)

NOTE(S):

G Elevated reporting limit. The reporting limit is elevated due to matrix interference.

MTBE is reported from a second analysis performed on GC61 on 04OCT01.

CAMERON-COLE LLC

Client Sample ID: TRIP BLANK(TB-02)

GC Volatiles

Lot-Sample #....: GII220130-008 Work Order #....: EKXX01AA Matrix.....: WATER
 Date Sampled...: 09/21/01 Date Received...: 09/21/01
 Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
 Prep Batch #....: 1289307
 Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
TPH (as Gasoline)	ND	50	ug/L
Unknown Hydrocarbon	ND	50	ug/L
	<u>PERCENT</u>	<u>RECOVERY</u>	
<u>SURROGATE</u>	<u>RECOVERY</u>	<u>LIMITS</u>	
4-Bromofluorobenzene	100	(70 - 130)	

CAMERON-COLE LLC

Client Sample ID: TRIP BLANK(TB-02)

GC Volatiles

Lot-Sample #....: G1I220130-008 Work Order #....: EKXX01AC Matrix.....: WATER
 Date Sampled....: 09/21/01 Date Received...: 09/21/01
 Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
 Prep Batch #....: 1289309
 Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	2.0	ug/L
o-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether	ND	5.0	ug/L
		<u>PERCENT</u>	<u>RECOVERY</u>
<u>SURROGATE</u>	<u>RECOVERY</u>	<u>LIMITS</u>	
a, a, a-Trifluorotoluene	100	(70 - 130)	

CAMERON-COLE LLC

Client Sample ID: MW-7

GC Volatiles

Lot-Sample #....: G1I220130-009 Work Order #....: EKXX11AD Matrix.....: WATER
Date Sampled....: 09/21/01 Date Received...: 09/21/01
Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
Prep Batch #....: 1289307
Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
TPH (as Gasoline)	1000	50	ug/L
Unknown Hydrocarbon	ND	50	ug/L
<u>SURROGATE</u>		<u>PERCENT</u>	<u>RECOVERY</u>
		<u>RECOVERY</u>	<u>LIMITS</u>
4-Bromofluorobenzene	158 *		(70 - 130)

NOTE(S):

* Surrogate recovery is outside stated control limits.

The gasoline pattern appears degraded.

CAMERON-COLE LLC

Client Sample ID: MW-7

GC Volatiles

Lot-Sample #....: G1I220130-009 Work Order #....: EKXX11AC Matrix.....: WATER
 Date Sampled....: 09/21/01 Date Received...: 09/21/01
 Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
 Prep Batch #....: 1289309
 Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Benzene	ND	1.0	ug/L
Ethylbenzene	ND G	2.0	ug/L
Toluene	ND	1.0	ug/L
m-Xylene & p-Xylene	ND G	5.0	ug/L
o-Xylene	ND G	5.0	ug/L
Methyl tert-butyl ether	ND	5.0	ug/L
	<u>PERCENT</u>	<u>RECOVERY</u>	
<u>SURROGATE</u>	<u>RECOVERY</u>	<u>LIMITS</u>	
a,a,a-Trifluorotoluene	115	(70 - 130)	

NOTE(S):

G Elevated reporting limit. The reporting limit is elevated due to matrix interference.

CAMERON-COLE LLC

Client Sample ID: W-1

GC Volatiles

Lot-Sample #....: G1I220130-010 Work Order #....: EKX0A1AD Matrix.....: WATER
Date Sampled....: 09/21/01 Date Received...: 09/21/01
Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
Prep Batch #....: 1289307
Dilution Factor: 2 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	<u>UNITS</u>
TPH (as Gasoline)	7100 D	100	ug/L
Unknown Hydrocarbon	ND D	100	ug/L
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>	
	<u>RECOVERY</u>	<u>LIMITS</u>	
4-Bromofluorobenzene	203 *	(70 - 130)	

NOTE(S):

- * Surrogate recovery is outside stated control limits.
- D Result was obtained from the analysis of a dilution.

