SLIC
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ENCORE ENVIRONMENTAL CONSORTIUM, LLC

LETTER OF TRANSMITTAL

Date 10/14/2003

From Ben Holly BH

To GM Worldwide Facilities Group
Remediation Team
MC 483-619-356
1996 Technology Drive
Troy, MI 48083

Attention Ms. Deena L. VanCamp

Copy to Mr. Rob Fogal
GM Worldwide Facilities Group
Remediation Team
MC 483-619-356
1996 Technology Drive
Troy, MI 48083

Mr. Barney M. Chan
Hazardous Materials Specialist
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA. 94502-6577

Subject Saturn of Pleasanton

Copies	Date	Description
1 Letter Report	October 10, 2003	Summary of Preliminary Groundwater Investigation Activities Saturn of Pleasanton 4340 Rosewood Drive Pleasanton, California

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Transmitted via ☐ First class mail ☑ Overnight express ☐ Hand delivery ☐ Other

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Remarks:

EEC
Encore Environmental Consortium, LLC

6723 Towpath Road, Box 66
Syracuse, NY 13214-0066

October 10, 2003 Reference No. 17366-30

Ms. Deena L. VanCamp
Saturn
ENCORE - Remediation Team
MC: 483-619-356
1996 Technology Drive
Troy, Michigan 48083

Dear Ms. VanCamp:

Re: Summary of Preliminary Groundwater Investigation Activities
Saturn of Pleasanton
4340 Rosewood Drive
Pleasanton, California

1.0 INTRODUCTION

On behalf of Saturn Corporation, Inc. (Saturn), ENCORE Environmental Consortium, L.L.C. (EEC) has prepared this Summary of Groundwater Investigation Activities (Summary) at the Saturn of Pleasanton property located at 4340 Rosewood Drive in Pleasanton, California (Site). The Site location is presented on Figure 1 and a Site plan is presented on Figure 2 in Attachment A.

The purpose of this Summary is to present the results of groundwater investigation activities conducted at the Site in the vicinity of a former oil/water separator (OWS). This Summary has been prepared as a portion of the scope of work (SOW) described in EEC's Closure Plan (Plan), dated April 17, 2003, that was submitted to the Livermore Pleasanton Fire Department (LPFD) for the removal and replacement of an OWS. This Summary has been prepared for submittal to the LPFD and the Alameda County Department of Environmental Health (ACDEH).

2.0 SITE BACKGROUND

In 1999, McLaren/Hart, Inc. (MH) conducted a subsurface Site investigation adjacent to the OWS, consisting of the installation of one soil boring and the collection of one soil sample from 8 to 10 feet below ground surface (bgs) for laboratory analysis of total petroleum hydrocarbons (TPH) diesel range organics (DRO), TPH - gasoline range organics (GRO), and volatile organic compounds (VOCs). Based on the review of analytical results for the soil sample, benzene was

detected at a concentration of 2,000 µg/kg, which is above the United States Environmental Protection Agency (U.S. EPA) Region 9 Preliminary Remediation Goal (PRG) of 1,500 µg/kg. No other VOCs, TPH-DRO, or TPH-GRO were detected above the U.S. EPA PRG values.

Groundwater was not encountered during the 1999 MH investigation.

On December 2, 2002, EEC investigated the subsurface conditions adjacent to the OWS. EEC installed one soil boring, DP-11, adjacent to the OWS to a depth of 28 feet bgs and collected one groundwater sample for analysis of TPH-GRO and Target Compound List (TCL) VOCs. TPH-GRO was detected in the groundwater at a concentration of 330 µg/l. Benzene, cis-1,2-dichloroethene (cis-1,2-DCE), and trichloroethene (TCE) were detected in the groundwater sample at concentrations of 6.3 µg/L, 17 µg/L, and 120 µg/L, respectively, which are above the the California Maximum Contaminant Levels (MCLs) of 1.0 µg/L, 6.0 µg/L, and 5.0 µg/L, respectively. During the installation of DP-11, groundwater was encountered at an approximate depth of 26 feet bgs.

Based on the concentrations of VOCs identified in groundwater adjacent to the OWS, the OWS was removed and replaced in July 2003. A Closure Report for the OWS removal and replacement activities was prepared and will be submitted to the LPFD and the ACDEH under separate cover.

3.0 SCOPE OF WORK

Based on the nature of the VOCs detected in groundwater in the vicinity of the OWS (i.e., non-fuel constituents (chlorinated compounds), a preliminary subsurface investigation was conducted at the Site in May 2003. The purpose of the subsurface investigation was to further define the horizontal extent of VOCs in groundwater. The installation of two direct push soil borings in each direction surrounding the location of the OWS during an initial round of four direct push soil borings, SP-1 through SP-4, and a subsequent round of four direct push soil borings, SP-5 through SP-8, for a total of eight soil borings. A total of eight groundwater samples were collected for analysis of TCL VOCs. A sample summary is presented on Table 1 in Attachment B. All field activities were conducted in accordance with a Site-specific Health and Safety Plan (HASP).

3.1 SOIL BORING INSTALLATION

A total of eight soil borings, SP-1 through SP-8, were installed at the Site to investigate the horizontal extent of the VOC contamination identified during previous investigations. Stratigraphic soil boring logs are presented in Attachment C.

