- Noed dos rept for Tank farma 2 - Noed 55 + 6w samples from Tank farm 2 if not dame during removed - Mw.10 w/ 1,300pb tritteed. Need to believe extent + if i cutam going to storm draw doing Doyle st.

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

May 1, 2000

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: 792551

Reviewed By

Brad Wright, RG, CHO

Written By

Nathan King

501 337 - 8661



10626 East 14th Street, Oakland, California

94603□ (510) 577-8804 **FAX**□ (510) 577-8859



May 22, 2000

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

Dear Ms. chu:

Subject:

Third Quarterly Groundwater Monitoring Report

AC Transit, 1177 47th Street, Emeryville

AC Transit hereby submits the enclosed third quarterly groundwater monitoring report for the AC Transit facility located at 1177 47th Street in Emeryville. The report was prepared by our consultant, Safety-Kleen Consulting (formerly Environmental Decision Group). In response to your February 2, 2000, letter, this quarterly monitoring report also includes the results of a site reconnaissance to locate wells W-1 through W-4 and analysis of all samples for methyl tertiary-butyl ether (MTBE) and gasoline.

Ground water samples from twelve on-site monitoring wells (MW-1 through MW-10, W-1 and W-4) were collected and analyzed for total extractable petroleum hydrocarbons (TEPH), benzene, toluene, ethylbenzene, and xylenes (BTEX), MTBE, and gasoline. Safety-Kleen Consulting could not find wells W-2 and W-3 at the time of their sampling activities. Depth to ground water was measured in each well and ground water contour maps were developed for the report.

Sample results indicate that the concentrations of petroleum hydrocarbons increased in each well since the previous quarter, except in wells MW-3, MW-4, and MW-9. TPH was detected in all monitoring wells except MW-4. Concentrations of TPH ranged from 50 to 22,000 ppb. In addition, benzene was present in wells W-1, W-4, and MW-6 at concentrations of 20 ppb, 1.1 ppb, and 6.8 ppb, respectively. MTBE was detected in four wells at concentrations ranging from 12 ppb to 100 ppb. The free phase hydrocarbon layer detected in well MW-6 was limited to a sheen for this sampling event.

If you have any questions regarding this information or other matters pertaining to this site, please call me at (510) 577-8869.

Sincerely,

Suzanne Patton, P.E.
Environmental Manager

SP/sp

enclosure

PROTECTION OF 38



bcc:

C. Babington

P. Cannon

J. DeProspero

B. Livingston R. Medeiros

S. Tracey File

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INTRODUCTION

This report presents the results from the March 2000 sampling event for the AC Transit Facility located at 1177 47th Street, Emeryville, California (Site). Groundwater sampling of monitor wells MW-1 through MW-10 was reinstated in August 1999, in accordance with directives from Alameda County Health Care Services (ACHCS). In a letter dated February 2, 2000, ACHCS requested that the status of monitor wells W-1 through W-4 be determined, and if found be included in the quarterly sampling events. In addition, the February 2, 2000, letter requests that analysis for MTBE and gasoline be performed on all Site monitor wells. AC Transit retained Safety-Kleen Consulting to perform this work.

OBJECTIVES AND SCOPE OF WORK

Work performed during this sampling event included measuring depth to water in the monitor wells and sample collection. As requested by the ACHCS, a Site reconnaissance was performed to determine if monitor wells W-1 through W-4 could be located. During the reconnaissance, monitor wells W-1 and W-4 were located and sampled. There was no evidence of monitor wells W-2 and W-3 at the location shown on the Site map. 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 monitoring well locations is presented as Figure 1. Chain-of-custody documents, field data sheets and certified analytical reports are included in Appendix A.

Groundwater Elevations and Flow Direction

On March 1st and 2nd, 2000, all Site monitor wells with the exception of W-2 and W-3, 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 1. A 0.24 inch free phase hydrocarbon sheen was detected in MW-6 during this sampling event. As shown on Figure 1, groundwater flow is to the west at a gradient of 0.019 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 and temperature were monitored using calibrated field meters. Purge water was transferred to 55-gallon drums and placed in the Site's drum waste storage area.

Groundwater samples were transferred to 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. A trip blank was submitted for analysis by EPA Method 8021B.

Groundwater Analytical Results

Table 2 presents groundwater analytical results for the March 2000 sampling event. TPH was detected in all Site monitor wells except for MW-3 and MW-4. Certified analytical reports and chain-of-custody documents are included in Appendix A. Concentrations of TPH above laboratory reporting limits ranged from 50 to 22,000 parts per billion (ppb). Concentrations of TPH increased in all monitor wells except MW-3, MW-4, and MW-9. Benzene was detected in wells W-1, W-4, and MW-6, at concentrations of 20 ppb, 1.1 ppb, and 6.8 ppb, respectively. These concentrations are above the maximum contaminant level (MCL) for benzene of 1.0 ppb. Toluene and ethylbenzene were detected in monitor well W-1 at concentrations below the MCL. MTBE was detected in MW-1, MW-2, MW-5 and MW-10 at 68 ppb, 81 ppb, 100 ppb, and 12 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

- ACHCS requested that monitor wells W-1 through W-4 be included in the quarterly monitoring program.
- Monitor wells W-2 and W-3 were not located. Alameda County Flood Control Zone 7 and Alameda County Public Works Agency were contacted to determine if records documenting the abandonment of these wells were on file. No records were on file. These wells may be buried or covered. An underground metallic survey will be performed before the next sampling event in attempt to locate the metal vault box lids of these wells. If located, the wells will be added to the next sampling event.
- MTBE was detected in monitor wells MW-1, MW-2, MW-5, and MW-10.
- Benzene was detected in W-1, W-4, and MW-6 above the MCL of 1 ppb.
- A 0.002 foot free phase hydrocarbon sheen was present in MW-6.
- TPH was detected in all Site monitor wells except MW-3 and MW-4.
- Groundwater flow is to the west at a gradient of 0.019 feet/foot.

PROJECTED WORK AND RECOMMENDATIONS

- Quarterly groundwater monitoring is scheduled for May 2000.
- Locate monitor wells W-2 and W-3.
- Survey elevations of monitor wells W-1, W-4 and W-2, W-3 if located.