CAMERON-COLE LLC

Client Sample ID: W-1

GC Volatiles

Lot-Sample #....: G1I220130-010 Work Order #....: EKX0A1AC Matrix.....: WATER
 Date Sampled....: 09/21/01 Date Received...: 09/21/01
 Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
 Prep Batch #....: 1289309
 Dilution Factor: 2 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Benzene	27	2.0	ug/L
Ethylbenzene	48	2.0	ug/L
Toluene	ND G	10	ug/L
m-Xylene & p-Xylene	40	4.0	ug/L
o-Xylene	ND G	12	ug/L
Methyl tert-butyl ether	ND	10	ug/L

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
a, a, a-Trifluorotoluene	131 *	(70 - 130)

NOTE(S) :

- * Surrogate recovery is outside stated control limits.
- G Elevated reporting limit. The reporting limit is elevated due to matrix interference.

CAMERON-COLE LLC

Client Sample ID: MW-13

GC Volatiles

Lot-Sample #...: G1I220130-011 Work Order #...: EKX0C1AD Matrix.....: WATER
Date Sampled...: 09/21/01 Date Received...: 09/21/01
Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
Prep Batch #...: 1289307
Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
TPH (as Gasoline)	ND	50	ug/L
Unknown Hydrocarbon	ND	50	ug/L

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
4-Bromofluorobenzene	102	(70 - 130)

CAMERON-COLE LLC

Client Sample ID: MW-13

GC Volatiles

Lot-Sample #....: GLI220130-011 Work Order #....: EKX0C1AC Matrix.....: WATER
 Date Sampled....: 09/21/01 Date Received...: 09/21/01
 Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
 Prep Batch #....: 1289309
 Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	2.0	ug/L
o-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether	7.4	5.0	ug/L

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
a, a, a-Trifluorotoluene	102	(70 - 130)

NOTE (S) :

MIIBE is reported from a second analysis performed on GC61 on 04OCT01.

CAMERON-COLE LLC

Client Sample ID: MW-3

GC Volatiles

Lot-Sample #....: GII220130-012 Work Order #....: EKK0D1AD Matrix.....: WATER
Date Sampled...: 09/21/01 Date Received...: 09/21/01
Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
Prep Batch #....: 1289307
Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
TPH (as Gasoline)	ND	50	ug/L
Unknown Hydrocarbon	ND	50	ug/L
		<u>PERCENT</u>	<u>RECOVERY</u>
<u>SURROGATE</u>	<u>RECOVERY</u>	<u>LIMITS</u>	
4-Bromofluorobenzene	101	(70 - 130)	

CAMERON-COLE LLC

Client Sample ID: MW-3

GC Volatiles

Lot-Sample #....: G1I220130-012 Work Order #....: EKK0D1AC Matrix.....: WATER
 Date Sampled....: 09/21/01 Date Received...: 09/21/01
 Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
 Prep Batch #....: 1289309
 Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	2.0	ug/L
o-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether	ND	5.0	ug/L
	<u>PERCENT</u>	<u>RECOVERY</u>	
<u>SURROGATE</u>	<u>RECOVERY</u>	<u>LIMITS</u>	
a,a,a-Trifluorotoluene	101	(70 - 130)	

CAMERON-COLE LLC

Client Sample ID: MW-6

GC Volatiles

Lot-Sample #...: GLI220130-013 Work Order #...: EKX0G1AD Matrix.....: WATER
Date Sampled...: 09/21/01 Date Received...: 09/21/01
Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
Prep Batch #...: 1289307
Dilution Factor: 1 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
TPH (as Gasoline)	4000	50	ug/L
Unknown Hydrocarbon	ND	50	ug/L

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
4-Bromofluorobenzene	219 *	(70 - 130)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CAMERON-COLE LLC

Client Sample ID: MW-6

GC Volatiles

Lot-Sample #...: G1I220130-013 Work Order #...: EKK0G1AC Matrix.....: WATER
 Date Sampled...: 09/21/01 Date Received...: 09/21/01
 Prep Date.....: 10/04/01 Analysis Date...: 10/04/01
 Prep Batch #...: 1290362
 Dilution Factor: 10 Method.....: DHS CA LUFT

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Benzene	180 D	10	ug/L
Ethylbenzene	24 D	10	ug/L
Toluene	14 D	10	ug/L
m-Xylene & p-Xylene	40 D	20	ug/L
o-Xylene	ND D	10	ug/L
Methyl tert-butyl ether	ND D	50	ug/L
	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	
<u>SURROGATE</u>			
Fluorobenzene	159 *	(70 - 130)	

NOTE (S) :

- * Surrogate recovery is outside stated control limits.
- D Result was obtained from the analysis of a dilution.