Soil borings were installed utilizing a direct push method (i.e., Geoprobe®) to depths of approximately 26 to 32 feet bgs. Continuous soil samples will be collected from the soil borings using a Macro-core® sampler. Soil samples collected from SP-1 and SP-5 through SP-8 were described and classified according to the Unified Soil Classification System (USCS) by a California Registered Professional Geologist. Soil samples were field screened for visual/olfactory evidence of impact and with a

photoionization detector (PID). Readings are recorded on the stratigraphic logs presented in Attachment C.

Soil borings SP-1 through SP-4 were installed on May 13, 2003 and SP-5 through SP-8 were subsequently installed on May 28, 2003, based on the analytical results of groundwater samples collected from SP-1 through SP-4 (see Section 4.0). Figure 3, presented in Attachment A, presents the approximate soil boring locations.

3.2 GROUNDWATER SAMPLE COLLECTION

A total of eight groundwater samples were collected in May 2003, one from each soil boring, for laboratory analysis for TCL VOCs.

Groundwater samples were collected through a 0.75-inch inside diameter stainless steel screen by advancing an expandable drive point into each direct push boring annulus. Groundwater was induced to the surface using new, dedicated, teflon tubing fitted with a small check valve at each sample location. Groundwater samples collected were placed in pre-cleaned laboratory-provided containers, labeled, and shipped under chain-of-custody (COC) protocol via overnight courier to Severn Trent Laboratories (STL) in North Canton, Ohio to be analyzed on a two week turn-around-time (TAT).

3.3 BOREHOLE ABANDONMENT

Upon completion of groundwater sample collection, each borehole was abandoned. All soil borings were abandoned using a tremie method to backfill the annulus with bentonite grout to the ground surface. Abandonment details are presented on the stratigraphic logs, which are presented in Attachment C.

3.4 DISPOSITION OF INVESTIGATIVE-DERIVED WASTE

Soil cuttings generated by the Geoprobe® system were returned to each boring and thoroughly mixed with bentonite grout. Groundwater not collected for sample analysis was limited to the residual content within the teflon tubing.

4.0 RESULTS

4.1 COMPARISON OF ANALYTICAL RESULTS

Groundwater sample results were compared to the California MCLs, set forth in Title 22 Social Security, Division 4, Environmental Health, Chapter 15 Domestic Water Quality and Monitoring Regulations, Article 5.5 Primary Standards - Organic Chemicals Table 64444-A.

During the initial installation of SP-1 through SP-4, cis-1,2-DCE, TCE, and methyl tert butyl ether (MTBE) were detected above the MCLs. Cis-1,2-DCE was detected in the groundwater samples

collected from SP-1 and SP-3 at concentrations of 47 µg/L and 9 µg/L, respectively, which are above the MCL of 6.0 µg/L. TCE was detected in the groundwater samples collected from SP-1 and SP-3 at concentrations of 26 µg/L and 15 µg/L, respectively, which are above the MCL of 5.0 µg/L. MTBE was detected in the groundwater samples collected from SP-1 and SP-3 at concentrations of 62 µg/L and 29 µg/L, respectively, which are above the MCL of 13 µg/L.

Based on the results of the groundwater samples collected from soil borings SP-1 through SP-4, four additional soil borings, SP-5 through SP-8, were subsequently installed and four groundwater samples were collected, one from each soil boring. TCE was detected in the groundwater sample collected from SP-8 at a concentration of 38 µg/L, which is above the MCL of 5 µg/L. Figure 4, presented in Attachment A, presents the concentrations of VOCs detected in groundwater above the MCLs.

5.0 CONCLUSIONS

The horizontal extent of the VOC contamination in shallow groundwater at concentrations above the MCLs has been delineated to the north, west, and east of the OWS. The horizontal extent of TCE contamination in shallow groundwater at concentrations above the MCLs has not been delineated to the south of the OWS.

The source of the release of VOCs, the former OWS, was removed and replaced in July 2003, under the oversight of LPFD personnel.

6.0 CLOSURE

Please contact the undersigned at (517) 316-2397 with any questions or comments regarding this Summary.