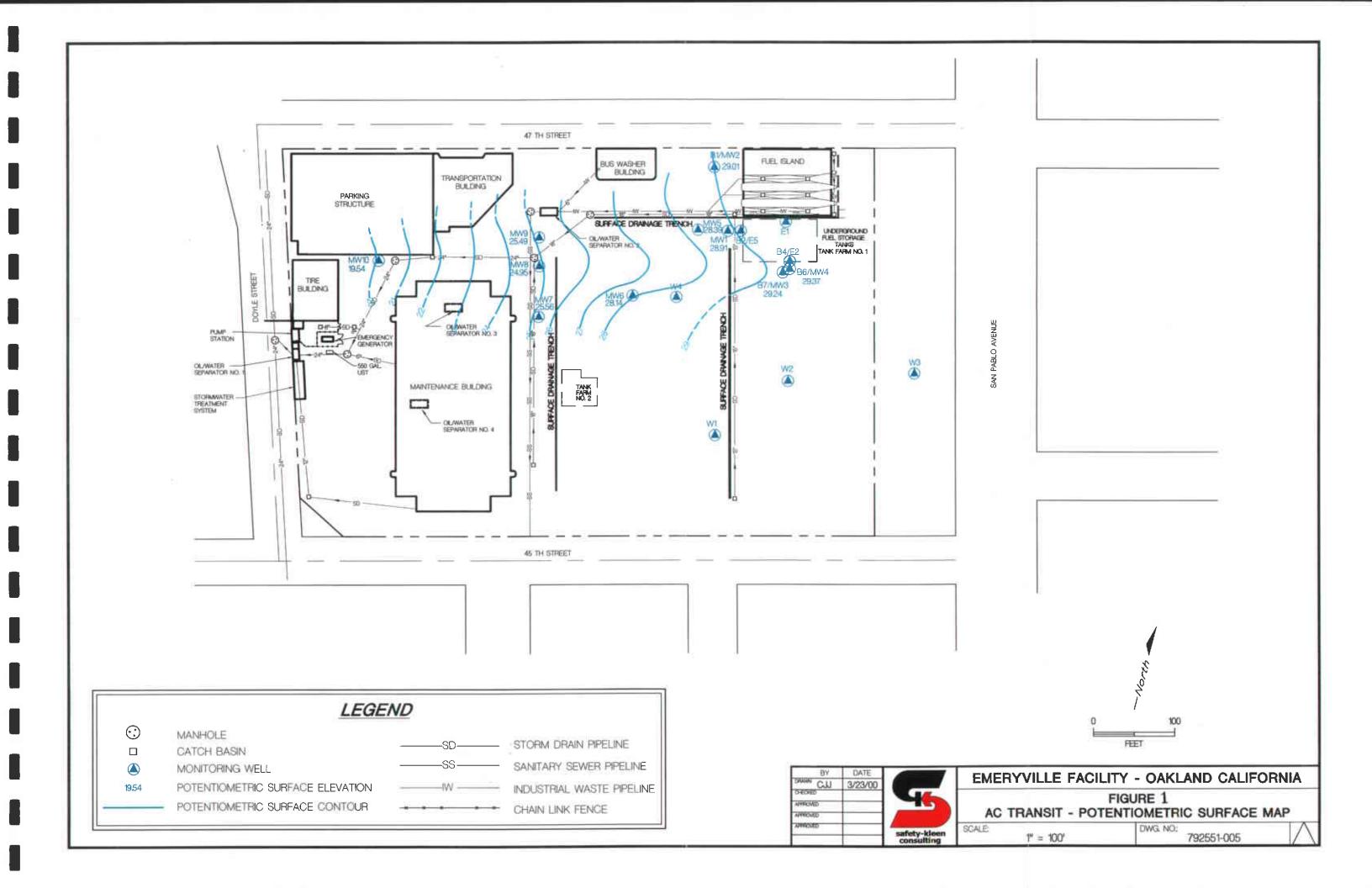


TABLE 1 GROUNDWATER LEVEL MEASUREMENTS AC TRANSIT 1177 47TH STREET, EMERYVILLE, CALIFORNIA

MW-1 8/31/99 32.56 None 3.24 29.32 11/23/99 None 4.55 28.01 3/1/00 None 3.65 28.91 MW-2 8/31/99 32.12 None 5.24 26.88	NA N
3/1/00 None 3.65 28.91	NA NA NA NA NA NA
	NA NA NA NA NA
MTV 2 8/31/00 32.12 None 5.24 26.99	NA NA NA NA NA
MW-2 6/31/99 32.12 None 5.24 20.00	NA NA NA NA
11/23/99 None 4.03 28.09	NA NA NA
3/2/00 None 3.11 29.01	NA NA
MW-3 8/31/99 34.06 None 6.15 27.91	NA
11/23/99 None 5.78 28.28	
3/1/00 None 4.82 29.24	NA
MW-4 8/31/99 34.11 None 6.22 27.89	1441
11/23/99 None 6.01 28.10	NA
3/1/00 None 4.74 29.37	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
MW-6 8/31/99 31.02 0.40 4.40 26.62	26.94
11/23/99 Sheen 3.81 27.21	NA
3/2/00 0.02 2.88 28.14	28.16
MW-7 8/31/99 29.62 None 5.47 24.15	NA
11/23/99 None 4.93 24.69	NA
3/2/00 None 4.06 25.56	NA
MW-8 8/31/99 29.43 None 5.35 24.08	NA
11/23/99 None 4.75 24.68	NA
3/2/00 None 4.48 24.95	NA
MW-9 8/31/99 29.18 None 4.15 25.03	NA
11/23/99 None 3.93 25.25	NA
3/2/00 None 3.69 25.49	NA
MW-10 8/31/99 29.13 None 9.59 19.54	NA
11/23/99 None 9.44 19.69	NA
3/2/00 None 9.06 20.07	NA
W-1 **3/2/00 NA None 4.08 NA	NA
W-4 **3/2/00 NA None 3.34 NA	NA

ft-msl: feet-mean sea level DTW: Depth to Water NA: Not applicable

^{*} used 0.8 specific gravity of product

^{**} top of casing elevation not established

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

Well	Date	ي روج حا TPH-8015	らで≤・ TPH-8021	Benzene	Toluene	Ethylbenzene	Xylenes	МТВЕ
MCL (ppb)		None	None	1.0	150	700	1,750	None
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	×10	<1.0	<1.0	<2.0	68
MW-2	8/31/99	180	NA	<1.0	<1.0	<1.0	1.2	NA
	11/23/99	120	NA	<5.0	<5.0	< 5.0	<5.0	NA
	3/1/00	510	<50	<1.0	<1.0	<1.0	<2.0	81
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
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
MW-5	8/31/99	250	NA	<1.0	<1.0	<1.0	1	NA
	11/23/99	300	NA	< 5.0	< 5.0	<5.0	<5.0	NA
	3/1/00	340	50	<1.0	<1.0	<1.0	<2.0	100
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	2,800	6.8	<2.0	<2.0	<10	<5.0
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	<10	<2.0	<20
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	<10	<10	<2.0	C5.0
MW-9	8/31/99	2,800	NA	<1.0	<1.0	<1.0	1.1	NA
	11/23/99	1,300	NA L	<1.0	<1.0	<1.0	< 1.0	NA
3 mm 4 c	3/1/00	510	<50	<1.0	<1.0	-10	<2.0	<5.0
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	12
W-1	3/1/00	1,800	3,400	20	5.3	30	23.8	<5.0
W-4	3/1/00	190	<50	1,t	<1.0	<1.0	<2.0	<5.0

Notes:

ppb: parts per billion

TPH: total petroleum hydrocarbons

MCL: maximum contaminant level

NA: not analyzed

APPENDIX A

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

AC TRANSIT - EMERYVILLE FIRST QUARTER 2000

FIELD PERSONNEL: Greg Pedersen / Chris Walsh									
WELL OR LOCATION	DATE	TIME	MEASUREMENT	CODE	COMMENTS				
MW-1	3-1-00	1517	3.65	SWL					
MW-2	3-2-00	1444	3.11						
MW-3	3-1-00	1701	4.8Z						
MW-4	3-1-00	1641	4.74						
MW-5	3-1-00	1602	3.31	V					
MW-6	3-2-00	1054	2.86	OIL					
MW-6	V	<u> </u>	2.88	OWI					
MW-7	3-2-00	1148	4.06	SWL					
MW-8	3-2-00	1313	4,48						
MW-9	3-2-00	1461	3.69						
MW-10	3.2.00	1001	9.06						
W -1	3-2-00	1543	4.08						
W-4	3-2-00	1618	3.34	V					
			··						
		<u> </u>							

SWL - Static Water Level

OIL - Oil Level

OWI - Oil/Water Interface

MTD - Measured Total Depth

•			•			Weil iD:	MW-1
Cas	ing Diameter (i al Well Depth (Sa: Sa:	oject Number: mple Date: 3 mple ID: MV	1100		
Dev	elopment Meth	nod: NA er: Tefio	n Stain	iess Steel	PVC	ARS Plastic	
	Pum	p: Dedic	cated Submersit	de Pumn		Bladder Pum	p
	Time	pH	Conduct. (umho/cm)	Temp.	Water Level	Cum. Voi. (gai)	Pump Rate (GPM)
	15/9	7.6	706	19.6	4.95	1.5	0.5
İ	1527	7.2	1080	19.8	5.72	3.5	,
	1526	7,2	682	19.9	5,93	5	V
	Final	Purge Vol.		6.0 gal.		<u> </u>	<u> </u>
/at	er Volume to b	e Purged (gal) =	14 50 -	3 (5-	1095 x 1	65=1.79 x	3 - 4 3
	Bailer	: Dedica	Stainle sted Submersible edicated Submersible	e Pumo	_ PVC	_ ABS Plastic _ Bladder Pump	
A/(C Samples if a	any (Duplicate, F			·		
	TR	ip Blank	collected	A 1515			
							.
BCO	ntamination Pe	rformed:	,		1	1	
					ed / cins	<i>e0</i>	
omi	ments / Calcula	ntions: Ce ∫is	ntrifigal possible bai	pump pier to se	0,9,mg		
			art time:		-	collection fi	me: 1535
-			•	•			
	6	see Cla	op ma	1 J (A)	_ /	1. 1. 1.	

<u>.</u>						Well !D:	MW-2	
Ca:	ject Name: A sing Diameter (in al Well Depth (f oth to Water (ft)	u: 14.56	Sam Sam	ect Number: pple Date: 3 pple ID: MW	~7 <i>~00</i>			
Dev	elopment Meth	od: NA : Teffo	n Stainle	ess Steel	PVC	_ ABS Plastic		
	Pump): Dedic	ated Submersible Dedicated Submersible	le Pumn		Bladder Pump		
	Time	pH	Conduct. (umho/cm)	Temp. (Celsius)	Water Level (to 0.01 ft)	Cum. Voi. (gai)	Pump Rate (GPM)	
	1449	7.1	757	Z1,4	3.92	1,5	0.5	
l	1452	7.1	698	21.5	4.47	3		
	1455	7.7	701	21.2	4,42	5	V	
}								
ì						·		
İ	Final Po	vao Voluma				6 gd		
San	nple Collection M X_ Bailer: Pump:	lethod: Teflon Dedica Non-D	were removed pStainle. Ited Submersible edicated Submersible	ss Steel Pump rsible Pump		ABS Plastic Bladder Pump		
Para	QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, etc.): Parameter Collected: 8021, 8015 ~ Sample Appearance OVA Reading (ppm) Suspended Solids (describe):							
Dec	ontamination Per		Soundar /	Meters	wash	ed Iriha	ed	
Com	ments / Calculat		contri fug Disposable Start ti Stop tim	bailer t	e saime	callection 12	- Hm-0	

•						Weil ID:	MW-3	
Cas Tot Dep	ject Name: A sing Diameter (i al Well Depth (i oth to Water (ft	in); Z ft): [4,68), before purgi	San San	ject Number: nple Date: 3 nple ID: MW	79 z 551 11/00 1-3			
Dev	elopment Meth Baile	nod: NA Ir: Tef	lon Stain	logg Stock		APS Plantis		
	Pum	p: Dec	licated Submersib	le Pump	PVC	_ Aos Flasuc _ Bladder Pumi	•	
:	Time	pH	Conduct.	Temp.	Water Level	Cum. Vol. (gai)	Pump Rate (GPM)	
	1704	7.1	7 58	19.1	6,17	1.5	.45	
	1607	7-0	763	19.1	6.76	3.0	1	
	1710	7.0	761	19,	7.28	4.5	*	
				<u></u>	- // - 3			
	Total	Volume	Purged—	-> 5 cod				
At le	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: 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.):							
	meter Collected pie Appearance OVA Suspe		Sci 5 m				اس	
Dec	ontamination Pe	erformed:	Sounder	1 meters	washed) Ir insud		
Com	ments / Calcula	D 77	entrifugal iposable ba stort time (stop time (iler to S	sample Colle cĥ	ion Hm (D 1730	

,		_	• n			Weil ID:	MW-4
Cas Tota	ject Name: A (ing Diameter (in al Well Depth (ft oth to Water (ft),	1: 14.95	San San	ject Number: nple Date: 3 nple ID: MW	792551 11100 -4		
Dev	elopment Metho Bailer:	d: N∯ Tefi	, OO Staigi	ionn Steel	m.c	ABS Bleetic	
	Pump:		on Stainlicated Submersib		PVC	_ ABS Plastic Bladder Pumi	0
	•	Non-	Dedicated Subm	ersible Pump			-
	Time	pH	Conduct. (umho/cm)	Temp. (Celsius)	Water Level (to 0.01 ft)	Cum. Vol. (gail	Pump Rate (GPM)
	1644	7.0	765	18.7	7.2	1.5	.56
	1646	7.0	770	19.0	7,8%	3.0	
	1648	7,0	763	19.1	8.45	4.5	¥
Ī	- (1)	· · ·		2 6			
I	Total VI		- 14.95 - 4	7 5.13			
Sam	ple Collection M X Bailer: Pump:	ethod: Teflo Dedic	were removed p Stainle Stainle Stated Submersible Dedicated Subme	ess Steel e Pump ersible Pump		ABS Plastic Bladder Pump	
Para	meter Collected: ple Appearance		Field Blank, Rinse	e Blank, etc.):			••
Deco	ontamination Pen		Sounder/n	neters	washed	/ rinsed	
Com	ments / Calculat		Centrifugal Disposable b Start line Stop fine	owler to	il a	cellection t	imo <i>0</i> 1718