QC DATA ASSOCIATION SUMMARY

G1I220130

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
002	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
003	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
004	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
005	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
006	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
007	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
008	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
009	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
010	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
011	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
012	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
013	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1290362	

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: G1I220130
MB Lot-Sample #: G1J160000-307

Work Order #...: EL7VM1AA

Matrix.....: WATER

Analysis Date...: 09/28/01
Dilution Factor: 1

Prep Date.....: 09/28/01

Prep Batch #...: 1289307

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		<u>METHOD</u>
		<u>LIMIT</u>	<u>UNITS</u>	
TPH (as Gasoline)	ND	50	ug/L	DHS CA LUFT
Unknown Hydrocarbon	ND	50	ug/L	DHS CA LUFT
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>		
	<u>RECOVERY</u>	<u>LIMITS</u>		
4-Bromofluorobenzene	103	(70 - 130)		

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: G1I220130
 MB Lot-Sample #: G1J160000-309
 Analysis Date...: 09/28/01
 Dilution Factor: 1

Work Order #...: EL7V01AA
 Prep Date.....: 09/28/01
 Prep Batch #...: 1289309

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		
		<u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Benzene	ND	1.0	ug/L	DHS CA LUFT
Ethylbenzene	ND	1.0	ug/L	DHS CA LUFT
Toluene	ND	1.0	ug/L	DHS CA LUFT
m-Xylene & p-Xylene	ND	2.0	ug/L	DHS CA LUFT
o-Xylene	ND	1.0	ug/L	DHS CA LUFT
Methyl tert-butyl ether	ND	5.0	ug/L	DHS CA LUFT
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>		
	<u>RECOVERY</u>	<u>LIMITS</u>		
a,a,a-Trifluorotoluene	102	(70 - 130)		

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: G1I220130
 MB Lot-Sample #: G1J170000-362

Work Order #...: EL9WT1AA

Matrix.....: WATER

Analysis Date...: 10/03/01
 Dilution Factor: 1

Prep Date.....: 10/03/01

Prep Batch #...: 1290362

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		<u>METHOD</u>
		<u>LIMIT</u>	<u>UNITS</u>	
Benzene	ND	1.0	ug/L	DHS CA LUFT
Ethylbenzene	ND	1.0	ug/L	DHS CA LUFT
Toluene	ND	1.0	ug/L	DHS CA LUFT
m-Xylene & p-Xylene	ND	2.0	ug/L	DHS CA LUFT
o-Xylene	ND	1.0	ug/L	DHS CA LUFT
Methyl tert-butyl ether	ND	5.0	ug/L	DHS CA LUFT

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
Fluorobenzene	126	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: G1I220130 Work Order #...: EL7VM1AC-LCS Matrix.....: WATER
 LCS Lot-Sample#: G1J160000-307 EL7VM1AD-LCSD
 Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
 Prep Batch #...: 1289307
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>RPD</u>	<u>METHOD</u>
TPH (as Gasoline)	1000	952	ug/L	95		DHS CA LUFT
	1000	966	ug/L	97	1.4	DHS CA LUFT
<u>SURROGATE</u>				<u>PERCENT RECOVERY</u>		<u>RECOVERY LIMITS</u>
4-Bromofluorobenzene				111		(70 - 130)
				109		(70 - 130)

NOTE (S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: G1I220130 Work Order #...: EL7V01AC-LCS Matrix.....: WATER
 LCS Lot-Sample#: G1J160000-309 EL7V01AD-LCSD
 Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
 Prep Batch #...: 1289309
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>RPD</u>	<u>METHOD</u>
Benzene	10.0	9.20	ug/L	92		DHS CA LUFT
	10.0	9.29	ug/L	93	1.0	DHS CA LUFT
Ethylbenzene	10.0	9.94	ug/L	99		DHS CA LUFT
	10.0	10.0	ug/L	100	0.76	DHS CA LUFT
Toluene	10.0	9.85	ug/L	98		DHS CA LUFT
	10.0	9.91	ug/L	99	0.58	DHS CA LUFT
m-Xylene & p-Xylene	20.0	20.6	ug/L	103		DHS CA LUFT
	20.0	20.7	ug/L	103	0.55	DHS CA LUFT
o-Xylene	10.0	10.3	ug/L	103		DHS CA LUFT
	10.0	10.4	ug/L	104	0.67	DHS CA LUFT
Methyl tert-butyl ether	10.0	13.2 a	ug/L	132		DHS CA LUFT
	10.0	13.3 a	ug/L	133	0.44	DHS CA LUFT

