AC Transit
Alameda-Contra Costa Transit District

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

June 21, 2001

#1233

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

JUN 25 2001

Dear Mr. Chan:

Subject: Quarterly Groundwater Monitoring Report
AC Transit. 1100 Seminary Avenue, Oakland, CA

AC Transit hereby submits the enclosed quarterly groundwater monitoring report for the first quarter of 2001 for the AC Transit facility located at 1100 Seminary Avenue in Oakland. Groundwater sampling of monitoring wells MW-1 through MW-3 and MW-9 through MW-11 was performed by Safety-Kleen Consulting in accordance with directives from your office.

Groundwater samples were collected from the six on-site monitoring wells on March 1 and 3, 2001. Samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline and diesel using EPA Method 8015, benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl-tert butyl ether (MTBE) using EPA Method 8260B and nitrate and sulfate using Standard Methods 300.0A. Field parameters collected during sampling included pH, temperature, electrical conductivity, dissolved oxygen, ferrous iron and oxidation reduction potential.

Analytical results of grab water samples showed benzene concentrations above the California maximum contaminant level of 1 ppb in wells MW-1, MW-2 and MW-3 and nondetectable concentrations in wells MW-9, MW-10 and MW-11. Due to the presence of product in MW-2, the analytical detection limit for the sample analyzed for benzene, toluene, ethylbenzene and xylenes was 830 ppb instead of 1 ppb (the detection limit for all other water samples). Chemical concentrations above laboratory reporting limits in the three newly installed wells MW-9, MW-10, and MW-11, were limited to unspecified hydrocarbons, except for 15 ppb MTBE detected in MW-11.

These results appear to be consistent with past sampling results and the affected groundwater is localized near monitoring well MW-2. As a remedial action alternative for this site, AC Transit proposes to perform free product removal from MW-2 during each quarterly groundwater sampling event. If you agree with our proposed action, product removal will start with the next scheduled sampling event.

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

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

May 7, 2001

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

JUN 25 2001

Prepared By:
Safety-Kleen Consulting
2233 Santa Clara Avenue
Alameda, California 94501

Project No: 792675

safety-kleen

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

May 7, 2001

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

Prepared By:
Safety-Kleen Consulting
2233 Santa Clara Avenue
Alameda, California 94501

Project No: 792675

Written By
Brady Hanson
Geologist I

Reviewed By
Greg Pedersen
Geologist II

Approved By
Brad Wright, P.G., CHG.
Senior Geologist

STATE OF CALIFORNIA
REGISTERED GEOLOGIST

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INTRODUCTION

This report presents the results from the March 2001 sampling event for the AC Transit Facility located at 1100 Seminary Avenue, Oakland, California (Site) (Figure 1). Groundwater sampling of monitor wells MW-1 through MW-3 and MW-9 through MW-11 was performed by Safety-Kleen Consulting, in accordance with directives from the Alameda County Health Care Services Agency (ACHCS).

OBJECTIVES AND SCOPE OF WORK

Work performed during quarterly sampling included measuring depth to water and presence of free phase hydrocarbons in the monitor wells and sample collection. Field parameters collected during sampling included pH, temperature, electric conductivity, dissolved oxygen (DO), ferrous iron (Fe^{2+}) and oxygen reduction potential (ORP). Groundwater samples were collected for laboratory analysis using United States Environmental Protection Agency (USEPA) Method 8015 for total petroleum hydrocarbons (TPH) gasoline/diesel, USEPA Method 8260B for benzene, toluene, ethylbenzene, and xylene (BTEX) and methyl-tert butyl ether (MTBE) and methods of chemical analysis for water and waste (MCAWW) 300.0A for nitrate and sulfate.

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

Groundwater Elevations and Flow Direction

Prior to purging and sample collection, all six site monitor wells were inspected and measured for presence of free phase hydrocarbons and depth to groundwater. Measurements of depths to groundwater are presented on Table 1 and were used to construct the groundwater elevation contours shown in Figure 2. ~~A free phase hydrocarbon layer was detected in MW-2 at a measured thickness of 0.13 feet.~~ As shown on Figure 2, ~~groundwater flow is to the west at a gradient of 0.006 feet/foot.~~

Groundwater Sampling Activities

The monitor wells were purged a minimum of three casing volumes, using a centrifugal pump and samples were collected using disposable polyethylene bailers. During well purging, field parameters for pH, electrical conductivity, DO, ORP and temperature were monitored using calibrated field meters. Due to the very low yield encountered while purging monitoring well MW-11, only two casing volumes were evacuated before it became dry.

Groundwater samples were transferred to appropriate laboratory supplied and preserved containers and placed in an ice-filled cooler for shipment under chain-of-custody to a State of California certified laboratory. A trip blank was submitted for analysis by USEPA Method 8260B.

Groundwater Analytical Results

Table 2 presents groundwater historic and first quarter 2001 analytical results. Concentrations of benzene above the State of California maximum contaminant level (MCL) of 1.0 part per billion (ppb) were detected in monitor wells MW-1, MW-2 and MW-3. MTBE was detected above the MCL of 13 in monitor well MW-11. Additionally, chemical concentrations above laboratory reporting limits detected in newly installed wells MW-9 through MW-11 included unspecified hydrocarbons. The carbon chain range of the unspecified hydrocarbon suggests that these concentrations represent degraded diesel. No analytes were detected in the trip blanks or method blanks. A lab control spike and lab control spike duplicate passed the USEPA's criteria for acceptance.

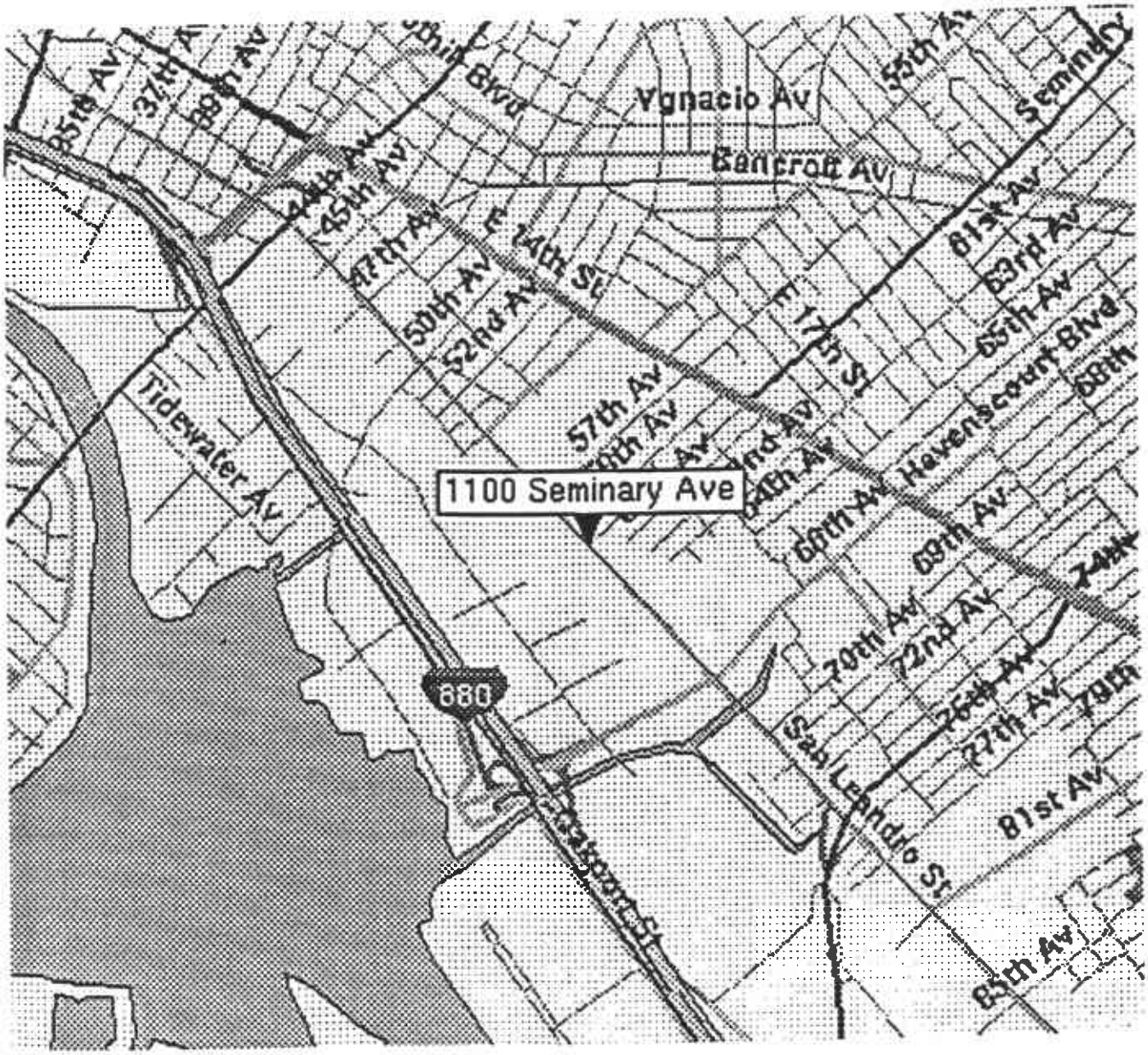
SUMMARY OF RESULTS

- A 0.13 foot free phase hydrocarbon layer was measured in monitor well MW-2.
- Groundwater flow direction is towards the west at a gradient of 0.006 feet/foot;

- Chemical concentrations in excess of MCLs were limited to benzene in wells MW-1, MW-2 and MW-3 and MTBE in MW-11.