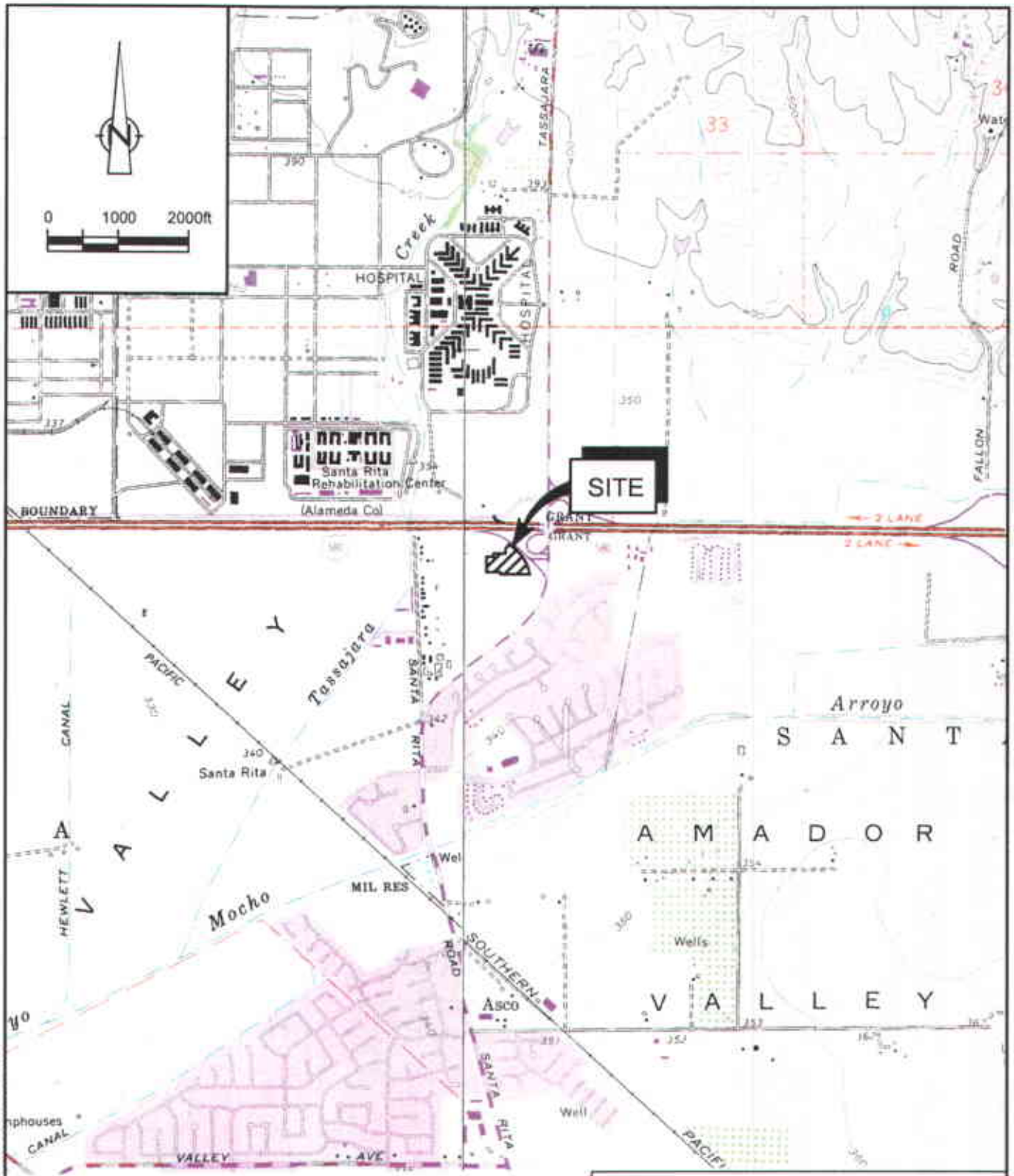
Yours truly,

Jennifer L. Quigley

Robert T. Siegfried, R.G.

BH/1/Det.
Encl.

c.c.: Rob Fogal, Saturn Corporation Inc.
Barney M. Chan – Alameda County Department of Environmental Health
Ben Holly, EEC