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
a,a,a-Trifluorotoluene	103	(70 - 130)
	104	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #....: G1I220130 Work Order #....: EL9WT1AC-LCS Matrix.....: WATER
 LCS Lot-Sample#: G1J170000-362 EL9WT1AD-LCSD
 Prep Date.....: 10/03/01 Analysis Date...: 10/03/01
 Prep Batch #....: 1290362
 Dilution Factor: 1

PARAMETER	SPIKE	MEASURED	UNITS	PERCENT	RPD	METHOD
	AMOUNT	AMOUNT		RECOVERY		
Benzene	10.0	11.1	ug/L	111		DHS CA LUFT
	10.0	11.0	ug/L	110	0.79	DHS CA LUFT
Ethylbenzene	10.0	11.1	ug/L	111		DHS CA LUFT
	10.0	11.0	ug/L	110	0.82	DHS CA LUFT
Toluene	10.0	11.2	ug/L	112		DHS CA LUFT
	10.0	11.0	ug/L	110	1.5	DHS CA LUFT
m-Xylene & p-Xylene	20.0	21.9	ug/L	110		DHS CA LUFT
	20.0	21.8	ug/L	109	0.60	DHS CA LUFT
o-Xylene	10.0	10.8	ug/L	108		DHS CA LUFT
	10.0	10.7	ug/L	107	0.63	DHS CA LUFT
Methyl tert-butyl ether	10.0	10.6	ug/L	106		DHS CA LUFT
	10.0	10.6	ug/L	106	0.030	DHS CA LUFT

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Fluorobenzene	117	(70 - 130)
	116	(70 - 130)

NOTE (S):

Calculations are performed before rounding to avoid round-off errors in calculated results.
 Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: G1I220130 Work Order #...: EL7VM1AC-LCS Matrix.....: WATER
 LCS Lot-Sample#: G1J160000-307 EL7VM1AD-LCSD
 Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
 Prep Batch #...: 1289307
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>RPD LIMITS</u>	<u>METHOD</u>
TPH (as Gasoline)	95	(70 - 130)			DHS CA LUFT
	97	(70 - 130)	1.4	(0-35)	DHS CA LUFT

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
4-Bromofluorobenzene	111	(70 - 130)
	109	(70 - 130)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.
 Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #....: G1I220130 Work Order #....: EL7V01AC-LCS Matrix.....: WATER
 LCS Lot-Sample#: G1J160000-309 EL7V01AD-LCSD
 Prep Date.....: 09/28/01 Analysis Date...: 09/28/01
 Prep Batch #....: 1289309
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>RPD LIMITS</u>	<u>METHOD</u>
Benzene	92	(70 - 130)			DHS CA LUFT
	93	(70 - 130)	1.0	(0-35)	DHS CA LUFT
Ethylbenzene	99	(70 - 130)			DHS CA LUFT
	100	(70 - 130)	0.76	(0-35)	DHS CA LUFT
Toluene	98	(70 - 130)			DHS CA LUFT
	99	(70 - 130)	0.58	(0-35)	DHS CA LUFT
m-Xylene & p-Xylene	103	(70 - 130)			DHS CA LUFT
	103	(70 - 130)	0.55	(0-35)	DHS CA LUFT
o-Xylene	103	(70 - 130)			DHS CA LUFT
	104	(70 - 130)	0.67	(0-35)	DHS CA LUFT
Methyl tert-butyl ether	132 a	(70 - 130)			DHS CA LUFT
	133 a	(70 - 130)	0.44	(0-35)	DHS CA LUFT