PROJECTED WORK AND RECOMMENDATIONS

- Quarterly groundwater monitoring is scheduled for June 2001.



LOCMAP

North

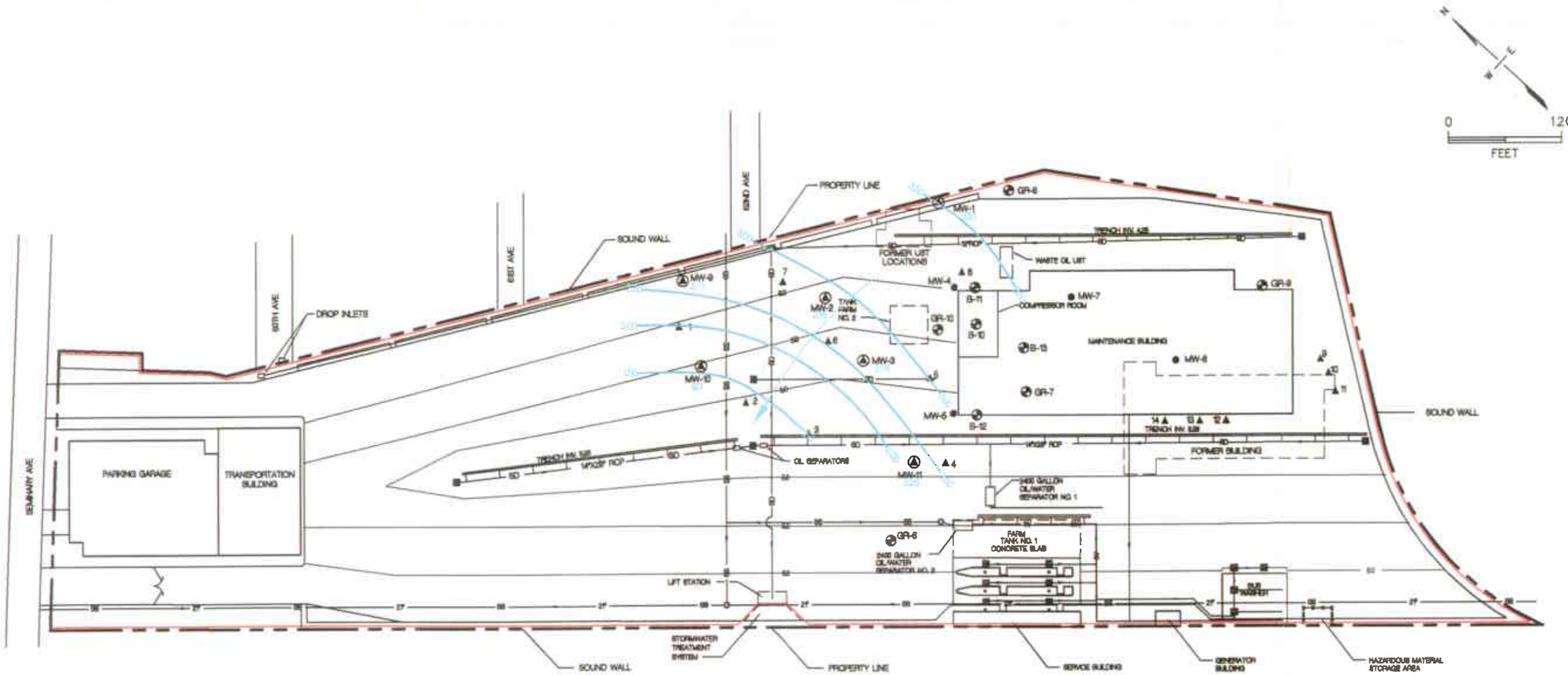
safety-klean consulting

AC TRANSIT - OAKLAND, CALIFORNIA

FIGURE 1
SITE LOCATION MAP
1100 SEMINARY ROAD

SCALE: NO SCALE

DATE: 3/22/00



LEGEND:

MANHOLE	EXISTING MONITORING WELL
CATCH BASIN	ABANDONED MONITORING WELL
6.0 CONTOUR	PREVIOUSLY INSTALLED SOIL BORING
SD STORM DRAIN PIPELINE	NEWLY INSTALLED SOIL BORING
SS SANITARY SEWER PIPELINE	GROUNDWATER ELEVATION (FT. MSL) MARCH 2001 GAUGING DATA
IW INDUSTRIAL WASTE PIPELINE	
SURFACE DRAINAGE TRENCH	

	BY	DATE
DRAWN	WRB	4/24/01
CHECKED		
APPROVED		
APPROVED		
APPROVED		

safety-kleen consulting

AC TRANSIT - OAKLAND, CALIFORNIA

FIGURE 2
1100 SEMINARY ROAD - GROUNDWATER CONTOURS

SCALE: 1" = 120'

DWG. NO: 792489-10

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

Well	Date	Top of Casing Elevation (ft-msl)*	Product Thickness (feet)	DTW (feet)	Measured Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected for Product Thickness**
MW-1	7-Jan-99	6.25	None	5.13	1.12	
	7-Feb-00		None	3.75	2.5	
	25-May-00		None	3.69	2.56	
	22-Aug-00		None	4.79	1.46	
	20-Nov-00		None	4.92	1.33	
	1-Mar-01		**None**	**2.75**	**3.50**	
MW-2	7-Jan-99	5.53	2.27	6.91	-1.38	0.44
	8-Jun-99		2.23	5.83	-0.3	1.48
	9-Jun-99		0	3.9	1.63	1.63
	10-Jun-99		0	3.9	1.63	1.63
	15-Jun-99		0.42	3.92	1.61	1.95
	8-Jul-99		0.2	4.3	1.23	1.39
	7-Feb-00		Sheen	3.8	1.73	
	25-May-00		0.12	3.23	2.3	2.40
	22-Aug-00		0.23	4.45	1.08	1.10
	20-Nov-00		0.23	4.70	0.83	0.85
	1-Mar-01		**0.13**	**2.75**	**2.78**	**2.79**
MW-3	7-Jan-99	4.76	None	4.11	0.65	
	7-Feb-00		None	3.1	1.66	
	25-May-00		None	2.41	2.35	
	22-Aug-00		None	3.45	1.31	
	20-Nov-00		None	3.42	1.34	
	1-Mar-01		**None**	**2.00**	**2.76**	
MW-9	7-Feb-00	5.8	None	4.37	1.43	
	25-May-00		None	4.95	0.85	
	22-Aug-00		None	5.18	0.62	
	20-Nov-00		None	4.70	1.10	
	1-Mar-01		**None**	**3.03**	**2.77**	
MW-10	7-Feb-00	4.65	None	3.19	1.46	
	25-May-00		None	3.11	1.54	
	22-Aug-00		None	4.35	0.30	
	20-Nov-00		None	4.18	0.47	
	1-Mar-01		**None**	**3.14**	**1.51**	
MW-11	7-Feb-00	4.19	None	4.97	-0.78	
	25-May-00		None	7.58	-3.39	
	22-Aug-00		None	3.01	1.18	
	20-Nov-00		None	2.88	1.31	
	1-Mar-01		**None**	**1.91**	**2.28**	

Notes:

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

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

Well	Date	TPH-G	TPH-D	TPH	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE	Nitrate	Sulfate	DO	Fe
	MCL (ppb)				1.0	150	700	1,750	13				
MW-1	7-Jan-99	<100	470	NA	17	2	31	18	<50	150	3,400	360	53
	7-Feb-00	390	<60	1,300	13	<10	<10	<10	<20	<50	1,200	1,220	11,800
	25-May-00	<50	<50	1,000	12	<1.0	<1.0	<1.0	<2.0	140	1,500	1,950	1,380
	22-Aug-00	<50	<50	600	6.3	<1.0	2.3	<1.0	<2.0	75	2,100	6,850	2,350
	20-Nov-00	<50	<50	630	2.8	<1.0	1.1	<1.0	<2.0	<50	4,500	11,210	1,170
	1-Mar-01	**<50**	**<50**	**900**	**29**	**1.2**	**16**	**6**	**<2.0**	**<50**	**2,800**	**6,020**	**2,920**
MW-2	8-Jun-99	11,000	434,000	117,000	1,000,000	<100,000	260,000	<300,000	<5,000,000	NA	NA	NA	NA
(Product)	7-Feb-00	51,000	160,000	<5000	19,000	<500	920	<500	<1000	51	<1000	6,660	7,300
	25-May-00	<1200	<50000	65,000	11,000	<500	670	530	<1000	330	<1000	5,670	0
	22-Aug-00	<2500	<2500	150,000	23,000	<500	1,100	1,100	<1000	370	<1000	4,530	3,680
	20-Nov-00	<1200	<25000	430,000	18,000	<500	840	610	<1000	<250	<500	1,700	3,300
	3-Mar-01	**<500**	**<25000**	[redacted]	[redacted]	**<830**	**<830**	**<830**	**<1700**	**<250**	**<5000**	**7,880**	**3,300**
		UVF 36 000											
MW-3	7-Jan-99	199	2,680	NA	450	<10	250	190	<500	170	3,300	880	0
	7-Feb-00	2,000	<150	3,100	26	<2	5	2	<4	<50	47,300	6,480	17,800
	25-May-00	<50	<50	1,000	35	<1.0	6	4	<2.0	<50	21,700	4,640	600
	22-Aug-00	<50	<50	2,400	240	<10	<10	<10	<20	<50	19,300	3,970	20
	20-Nov-00	<50	<50	2,400	<25	<25	<25	<25	<50	<50	26,500	4,120	20
	1-Mar-01	**<50**	**<50**	**1,200**	**100**	**<5.0**	**8.3**	**<5.0**	**<10**	**<50**	**27,000**	**1,510**	**50**
MW-9	7-Feb-00	<50	<50	240	<1	<1	<1	<1	<2	230	183,000	6,940	9,000
	25-May-00	<50	<50	130	<1.0	<1.0	<1.0	<1.0	<2.0	250	172,000	6,020	1,200
	22-Aug-00	<50	<50	120	<1.0	<1.0	<1.0	<1.0	<2.0	280	157,000	7,250	0
	20-Nov-00	<50	<50	130	<1.0	<1.0	<1.0	<1.0	<2.0	340	147,000	9,690	0
	1-Mar-01	**<50**	**<50**	**150**	**<1.0**	**<1.0**	**<1.0**	**<1.0**	**<2.0**	**230**	**116,000**	**4,210**	**0**
MW-10	7-Feb-00	<50	<50	470	<1	<1	<1	<1	<2	53	114,000	1,200	55,000
	25-May-00	<50	<50	220	<1.0	<1.0	<1.0	<1.0	<2.0	480	136,000	1,940	0
	22-Aug-00	<50	<50	140	<1.0	<1.0	<1.0	<1.0	<2.0	69	126,000	4,350	0
	20-Nov-00	<50	<50	300	<1.0	<1.0	<1.0	<1.0	<2.0	<50	76,200	3,790	0
	1-Mar-01	**<50**	**<50**	**250**	**<1.0**	**<1.0**	**<1.0**	**<1.0**	**<2.0**	**<250**	**106,000**	**7,440**	**0**
MW-11	7-Feb-00	<50	<50	400	<1	<1	<1	<1	25	800	167,000	7,300	16,200
	25-May-00	<50	<50	200	<1.0	<1.0	<1.0	<1.0	16	480	207,000	6,540	0
	22-Aug-00	<50	<50	170	<1.0	<1.0	<1.0	<1.0	9.3	610	168,000	4,640	20
	20-Nov-00	<50	<50	190	<1.0	<1.0	<1.0	<1.0	7.5	550	143,000	2,380	0
	1-Mar-01	**<50**	**<50**	**250**	**<1.0**	**<1.0**	**<1.0**	**<1.0**	**15.0**	**170**	**80,300**	**5,860**	**0**

Notes:
ppb: parts per billion
TPH-G: total petroleum hydrocarbons as gasoline
TPH-D: total petroleum hydrocarbons as diesel
[redacted]
MCL: Maximum Contaminant Level
MTBE: Methyl-tert,butylether
DO: Dissolved Oxygen
Fe: Ferrous Iron

APPENDIX A

CERTIFIED ANALYTICAL REPORTS

CHAIN-OF-CUSTODY DOCUMENTS

SEVERN TRENT SERVICES

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

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

March 26, 2001

STL SACRAMENTO PROJECT NUMBER: G1C020182

Brad Wright
Safety Kleen Consulting
2233 Santa Clara Ave
Suite 7
Alameda, CA 94501

Dear Mr. Wright,

This report contains the analytical results for the samples received under chain of custody by STL Sacramento on March 2, 2001. These samples are associated with your AC Transit Seminary project.

The case narrative is an integral part of this report.

Preliminary results were sent via facsimile on March 5, 2001.

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

Sincerely,

Bonnie McNeill

Bonnie J. McNeill
Project Manager

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STL SACRAMENTO PROJECT NUMBER G1C020182

CASE NARRATIVE

STL SACRAMENTO PROJECT NUMBER G1C020182

General Comments

Samples were received at 2 degrees Centigrade. General minerals bottle for sample MW-11 and one VOA vial for MW-2 were received frozen.

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: Quanterra® Quality Control Program, Policy QA-003

STL Sacramento Certifications:
Alaska (UST-055), Arizona (#AZ00616), Arkansas, California (#2166), 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
G1C020182

WO#	Sample #	Client Sample ID	Sampling Date	Received Date
DWV47	1	MW-3	3/1/01 10:30 AM	3/2/01 10:10 AM
DWV5D	2	MW-1	3/1/01 11:30 AM	3/2/01 10:10 AM
DWV5G	3	MW-9	3/1/01 12:25 PM	3/2/01 10:10 AM
DWV5K	4	MW-11	3/1/01 01:00 PM	3/2/01 10:10 AM
DWV5M	5	MW-10	3/1/01 01:45 PM	3/2/01 10:10 AM
DWV5P	6	MW-2	3/1/01 03:00 PM	3/2/01 10:10 AM
DWV5Q	7	TRIP BLANK	3/1/01 07:30 AM	3/2/01 10:10 AM

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 no 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

Quanterra

QUA-4124 0797

Client	Project Manager	Date	Chain of Custody Number
SAFETY-KLEEN	BRAD WRIGHT	3-1-01	
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 1 of 1
2233 SANTA CLARA	510-337-8660		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
ALAMEDA / CA / 94501			
Project Name	**Carrier/Waybill Number**		
AC TRANSIT SEMINARY			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: NITRATE, SULFATE	Analysis: BTEX/MTBE	Analysis: GRO 8015	Analysis: DRO 8015
MW-3	3-1-01	1030	X									X	X	X	X
MW-1		1130													
MW-9		1225													
(1) MW-11		1300													
MW-10		1345													
(2) MW-2		1500													
TRIP BLANK		0730													
(1) recd 250PS frozen for NO3/SO4															
(2) recd 1 vial frozen for 8260															

Special Instructions/ Conditions of Receipt: good

ok 3-2-01

ABS-2-01

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

	Date	Time		Date	Time
1. Relinquished By: Brad A Hanson	3-1-01	1700	1. Received By: COURIER		
2. Relinquished By: Greg Reden	3/2/01	0845	2. Received By: Brad Burkett	3-2	0845
3. Relinquished By: Brad Burkett	3-2	1010	3. Received By:	3-2-01	1100

Comments

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

STL-Sacramento

G1C020182

WATER, 8015M, TPH Gas

SAFETY KLEEN CONSULTING

Client Sample ID: MW-3

GC Volatiles

Lot-Sample #...: G1C020182-001 Work Order #...: DWV471AE Matrix.....: WATER
Date Sampled...: 03/01/01 Date Received..: 03/02/01
Prep Date.....: 03/05/01 Analysis Date..: 03/06/01
Prep Batch #...: 1071408
Dilution Factor: 1 Method.....: DHS CA LUFT

PARAMETER	RESULT	REPORTING LIMIT	UNITS
TPH (as Gasoline)	ND	50	ug/L
Unknown Hydrocarbon	1000	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	112	(70 - 130)

NOTE(S):

Benzene contributes 29% of the area for gasoline range. This percentage is atypical for gasoline.