SOURCE: USGS QUADRANGLE MAP;
LIVERMORE AND DUBLIN, CALIFORNIA

SATURN OF PLEASANTON
PLEASANTON, CALIFORNIA

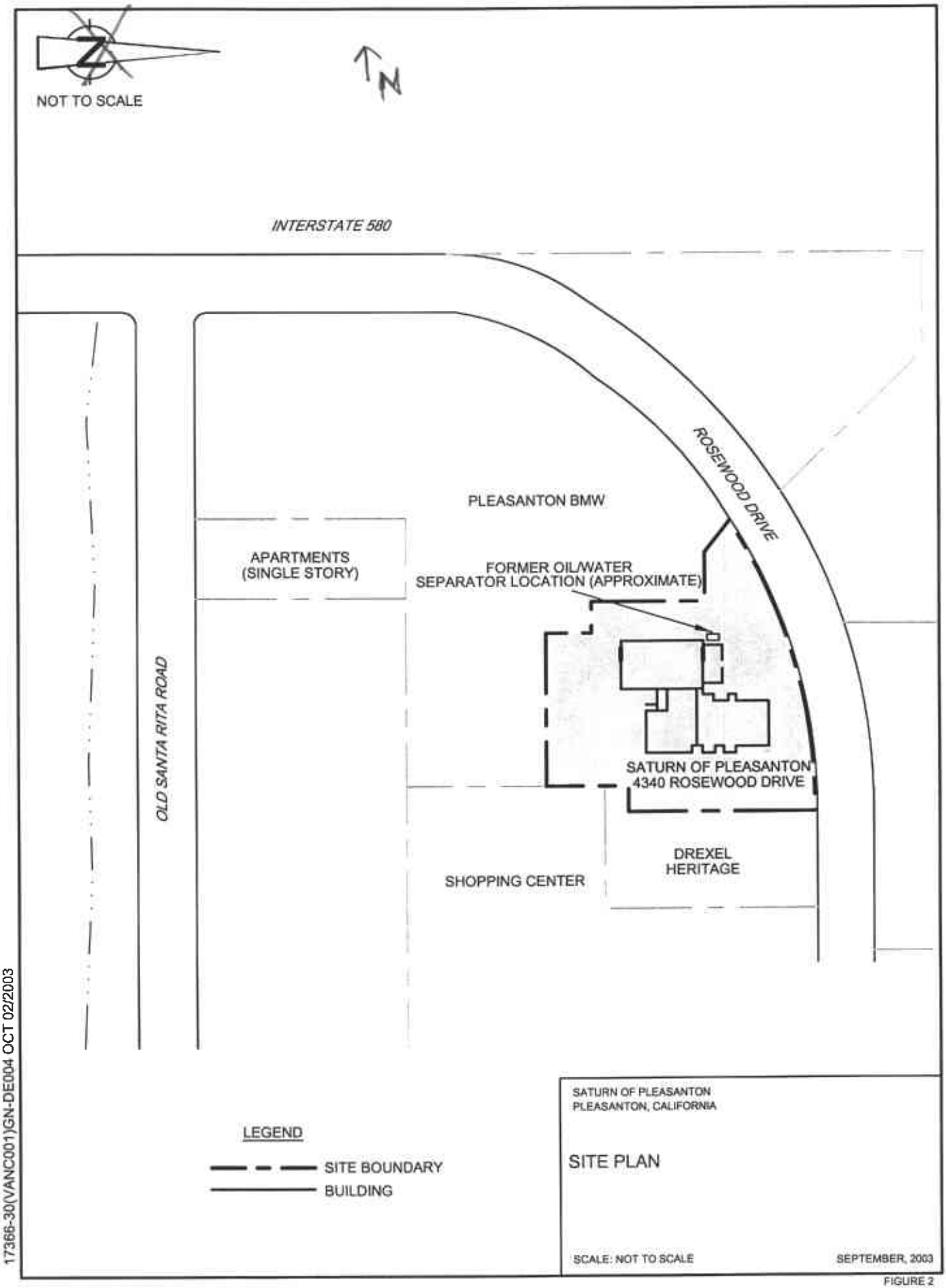
SITE LOCATION

SCALE: 1"=2000'