•			Well ID: MW-5						
Cas	ing Diameter (i al Well Depth (C Transition: Z (ft): 19.49 t), before purging	San San	ject Number: nple Date: nple ID: MV	792551 3/1/60 1-5				
Dev	elopment Meti Baile	nod: V.∱ er: Teflo	IN Staini	lass Stani	PVC	ADC Diagric			
1	Pum		cated Submersib		PVC		_		
	•	Non-	Dedicated Subm	ersible Pump	· <u></u>	_ Bladder Pum	μ		
	Time	pH	Conduct. (umho/cm)	Temp. (Celsius)	Water Level (to 0.01 ft)	Cum. Vol.	Pump Rate (GPM)		
	1606	7.2	722	19.8	4.30	2.5	.45		
'	1614	7.1	718	20.3	4.87	5			
	1620	7.0	718	20.7	5,02	7.5	4		
'	<u> </u>								
	Total	Volume Pu	caed -	> 8.59					
	At least 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 OA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, etc.):								
							••• •		
Deco	ntamination Pe	erformed:		•		j	ŀ		
		•	Sounder	/meters	wes he	o)/rins	ed		
Com	ments / Calcula		entrifugal sposable b	pump to ailer to s	purge sample				
· 	<i>[</i> *	. P.s	Stop Home	@ 1602 @ 1621	<i>≟ </i>	collection to	ho (4) 625		

•						Weil ID:	MW-10
Cas Tot	ject Name: f ing Diameter (i al Well Depth (oth to Water (ft	in): Z ft): (9.64	San San	ject Number: nple Date: 3 nple ID: M(-2-00		
Dev	elopment Meti Baile	nod: N A er: Tefi	onStain	iess Steel	PN/C	ARS Plastic	
		p: Ded	icated Submersib	ia Pumo	PVC	_ Abs riasuc _ Bladder Pum	n
	•	Non	-Dedicated Subm	ersible Pump			F
	Time	pH	Conduct. (umho/cm)	Temp. (Ceisius)	Water Level (to 0.01 ft)	Cum. Vol. (gai)	Pump Rate (GPM)
	1100	7.0	1672	20.2	3,10	2.6	.45
	1105	710	1042	20.4	3.13	5.0	
	1111	6.9	1048	20.8	3 15	7.5	V
					<u> </u>		
	Total 1/	0.	raed = 8.5				
	TO VAL	O LOTTE II	1964 - 619 å			1	
Sam	ple Collection I	r: Teflo p: Dedi	n Stainle cated Submersible Dedicated Subme	Pump	_PVC	ABS Plastic	
QA/	QC Samples if		Field Blank, Rinse				·
Para Sam		d: 802\ Beading (ppm) Bended Solids (d					\. .
Deco	entamination Pe	erformed:		•			
		·•.	Sounderl	meters	washed	dirinsed	
Com	ments / Calcuía	0; St	ntmifugal sposable art time	bailer to	o sample	on time	D
	· A	Vade .	lof time (9 1113	ッ フ	-m	1160

•						Well ID:	MW-7
Ca: To:	iject Name: A sing Diameter (ii al Well Depth (f oth to Water (ft)	n): 2 ft): 24.53	San San	ject Number: nple Date: 3 nple ID: M	792 <i>551</i> 5-2-00 W-7		
De	velopment Meth	iod: NA	_				
	Baile	r: Ten	on Staini	iess Steei	PVC	_ ABS Plastic	,
	Pum;	p: Ded Non	icated Submersib -Dedicated Subm	le Pump ersible Pump		_ Bladder Pum	P
	Time	pįti	Conduct. (umho/cm)	Temp. (Celsius)	Water Level (to 0.01 ft)	Cum. Vol. (gai)	Pump Rate (GPM)
	1156	6.6	1048	20.8	17:00	3	0.4
	1726	6.6	1071	23,6	1072	b	0.15
	1253	6,6	1087	23,4	12.90	9	4
			-				
	= 111	V 1					
	10101	V 310 24	Aurged -	7 10.5			
San	nple Collection AX_ Bailer: Pump	: Teflo : Dedic	n Stainle cated Submersible Dedicated Subme	ess Steel Pump rsible Pump	_ PVC	ABS Plastic Bladder Pump	
QA/	QC Samples if a		Field Blank, Rinse				
		= -	8015 m				••
Dec	ontamination Pe	rformed:				. i	
		٠.	Sounder	Imeters	س علام	d /rims	cd
Com	ments / Calcula	tions:	ntrifugal posible be	pump to	purge		
		0_{is}	posible be	a leveto	Same		25 .
•		9	Starting) 11 top time a Lesume a	48	Collec	then tim	4 (C)
-		S	top time a	1205	_	1:	300
•	Provide to	7/ AL R	Lesure @	1225, de	11255	・~ フレノラン☆	•

						Well ID:	MW-8	
Tot	ject Name: A sing Diameter (i al Well Depth (i oth to Water (ft	C Transit n): Z ft): 20.67), before purgin	San	ject Number: nple Date: 3 nple ID: /// W	792557			
Dev	relopment Meth	od: NA						
}	Baile	r: Tefic	n Stain	ess Steel	PVC	_ ABS Plastic		
! !	Pumj	p: Dedic Non-	cated Submersib Dedicated Subm	ie Pump ersible Pump		_ Bladder Pum	p	
,	Time	pH	Conduct. (umho/cm)	Temp. (Ceisius)	Water Level (to 0.01 ft)	Cum. Voi. (gai)	Pump flate (GPM)	
	1321	6.9	1520	ZO.4	7.78	z ,5	0.4	
'	1327	6.9	13.55	21.4	7.92	5		
	1332	6.9	1338	21.5	8.35	7.5	V	
'								
ì İ	E. 00	une Volum						
	Final Po	O VILLE			į	8.19		
Whe NO At ic	Water Volume to be Purged (gal) = 20.67-4.48 = 16.16 x . 165 = 2.67 x 3 = 8.01 (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		ated Submersible edicated Subme	rump rsible Pump		Bladder Pump		
QA/(QC Samples if a		ieid Blank, Rinse					
		: 80ZI, 8 Reading (ppm) nded Solids (de:					•• ·	
Deco	ntamination Pe	rformed:				١	,	
		6	Sounder	-/ meter-	s wash	ud/rins	لن	
Com	ments / Calcula	tions:	Centri Gi Disposable	gal pung Bailer H	to purje sangu	•	À	
<u>.</u>	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	e Pul				collection 134		

Bailei	rem	on Stain	iess Steel	PVC	_ ABS Plastic	
Pump	o: Ded Non	icated Submersib -Dedicated Subm	ole Pump Iersible Pump	<u></u>	_ Bladder Pum	p
Time	pH	Conduct. (umho/cm)	Temp. (Celsius)	Water Level (to 0.01 ft)	Cum. Vol. (gai)	Pump Rate (GPM)
1407	6,8	1162	22.2	8.55	2.6	, 43
1413	10.9	1221	72.1	9.72	5	
1418	6.9	1320	22.4	10.2	7.5	
Total	olum Desce	90	799			
_	Aethod: : Teffo	on Stainle	ess Steel	_ PVC		
Pump	: Dedic Non-	cated Submersibl Dedicated Subme	e Pump ersible Pump		_ Bladder Pump	•
IA/QC Samples if a	ny (Duplicate,	Field Blank, Rins	e Blank, etc.):			
						.
econtamination Pe	_	sounder/Me	ter s	washed /	rinted	
omments / Calcula	tions:	centrifugal Disposable	-	sample		_
- .	-01	Start time	e @ 1401		slection to	

Project Number: 792551

Sample Date: 3-2-00

Sample ID: MW-9

Project Name: ACTransit

Total Well Depth (ft): 20.52

Bailer:

Depth to Water (ft), before purging: 3.69

Teflon

Casing Diameter (in): Z

Development Method: NA

Well ID: MW-9

oject Name: A using Diameter (in tal Well Depth (f upth to Water (ft)	n): 2 t): 24.15	San	ject Number: nple Date: 3 nple ID: M	1-7-00	vega iz.	
velopment Metho Bailer Pump	: Teflor	Staini ated Submersib edicated Subm	le Pumn	PVC	ABS Plastic Bladder Pum	np
Time	pH	Conduct.	Temp.	Water Level	Cum. Vol. (gal)	Pump Rate (GPM)
1006	7.0	849	18	10.05	2.0	, 44
1012	7.0	835	18.6	10.06	4.5	1
1016	7.0	832	18.6	10.06	7.0	V
				 		
Final V	alume Purg	20	70.		· <u></u>	
Bailer: Pump:	Teflon Dedicate Non-De	Stainle: ed Submersible dicated Submer	Pumn	_ PVC	ABS Plastic Bladder Pump	,
QC Samples if an	ry (Duplicate, Fig	eid Blank, Rinse	Blank, etc.):			
meter Collected: pie Appearance OVA Re	eading (ppm)	,8015n	Υ			v. .
Suspen	ded Solids (desc					•
ontamination Perf			•	ers w		
nments / Calculation	ons: Cen	trifugal	pump to	o purge to San DI coll		
	Disk	oosable	bailer	to San	ple	
	Star	+ time	(a) 100	المرم الأ	landina ti	me (a)
A	Sto,	otime (® 1019	Coll	100	o25
ature: (1)	\mathcal{D}_{I}					

Well ID: __MW-10

	*		4. 4.			Well ID:	W-1_
Casi Tota	ect Name: A ing Diameter (ii ii Well Depth (f th to Water (ft)	n): 2 h): <i>16.4</i> 3	San	ject Number: npie Date: npie ID: W-	3-2-00		
Dev	elopment Meth Baile		00 50:-:				
	Pump	: Ded	icated Submersib	la Pumn	PVC	_ ABS Plastic _ Bladder Pum	р
[Time	pH	Conduct.	Temp.	Water Level	Cum. Vol.	Pump Rate
ľ	1546	6.9	947	(Celsius)	(to 0.01 ft)	(gal)	(GPM)
Ì	15 49	6.9	961	20,2	4.59	<u> 2 </u>	• 5
ı	1553	6.9	965	20.6 20.6	4.60	6.5	
					7.00	9.7	
	Total V	olom Pura	20) —	> 10.70			
Samp	ole Collection M <u>X</u> Bailer:						
	Pump:	Dedic	ated Submersible	rsible Pump	_PVC	ABS Plastic Bladder Pump	
Рагал	C Samples if a neter Collected ie Appearance	Dedic Non-lary (Duplicate,	Salsm	Pump rsible Pump Blank, etc.):	airbon odo	Bladder Pump	•••
Paran Samp	C Samples if a neter Collected ie Appearance	Dedicate, Non-liny (Duplicate, Reading (ppm) Inded Solids (de	Salsm	Pump rsible Pump Blank, etc.1:		Bladder Pump	ied.