SAFETY KLEEN CONSULTING

Client Sample ID: MW-1

GC Volatiles

Lot-Sample #...:	G1C020182-002	Work Order #...:	DWV5D1AE	Matrix.....:	WATER
Date Sampled...:	03/01/01	Date Received..:	03/02/01		
Prep Date.....:	03/05/01	Analysis Date..:	03/06/01		
Prep Batch #...:	1071408				
Dilution Factor:	1	Method.....:	DHS CA LUFT		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
TPH (as Gasoline)	ND	50	ug/L
Unknown Hydrocarbon	670	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	109	(70 - 130)

NOTE(S):

Benzene contributes 20% of the area for gasoline range. This percentage is atypical for gasoline.

SAFETY KLEEN CONSULTING

Client Sample ID: MW-9

GC Volatiles

Lot-Sample #...: G1C020182-003 Work Order #...: DWV5G1AE Matrix.....: WATER
Date Sampled...: 03/01/01 Date Received..: 03/02/01
Prep Date.....: 03/05/01 Analysis Date..: 03/06/01
Prep Batch #...: 1071408
Dilution Factor: 1 Method.....: DHS CA LUFT

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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	103	(70 - 130)

SAFETY KLEEN CONSULTING

Client Sample ID: MW-11

GC Volatiles

Lot-Sample #...: G1C020182-004 Work Order #...: DWV5K1AE Matrix.....: WATER
Date Sampled...: 03/01/01 Date Received..: 03/02/01
Prep Date.....: 03/15/01 Analysis Date..: 03/15/01
Prep Batch #...: 1075470
Dilution Factor: 1 Method.....: DHS CA LUFT

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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	107	(70 - 130)

SAFETY KLEEN CONSULTING

Client Sample ID: MW-10

GC Volatiles

Lot-Sample #...: G1C020182-005	**Work Order #...:** DWV5M1AE	**Matrix.....:** WATER	
Date Sampled...: 03/01/01	**Date Received..:** 03/02/01		
Prep Date.....: 03/15/01	**Analysis Date..:** 03/15/01		
Prep Batch #...: 1075470			
Dilution Factor: 1	**Method.....:** DHS CA LUFT		

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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	102	(70 - 130)

SAFETY KLEEN CONSULTING

Client Sample ID: MW-2

GC Volatiles

Lot-Sample #...: G1C020182-006	Work Order #...: DWV5P1AE	Matrix.....: WATER	
Date Sampled...: 03/01/01	Date Received..: 03/02/01		
Prep Date.....: 03/15/01	Analysis Date..: 03/15/01		
Prep Batch #...: 1075470			
Dilution Factor: 10	Method.....: DHS CA LUFT		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
TPH (as Gasoline)	ND	500	ug/L
Unknown Hydrocarbon	**36000**	**500**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene		(70 - 130)
4-Bromofluorobenzene	105	(70 - 130)
Fluorobenzene		(70 - 130)

NOTE(S):

Benzene contributes 80% of the area for gasoline range. This percentage is atypical for gasoline.

QC DATA ASSOCIATION SUMMARY

G1C020182

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	DHS CA LUFT		1071408	
002	WATER	DHS CA LUFT		1071408	
003	WATER	DHS CA LUFT		1071408	
004	WATER	DHS CA LUFT		1075470	
005	WATER	DHS CA LUFT		1075470	
006	WATER	DHS CA LUFT		1075470	

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: G1C020182 Work Order #...: DW9JF1AA Matrix.....: WATER
MB Lot-Sample #: G1C120000-408

Prep Date.....: 03/05/01
Analysis Date..: 03/06/01 Prep Batch #...: 1071408
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
TPH (as Gasoline)	ND	50	ug/L	DHS CA LUFT
Unknown Hydrocarbon	ND	50	ug/L	DHS CA LUFT

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	101	(70 - 130)

NOTE(S):

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

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: G1C020182 Work Order #...: DXJ5W1AA Matrix.....: WATER
MB Lot-Sample #: G1C160000-470

Prep Date.....: 03/15/01
Analysis Date..: 03/15/01 Prep Batch #...: 1075470
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
TPH (as Gasoline)	ND	50	ug/L	DHS CA LUFT
Unknown Hydrocarbon	ND	50	ug/L	DHS CA LUFT

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	105	(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 #...: G1C020182 Work Order #...: DW9JF1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: G1C120000-408 DW9JF1AD-LCSD
Prep Date.....: 03/05/01 Analysis Date..: 03/06/01
Prep Batch #...: 1071408
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
TPH (as Gasoline)	1000	949	ug/L	95		DHS CA LUFT
	1000	915	ug/L	92	3.6	DHS CA LUFT

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	113	(70 - 130)
	114	(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 #...: G1C020182 Work Order #...: DXJ5W1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: G1C160000-470 DXJ5W1AD-LCSD
Prep Date.....: 03/15/01 Analysis Date..: 03/15/01
Prep Batch #...: 1075470
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
TPH (as Gasoline)	1000	1000	ug/L	100		DHS CA LUFT
	1000	1010	ug/L	101	0.67	DHS CA LUFT

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	110	(70 - 130)
	111	(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 #...: G1C020182 Work Order #...: DW9JF1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: G1C120000-408 DW9JF1AD-LCSD
Prep Date.....: 03/05/01 Analysis Date..: 03/06/01
Prep Batch #...: 1071408
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
TPH (as Gasoline)	95	(70 - 130)			DHS CA LUFT
	92	(70 - 130)	3.6	(0-35)	DHS CA LUFT

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	113	(70 - 130)
	114	(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 #...: G1C020182 Work Order #...: DXJ5W1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: G1C160000-470 DXJ5W1AD-LCSD
Prep Date.....: 03/15/01 Analysis Date..: 03/15/01
Prep Batch #...: 1075470
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
TPH (as Gasoline)	**100**	**(70 - 130)**			**DHS CA LUFT**
	101	**(70 - 130)**	**0.67**	**(0-35)**	**DHS CA LUFT**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	110	(70 - 130)
	111	(70 - 130)

NOTE(S):

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

Bold print denotes control parameters

WATER, 8260B, BTEX + MTBE

SAFETY KLEEN CONSULTING

Client Sample ID: MW-3

GC/MS Volatiles

Lot-Sample #...: G1C020182-001 Work Order #...: DWV471AF Matrix.....: WATER
Date Sampled...: 03/01/01 Date Received..: 03/02/01
Prep Date.....: 03/09/01 Analysis Date..: 03/09/01
Prep Batch #...: 1071437
Dilution Factor: 5 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	**100 Q**	**5.0**	**ug/L**
Toluene	ND	5.0	ug/L
Ethylbenzene	**8.3**	**5.0**	**ug/L**
Methyl tert-butyl ether (MTBE)	ND	10	ug/L
Xylenes (total)	ND	5.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	97	(74 - 116)
1,2-Dichloroethane-d4	95	(60 - 132)
Toluene-d8	97	(81 - 120)

NOTE(S):

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

SAFETY KLEEN CONSULTING

Client Sample ID: MW-1

GC/MS Volatiles

Lot-Sample #...: G1C020182-002 Work Order #...: DWV5D1AF Matrix.....: WATER
Date Sampled...: 03/01/01 Date Received..: 03/02/01
Prep Date.....: 03/08/01 Analysis Date..: 03/08/01
Prep Batch #...: 1071290
Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	29	1.0	ug/L
Toluene	1.2	1.0	ug/L
Ethylbenzene	16	1.0	ug/L
Methyl tert-butyl ether (MTBE)	ND	2.0	ug/L
Xylenes (total)	6.0	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	102	(74 - 116)
1,2-Dichloroethane-d4	97	(60 - 132)
Toluene-d8	100	(81 - 120)