DECEMBER 2002

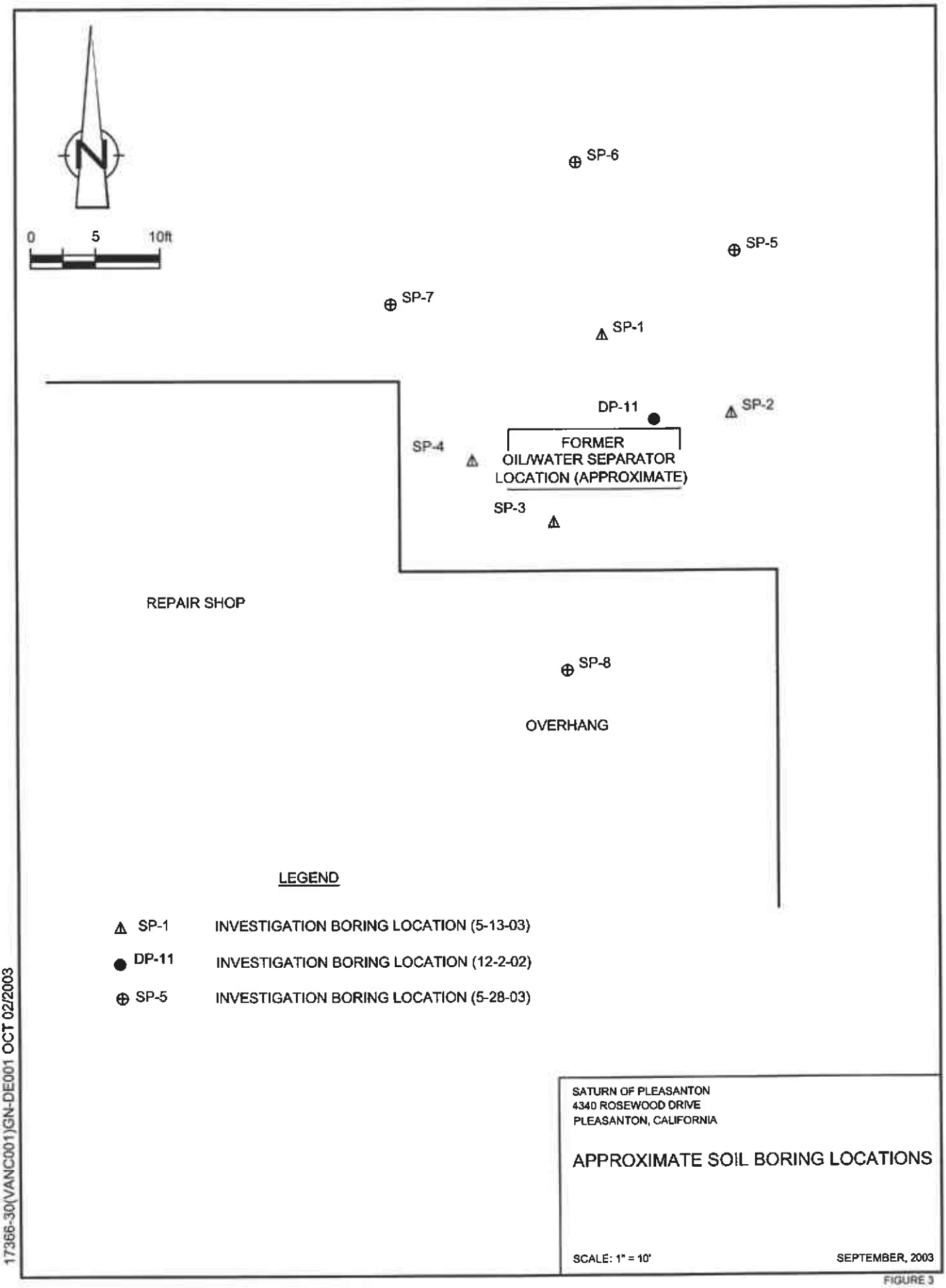
FIGURE 1

17366-30(VANC001)GN-DE003 OCT 02/2003



17366-30(VANC001)GN-DE004 OCT 02/2003

FIGURE 2



17366-30(VANC001)GN-DE001 OCT 02/2003

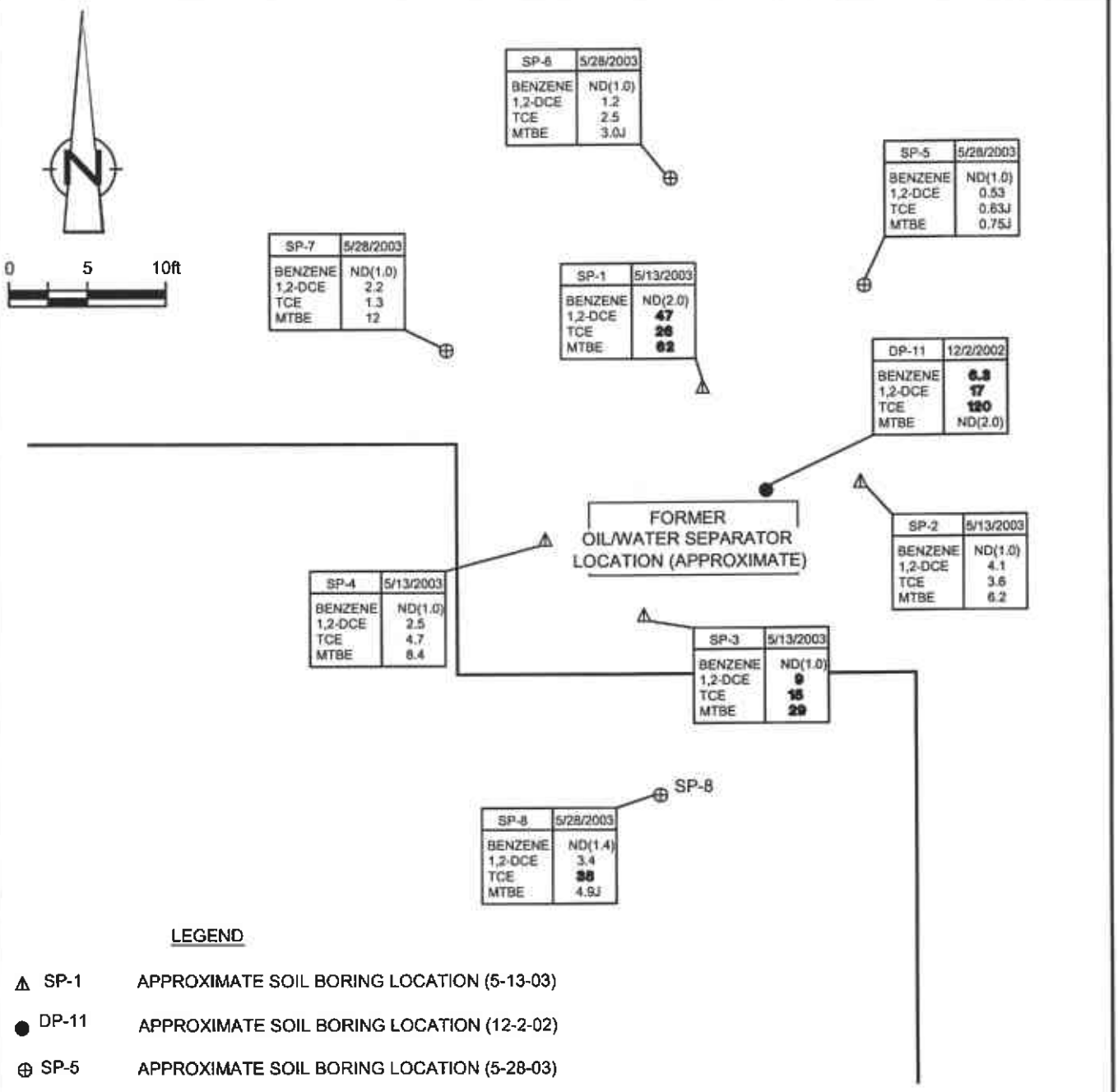
SATURN OF PLEASANTON
4340 ROSEWOOD DRIVE
PLEASANTON, CALIFORNIA

APPROXIMATE SOIL BORING LOCATIONS

SCALE: 1" = 10'

SEPTEMBER, 2003

FIGURE 3



LEGEND

⚠ SP-1	APPROXIMATE SOIL BORING LOCATION (5-13-03)
● DP-11	APPROXIMATE SOIL BORING LOCATION (12-2-02)
⊕ SP-5	APPROXIMATE SOIL BORING LOCATION (5-28-03)