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
a,a,a-Trifluorotoluene	103	(70 - 130)
	104	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #....: G1I220130 Work Order #....: EL9WT1AC-LCS Matrix.....: WATER
 LCS Lot-Sample#: G1J170000-362 EL9WT1AD-LCSD
 Prep Date.....: 10/03/01 Analysis Date...: 10/03/01
 Prep Batch #....: 1290362
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>RPD LIMITS</u>	<u>METHOD</u>
Benzene	111	(70 - 130)			DHS CA LUFT
	110	(70 - 130)	0.79	(0-35)	DHS CA LUFT
Ethylbenzene	111	(70 - 130)			DHS CA LUFT
	110	(70 - 130)	0.82	(0-35)	DHS CA LUFT
Toluene	112	(70 - 130)			DHS CA LUFT
	110	(70 - 130)	1.5	(0-35)	DHS CA LUFT
m-Xylene & p-Xylene	110	(70 - 130)			DHS CA LUFT
	109	(70 - 130)	0.60	(0-35)	DHS CA LUFT
o-Xylene	108	(70 - 130)			DHS CA LUFT
	107	(70 - 130)	0.63	(0-35)	DHS CA LUFT
Methyl tert-butyl ether	106	(70 - 130)			DHS CA LUFT
	106	(70 - 130)	0.030	(0-35)	DHS CA LUFT

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Fluorobenzene	117	(70 - 130)
	116	(70 - 130)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.
 Bold print denotes control parameters

WATER, 8015 MOD, Diesel/Motor Oil

CAMERON-COLE LLC

Client Sample ID: MW-11

GC Semivolatiles

Lot-Sample #....: G1I220130-002 Work Order #....: EKXXK1AA Matrix.....: WATER
Date Sampled....: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/24/01 Analysis Date...: 10/01/01
Prep Batch #....: 1267486
Dilution Factor: 1 Method.....: SW846 8015 MOD

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
TPH (as Motor Oil)	ND	250	ug/L
TPH (as Diesel)	ND	50	ug/L
Unknown Hydrocarbon	460	250	ug/L
		<u>RECOVERY</u>	
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>	
	<u>RECOVERY</u>	<u>LIMITS</u>	
o-Terphenyl	64	(57 - 147)	

NOTE (S) :

The unknown from n-C8 to n-C40 is quantitated based on a motor oil reference from n-C19 to n-C36.

CAMERON-COLK LLC

Client Sample ID: MW-10

GC Semivolatiles

Lot-Sample #....: G1I220130-003 Work Order #....: BKXXQ1AA Matrix.....: WATER
Date Sampled....: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/24/01 Analysis Date...: 10/01/01
Prep Batch #....: 1267486
Dilution Factor: 1 Method.....: SW846 8015 MOD

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
TPH (as Motor Oil)	ND	250	ug/L
TPH (as Diesel)	ND	50	ug/L
Unknown Hydrocarbon	1000	50	ug/L
<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	
o-Terphenyl	121	(57 - 147)	

NOTE(S):

The unknown from n-C8 to n-C40 is quantitated based on a diesel reference from n-C10 to n-C24.

CAMERON-COLE LLC

Client Sample ID: MW-9

GC Semivolatiles

Lot-Sample #....: G1I220130-004 Work Order #....: EKXXR1AA Matrix.....: WATER
Date Sampled....: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/24/01 Analysis Date...: 10/01/01
Prep Batch #....: 1267486
Dilution Factor: 1 Method.....: SW846 8015 MOD

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
TPH (as Motor Oil)	ND	250	ug/L
TPH (as Diesel)	ND	50	ug/L
Unknown Hydrocarbon	790	250	ug/L

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
o-Terphenyl	113	(57 - 147)

NOTE(S) :

The unknown from n-C12 to n-C40 is quantitated based on a motor oil reference from n-C19 to n-C36.

CAMERON-COLE LLC

Client Sample ID: MW-2

GC Semivolatiles

Lot-Sample #....: G1I220130-005 Work Order #....: EKXXV1AA Matrix.....: WATER
Date Sampled....: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/24/01 Analysis Date...: 10/01/01
Prep Batch #....: 1267486
Dilution Factor: 1 Method.....: SW846 8015 MOD

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
TPH (as Motor Oil)	ND	250	ug/L
TPH (as Diesel)	ND	50	ug/L
Unknown Hydrocarbon	1200	250	ug/L

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>
o-Terphenyl	133	(57 - 147)

NOTE (S):

The unknown from n-C12 to n-C40 is quantitated based on a motor oil reference from n-C19 to n-C36.