Cas Tot	sing Diameter (tal Well Depth (CTransition: Z (ft): 16,93 t), before purgi	Sam	ect Number: npie Date: _3 npie ID: _W -	-Z - OO		
	velopment Meti	hod: NA	,				
1	Saile		ion Staini		PVC	_ ABS Plastic	
	Pum	p: Dec Nor	licated Submersible I-Dedicated Subme	le Pump ersible Pump		_ Bladder Pum	p
<u> </u>	Time	pH	Conduct. (umho/cm)	Temp.	Water Level	Cum. Vol. (gal)	Pump Rate (GPM)
	1623	7.0	1078	41.0	4.63	7_	. 5
1	1676	7.0	1625	20.3	4.80	4	
j	1629	7.0	1005	<u>20.8</u>	4.91	6	<u> </u>
•							
	Total	Volume	Purged	-> 79			
Зап	nple Collection (X_ Bailer Pump	Method: r: Teffo p: Dedi Non-	s were removed poin Stainle cated Submersible Dedicated Submer Field Blank, Rinse	ss Steel Pump rsible Pump		ABS Plastic Bladder Pump	
Sam	pie Appearance OVA Suspe	Reading (ppm) ended Solids (d	rust colore	d; slight	lydrocarbon o	dor	•. ·
Dece	ontamination Pe	errormed:	<i>(</i>)	,		. 1	,
Сот	nments / Calcula		Sounder Centifuga Disposabu Start time Stop time	pump t	o purge		

Weil ID: W-4



Quanterra 880 Riverside Parkway West Sacramento, California 95605-1500

916 373-5600 Telephone 916 372-1059 Fax

March 28, 2000

QUANTERRA INCORPORATED PROJECT NUMBER: G0C040142 PO/CONTRACT: 792551

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 Quanterra Incorporated on 3/3/00. These samples are associated with your AC Transit Emeryville project.

The case narrative is an integral part of this report.

Preliminary results were sent via facsimile on March 28, 2000.

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

Sincerely,

Bonnie J. McNeill Project Manager

Bonni & Mcheill



CASE NARRATIVE

QUANTERRA INCORPORATED PROJECT NUMBER G0C040142

WATER, CA LUFT, TVPH (Gas)/BTEX + MTBE by 8021B

Sample G0C040142-3 required reanalysis at a 2X dilution to report MTBE only. The initial analysis exceeded the calibrated linear range of the instrument.

The following samples exceed the 70-130% surrogate recovery limit due to matrix visible on the chromatograms:

G0C040142-6 (133% BFB) G0C040142-7 (295% BFB) G0C040142-8 (140% BFB) G0C040142-12 (214% BFB)

WATER, 8015 MOD, TEPH

Surrogate recovery for G0C040142-6 was higher than the upper control limit due to the contribution from the unknown hydrocarbon present in the sample.

There were no other anomalies associated with this project.



Quanterra - Western Region 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, Rev. 0, 8/19/96.



TABLE OF CONTENTS

QUANTERRA INCORPORATED PROJECT NUMBER G0C040142

Case Narrative

Quanterra's Quality Assurance Program

Sample Description Information

Chain of Custody Documentation

WATER, CA LUFT, TVPH (Gas)/BTEX + MTBE by 8021B Performed at Quanterra - West Sacramento 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, TEPH
Performed at Quanterra - West Sacramento
Samples: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Sample Data Sheets
Method Blank Reports
Laboratory QC Reports



Sample Summary G0C040142

<u>WO#</u>	Sample #	Client Sample ID	Sampling Date	Received Date
D99DM	1	TRIP BLANK	3/1/00 03:15 PM	3/3/00 06:30 PM
D99DV	2	MW-1	3/1/00 03:35 PM	3/3/00 06:30 PM
D99DX	3	MW-5	3/1/00 04:25 PM	3/3/00 06:30 PM
D99 E1	4	MW-4	3/1/00 05:18 PM	3/3/00 06:30 PM
D99E4	5	MW-3	3/1/00 05:30 PM	3/3/00 06:30 PM
D99E6	6	MW-10	3/2/00 10:25 AM	3/3/00 06:30 PM
D99EE	7	MW-6	3/2/00 11:25 AM	3/3/00 06:30 PM
D99EG	8	MW-7	3/2/00 01:00 PM	3/3/00 06:30 PM
D99EH	9	MW-8	3/2/00 01:40 PM	3/3/00 06:30 PM
D99EJ	10	MW-9	3/2/00 02:30 PM	3/3/00 06:30 PM
D99EK	11	MW-2	3/2/00 03:00 PM	3/3/00 06:30 PM
D99EL	12	W-I	3/2/00 04:00 PM	3/3/00 06:30 PM
D99EM	13	W-4	3/2/00 04:40 PM	3/3/00 06:30 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 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



QUA-4124 0797														_								
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2233 Santa Clara Ave	4 /	Site Contact	733	78		ab Col	ntact						4-	1	(4	h 42-4 ta	, 		PI	age	of	
	1501	Site Obritat	•			Bon			Λ					alysis (e spac								
Project Name		Carrier/Waj	/bill Nu	nber		<u></u>	W 143	<u> </u>	L 1	-	\dashv		11	Ì								
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Contract/Purchase Order/Quote No. / 792.551				Matrix				taine serva			<u> </u>	- -								Conditions		
Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Aqueous	Soil		Unpres. H2SO4	SONH	Ę	HOBN	ZnAc/ NaOH	S	700										
(R) Trip Blank	3/1/00	1515	X					X												Gas/BTE	CM	BE
MW-I		1535	l i											-1								
MW-5		1625	Ш																			
MW-4		1718																				
MW-3	1	1730						H											RE	EIVED IN GOO LINDER	in con coc	DITION -
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MW-6		1125																		MAR -	2000	
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MW-8		1340															 		1	M: 1\]	
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Possible Hazard Identification			•	Dispos		مد	-								<u> </u>	(A lee	may h	A 855		ed if samples are r	retained	
Non-Hazard	Poison 8	Unknown	Retu	ım To (Client			osal E		s (Spe		rchive Fo		Mo	nths	longer	than 3	mor	ıtns)			
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Chain of Custody Record



QUA-4124 0797																							
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792551		Matrix					Containers & Preservatives					12	+									Conditions of Recei	pi
Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Aqueous	Sed.	Soil	Unpres	HZSO4	HNOS	HCi	NaOH	NaOH NaOH	8021								İ			
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Chain of Custody Record



QUA-4124 0797																						
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24 Hours 48 Hours 7 Days 14 Days	M	?1 Days	Other					C Req	uirem CL	ents	(Spec	ify)										
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2. Relinquished By			Date		Time		2.	Recei	ived f	ly In	1	Ц,	N							Į Ď.	Pate Time 9	70
3. Relinquished By			Date		Time		3.	Recei	ived E	T)	/ - {	7	<u>ر پ ر</u>								Pale Time	_5(_)
Comments					<u>. </u>																	

WATER, CA LUFT, TVPH (Gas)

BTEX + MTBE by 8021B



SAFETY KLEEN CONSULTING

Client Sample ID: TRIP BLANK

GC Volatiles

Lot-Sample #...: G0C040142-001 Work Order #...: D99DM102

Matrix....: WATER

Date Sampled...: 03/01/00

Date Received..: 03/03/00

Prep Date....: 03/08/00

Analysis Date..: 03/08/00

Prep Batch #...: 0076362

Method..... DHS CA LUFT

RESULT

REPORTING

PARAMETER

<u>LIMI</u>T

UNITS ug/L

TPH (as Gasoline) Unknown Hydrocarbon

Dilution Factor: 1

ND ND

50 50

ug/L

SURROGATE

PERCENT

RECOVERY

RECOVERY

LIMITS

4-Bromofluorobenzene 108

(70 - 130)



SAFETY KLEEN CONSULTING

Client Sample ID: TRIP BLANK

GC Volatiles

Lot-Sample #...: G0C040142-001 Work Order #...: D99DM101

Date Sampled...: 03/01/00

Matrix....: WATER

Prep Date....: 03/08/00

Date Received..: 03/03/00

Prep Batch #...: 0076381

Analysis Date..: 03/08/00

Dilution Factor: 1

Method....: DHS CA LUFT

		REPORTING	
PARAMETER	RESULT	LIMIT	UNITS
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
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	_
a,a,a-Trifluorotoluene	96	(70 - 130)	•



SAFETY KLEEN CONSULTING

Client Sample ID: MW-1

GC Volatiles

Lot-Sample #...: G0C040142-002

Date Sampled...: 03/01/00

Prep Date....: 03/08/00 Prep Batch #...: 0076362

Dilution Factor: 1

Work Order #...: D99DV102

Date Received..: 03/03/00

Analysis Date..: 03/08/00

Method....: DHS CA LUFT

REPORTING

UNITS

ug/L

ug/L

PARAMETER

TPH (as Gasoline)

Unknown Hydrocarbon

PERCENT SURROGATE

4-Bromofluorobenzene

RESULT LIMIT 50

ND 62

RECOVERY

112

50

RECOVERY

LIMITS (70 - 130)



SAFETY KLEEN CONSULTING

Client Sample ID: MW-1

GC Volatiles

Lot-Sample #...: G0C040142-002

Date Sampled...: 03/01/00
Prep Date....: 03/08/00

Prep Batch #...: 0076381

Dilution Factor: 1

Work Order #...: D99DV103

Date Received..: 03/03/00 Analysis Date..: 03/08/00

Method.....: DHS CA LUFT

		REPORTIN	IG	
PARAMETER	RESULT	LIMIT	UNITS	
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	68	5.0	ug/L	
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
a,a,a-Trifluorotoluene	92	(70 - 13	<u>0)</u>	



SAFETY KLEEN CONSULTING

Client Sample ID: MW-5

GC Volatiles

Lot-Sample #...: G0C040142-003

Date Sampled...: 03/01/00 Prep Date....: 03/08/00

Prep Batch #...: 0076362

Dilution Factor: 1

Work Order #...: D99DX102 Date Received..: 03/03/00

Analysis Date..: 03/08/00

Method.....: DHS CA LUFT

REPORTING

PARAMETER TPH (as Gasoline)

Unknown Hydrocarbon

SURROGATE

4-Bromofluorobenzene

RESULT

ND 50

108

LIMIT

50 50

ug/L ug/L

UNITS

PERCENT RECOVERY RECOVERY **LIMITS**



SAFETY KLEEN CONSULTING

Client Sample ID: MW-5

GC Volatiles

Lot-Sample #...: G0C040142-003

Date Sampled...: 03/01/00

Prep Date....: 03/08/00

Prep Batch #...: 0076381

Dilution Factor: 1

Work Order #...: D99DX103

Date Received.: 03/03/00

Analysis Date..: 03/08/00

Method.....: DHS CA LUFT

PARAMETER	RESULT	REPORTIN LIMIT	G UNITS
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	100 B	5.0	ug/L
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
a,a,a-Trifluorotoluene	93	(70 - 13	0)

NOTE(S):

E Estimated result. Result concentration exceeds the calibration range.