1,2 DCE = CIS-1,2-DICHLOROETHENE
TCE = TRICHLOROETHENE
MTBE = METHYL TERT BUTYL ETHER

MAXIMUM CONTAMINANT LEVELS (MCLs)

BENZENE	1
CIS-1,2-DICHLOROETHENE	6
TRICHLOROETHENE	5
METHYL TERT BUTYL ETHER	13

NOTE:
ALL CONCENTRATIONS IN MICROGRAMS PER LITER (UG/L)

J - LABORATORY ESTIMATED VALUE

BOLD VALUES INDICATE AN EXCEEDANCE OF THE RESPECTIVE MCL VALUE

SATURN OF PLEASANTON
4340 ROSEWOOD DRIVE
PLEASANTON, CALIFORNIA

GROUNDWATER VOC CONCENTRATIONS

SCALE: 1" = 10'

SEPTEMBER, 2003

FIGURE 4

17366-30(VANC001)GN-DE002 OCT 06/2003

TABLE 1

SAMPLE KEY
SATURN OF PLEASANTON GROUNDWATER INVESTIGATION
PLEASANTON, CALIFORNIA

Sample Identification	*Sample Location*	*Sample Matrix*	*Analysis* [1]
W-120202-RS-11	DP-11	Water	TCL VOCs
GW-051303-RS-1	SP-1	Water	TCL VOCs
GW-051303-RS-2	SP-2	Water	TCL VOCs
GW-051303-RS-3	SP-3	Water	TCL VOCs
GW-051303-RS-4	SP-4	Water	TCL VOCs
GW-052803-RS-1	SP-5	Water	TCL VOCs
GW-052803-RS-2	SP-6	Water	TCL VOCs
GW-052803-RS-3	SP-7	Water	TCL VOCs
GW-052803-RS-4	SP-8	Water	TCL VOCs

[1] Samples were transported under chain-of-custody (COC) protocol to Severn Trent Laboratories (STL) located in North Canton, Ohio for analysis of Target Compound List (TCL) volatile organic compounds (VOCs) on a 72-hour turn around time.

TABLE 2

SUMMARY OF DETECTED TCL VOCs IN GROUNDWATER SAMPLES
SATURN OF PLEASANTON GROUNDWATER INVESTIGATION
PLEASANTON, CALIFORNIA

Sample Location / *Sample ID (GW-)* / *Sample Date*	*Maximum Contaminant Levels (ug/L)* [1]	*DP-11* *120202-RS-11* *12/2/2002*	*SP-1* *051303-RS-1* *5/13/2003*	*SP-2* *051303-RS-2* *5/13/2003*	*SP-3* *051303-RS-3* *5/13/2003*	*SP-4* *051303-RS-4* *5/13/2003*	*SP-5* *052803-RS-1* *5/28/2003*	*SP-6* *052803-RS-2* *5/28/2003*	*SP-7* *052803-RS-3* *5/28/2003*	*SP-8* *052803-RS-4* *5/28/2003*
Parameter (ug/L)										
TCL VOCs										
Benzene	1.0	**6.3**	ND (2.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.4)
1,1-Dichloroethane	5.0	ND (2.0)	ND (2.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	2.6
1,1-Dichloroethene	6.0	2.5	ND (2.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.4)
cis-1,2-Dichloroethene	6.0	**17**	**47**	4.1	**9**	2.5	0.53	1.2	2.2	3.4
trans-1,2-Dichloroethene	10	8.2	ND (1.0)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.72)
Ethylbenzene	300	5.5	ND (2.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.4)
Tetrachloroethene	5.0	2.8	2.6	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	0.67 J	ND (1.0)	4.2
Trichloroethene	5.0	**120**	**26**	3.6	**15**	4.7	0.63 J	2.5	1.3	**38**
Xylenes (total)	1,750	19	3.2	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.4)
Methyl tert-butyl ether	13	ND (2.0)	**62**	6.2	**29**	8.4	0.75 J	3.0 J	12	4.9 J

Notes:

[1] Title 22. Social Security, Division 4. Environmental Health, Chapter 15. Domestic Water Quality and Monitoring Regulations, Article 5.5 Primary Standards-Organic Chemicals Table 64444-A

J – Laboratory Estimated Value

ug/L - micrograms per liter

TCL VOCs - Target Compound List Volatile Organic Compounds

Bold and boxed concentrations exceed MCLs.

ND (1.0) Value is Less Than the Applicable Method Detection Limit

ATTACHMENT C

STRATIGRAPHIC BORING LOGS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SATURN OF PLEASANTON
PROJECT NUMBER: 17366-30
CLIENT: EEC
LOCATION: PLEASANTON, CALIFORNIA

HOLE DESIGNATION: SP-1
DATE COMPLETED: May 13, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: B. SIEGFRIED

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	ML-CLAYEY SILT, stiff, light brown, damp		HYDRATED BENTONITE GRANULES	1GP				ND
2			2" BOREHOLE					
4								
6				2GP				ND
8	CL-SILTY CLAY, stiff, brown, damp to moist	8.00						
10				3GP				ND
12								
14	- becoming black at 14.0ft BGS			4GP				ND
16								
18	CH-CLAY, hard, dark brown, moist to wet	18.00		5GP				ND
20								
22				6GP				ND
24								
26				7GP				ND
28	SP-SILTY SAND, loose, wet (flowing), fine to medium grained	28.00						
30	- highly plastic at 28.0ft BGS CH-CLAY, hard, dark brown, moist to wet	30.00		(8GP)				ND
32	END OF BOREHOLE @ 32.0ft BGS	32.00						
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (8GP)