CAMERON-COLE LLC

Client Sample ID: MW-1

GC Semivolatiles

Lot-Sample #...: G1I220130-006 Work Order #...: EKXXW1AA Matrix.....: WATER
Date Sampled...: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/24/01 Analysis Date...: 10/01/01
Prep Batch #...: 1267486
Dilution Factor: 1 Method.....: SW846 8015 MOD

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
TPH (as Motor Oil)	ND	250	ug/L
TPH (as Diesel)	ND	50	ug/L
Unknown Hydrocarbon	290	250	ug/L
	<u>PERCENT</u>	<u>RECOVERY</u>	
<u>SURROGATE</u>	<u>RECOVERY</u>	<u>LIMITS</u>	
o-Terphenyl	107	(57 - 147)	

NOTE (S):

The unknown from n-C8 to n-C40 is quantitated based on a motor oil reference from n-C19 to n-C36.

CAMERON-COLE LLC

Client Sample ID: MW-12

GC Semivolatiles

Lot-Sample #....: G1I220130-007 Work Order #....: EKXXX1AA Matrix.....: WATER
Date Sampled....: 09/20/01 Date Received...: 09/21/01
Prep Date.....: 09/24/01 Analysis Date...: 10/01/01
Prep Batch #....: 1267486
Dilution Factor: 1 Method.....: SW846 8015 MOD

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
TPH (as Motor Oil)	ND	250	ug/L
TPH (as Diesel)	ND	50	ug/L
Unknown Hydrocarbon	540	50	ug/L

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
o-Terphenyl	120	(57 - 147)

NOTE (S):

The unknown from n-C8 to n-C40 is quantitated based on a diesel reference from n-C10 to n-C24.

CAMERON-COLE LLC

Client Sample ID: MW-7

GC Semivolatiles

Lot-Sample #....: G1I220130-009 Work Order #....: EKXX11AA Matrix.....: WATER
Date Sampled....: 09/21/01 Date Received...: 09/21/01
Prep Date.....: 09/24/01 Analysis Date...: 10/01/01
Prep Batch #....: 1267486
Dilution Factor: 1 Method.....: SW846 8015 MOD

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
TPH (as Motor Oil)	ND	250	ug/L
TPH (as Diesel)	ND	50	ug/L
Unknown Hydrocarbon	940	50	ug/L

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
o-Terphenyl	126	(57 - 147)

NOTE(S) :

The unknown from n-C8 to n-C40 is quantitated based on a diesel reference from n-C10 to n-C24.

CAMERON-COLE LLC

Client Sample ID: W-1

GC Semivolatiles

Lot-Sample #....: G1I220130-010 Work Order #....: EKX0A1AA Matrix.....: WATER
Date Sampled....: 09/21/01 Date Received...: 09/21/01
Prep Date.....: 09/24/01 Analysis Date...: 10/11/01
Prep Batch #....: 1267486
Dilution Factor: 5 Method.....: SW846 8015 MOD

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
TPH (as Motor Oil)	ND	1200	ug/L
TPH (as Diesel)	ND	250	ug/L
Unknown Hydrocarbon	1800	250	ug/L

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>
o-Terphenyl	68	(57 - 147)

NOTE(S) :

The unknown from n-C8 to n-C16 is quantitated based on a diesel reference from n-C10 to n-C24.

CAMERON-COLE LLC

Client Sample ID: MW-13

GC Semivolatiles

Lot-Sample #....: G1I220130-011 Work Order #....: EKX0C1AA Matrix.....: WATER
Date Sampled....: 09/21/01 Date Received...: 09/21/01
Prep Date.....: 09/24/01 Analysis Date...: 10/01/01
Prep Batch #....: 1267486
Dilution Factor: 1 Method.....: SW846 8015 MOD

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
TPH (as Motor Oil)	ND	250	ug/L
TPH (as Diesel)	ND	50	ug/L
Unknown Hydrocarbon	ND	50	ug/L
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>	
	<u>RECOVERY</u>	<u>LIMITS</u>	
o-Terphenyl	97	(57 - 147)	

CAMERON-COLE LLC

Client Sample ID: MW-3

GC Semivolatiles

Lot-Sample #....: G1I220130-012 Work Order #....: EKX0D1AA Matrix.....: WATER
Date Sampled....: 09/21/01 Date Received...: 09/21/01
Prep Date.....: 09/24/01 Analysis Date...: 10/01/01
Prep Batch #....: 1267486
Dilution Factor: 1 Method.....: SW846 8015 MOD

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
TPH (as Motor Oil)	ND	250	ug/L
TPH (as Diesel)	ND	50	ug/L
Unknown Hydrocarbon	260	250	ug/L

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
o-Terphenyl	91	(57 - 147)

NOTE(S) :

The unknown from n-C14 to n-C40 is quantitated based on a motor oil reference from n-C19 to n-C36.