SAFETY KLEEN CONSULTING

Client Sample ID: MW-5

GC Volatiles

Lot-Sample #...: G0C040142-003

Date Sampled...: 03/01/00

Prep Date....: 03/14/00 Prep Batch #...: 0076400

Dilution Factor: 2

Work Order #...: D99DX203

Date Received.:: 03/03/00 Analysis Date.:: 03/14/00

Method..... DHS CA LUFT

PARAMETER

Methyl tert-butyl ether

RESULT REPORTING

100

10

UNITS ug/L

SURROGATE PERCENT RECOVERY

a,a,a-Trifluorotoluene 107

RECOVERY

LIMITS



SAFETY KLEEN CONSULTING

Client Sample ID: MW-4

GC Volatiles

Lot-Sample #...: G0C040142-004 **Work Order #...:** D99E1102

Date Sampled...: 03/01/00

Prep Date....: 03/08/00

Prep Batch #...: 0076362

Dilution Factor: 1

Date Received..: 03/03/00

Analysis Date..: 03/08/00

Method..... DHS CA LUFT

REPORTING

PARAMETER

SURROGATE

TPH (as Gasoline)

Unknown Hydrocarbon

4-Bromofluorobenzene

ND

RESULT

LIMIT

UNITS ug/L

ND

50 50

ug/L

PERCENT RECOVERY

RECOVERY LIMITS

107



SAFETY KLREN CONSULTING

Client Sample ID: MW-4

GC Volatiles

Lot-Sample #...: G0C040142-004

Date Sampled...: 03/01/00

Prep Date....: 03/08/00

Prep Batch #...: 0076381

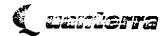
Dilution Factor: 1

Work Order #...: D99E1103
Date Received..: 03/03/00

Analysis Date..: 03/08/00

Method..... DHS CA LUFT

		REPORTING	
PARAMETER	RESULT	LIMIT	UNITS
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
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	_
a,a,a-Trifluorotoluene	92	(70 - 130)	



SAFETY KLEEN CONSULTING

Client Sample ID: MW-3

GC Volatiles

Lot-Sample #...: G0C040142-005 Work Order #...: D99E4102

Date Sampled...: 03/01/00

Prep Date....: 03/08/00 Prep Batch #...: 0076362

Dilution Factor: 1

Date Received..: 03/03/00

Analysis Date..: 03/08/00

Method..... DHS CA LUFT

REPORTING

PARAMETER

SURROGATE

TPH (as Gasoline)

Unknown Hydrocarbon

ND ND

RESULT

LIMIT

50 50

UNITS ug/L

ug/L

PERCENT

RECOVERY

RECOVERY

LIMITS

(70 - 130)

4-Bromofluorobenzene

107



SAFETY KLEEN CONSULTING

Client Sample ID: MW-3

GC Volatiles

Lot-Sample #...: G0C040142-005 Work Order #...: D99E4103

Date Sampled...: 03/01/00

Prep Date....: 03/08/00

Prep Batch #...: 0076381

Dilution Factor: 1

Date Received ..: 03/03/00

Analysis Date..: 03/08/00

Method....: DHS CA LUFT

		REPORTIN	G
PARAMETER	RESULT	LIMIT	UNITS
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
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
a,a,a-Trifluorotoluene	96	(70 - 130	<u>o)</u>



SAFETY KLEEN CONSULTING

Client Sample ID: MW-10

GC Volatiles

Lot-Sample #...: G0C040142-006

Date Sampled...: 03/02/00

Prep Date....: 03/08/00 Prep Batch #...: 0076362

Dilution Factor: 1

Work Order #...: D99E6102

Date Received..: 03/03/00

Analysis Date..: 03/08/00

Method.....: DHS CA LUFT

REPORTING

PARAMETER

TPH (as Gasoline)

Unknown Hydrocarbon

4-Bromofluorobenzene

RESULT ND

540

LIMIT 50

ug/L ug/L

UNITS

PERCENT

RECOVERY

LIMITS

50

133 *,I

(70 - 130)

RECOVERY

NOTE(S):

SURROGATE

^{*} Surrogate recovery is outside stated control limits.

I Matrix interference.



SAFETY KLEEN CONSULTING

Client Sample ID: MW-10

GC Volatiles

Lot-Sample #...: G0C040142-006 Work Order #...: D99E6103

Date Sampled...: 03/02/00 Prep Date....: 03/08/00

Prep Batch #...: 0076381 Dilution Factor: 1

Date Received..: 03/03/00 Analysis Date..: 03/08/00

Method.....: DHS CA LUFT

PARAMETER	RESULT	REPORTING LIMIT	G UNITS
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	12	5.0	ug/L
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
a,a,a-Trifluorotoluene	98	(70 - 130))



SAFETY KLEEN CONSULTING

Client Sample ID: MW-6

GC Volatiles

Lot-Sample #...: G0C040142-007

Date Sampled...: 03/02/00

Prep Date....: 03/08/00

Prep Batch #...: 0076362

Dilution Factor: 1

Work Order #...: D99EE102

Date Received..: 03/03/00

Analysis Date..: 03/08/00

Method.....: DHS CA LUFT

REPORTING

PARAMETER

TPH (as Gasoline)

Unknown Hydrocarbon

RESULT

ND 2800 LIMIT 50 50

ug/L ug/L

UNITS

PERCENT

RECOVERY 295 *,I

RECOVERY LIMITS (70 - 130)

4-Bromofluorobenzene

NOTE(S):

SURROGATE

^{*} Surrogate recovery is outside stated control limits.

I Matrix interference.



SAFETY KLEEN CONSULTING

Client Sample ID: MW-6

GC Volatiles

Lot-Sample #...: G0C040142-007

Date Sampled...: 03/02/00

Prep Date....: 03/08/00
Prep Batch #...: 0076381

Dilution Factor: 1

Work Order #...: D99EE103

Date Received.:: 03/03/00 Analysis Date.:: 03/08/00

Method.....: DHS CA LUFT

		REPORTIN	IG
PARAMETER	RESULT	LIMIT	UNITS
Benzene	6.8	1.0	ug/L
Ethylbenzene	ND	2.0	ug/L
Toluene	ND	2.0	ug/L
m-Xylene & p-Xylene	ND	10	ug/L
o-Xylene	ND	4.0	ug/L
Methyl tert-butyl ether	ND	5.0	ug/L
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
a,a,a-Trifluorotoluene	100	(70 - 13	0)

NOTE(S):

Elevated reporting limits. The reporting limits are elevated due to matrix interference,



Client Sample ID: MW-7

GC Volatiles

Lot-Sample #...: G0C040142-008 Work Order #...: D99EG102 Matrix..... WATER Date Sampled...: 03/02/00 Date Received..: 03/03/00 Prep Date....: 03/14/00 Analysis Date..: 03/14/00 Prep Batch #...: 0076399 Method.....: DHS CA LUFT Dilution Factor: 1 REPORTING PARAMETER <u>UNI</u>TS RESULT LIMIT TPH (as Gasoline) ND 50 ug/L Unknown Hydrocarbon 860 50 ug/L

RECOVERY

LIMITS (70 - 130)

PERCENT

140 *,I

RECOVERY

NOTE (S) -

SURROGATE

4-Bromofluorobenzene

^{*} Surrogate recovery is outside stated control limits.

I Matrix interference.



SAFETY KLEEN CONSULTING

Client Sample ID: MW-7

GC Volatiles

Lot-Sample #...: G0C040142-008

Date Sampled...: 03/02/00

Prep Date....: 03/14/00

Prep Batch #...: 0076400

Dilution Factor: 1

Work Order #...: D99EG103

Date Received..: 03/03/00

Analysis Date..: 03/14/00

Method..... DHS CA LUFT

PARAMETER	RESULT	REPORTING LIMIT	G UNITS
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	20	ug/L

	PERCENT	RECOVERY
SURROGATE	RECOVERY	LIMITS
a,a,a-Trifluorotoluene	102	(70 - 130)

NOTE(S):

Elevated reporting limits. The reporting limits are elevated due to matrix interference.