OVERBURDEN LOG 17366-30.GPJ CRA_CORP.GDT 9/25/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SATURN OF PLEASANTON
PROJECT NUMBER: 17366-30
CLIENT: EEC
LOCATION: PLEASANTON, CALIFORNIA

HOLE DESIGNATION: SP-2
DATE COMPLETED: May 13, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: B. SIEGFRIED

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	ML-CLAYEY SILT, stiff, light brown, damp		HYDRATED BENTONITE GRANULES	1GP				ND
2			2" BOREHOLE					
4								
6				2GP				ND
8	CL-SILTY CLAY, stiff, brown, damp to moist	8.00						
10				3GP				ND
12								
14	- becoming black at 14.0ft BGS			4GP				ND
16								
18	CH-CLAY, hard, dark brown, moist to wet	18.00		5GP				ND
20								
22				6GP				ND
24								
26				7GP				ND
28	SP-SILTY SAND, loose, wet (flowing), fine to medium grained	28.00						
30	- highly plastic at 28.0ft BGS CH-CLAY, hard, dark brown, moist to wet	30.00		(8GP)				ND
32	END OF BOREHOLE @ 32.0ft BGS	32.00						
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (8GP)

OVERBURDEN LOG 17366-30.GPJ CRA_CORP.GDT 9/25/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SATURN OF PLEASANTON
PROJECT NUMBER: 17366-30
CLIENT: EEC
LOCATION: PLEASANTON, CALIFORNIA

HOLE DESIGNATION: SP-3
DATE COMPLETED: May 13, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: B. SIEGFRIED

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	ML-CLAYEY SILT, stiff, light brown, damp		HYDRATED BENTONITE GRANULES	1GP				ND
2			2" BOREHOLE					
4								
6				2GP				ND
8	CL-SILTY CLAY, stiff, brown, damp to moist	8.00						
10				3GP				ND
12								
14	- becoming black at 14.0ft BGS			4GP				ND
16								
18	CH-CLAY, hard, dark brown, moist to wet	18.00		5GP				ND
20								
22				6GP				ND
24								
26				7GP				ND
28	SP-SILTY SAND, loose, wet (flowing), fine to medium grained	28.00						
30	- highly plastic at 28.0ft BGS CH-CLAY, hard, dark brown, moist to wet	30.00		8GP				ND
32	END OF BOREHOLE @ 32.0ft BGS	32.00						
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 17366-30.GPJ CRA_CORP.GDT 9/25/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: SATURN OF PLEASANTON
PROJECT NUMBER: 17366-30
CLIENT: EEC
LOCATION: PLEASANTON, CALIFORNIA

HOLE DESIGNATION: SP-4
DATE COMPLETED: May 13, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: B. SIEGFRIED

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	ML-CLAYEY SILT, stiff, light brown, damp		HYDRATED BENTONITE GRANULES	1GP				ND
2			2" BOREHOLE					
4								
6				2GP				ND
8	CL-SILTY CLAY, stiff, brown, damp to moist	8.00						
10				3GP				ND
12								
14	- becoming black at 14.0ft BGS			4GP				ND
16								
18	CH-CLAY, hard, dark brown, moist to wet	18.00		5GP				ND
20								
22				6GP				ND
24								
26				7GP				ND
28	SP-SILTY SAND, loose, wet (flowing), fine to medium grained	28.00						
30	- highly plastic at 28.0ft BGS CH-CLAY, hard, dark brown, moist to wet	30.00		8GP				ND
32	END OF BOREHOLE @ 32.0ft BGS	32.00						
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (8GP)

OVERBURDEN LOG 17366-30.GPJ CRA_CORP.GDT 9/25/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: SATURN OF PLEASANTON
PROJECT NUMBER: 17366-30
CLIENT: EEC
LOCATION: PLEASANTON, CALIFORNIA

HOLE DESIGNATION: SP-5
DATE COMPLETED: May 28, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: B. SIEGFRIED

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	ML-CLAYEY SILT, stiff, light brown, dry							
2		2.60	HYDRATED BENTONITE GRANULES	1GP				ND
	SP-SAND, compact, light brown, fine grained, dry	3.20						
4	ML-CLAYEY SILT, stiff, light brown, damp							
		5.00	2" BOREHOLE					
6	SP-SAND, compact, light brown, fine grained, dry	5.60		2GP				ND
	ML-CLAYEY SILT, stiff, brown, moist							
8		8.50						
	CH-CLAY, stiff, dark brown, plastic, moist							
10				3GP				ND
12								
14				4GP				ND
	- becoming black and highly plastic at 15.0ft BGS							
16								
18				5GP				ND
20								
	- becoming dark brown at 21.0ft BGS							
22				6GP				ND
24								
	SM-SILTY SAND, compact, light brown, wet	24.50	▽	(7GP)				ND
26	END OF BOREHOLE @ 26.0ft BGS	26.00						
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 17366-30.GPJ CRA_CORP.GDT 9/25/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SATURN OF PLEASANTON
PROJECT NUMBER: 17366-30
CLIENT: EEC
LOCATION: PLEASANTON, CALIFORNIA