SAFETY KLEEN CONSULTING

Client Sample ID: MW-9

GC/MS Volatiles

Lot-Sample #...: G1C020182-003
Date Sampled...: 03/01/01
Prep Date.....: 03/08/01
Prep Batch #...: 1071290
Dilution Factor: 1

Work Order #...: DWV5G1AF
Date Received..: 03/02/01
Analysis Date..: 03/08/01

Method.....: SW846 8260B

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Methyl tert-butyl ether (MTBE)	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	96	(74 - 116)
1,2-Dichloroethane-d4	96	(60 - 132)
Toluene-d8	97	(81 - 120)

SAFETY KLEEN CONSULTING

Client Sample ID: MW-11

GC/MS Volatiles

Lot-Sample #...: G1C020182-004 Work Order #...: DWV5K1AF Matrix.....: WATER
Date Sampled...: 03/01/01 Date Received..: 03/02/01
Prep Date.....: 03/08/01 Analysis Date..: 03/08/01
Prep Batch #...: 1071290
Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Methyl tert-butyl ether (MTBE)	15	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	94	(74 - 116)
1,2-Dichloroethane-d4	93	(60 - 132)
Toluene-d8	93	(81 - 120)

SAFETY KLEEN CONSULTING

Client Sample ID: MW-10

GC/MS Volatiles

Lot-Sample #...: G1C020182-005
Date Sampled...: 03/01/01
Prep Date.....: 03/08/01
Prep Batch #...: 1071290
Dilution Factor: 1

Work Order #...: DWV5M1AF
Date Received..: 03/02/01
Analysis Date..: 03/08/01

Method.....: SW846 8260B

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Methyl tert-butyl ether (MTBE)	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	96	(74 - 116)
1,2-Dichloroethane-d4	93	(60 - 132)
Toluene-d8	96	(81 - 120)

SAFETY KLEEN CONSULTING

Client Sample ID: MW-2

GC/MS Volatiles

Lot-Sample #...: G1C020182-006 Work Order #...: DWV5P1AF Matrix.....: WATER
Date Sampled...: 03/01/01 Date Received..: 03/02/01
Prep Date.....: 03/08/01 Analysis Date..: 03/08/01
Prep Batch #...: 1071290
Dilution Factor: 833.3 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	**14000 Q**	**830**	**ug/L**
Toluene	ND	830	ug/L
Ethylbenzene	ND	830	ug/L
Methyl tert-butyl ether (MTBE)	ND	1700	ug/L
Xylenes (total)	ND	830	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	97	(74 - 116)
1,2-Dichloroethane-d4	92	(60 - 132)
Toluene-d8	97	(81 - 120)

NOTE(S):

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

SAFETY KLEEN CONSULTING

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: G1C020182-007 Work Order #...: DWV5Q1AA Matrix.....: WATER
Date Sampled...: 03/01/01 Date Received..: 03/02/01
Prep Date.....: 03/08/01 Analysis Date..: 03/08/01
Prep Batch #...: 1071290
Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Methyl tert-butyl ether (MTBE)	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	91	(74 - 116)
1,2-Dichloroethane-d4	86	(60 - 132)
Toluene-d8	97	(81 - 120)

QC DATA ASSOCIATION SUMMARY

G1C020182

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8260B		1071437	
002	WATER	SW846 8260B		1071290	
003	WATER	SW846 8260B		1071290	
004	WATER	SW846 8260B		1071290	
005	WATER	SW846 8260B		1071290	
006	WATER	SW846 8260B		1071290	
007	WATER	SW846 8260B		1071290	

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: G1C020182 Work Order #...: DW8681AA Matrix.....: WATER
MB Lot-Sample #: G1C120000-290

Prep Date.....: 03/08/01
Analysis Date..: 03/08/01 Prep Batch #...: 1071290
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	2.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	97	(74 - 116)
1,2-Dichloroethane-d4	95	(60 - 132)
Toluene-d8	97	(81 - 120)

NOTE(S):

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

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: G1C020182 Work Order #...: DW9MG1AA Matrix.....: WATER
MB Lot-Sample #: G1C120000-437

Prep Date.....: 03/09/01
Analysis Date..: 03/09/01 Prep Batch #...: 1071437
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	2.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	92	(74 - 116)
1,2-Dichloroethane-d4	93	(60 - 132)
Toluene-d8	98	(81 - 120)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: G1C020182 Work Order #...: DW8681AC-LCS Matrix.....: WATER
LCS Lot-Sample#: G1C120000-290 DW8681AD-LCSD
Prep Date.....: 03/08/01 Analysis Date..: 03/08/01
Prep Batch #...: 1071290
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	10.0	10.6	ug/L	106		SW846 8260B
	10.0	10.4	ug/L	104	2.4	SW846 8260B
Toluene	10.0	10.5	ug/L	105		SW846 8260B
	10.0	10.2	ug/L	102	2.6	SW846 8260B
Chlorobenzene	10.0	10.4	ug/L	104		SW846 8260B
	10.0	10.2	ug/L	102	1.4	SW846 8260B
1,1-Dichloroethene	10.0	10.1	ug/L	101		SW846 8260B
	10.0	9.64	ug/L	96	4.4	SW846 8260B
Trichloroethene	10.0	10.3	ug/L	103		SW846 8260B
	10.0	10.3	ug/L	103	0.21	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	97	(74 - 116)
	97	(74 - 116)
1,2-Dichloroethane-d4	99	(60 - 132)
	94	(60 - 132)
Toluene-d8	98	(81 - 120)
	96	(81 - 120)

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/MS Volatiles

Client Lot #...: G1C020182 Work Order #...: DW9MG1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: G1C120000-437 DW9MG1AD-LCSD
Prep Date.....: 03/09/01 Analysis Date..: 03/09/01
Prep Batch #...: 1071437
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	10.0	10.7	ug/L	107		SW846 8260B
	10.0	10.8	ug/L	108	0.69	SW846 8260B
Toluene	10.0	10.6	ug/L	106		SW846 8260B
	10.0	10.6	ug/L	106	0.36	SW846 8260B
Chlorobenzene	10.0	10.5	ug/L	105		SW846 8260B
	10.0	10.7	ug/L	107	2.0	SW846 8260B
1,1-Dichloroethene	10.0	10.3	ug/L	103		SW846 8260B
	10.0	9.89	ug/L	99	3.8	SW846 8260B
Trichloroethene	10.0	10.4	ug/L	104		SW846 8260B
	10.0	10.3	ug/L	103	0.49	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	96	(74 - 116)
	98	(74 - 116)
1,2-Dichloroethane-d4	97	(60 - 132)
	95	(60 - 132)
Toluene-d8	95	(81 - 120)
	97	(81 - 120)

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/MS Volatiles

Client Lot #...: G1C020182 Work Order #...: DW8681AC-LCS Matrix.....: WATER
LCS Lot-Sample#: G1C120000-290 DW8681AD-LCSD
Prep Date.....: 03/08/01 Analysis Date..: 03/08/01
Prep Batch #...: 1071290
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	106	(70 - 130)			SW846 8260B
	104	(70 - 130)	2.4	(0-35)	SW846 8260B
Toluene	105	(70 - 130)			SW846 8260B
	102	(70 - 130)	2.6	(0-35)	SW846 8260B
Chlorobenzene	104	(70 - 130)			SW846 8260B
	102	(70 - 130)	1.4	(0-35)	SW846 8260B
1,1-Dichloroethene	101	(70 - 130)			SW846 8260B
	96	(70 - 130)	4.4	(0-35)	SW846 8260B
Trichloroethene	103	(70 - 130)			SW846 8260B
	103	(70 - 130)	0.21	(0-35)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	97	(74 - 116)
	97	(74 - 116)
1,2-Dichloroethane-d4	99	(60 - 132)
	94	(60 - 132)
Toluene-d8	98	(81 - 120)
	96	(81 - 120)