SAFETY KLEEN CONSULTING

Client Sample ID: MW-8

GC Volatiles

Lot-Sample #...: G0C040142-009 Work Order #...: D99EH102

Date Sampled...: 03/02/00

Prep Date....: 03/08/00

Prep Batch #...: 0076362

Dilution Factor: 1

Date Received..: 03/03/00

Analysis Date..: 03/09/00

Method....: DHS CA LUFT

REPORTING

PARAMETER

TPH (as Gasoline)

Unknown Hydrocarbon

SURROGATE

4-Bromofluorobenzene

RESULT

ND 150

LIMIT

50 50 UNITS ug/L ug/L

PERCENT

RECOVERY 123

LIMITS (70 - 130)

RECOVERY



SAFETY KLEEN CONSULTING

Client Sample ID: MW-8

GC Volatiles

Lot-Sample #...: G0C040142-009

Date Sampled...: 03/02/00

Prep Date....: 03/08/00

Prep Batch #...: 0076381

Dilution Factor: 1

Work Order #...: D99EH103

Date Received..: 03/03/00

Analysis Date..: 03/09/00

Method..... DHS CA LUFT

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PARAMETER	RESULT	LIMIT	UNITS	
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	
c-Xylene	ND	1.0	ug/L	
Methyl tert-butyl ether	ND	5.0	ug/L	
	PERCENT	RECOVERY		

SURROGATE a,a,a-Trifluorotoluene

LIMITS



SAFETY KLEEN CONSULTING

Client Sample ID: MW-9

GC Volatiles

Lot-Sample #...: G0C040142-010

Date Sampled...: 03/02/00

Prep Batch #...: 0076362

Prep Date....: 03/08/00

Dilution Factor: 1

Work Order #...: D99EJ102

Date Received..: 03/03/00

Analysis Date..: 03/09/00

Method..... DHS CA LUFT

REPORTING

PARAMETER

SURROGATE

TPH (as Gasoline)

Unknown Hydrocarbon

4-Bromofluorobenzene

RESULT ND

LIMIT 50

UNITS ug/L ug/L

PERCENT

RECOVERY

RECOVERY LIMITS

50

ND

109



SAFETY KLEEN CONSULTING

Client Sample ID: MW-9

GC Volatiles

Lot-Sample #...: G0C040142-010 Work Order #...: D99EJ103

Date Sampled...: 03/02/00

Prep Date....: 03/08/00

Prep Batch #...: 0076381

Dilution Factor: 1

Date Received..: 03/03/00 Analysis Date..: 03/09/00

Method..... DHS CA LUFT

		REPORTIN	IG .
PARAMETER	RESULT	LIMIT	UNITS
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
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
a,a,a-Trifluorotoluene	94	(70 - 13	0)



Client Sample ID: MW-2

GC Volatiles

Lot-Sample #...: G0C040142-011 Work Order #...: D99EK102

Matrix....: WATER

Date Sampled...: 03/02/00

Date Received..: 03/03/00

Prep Date....: 03/08/00

Prep Batch #...: 0076362

Analysis Date..: 03/09/00

Dilution Factor: 1

Method..... DHS CA LUFT

REPORTING

PARAMETER

RESULT

LIMIT

UNITS ug/L

TPH (as Gasoline) Unknown Hydrocarbon ND ND

50 50

ug/L

SURROGATE

PERCENT

RECOVERY

RECOVERY

LIMITS

4-Bromofluorobenzene

106



Client Sample ID: MW-2

GC Volatiles

Lot-Sample #...: GOC040142-011 Work Order #...: D99EK103

Date Sampled...: 03/02/00 **Prep Date....:** 03/08/00

Prep Batch #...: 0076381

Dilution Factor: 1

Work Order #...: D99EK103 Matrix..... WATER

Date Received..: 03/03/00 Analysis Date..: 03/09/00

Method.....: DHS CA LUFT

PARAMETER	RESULT	REPORTING LIMIT	UNITS
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	81	5.0	ug/L
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
a,a,a-Trifluorotoluene	93	(70 - 130)	•



Client Sample ID: W-1

GC Volatiles

Lot-Sample #...: G0C040142-012 Work Order #...: D99EL102 Matrix....: WATER

Date Sampled...: 03/02/00 Date Received..: 03/03/00

Prep Batch #...: 0076362

Dilution Factor: 1 Method.....: DHS CA LUFT

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

Unknown Hydrocarbon 3400 50 ug/L 3400

PERCENT RECOVERY
SURROGATE RECOVERY
4-Bromofluorobenzene 214 *,I (70 - 130)

NOTE(S):

^{*} Surrogate recovery is outside stated control limits.

I Matrix interference.



Client Sample ID: W-1

GC Volatiles

Lot-Sample #...: G0C040142-012 Work Order #...: D99EL103

Matrix....: WATER

Date Sampled...: 03/02/00

Date Received..: 03/03/00

Prep Date....: 03/08/00

Analysis Date..: 03/09/00

Prep Batch #...: 0076381

Method..... DHS CA LUFT

Dilution Factor: 1

		REPORTING	
PARAMETER	RESULT	LIMIT	UNITS
Benzene	20	1.0	ug/L
Ethylbenzene	30	1.0	ug/L
Toluene	5.3	1.0	ug/L
m-Xylene & p-Xylene	22	2.0	ug/L
o-Xylene	1.8	1.0	ug/L
Methyl tert-butyl ether	ND	5.0	ug/L
	PERCENT	RECOVERY	

SURROGATE

a,a,a-Trifluorotoluene

RECOVERY

LIMITS



Client Sample ID: W-4

GC Volatiles

Lot-Sample #...: G0C040142-013 Work Order #...: D99EM102

Date Sampled...: 03/02/00

Date Received..: 03/03/00

Matrix....: WATER

Prep Date....: 03/14/00

Analysis Date..: 03/14/00

Prep Batch #...: 0076399

Dilution Factor: 1

Method..... DHS CA LUFT

REPORTING

PARAMETER

TPH (as Gasoline)

RESULT ND

LIMIT

UNITS ug/L

Unknown Hydrocarbon

ŇD

50 50

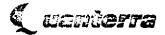
ug/L

SURROGATE

PERCENT RECOVERY RECOVERY LIMITS

109

4-Bromofluorobenzene



SAFETY KLEEN CONSULTING

Client Sample ID: W-4

GC Volatiles

Lot-Sample #...: G0C040142-013

Date Sampled...: 03/02/00 **Prep Date....:** 03/14/00

Prep Batch #...: 0076400

Dilution Factor: 1

Work Order #...: D99EM103

Date Received..: 03/03/00 Analysis Date..: 03/14/00

Method..... DHS CA LUFT

		REPORTIN	1G	
PARAMETER	RESULT	LIMIT	UNITS	
Benzene	1.1	1.0	ug/L	_
Ethylbenzene	ND	1.0	\mathtt{ug}/\mathtt{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	
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
a,a,a-Trifluorotoluene	95	(70 - 13	0)	

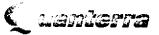


QC DATA ASSOCIATION SUMMARY

G0C040142

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER WATER	DHS CA LUFT DHS CA LUFT		0076362 0076381	
002	WATER WATER	DHS CA LUFT DHS CA LUFT		0076362 0076381	
003	WATER WATER WATER	DHS CA LUFT DHS CA LUFT DHS CA LUFT		0076362 0076381 0076400	
004	WATER WATER	DHS CA LUFT DHS CA LUFT		0076362 0076381	
005	WATER WATER	DHS CA LUFT DHS CA LUFT		0076362 0076381	
006	WATER WATER	DHS CA LUFT DHS CA LUFT		0076362 0076381	
007	WATER WATER	DHS CA LUFT DHS CA LUFT		0076362 0076381	
008	WATER WATER	DHS CA LUFT DHS CA LUFT		0076399 0076400	
009	WATER WATER	DHS CA LUFT DHS CA LUFT		0076362 0076381	
010	WATER WATER	DHS CA LUFT DHS CA LUFT		0076362 0076381	
011	WATER WATER	DHS CA LUFT DHS CA LUFT		0076362 0076381	
012	WATER WATER	DHS CA LUFT DHS CA LUFT		0076362 0076381	
013	WATER WATER	DHS CA LUFT DHS CA LUFT		0076399 0076400	



GC Volatiles

Client Lot #...: G0C040142

MB Lot-Sample #: G0C160000-362

Work Order #...: D9PN0101

Matrix....: WATER

Analysis Date..: 03/08/00

Dilution Factor: 1

Prep Date....: 03/08/00

Prep Batch #...: 0076362

PARAMETER RESULT LIMIT

 FARAMETER
 RESULT
 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

 4-Bromofluorobenzene
 110
 (70 - 130)

NOTE(S):



GC Volatiles

Client Lot #...: G0C040142

Work Order #...: D9PRR101

Matrix..... WATER

MB Lot-Sample #: G0C160000-399

Prep Date....: 03/14/00

Analysis Date..: 03/14/00

Dilution Factor: 1

Prep Batch #...: 0076399

REPORTING

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

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

NOTE(S):



GC Volatiles

Client Lot #...: G0C040142

... GOCU40142

Work Order #...: D9PQP101

Matrix....: WATER

MB Lot-Sample #: G0C160000-381

Prep Date....: 03/08/00

Analysis Date..: 03/08/00 Prep Batch #...: 0076381

Dilution Factor: 1

		REPORTI:	NG		
PARAMETER	RESULT	LIMIT	UNITS	METHOD	
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	
	PERCENT	RECOVERY	?		
SURROGATE	RECOVERY	LIMITS			
a,a,a-Trifluorotoluene	98	(70 - 13	30)		

NOTE(S):



GC Volatiles

Client Lot #...: G0C040142

Work Order #...: D9PT2101

Matrix....: WATER

MB Lot-Sample #: G0C160000-400

Prep Date....: 03/14/00 Prep Batch #...: 0076400

Analysis Date..: 03/14/00

Dilution Factor: 1

REPORTING

		KELOKITI	V.	
PARAMETER	RESULT	LIMIT	UNITS	METHOD
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
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
a,a,a-Trifluorotoluene	95	(70 - 13	10)	

NOTE(S):



LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: G0C040142 Work Order #...: D9PN0102-LCS Matrix..... WATER

LCS Lot-Sample#: G0C160000-362 D9PN0103-LCSD

Prep Date....: 03/08/00 **Analysis Date..:** 03/08/00

Prep Batch #...: 0076362

Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURE AMOUNT	D <u>UNITS</u>	PERCENT RECOVERY	RPD	METHOD
TPH (as Gasoline)	1000 1000	1040 1010	ug/L ug/L	104 101	2.6	DHS CA LUFT DHS CA LUFT
			PERCENT	RECOVERY		

 SURROGATE
 RECOVERY
 LIMITS

 4-Bromofluorobenzene
 110
 (70 - 130)

 103
 (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 #...: G0C040142

Work Order #...: D9PQP102-LCS

LCS Lot-Sample#: G0C160000-381

D9PQP103-LCSD

Prep Date....: 03/08/00

Analysis Date..: 03/08/00

Prep Batch #...: 0076381

Dilution Factor: 1

	SPIKE	MEASURE	ED	PERCENT		
PARAMETER	TUUOMA	AMOUNT	UNITS	RECOVERY	RPD	METHOD
Benzene	10.0	9.51	ug/L	95		DHS CA LUFT
	10.0	9.53	ug/L	95	0.24	DHS CA LUFT
Ethylbenzene	10.0	9.11	ug/L	91		DHS CA LUFT
	10.0	9.09	ug/L	91	0.25	DHS CA LUFT
Toluene	10.0	9.53	ug/L	9 5		DHS CA LUFT
	10.0	9.39	ug/L	94	1.4	DHS CA LUFT
m-Xylene & p-Xylene	20.0	19.1	ug/L	95		DHS CA LUFT
	20.0	18.8	ug/L	94	1.4	DHS CA LUFT
o-Xylene	10.0	9.14	ug/L	9 1		DHS CA LUFT
	10.0	8.92	ug/L	89	2.4	DHS CA LUFT
Methyl tert-butyl ether	10.0	9.10	ug/L	91		DHS CA LUFT
	10.0	8.67	ug/L	87	4.8	DHS CA LUFT
			PERCENT	RECOVERY		
SURROGATE			RECOVERY	LIMITS	_	
a,a,a-Trifluorotoluene			95	(70 - 130)	
			95	(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 #...: G0C040142