CAMERON-COLE LLC

Client Sample ID: MW-6

GC Semivolatiles

Lot-Sample #....: G1I220130-013 Work Order #....: EKX0G1AA Matrix.....: WATER
Date Sampled....: 09/21/01 Date Received...: 09/21/01
Prep Date.....: 09/24/01 Analysis Date...: 10/11/01
Prep Batch #....: 1267486
Dilution Factor: 10 Method.....: SW846 8015 MOD

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
TPH (as Motor Oil)	ND	2500	ug/L
TPH (as Diesel)	15000 Q	500	ug/L
Unknown Hydrocarbon	ND	500	ug/L
	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>	
<u>SURROGATE</u>			
o-Terphenyl	0.0 SRD	(57 - 147)	

NOTE(S):

SRD The surrogate recovery was not calculated because the extract was diluted beyond the ability to quantitate a recovery.
Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.
The diesel pattern appears degraded.

QC DATA ASSOCIATION SUMMARY

G1I220130

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
002	WATER	SW846 8015 MOD		1267486	
	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
003	WATER	SW846 8015 MOD		1267486	
	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
004	WATER	SW846 8015 MOD		1267486	
	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
005	WATER	SW846 8015 MOD		1267486	
	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
006	WATER	SW846 8015 MOD		1267486	
	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
007	WATER	SW846 8015 MOD		1267486	
	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
008	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
009	WATER	SW846 8015 MOD		1267486	
	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
010	WATER	SW846 8015 MOD		1267486	
	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
011	WATER	SW846 8015 MOD		1267486	
	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	

(Continued on next page)

QC DATA ASSOCIATION SUMMARY

G1I220130

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
012	WATER	SW846 8015 MOD		1267486	
	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1289309	
013	WATER	SW846 8015 MOD		1267486	
	WATER	DHS CA LUFT		1289307	
	WATER	DHS CA LUFT		1290362	

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: G1I220130
MB Lot-Sample #: G1I240000-486
Analysis Date...: 10/01/01
Dilution Factor: 1

Work Order #...: EK1KJ1AA
Prep Date.....: 09/24/01
Prep Batch #...: 1267486

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		<u>METHOD</u>
		<u>LIMIT</u>	<u>UNITS</u>	
TPH (as Motor Oil)	ND	250	ug/L	SW846 8015 MOD
TPH (as Diesel)	ND	50	ug/L	SW846 8015 MOD
Unknown Hydrocarbon	ND	50	ug/L	SW846 8015 MOD
	<u>PERCENT</u>	<u>RECOVERY</u>		
<u>SURROGATE</u>	<u>RECOVERY</u>	<u>LIMITS</u>		
o-Terphenyl	92	(57 - 147)		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: G1I220130 Work Order #...: EK1KJ1AC-LCS Matrix.....: WATER
 LCS Lot-Sample#: G1I240000-486 EK1KJ1AD-LCSD
 Prep Date.....: 09/24/01 Analysis Date...: 10/01/01
 Prep Batch #...: 1267486
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>RPD</u>	<u>METHOD</u>
TPH (as Diesel)	300	253	ug/L	84		SW846 8015 MOD
	300	290	ug/L	97	14	SW846 8015 MOD
<u>SURROGATE</u>				<u>PERCENT RECOVERY</u>		<u>RECOVERY LIMITS</u>
o-Terphenyl				104		(57 - 147)
				112		(57 - 147)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.
 Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #....: G1I220130 Work Order #....: EK1KJ1AC-LCS Matrix.....: WATER
 LCS Lot-Sample#: G1I240000-486 EK1KJ1AD-LCSD
 Prep Date.....: 09/24/01 Analysis Date...: 10/01/01
 Prep Batch #....: 1267486
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>RPD LIMITS</u>	<u>METHOD</u>
TPH (as Diesel)	84	(39 - 125)			SW846 8015 MOD
	97	(39 - 125)	14	(0-44)	SW846 8015 MOD

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
o-Terphenyl	104	(57 - 147)
	112	(57 - 147)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.
 Bold print denotes control parameters