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/MS Volatiles

Client Lot #...: G1C020182 Work Order #...: DW9MG1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: G1C120000-437 DW9MG1AD-LCSD
Prep Date.....: 03/09/01 Analysis Date..: 03/09/01
Prep Batch #...: 1071437
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**107**	**(70 - 130)**			**SW846 8260B**
	108	**(70 - 130)**	**0.69**	**(0-35)**	**SW846 8260B**
Toluene	**106**	**(70 - 130)**			**SW846 8260B**
	106	**(70 - 130)**	**0.36**	**(0-35)**	**SW846 8260B**
Chlorobenzene	**105**	**(70 - 130)**			**SW846 8260B**
	107	**(70 - 130)**	**2.0**	**(0-35)**	**SW846 8260B**
1,1-Dichloroethene	**103**	**(70 - 130)**			**SW846 8260B**
	99	**(70 - 130)**	**3.8**	**(0-35)**	**SW846 8260B**
Trichloroethene	**104**	**(70 - 130)**			**SW846 8260B**
	103	**(70 - 130)**	**0.49**	**(0-35)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	96	(74 - 116)
	98	(74 - 116)
1,2-Dichloroethane-d4	97	(60 - 132)
	95	(60 - 132)
Toluene-d8	95	(81 - 120)
	97	(81 - 120)

NOTE(S):

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

Bold print denotes control parameters

WATER, 8015 M, Diesel

SAFETY KLEEN CONSULTING

Client Sample ID: MW-3

GC Semivolatiles

Lot-Sample #...: G1C020182-001 Work Order #...: DWV471AD Matrix.....: WATER
Date Sampled...: 03/01/01 Date Received..: 03/02/01
Prep Date.....: 03/05/01 Analysis Date..: 03/08/01
Prep Batch #...: 1064440
Dilution Factor: 1 Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS
TPH (as Diesel)	ND	50	ug/L
Unknown Hydrocarbon	1200	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	123	(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.

SAFETY KLEEN CONSULTING

Client Sample ID: MW-1

GC Semivolatiles

Lot-Sample #...: G1C020182-002 Work Order #...: DWV5D1AD Matrix.....: WATER
Date Sampled...: 03/01/01 Date Received..: 03/02/01
Prep Date.....: 03/05/01 Analysis Date..: 03/08/01
Prep Batch #...: 1064440
Dilution Factor: 1 Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS
TPH (as Diesel)	ND	50	ug/L
Unknown Hydrocarbon	900	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	127	(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.

SAFETY KLEEN CONSULTING

Client Sample ID: MW-9

GC Semivolatiles

Lot-Sample #...: G1C020182-003 Work Order #...: DWV5G1AD Matrix.....: WATER
Date Sampled...: 03/01/01 Date Received..: 03/02/01
Prep Date.....: 03/05/01 Analysis Date..: 03/08/01
Prep Batch #...: 1064440
Dilution Factor: 1 Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS
TPH (as Diesel)	ND	50	ug/L
Unknown Hydrocarbon	150	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	96	(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.

SAFETY KLEEN CONSULTING

Client Sample ID: MW-11

GC Semivolatiles

Lot-Sample #...: G1C020182-004 Work Order #...: DWV5K1AD Matrix.....: WATER
Date Sampled...: 03/01/01 Date Received..: 03/02/01
Prep Date.....: 03/05/01 Analysis Date..: 03/08/01
Prep Batch #...: 1064440
Dilution Factor: 1 Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS
TPH (as Diesel)	ND	50	ug/L
Unknown Hydrocarbon	250	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	107	(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.

SAFETY KLEEN CONSULTING

Client Sample ID: MW-10

GC Semivolatiles

Lot-Sample #...: G1C020182-005 Work Order #...: DWV5M1AD Matrix.....: WATER
Date Sampled...: 03/01/01 Date Received..: 03/02/01
Prep Date.....: 03/05/01 Analysis Date..: 03/08/01
Prep Batch #...: 1064440
Dilution Factor: 1 Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS
TPH (as Diesel)	ND	50	ug/L
Unknown Hydrocarbon	250	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	111	(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.

SAFETY KLEEN CONSULTING

Client Sample ID: MW-2

GC Semivolatiles

Lot-Sample #...: G1C020182-006 Work Order #...: DWV5P1AD Matrix.....: WATER
Date Sampled...: 03/01/01 Date Received..: 03/02/01
Prep Date.....: 03/05/01 Analysis Date..: 03/09/01
Prep Batch #...: 1064440
Dilution Factor: 500 Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS
TPH (as Diesel)	ND	25000	ug/L
Unknown Hydrocarbon	610000	25000	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
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.

The unknown from n-C8 to n-C34 is quantitated based on a diesel reference from n-C10 to n-C24.

QC DATA ASSOCIATION SUMMARY

G1C020182

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	MCAWW 300.0A		1064438	1064261
	WATER	MCAWW 300.0A		1064436	1064237
	WATER	SW846 8015 MOD		1064440	
	WATER	DHS CA LUFT		1071408	
	WATER	SW846 8260B		1071437	
002	WATER	MCAWW 300.0A		1064438	1064261
	WATER	MCAWW 300.0A		1064436	1064237
	WATER	SW846 8015 MOD		1064440	
	WATER	DHS CA LUFT		1071408	
	WATER	SW846 8260B		1071290	
003	WATER	MCAWW 300.0A		1064438	1064261
	WATER	MCAWW 300.0A		1064436	1064237
	WATER	SW846 8015 MOD		1064440	
	WATER	DHS CA LUFT		1071408	
	WATER	SW846 8260B		1071290	
004	WATER	MCAWW 300.0A		1064438	1064261
	WATER	MCAWW 300.0A		1064436	1064237
	WATER	SW846 8015 MOD		1064440	
	WATER	SW846 8260B		1071290	
005	WATER	MCAWW 300.0A		1064438	1064261
	WATER	MCAWW 300.0A		1064436	1064237
	WATER	SW846 8015 MOD		1064440	
	WATER	SW846 8260B		1071290	
006	WATER	MCAWW 300.0A		1064438	1064261
	WATER	MCAWW 300.0A		1064436	1064237
	WATER	SW846 8015 MOD		1064440	
	WATER	SW846 8260B		1071290	
007	WATER	SW846 8260B		1071290	

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: G1C020182
MB Lot-Sample #: G1C050000-440

Work Order #...: DW0EK1AA
Prep Date.....: 03/05/01
Prep Batch #...: 1064440

Matrix.....: WATER

Analysis Date..: 03/08/01
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
TPH (as Diesel)	ND	50	ug/L	SW846 8015 MOD
Unknown Hydrocarbon	ND	50	ug/L	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	95	(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 #...: G1C020182 Work Order #...: DW0EK1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: G1C050000-440 DW0EK1AD-LCSD
Prep Date.....: 03/05/01 Analysis Date..: 03/08/01
Prep Batch #...: 1064440
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
TPH (as Diesel)	300	211	ug/L	70		SW846 8015 MOD
	300	241	ug/L	80	13	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	99	(57 - 147)
	103	(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 #...: G1C020182 **Work Order #...:** DW0EK1AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: G1C050000-440 DW0EK1AD-LCSD
Prep Date.....: 03/05/01 **Analysis Date..:** 03/08/01
Prep Batch #...: 1064440
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
TPH (as Diesel)	**70**	**(39 - 125)**			**SW846 8015 MOD**
	80	**(39 - 125)**	**13**	**(0-44)**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	99	(57 - 147)
	103	(57 - 147)

NOTE(S):

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

Bold print denotes control parameters

General Chemistry - Various Methods

SAFETY KLEEN CONSULTING

Client Sample ID: MW-3

General Chemistry

Lot-Sample #...: G1C020182-001 Work Order #...: DWV47 Matrix.....: WATER
Date Sampled...: 03/01/01 10:30 Date Received..: 03/02/01 10:10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate as N	ND	0.050	mg/L	MCAWW 300.0A	03/02/01	1064436
		Dilution Factor: 1		Analysis Time..: 19:44		
Sulfate	27.0	1.0	mg/L	MCAWW 300.0A	03/02/01	1064438
		Dilution Factor: 1		Analysis Time..: 17:44		

SAFETY KLEEN CONSULTING

Client Sample ID: MW-1

General Chemistry

Lot-Sample #...: G1C020182-002 Work Order #...: DWV5D Matrix.....: WATER
Date Sampled...: 03/01/01 11:30 Date Received..: 03/02/01 10:10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate as N	ND	0.050	mg/L	MCAWW 300.0A	03/02/01	1064436
		Dilution Factor: 1		Analysis Time..: 18:35		
Sulfate	2.8	1.0	mg/L	MCAWW 300.0A	03/02/01	1064438
		Dilution Factor: 1		Analysis Time..: 18:35		