Work Order #...: D9PRR102-LCS

Matrix....: WATER

LCS Lot-Sample#: G0C160000-399

D9PRR103-LCSD

Prep Date....: 03/14/00

Analysis Date..: 03/14/00

Prep Batch #...: 0076399

Dilution Factor: 1

SPIKE	MEASURED	PERCENT

PARAMETER TPH (as Gasoline) AMOUNT AMOUNT 1000 1040 1000 1050

UNITS ug/L ug/L

RECOVERY RPD 104

1.1

METHOD DHS CA LUFT DHS CA LUFT

SURROGATE

4-Bromofluorobenzene

PERCENT RECOVERY RECOVERY LIMITS (70 - 130)112 107 (70 - 130)

105

NOTE(S):

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



LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: G0C040142 Work Order #...: D9PT2102-LCS

LCS Lot-Sample#: G0C160000-400 D9PT2103-LCSD

Prep Date....: 03/14/00 **Analysis Date..:** 03/14/00

Prep Batch #...: 0076400

Dilution Factor: 1

	SPIKE	MEASURE	:D	PERCENT		
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	RPD	METHOD
Benzene	10.0	9.34	ug/L	93		DHS CA LUFT
	10.0	9.34	ug/L	93	0.060	DHS CA LUFT
Ethylbenzene	10.0	9.01	ug/L	90		DHS CA LUFT
	10.0	9.01	ug/L	90	0.010	DHS CA LUFT
Toluene	10.0	9.35	ug/L	94		DHS CA LUFT
	10.0	9.30	ug/L	93	0.53	DHS CA LUFT
m-Xylene & p-Xylene	20.0	18.8	ug/L	94		DHS CA LUFT
	20.0	18.8	ug/L	94	0.18	DHS CA LUFT
o-Xylene	10.0	8.99	ug/L	90		DHS CA LUFT
	10.0	8.93	ug/L	89	0.67	DHS CA LUFT
Methyl tert-butyl ether	10.0	9.48	ug/L	95		DHS CA LUFT
	10.0	9.02	ug/L	90	5.0	DHS CA LUFT
			PERCENT	RECOVERY		
SURROGATE			RECOVERY	LIMITS	_	
a,a,a-Trifluorotoluene			95	(70 - 130)	
			95	(70 - 130)	

NOTE(S):

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



LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: GOC040142 Work Order #...: D9PN0102-LCS Matrix..... WATER

LCS Lot-Sample#: G0C160000-362 D9PN0103-LCSD

Prep Date....: 03/08/00 **Analysis Date..:** 03/08/00

Prep Batch #...: 0076362

Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD <u>LIMITS</u>	METHOD
TPH (as Gasoline)	104	(70 - 130)			DHS CA LUFT
	101	(70 - 130)	2.6	(0-35)	DHS CA LUFT
		PERCENT	RECOVE	RY	
SURROGATE		RECOVERY	LIMITS	}	

 SURROGATE
 RECOVERY
 LIMITS

 4-Bromofluorobenzene
 110
 (70 - 130)

 103
 (70 - 130)

222222

NOTE(S):

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



LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: G0C040142 Wor

Work Order #...: D9PQP102-LCS

LCS Lot-Sample#: G0C160000-381

D9PQP103-LCSD

Prep Date....: 03/08/00

Analysis Date..: 03/08/00

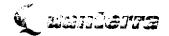
Prep Batch #...: 0076381

Dilution Factor: 1

	PERCENT	RECOVERY	RPD	
PARAMETER	RECOVERY	LIMITS	RPD LIMITS	METHOD
Benzene	95	(70 - 130)		DHS CA LUFT
	95	(70 - 130)	0.24 (0-35)	DHS CA LUFT
Ethylbenzene	91	(70 - 130)		DHS CA LUFT
	91	(70 - 130)	0.25 (0-35)	DHS CA LUFT
Toluene	95	(70 - 130)		DHS CA LUFT
	94	(70 - 130)	1.4 (0-35)	DHS CA LUFT
m-Xylene & p-Xylene	95	(70 - 130)		DHS CA LUFT
	94	(70 - 130)	1.4 (0-35)	DHS CA LUFT
o-Xylene	91	(70 - 130)		DHS CA LUFT
	89	(70 - 130)	2.4 (0-35)	DHS CA LUFT
Methyl tert-butyl ether	91	(70 - 130)		DHS CA LUFT
	87	(70 - 130)	4.8 (0-35)	DHS CA LUFT
		PERCENT	RECOVERY	
SURROGATE		RECOVERY	LIMITS	
a,a,a-Trifluorotoluene		95	(70 - 130)	
		95	(70 - 130)	

NOTE(S):

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



LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: G0C040142 Work Order #...: D9PRR102-LCS Matrix..... WATER

LCS Lot-Sample#: G0C160000-399 D9PRR103-LCSD

Prep Date....: 03/14/00 **Analysis Date..:** 03/14/00

Prep Batch #...: 0076399

Dilution Factor: 1

PARAMETER TPH (as Gasoline)	PERCENT RECOVERY 104 105	RECOVERY <u>LIMITS</u> (70 - 130) (70 - 130)	RPD 1.1	RPD LIMITS (0-35)	METHOD DHS CA LUFT DHS CA LUFT	_
		PERCENT	RECOVE	ERY		

 SURROGATE
 RECOVERY
 LIMITS

 4-Bromofluorobenzene
 112
 (70 - 130)

 107
 (70 - 130)

NOTE(S):

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



Matrix..... WATER

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: G0C040142

Work Order #...: D9PT2102-LCS

LCS Lot-Sample#: G0C160000-400

D9PT2103-LCSD

Prep Date....: 03/14/00

Analysis Date..: 03/14/00

Prep Batch #...: 0076400

Dilution Factor: 1

	PERCENT	RECOVERY	RPD	
PARAMETER	RECOVERY	LIMITS	RPD LIMITS	METHOD
Benzene	93	(70 - 130)		DHS CA LUFT
	93	(70 - 130)	0.060 (0-35)	DHS CA LUFT
Ethylbenzene	90	(70 - 130)		DHS CA LUFT
	90	(70 - 130)	0.010 (0-35)	DHS CA LUFT
Toluene	94	(70 - 130)		DHS CA LUFT
	93 ,	(70 - 130)	0.53 (0-35)	DHS CA LUFT
m-Xylene & p-Xylene	94	(70 - 130)		DHS CA LUFT
	94	(70 - 130)	0.18 (0-35)	DHS CA LUFT
o-Xylene	90	(70 - 130)		DHS CA LUFT
	89	(70 - 130)	0.67 (0-35)	DHS CA LUFT
Methyl tert-butyl ether	95	(70 - 130)		DHS CA LUFT
	90	(70 - 130)	5.0 (0-35)	DHS CA LUFT
		PERCENT	RECOVERY	
SURROGATE		RECOVERY	LIMITS	
a,a,a-Trifluorotoluene		95	(70 - 130)	
		95	(70 - 130)	

NOTE(S):

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



WATER, 8015 MOD, TEPH



Matrix..... WATER

SAFETY KLEEN CONSULTING

Client Sample ID: MW-1

GC Semivolatiles

Lot-Sample #...: G0C040142-002

Date Sampled...: 03/01/00 **Prep Date....:** 03/08/00

Prep Batch #...: 0068352

Dilution Factor: 1

Work Order #...: D99DV101

Date Received..: 03/03/00

Analysis Date..: 03/25/00

Method.....: SW846 8015 MOD

REPORTING

PARAMETER TPH (as Diesel) Unknown Hydrocarbon TPH (as Motor Oil)

RESULT ND 310 ND

UNITS ug/L ug/L ug/L

SURROGATE o-Terphenyl PERCENT RECOVERY RECOVERY LIMITS 120 (66 - 136)

NOTE(S):

The unknown from n-C08 to n-C38 is quantitated with all peaks from n-C08 to n-C36 and based on diesel fuel (n-C10 to n-C24).



Client Sample ID: MW-5

GC Semivolatiles

Lot-Sample #...: G0C040142-003 Work Order #...: D99DX101

Matrix....: WATER

Date Sampled...: 03/01/00

Dilution Factor: 1

Date Received..: 03/03/00

Prep Date....: 03/08/00

Prep Batch #...: 0068352

Analysis Date..: 03/25/00

Method....: SW846 8015 MOD

PARAMETER

TPH (as Diesel)

Unknown Hydrocarbon

TPH (as Motor Oil)

REPORTING

RESULT

ND 340 ND

PERCENT

<u>LIMI</u>T 50 50

UNITS ug/L

250

ug/L ug/L

SURROGATE

o-Terphenyl

RECOVERY

RECOVERY LIMITS

118

(66 - 136)

NOTE(S):

The unknown from n-C08 to n-C38 is quantitated with all peaks from n-C08 to n-C36 and based on diesel fuel (n-C10 to n-C24).



Matrix....: WATER

SAFETY KLEEN CONSULTING

Client Sample ID: MW-4

GC Semivolatiles

Lot-Sample #...: G0C040142-004

Date Sampled...: 03/01/00

Prep Date....: 03/08/00

Prep Batch #...: 0068352

Dilution Factor: 1

Work Order #...: D99E1101

Date Received..: 03/03/00

Analysis Date..: 03/25/00

Method.....: SW846 8015 MOD

REPORTING

PARAMETER TPH (as Diesel) Unknown Hydrocarbon TPH (as Motor Oil)

RESULT ND ND ND

LIMIT 50 50 250

UNITS ug/L ug/L ug/L

SURROGATE

o-Terphenyl

RECOVERY PERCENT RECOVERY LIMITS 118

(66 - 136)



Client Sample ID: MW-3

GC Semivolatiles

Lot-Sample #...: G0C040142-005

Work Order #...: D99E4101

Date Sampled...: 03/01/00

Date Received..: 03/03/00

Matrix....: WATER

Prep Date....: 03/08/00

Analysis Date..: 03/25/00

Prep Batch #...: 0068352

Method..... SW846 8015 MOD

Dilution Factor: 1

REPORTING

PARAMETER					
TPH (as	Diesel)				
Unknown	Hydrocarbon				
TPH (as	Motor Oil)				

LIMIT
50
250
250

UNITS	
ug/L	
ug/L	
ug/L	

SURROGATE o-Terphenyl PERCENT RECOVERY 107

LIMITS (66 - 136)

RECOVERY

NOTE(S):

A motor oil range unknown less than the motor oil detection limit is present, therefore the reporting limit is raised.