SAFETY KLEEN CONSULTING

Client Sample ID: MW-9

General Chemistry

Lot-Sample #...: G1C020182-003 Work Order #...: DWV5G Matrix.....: WATER
Date Sampled...: 03/01/01 12:25 Date Received..: 03/02/01 10:10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate as N	0.23 G	0.10	mg/L	MCAWW 300.0A	03/02/01	1064436
		Dilution Factor: 2		Analysis Time..: 19:01		
Sulfate	116 Q	20.0	mg/L	MCAWW 300.0A	03/02/01	1064438
		Dilution Factor: 20		Analysis Time..: 19:14		

NOTE(S):

RL Reporting Limit

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

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

SAFETY KLEEN CONSULTING

Client Sample ID: MW-11

General Chemistry

Lot-Sample #...: G1C020182-004 Work Order #...: DWV5K Matrix.....: WATER
Date Sampled...: 03/01/01 13:00 Date Received..: 03/02/01 10:10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate as N	0.17	0.050	mg/L	MCAWW 300.0A	03/02/01	1064436
		Dilution Factor: 1		Analysis Time..: 19:27		
Sulfate	80.3 Q	10.0	mg/L	MCAWW 300.0A	03/02/01	1064438
		Dilution Factor: 10		Analysis Time..: 20:06		

NOTE(S):

RL Reporting Limit

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

SAFETY KLEEN CONSULTING

Client Sample ID: MW-10

General Chemistry

Lot-Sample #...: G1C020182-005 Work Order #...: DWV5M Matrix.....: WATER
Date Sampled...: 03/01/01 13:45 Date Received..: 03/02/01 10:10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate as N	ND G	0.25	mg/L	MCAWW 300.0A	03/02/01	1064436
		Dilution Factor: 5		Analysis Time..: 20:19		
Sulfate	106 Q	5.0	mg/L	MCAWW 300.0A	03/02/01	1064438
		Dilution Factor: 5		Analysis Time..: 20:19		

NOTE(S):

RL Reporting Limit

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

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

SAFETY KLEEN CONSULTING

Client Sample ID: MW-2

General Chemistry

Lot-Sample #...: G1C020182-006 Work Order #...: DWV5P Matrix.....: WATER
Date Sampled...: 03/01/01 15:00 Date Received..: 03/02/01 10:10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate as N	ND G	0.25	mg/L	MCAWW 300.0A	03/02/01	1064436
		Dilution Factor: 5		Analysis Time..: 20:45		
Sulfate	ND G	5.0	mg/L	MCAWW 300.0A	03/02/01	1064438
		Dilution Factor: 5		Analysis Time..: 20:45		

NOTE(S):

RL Reporting Limit

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

QC DATA ASSOCIATION SUMMARY

G1C020182

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	MCAWW 300.0A		1064438	1064261
	WATER	MCAWW 300.0A		1064436	1064237
002	WATER	MCAWW 300.0A		1064438	1064261
	WATER	MCAWW 300.0A		1064436	1064237
003	WATER	MCAWW 300.0A		1064438	1064261
	WATER	MCAWW 300.0A		1064436	1064237
004	WATER	MCAWW 300.0A		1064438	1064261
	WATER	MCAWW 300.0A		1064436	1064237
005	WATER	MCAWW 300.0A		1064438	1064261
	WATER	MCAWW 300.0A		1064436	1064237
006	WATER	MCAWW 300.0A		1064438	1064261
	WATER	MCAWW 300.0A		1064436	1064237

METHOD BLANK REPORT

General Chemistry

Client Lot #...: G1C020182 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate as N		Work Order #: DW0E91AA		MB Lot-Sample #:	G1C050000-436	
	ND	0.050	mg/L	MCAWW 300.0A	03/02/01	1064436
		Dilution Factor: 1				
		Analysis Time..: 17:18				
Sulfate		Work Order #: DW0HQ1AA		MB Lot-Sample #:	G1C050000-438	
	ND	1.0	mg/L	MCAWW 300.0A	03/02/01	1064438
		Dilution Factor: 1				
		Analysis Time..: 17:18				

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: G1C020182 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate as N			Work Order #: DW0E91AC LCS Lot-Sample#: G1C050000-436				
	1.00	0.920	mg/L	92	MCAWW 300.0A	03/02/01	1064436
			Dilution Factor: 1				
			Analysis Time..: 17:05				
Sulfate			Work Order #: DW0HQ1AC LCS Lot-Sample#: G1C050000-438				
	20.0	19.1	mg/L	96	MCAWW 300.0A	03/02/01	1064438
			Dilution Factor: 1				
			Analysis Time..: 17:05				

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: G1C020182 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate as N		Work Order #: DW0E91AC LCS Lot-Sample#: G1C050000-436			
	92	(90 - 110)	MCAWW 300.0A	03/02/01	1064436
		Dilution Factor: 1			
		Analysis Time..: 17:05			
Sulfate		Work Order #: DW0HQ1AC LCS Lot-Sample#: G1C050000-438			
	96	(90 - 110)	MCAWW 300.0A	03/02/01	1064438
		Dilution Factor: 1			
		Analysis Time..: 17:05			

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: G1C020182 **Matrix.....:** WATER
Date Sampled...: 03/01/01 10:30 **Date Received..:** 03/02/01 10:10

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate as N			WO#: DWV471AG-MS/DWV471AH-MSD				MS Lot-Sample #: G1C020182-001		
	ND	10.0	9.33	mg/L	93		MCAWW 300.0A	03/02/01	1064436
	ND	10.0	9.38	mg/L	94	0.53	MCAWW 300.0A	03/02/01	1064436
			Dilution Factor: 1						
			Analysis Time..: 18:09						
Sulfate			WO#: DWV471AJ-MS/DWV471AK-MSD				MS Lot-Sample #: G1C020182-001		
	27.0	150	165	mg/L	92		MCAWW 300.0A	03/02/01	1064438
	27.0	150	167	mg/L	93	0.91	MCAWW 300.0A	03/02/01	1064438
			Dilution Factor: 1						
			Analysis Time..: 18:09						

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: G1C020182 **Matrix.....:** WATER
Date Sampled...: 03/01/01 10:30 **Date Received..:** 03/02/01 10:10

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate as N		WO#: DWV471AG-MS/DWV471AH-MSD				MS Lot-Sample #: G1C020182-001	
	93	(90 - 110)			MCAWW 300.0A	03/02/01	1064436
	94	(90 - 110)	0.53	(0-10)	MCAWW 300.0A	03/02/01	1064436
		Dilution Factor: 1					
		Analysis Time..: 18:09					
Sulfate		WO#: DWV471AJ-MS/DWV471AK-MSD				MS Lot-Sample #: G1C020182-001	
	92	(90 - 110)			MCAWW 300.0A	03/02/01	1064438
	93	(90 - 110)	0.91	(0-10)	MCAWW 300.0A	03/02/01	1064438
		Dilution Factor: 1					
		Analysis Time..: 18:09					

NOTE(S):

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

APPENDIX B

SAMPLING EVENT DATA SHEETS

Well ID: MW-1

Project Name: AC TRANSIT SEMINARY
Project Number: 792588
Casing Diameter (in): 2"
Sample Date: 3-1-01
Total Well Depth (ft): 15.50
Sample ID: MW-1
Depth to Water (ft), before purging: 2.75

Development Method:
X Bailer: ____ Teflon ____ Stainless Steel ____ PVC ____ ABS Plastic

X Pump: ____ Dedicated Submersible Pump ____ Bladder Pump
X Non-Dedicated Submersible Pump

Time	pH	Conduct. (umho/cm)	Temp. (Celsius)	Water Level (to 0.01 ft)	Cum. Vol. (gal)	Pump Rate (GPM)
1112	6.87	1115	28.2	4.36	2	0.70
1115	6.85	1111	26.4	4.51	4	↓
1118	6.80	1152	26.6	4.89	6.5	
				TOTAL VOLUME = 7		

Water Volume to be Purged (gal) = (15.50 - 2.75) = 12.75 x .165 = ~~1.746~~ 2.1 x 3 = 6.3
(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

X Pump: ____ Dedicated Submersible Pump ____ Bladder Pump
X Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, etc.):
NITRATE/SULFATE
8260
8015 GRO/DRO

CENT. PUMP TO PURGE

D.O. = 6.02 mg/L
Fe = 2.92 mg/L
ORP = 55 mV

Parameter Collected:
Sample Appearance
____ OVA Reading (ppm)
____ Suspended Solids (describe):

Decontamination Performed:
RINSED/WASHED SOUNDERS/METERS

Comments / Calculations:

START ⇨ 1100
STOP ⇨ 1120
SAMPLED ⇨ 1130

Randy A. Hansen

3-1-01

Well ID: MW-2

Project Name: AC TRANSIT SEMINARY
Project Number: 792588
Casing Diameter (in): 2"
Sample Date: 3-1-01
Total Well Depth (ft): 23.50
Sample ID: MW-2
Depth to Water (ft), before purging: 2.75

Development Method:
X Bailer: ____ Teflon ____ Stainless Steel ____ PVC ____ ABS Plastic

X Pump: ____ Dedicated Submersible Pump ____ Bladder Pump
X Non-Dedicated Submersible Pump

Time	pH	Conduct. (umho/cm)	Temp. (Celsius)	Water Level (to 0.01 ft)	Cum. Vol. (gal)	Pump Rate (GPM)
1437	6.78	2520	22.3	8.91	3	0.46
1442	6.79	2540	24.3	10.01	6	↓
1448	6.81	2580	24.2	10.33	9.5	↓
				Total V	= 10.5	

Water Volume to be Purged (gal) = (23.50 - 2.75) = 20.75 x .165 = 3.42 x 3 = 10.3
(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

X Pump: ____ Dedicated Submersible Pump ____ Bladder Pump
X Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, etc.):
NITRATE/SULFATE
8260
8015 GRO/DRO

CENT PUMP TO PURGE

DO = 7.88 mg/L
Fe = 3.30 mg/L
ORP = -40 mV

Parameter Collected:
Sample Appearance
____ OVA Reading (ppm)
____ Suspended Solids (describe):

Decontamination Performed: R/W S/M

Comments / Calculations:
START = 1430
STOP = 1453
SAMPLED = 1500

Brad A Hanson

3-1-01

Well ID: MW-3

Project Name: AC TRANSIT SEMINARY
Project Number: 792588
Casing Diameter (in): 2"
Sample Date: 3-1-01
Total Well Depth (ft): 16.80
Sample ID: MW-3
Depth to Water (ft), before purging: 2.00

Development Method:
X Bailer: ____ Teflon ____ Stainless Steel ____ PVC ____ ABS Plastic

X Pump: ____ Dedicated Submersible Pump ____ Bladder Pump
X Non-Dedicated Submersible Pump

Time	pH	Conduct. (umho/cm)	Temp. (Celsius)	Water Level (to 0.01 ft)	Cum. Vol. (gal)	Pump Rate (GPM)
1004	7.06	947	19.2	7.32	2.5	0.40
1011	7.06	937	19.4	7.20	5.0	↓
1018	7.13	899	19.1	7.30	7.5	↓
				TOTAL	= 8.0	

Water Volume to be Purged (gal) = (16.80 - 2.00) = 14.8 X .165 = 2.4 x 3 = 7.3
(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

X Pump: ____ Dedicated Submersible Pump ____ Bladder Pump
X Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, etc.):
NITRATE / SULFATE
8260
8015 GRO/DRO

CENT PUMP TO PURGE

DO = 1.51
Fe = 0.50 MG/L
ORP = -60 mV

Parameter Collected:
Sample Appearance
____ OVA Reading (ppm)
____ Suspended Solids (describe):

Decontamination Performed:
W/R S/M

Comments / Calculations:
START = 0900
STOP = 1020
SAMPLED = 1030

Randy M Hanson 3-1-01

Well ID: MW-9

Project Name: AL TRANSIT SEMINARY
Project Number: 792588
Casing Diameter (in): 2"
Sample Date: 3-1-01
Total Well Depth (ft): 19.50
Sample ID: MW-9
Depth to Water (ft), before purging: 3.03

Development Method:
X Bailer: ____ Teflon ____ Stainless Steel ____ PVC ____ ABS Plastic

X Pump: ____ Dedicated Submersible Pump ____ Bladder Pump
X Non-Dedicated Submersible Pump

Time	pH	Conduct. (umho/cm)	Temp. (Celsius)	Water Level (to 0.01 ft)	Cum. Vol. (gal)	Pump Rate (GPM)
1200	6.98	900	27.0	7.12	2.5	0.32
1208	7.30	984	26.7	9.36	5.0	↓
1215	7.30	1029	26.8	10.29	7.5	↓
				TOTAL V =	8.5	

Water Volume to be Purged (gal) = (19.50 - 3.03) = 16.47 x .165 = 2.7 x 3 = 8.1
(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

X Pump: ____ Dedicated Submersible Pump ____ Bladder Pump
X Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, etc.):
NITRATE/SULFATE
8260
8015 GRO/DRO
Parameter Collected:
Sample Appearance
____ OVA Reading (ppm)
____ Suspended Solids (describe):

CENT PUMP TO PURGE

D.O. = 4.21 mg/L
Fe. = 0.00 mg/L
ORP. = 125 mV
BH

Decontamination Performed:
R/W S/M

Comments / Calculations:
START - 1152
STOP - 1218
SAMPLED - 1225

Brad A Hanson

3-1-01

Well ID: MW-10

Project Name: AC TRANSIT SEMINARY
Project Number: 792588
Casing Diameter (in): 2"
Sample Date: 3-1-01
Total Well Depth (ft): 11.40'
Sample ID: MW-10
Depth to Water (ft), before purging: 3.14'

Development Method:
X Bailer: ____ Teflon ____ Stainless Steel ____ PVC ____ ABS Plastic

X Pump: ____ Dedicated Submersible Pump ____ Bladder Pump
X Non-Dedicated Submersible Pump

Time	pH	Conduct. (umho/cm)	Temp. (Celsius)	Water Level (to 0.01 ft)	Cum. Vol. (gal)	Pump Rate (GPM)
1329	6.98	2790	29.4	3.95	1.5	0.36
1334	6.91	3120	27.0	4.89	3.0	↓
1337	6.93	3060	26.9	5.12	4.5	↓
				Total Volume	5	

Water Volume to be Purged (gal) = (11.40 - 3.14) = 8.26 x .165 = 1.36 x 3 = 4
(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 3x well casing volumes were removed prior to sampling.

Sample Collection Method:
X Bailer: ____ Teflon ____ Stainless Steel ____ PVC ____ ABS Plastic

X Pump: ____ Dedicated Submersible Pump ____ Bladder Pump
X Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, etc.):
NITRATE / SULFATE
8260
8015 GRO/DRO

DO. = 7.44 mg/L
Fe. = 0.00 mg/L
ORP. = 100 mV

Parameter Collected:
Sample Appearance
____ OVA Reading (ppm)
____ Suspended Solids (describe):

CENT PUMP TO PURGE

Decontamination Performed:
W/R S/M

Comments / Calculations:
START = 1325
STOP = 1339
SAMPLED = 1345

Brad N Hanson

3-1-01

Well ID: MW-11

Project Name: AC TRANSIT SEMINARY
Project Number: 792588
Casing Diameter (in): 2"
Sample Date: 3-1-01
Total Well Depth (ft): 13.5'
Sample ID: MW-11
Depth to Water (ft), before purging:

Development Method:
X Bailer: ____ Teflon ____ Stainless Steel ____ PVC ____ ABS Plastic

X Pump: ____ Dedicated Submersible Pump ____ Bladder Pump
X Non-Dedicated Submersible Pump

Time	pH	Conduct. (umho/cm)	Temp. (Celsius)	Water Level (to 0.01 ft)	Cum. Vol. (gal)	Pump Rate (GPM)
0928	7.42	1620	16.0		2	0.36
0934	7.52	1620	16.2		4	↓
				DRY	6	↓
				TOTAL = 4.3 gallons		

Water Volume to be Purged (gal) = (13.5 - 1.91) = 11.59 x .165 = 1.9 x 3 = 5.7
(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 2 well casing volumes were removed prior to sampling.

Sample Collection Method:
X Bailer: ____ Teflon ____ Stainless Steel ____ PVC ____ ABS Plastic

X Pump: ____ Dedicated Submersible Pump ____ Bladder Pump
X Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, etc.):
NITRATE/SULFATE 8260
8015 GRO/DRO

CENT. PUMP TO PURGE

D.O. = 5.86 mg/L
Fe = 0
ORP = 105

Parameter Collected:
Sample Appearance
____ OVA Reading (ppm)
____ Suspended Solids (describe):

2 casing Volumes purged. Well allowed to Recover to 80%

Decontamination Performed: R/W S/M

Comments / Calculations:

START : 09 24
STOP = 0936
SAMPLED = 1300

Brian A Hanson

3-1-01