Client Sample ID: MW-10

GC Semivolatiles

Lot-Sample #...: G0C040142-006

Work Order #...: D99E6101

Matrix WATER

Date Sampled...: 03/02/00

Date Received..: 03/03/00

Prep Date....: 03/08/00

Dilution Factor: 1

Analysis Date..: 03/25/00

REPORTING

Prep Batch #...: 0068352

Method....: SW846 8015 MOD

PARAMETER

TPH (as Diesel)

Unknown Hydrocarbon

TPH (as Motor Oil)

RESULT ND

LIMIT 50 50

UNITS ug/L

250

ug/L ug/L

PERCENT RECOVERY

RECOVERY LIMITS

149 *

1300

ND

(66 - 136)

NOTE(S):

SURROGATE

o-Terphenyl

The unknown from n-C08 to n-C34 is quantitated with all peaks from n-C08 to n-C36 and based on diesel fuel (n-C10 to n-C24).

Surrogate recovery is outside stated control limits.



Client Sample ID: MW-6

GC Semivolatiles

Lot-Sample #: G0C040142-007	Work Order #: D99EE101	Matrix: WATER
Date Sampled: 03/02/00	Date Received: 03/03/00	
Prep Date: 03/08/00	Analysis Date: 03/27/00	

Prep Batch #...: 0068352

Dilution Factor: 50 Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS
TPH (as Diesel)	ND Q	2500	ug/L
Unknown Hydrocarbon	22000	2500	ug/L
TPH (as Motor Oil)	ND	12000	ug/L
·	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
o-Terphenyl	0.0 SRD	(66 - 136)	_

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 unknown from n-C08 to n-C22 is quantitated with all peaks from n-C08 to n-C36 and based on diesel (n-C10 to n-C24).



Client Sample ID: MW-7

GC Semivolatiles

Lot-Sample #...: G0C040142-008

Work Order #...: D99EG101

Matrix.... WATER

Date Sampled...: 03/02/00

Date Received..: 03/03/00

Prep Date....: 03/08/00

Analysis Date..: 03/25/00

Prep Batch #...: 0068352 Dilution Factor: 1

Method.....: SW846 8015 MOD

PARAMETER

TPH (as Diesel) Unknown Hydrocarbon

TPH (as Motor Oil)

ND 640

RESULT

REPORTING LIMIT 50

UNITS ug/L

ND

50 250

ug/L ug/L

SURROGATE

PERCENT RECOVERY RECOVERY LIMITS

o-Terphenyl

122

(66 - 136)

NOTE(S):

The unknown from n-C08 to n-C31 is quantitated with all peaks from n-C08 to n-C36 and based on diesel fuel (n-C10 to n-C24).



Client Sample ID: MW-8

GC Semivolatiles

Lot-Sample #...: G0C040142-009 Work Order #...: D99EH101 Matrix....: WATER

Date Sampled...: 03/02/00 Date Received..: 03/03/00

 Date Sampled...:
 03/02/00
 Date Received...
 03/03/00

 Prep Date.....:
 03/08/00
 Analysis Date...
 03/25/00

Prep Batch #...: 0068352

Dilution Factor: 1 Method.....: SW846 8015 MOD

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

 SURROGATE
 RECOVERY

 0-Terphenyl
 107
 (66 - 136)

NOTE (S):

The unknown from n-C08 to n-C31 is quantitated with all peaks from n-C08 to n-C36 and based on diesel fuel (n-C10 to n-C24).



Client Sample ID: MW-9

GC Semivolatiles

Lot-Sample #...: G0C040142-010 Work Order #...: D99EJ101 Matrix....: WATER Date Sampled...: 03/02/00 Date Received..: 03/03/00

Prep Date....: 03/08/00 Analysis Date..: 03/25/00 Prep Batch #...: 0068352

Dilution Factor: 1 Method.....: SW846 8015 MOD

REPORTING **PARAMETER** RESULT LIMIT UNITS TPH (as Diesel) ND 50 ug/L Unknown Hydrocarbon 510 50 ug/L TPH (as Motor Oil) ND 250 ug/L PERCENT RECOVERY SURROGATE RECOVERY LIMITS o-Terphenyl 120 (66 - 136)

NOTE(S):

The unknown from n-C10 to n-C40 is quantitated with all peaks from n-C08 to n-C36 and based on motor oil (n-C19 to n-C36).



Client Sample ID: MW-2

GC Semivolatiles

Lot-Sample #: G0C040142-011 Date Sampled: 03/02/00 Prep Date: 03/08/00 Prep Batch #: 0068352	Work Order #: Date Received: Analysis Date:	03/03/00	Matrix WATER
Dilution Factor: 1	Method:	SW846 8015	MOD
		REPORTING	
PARAMETER	RESULT	LIMIT	UNITS
TPH (as Diesel)	ND	50	ug/L
Unknown Hydrocarbon	510	50	ug/L
TPH (as Motor Oil)	ND	250	ug/L
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	•
o-Terphenyl	111	(66 - 136)	

NOTE(S):

The unknown from n-C10 to n-C40 is quantitated with all peaks from n-C08 to n-C36 and based on motor oil (n-C19 to n-C36).



Client Sample ID: W-1

GC Semivolatiles

Lot-Sample #: G0C04	0142-012 Work Order	#: D99EL101	Matrix:	WATER
				

 Date Sampled...:
 03/02/00
 Date Received...:
 03/03/00

 Prep Date.....:
 03/08/00
 Analysis Date...:
 03/27/00

Prep Batch #...: 0068352

Dilution Factor: 5 Method.....: SW846 8015 MOD

		REPORTING

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

 SURROGATE
 PERCENT
 RECOVERY

 0-Terphenyl
 108
 (66 - 136)

NOTE(S):

The unknown from n-C08 to n-C22 is quantitated with all peaks from n-C08 to n-C36 and based on dieset fuel (n-C10 to n-C24).

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



Client Sample ID: W-4

GC Semivolatiles

Lot-Sample #...: G0C040142-013 Work Order #...: D99EM101 Matrix....: WATER Date Sampled...: 03/02/00 Date Received..: 03/03/00

Method.....: SW846 8015 MOD

Prep Date....: 03/08/00 Analysis Date..: 03/25/00

Prep Batch #...: 0068352 Dilution Factor: 1

REPORTING PARAMETER <u>LIMI</u>T RESULT UNITS TPH (as Diesel) ND 50 ug/L Unknown Hydrocarbon 190 50 ug/L TPH (as Motor Oil) ND 250 ug/L

PERCENT RECOVERY SURROGATE RECOVERY LIMITS o-Terphenyl 111 (66 - 136)

NOTE(S):

The unknown from n-C10 to n-C32 is quantitated with all peaks from n-C08 to n-C32 and based on diesel fuel (n-C10 to n-C24).



QC DATA ASSOCIATION SUMMARY

G0C040142

Sample Preparation and Analysis Control Numbers

SAMPLE#	<u>MATRIX</u>	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
002	WATER	SW846 8015 MOD		0068352	
003	WATER	SW846 8015 MOD		0068352	
004	WATER	SW846 8015 MOD		0068352	
005	WATER	SW846 8015 MOD		0068352	
006	WATER	SW846 8015 MOD		0068352	
007	WATER	SW846 8015 MOD		0068352	
800	WATER	SW846 8015 MOD		0068352	
009	WATER	SW846 8015 MOD		0068352	
010	WATER	SW846 8015 MOD		0068352	
011	WATER	SW846 8015 MOD		0068352	
012	WATER	SW846 8015 MOD		0068352	
013	WATER	SW846 8015 MOD		0068352	



METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: G0C040142

MB Lot-Sample #: G0C080000-352

Work Order #...: D9E1D101

Matrix....: WATER

Analysis Date..: 03/25/00

Prep Date....: 03/08/00

Prep Batch #...: 0068352

Dilution Factor: 1

REPORTING

PARAMETER RESULT LIMIT UNITS METHOD TPH (as Diesel) ND 50 ug/L SW846 8015 MOD Unknown Hydrocarbon ND 50 ug/L SW846 8015 MOD TPH (as Motor Oil) ND 250 ug/L SW846 8015 MOD

SURROGATE PERCENT RECOVERY

RECOVERY

D-Terphenyl 110 (66 - 136)

NOTE (S):

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



Matrix..... WATER

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: G0C040142

Work Order #...: D9E1D102-LCS

LCS Lot-Sample#: G0C080000-352

D9E1D103-LCSD

(66 - 136)

Prep Date....: 03/08/00

Analysis Date..: 03/25/00

Prep Batch #...: 0068352

Dilution Factor: 1

PARAMETER.	SPIKE AMOUNT	MEASURE AMOUNT	D UNITS	PERCENT RECOVERY	RPD	METHOD
TPH (as Diesel)	300 300	257 287	ug/L ug/L	86 96	11	SW846 8015 MOD SW846 8015 MOD
GIPP OCA PE			PERCENT	RECOVERY		
SURROGATE o-Terphenyl			RECOVERY	LIMITS (66 - 136	<u>, </u>	

115

NOTE(S):

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



LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: G0C040142 Work Order #...: D9E1D102-LCS Matrix..... WATER

LCS Lot-Sample#: G0C080000-352 D9E1D103-LCSD

Prep Date....: 03/08/00 **Analysis Date..:** 03/25/00

Prep Batch #...: 0068352

Dilution Factor: 1

	PERCENT	RECOVERY	RPD	
PARAMETER	RECOVERY	LIMITS	RPD LIMITS	METHOD
TPH (as Diesel)	86	(50 - 129)		SW846 8015 MOD
	96	(50 - 129)	11 (0-23)	SW846 8015 MOD

	PERCENT	RECOVERY
SURROGATE	RECOVERY	LIMITS
o-Terphenyl	106	(66 - 136)
	115	(66 - 136)

NOTE(S):

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