HOLE DESIGNATION: SP-6
DATE COMPLETED: May 28, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: B. SIEGFRIED

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	CL-SILTY CLAY, stiff, light brown, damp		HYDRATED BENTONITE GRANULES	1GP				ND
3.40	SM-SILTY SAND, compact, light brown, dry	3.40						
4.00	ML/CL-SILT, firm, brown, moist and clay, stiff to hard, dark brown	4.00	2" BOREHOLE	2GP				ND
				3GP				ND
				4GP				ND
				5GP				ND
				6GP				ND
24.20	SP-SAND, compact, brown, fine to medium grained, wet	24.20		7GP				ND
25.00	CH-CLAY, hard, brown, plastic, saturated	25.00						
26.00	END OF BOREHOLE @ 26.0ft BGS	26.00						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 17366-30.GPJ CRA_CORP.GDT 9/25/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: SATURN OF PLEASANTON
PROJECT NUMBER: 17366-30
CLIENT: EEC
LOCATION: PLEASANTON, CALIFORNIA

HOLE DESIGNATION: SP-7
DATE COMPLETED: May 28, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: B. SIEGFRIED

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	ML-SANDY SILT, compact, light brown, dry		HYDRATED BENTONITE GRANULES	1GP				ND
3.70	SM-SILTY SAND, compact, light brown, fine grained, dry		2" BOREHOLE					
5.00	ML-SILT, firm, brown, moist			2GP				ND
5.50	SM-SILTY SAND, compact, light brown, moist							
6.00	ML-CLAYEY SILT, stiff, brown, moist							
8.50	CH-CLAY, stiff, dark brown, plastic, moist			3GP				ND
	- becoming blacker, hard at 13.8ft BGS			4GP				ND
	- becoming dark brown at 22.0ft BGS			5GP				ND
				6GP				ND
				7GP				ND
26.70	SM-SILTY SAND, compact, brown, fine grained, wet		▽					
27.50	CH-CLAY, hard, brown, saturated							
29.00	END OF BOREHOLE @ 29.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 17366-30.GPJ CRA_CORP.GDT 9/25/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: SATURN OF PLEASANTON
PROJECT NUMBER: 17366-30
CLIENT: EEC
LOCATION: PLEASANTON, CALIFORNIA

HOLE DESIGNATION: SP-8
DATE COMPLETED: May 28, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: B. SIEGFRIED

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	ML-SANDY SILT, compact, light brown, dry		HYDRATED BENTONITE GRANULES	1GP				ND
	SM-SILTY SAND, loose, light brown, dry	3.50						
	ML-CLAYEY SILT, stiff, brown, moist	4.30	2" BOREHOLE	2GP				ND
	CH-CLAY, stiff, brown to dark brown, plastic, moist	9.00		3GP				ND
	- becoming blacker, highly plastic at 14.0ft BGS			4GP				ND
	- becoming dark brown at 22.0ft BGS			5GP				ND
				6GP				ND
				7GP				ND
	SM-SILTY SAND, compact, brown, fine grained, wet	26.00		8GP				ND
	CH-CLAY, stiff to hard, dark brown, saturated	27.00						
	END OF BOREHOLE @ 29.0ft BGS	29.00						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 17366-30.GPJ CRA_CORP.GDT 9/25/03

ATTACHMENT D

LABORATORY ANALYTICAL RESULTS

SEVERN TRENT STL

ANALYTICAL REPORT

PROJECT NO. 17366-30

SATURN OF PLEASANTON

Lot #: A3E140168

Paul Wiseman

ENCORE Environmental Consultan
14496 Sheldon Rd Suite 200
Plymouth, MI 48170

SEVERN TRENT LABORATORIES, INC.

Amy L. McCormick
Project Manager

May 28, 2003

CASE NARRATIVE

A3E140168

The following report contains the analytical results for four water samples and one quality control sample submitted to STL North Canton by Encore Environmental Consultant from the Saturn of Pleasanton Site, project number 17366-30. The samples were received May 14, 2003, according to documented sample acceptance procedures.

The samples presented in this report were analyzed for the parameter listed on the analytical methods summary page in accordance with the method indicated. Preliminary results were provided to Jeni Quigley, Ben Holly, and the Chemistry Department on May 19, 2003. A summary of QC data for these analyses is included at the rear of the report.

STL utilizes USEPA approved methods in all analytical work. The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Amy McCormick
Project Manager

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

STL North Canton conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. STL North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed below.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals
Methylene chloride	Phthalate Esters	Copper
Acetone		Iron
2-Butanone		Zinc
		Lead*

- *for analyses run on TJA Trace ICP, ICPMS or GFAA only*

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable. The acceptance criteria do not apply to samples that are diluted for organics if the native sample amount is 4x the concentration of the spike.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepped and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepped and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide, PCB, PAH, and Herbicide methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria.

ANALYTICAL METHODS SUMMARY

A3E140168

PARAMETER	ANALYTICAL METHOD
Volatile Organics by GC/MS	SW846 8260B

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A3E140168

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FNNVV	001	GW-051303-RS-1	05/13/03	10:25
FNNVX	002	GW-051303-RS-2	05/13/03	11:00
FNNV0	003	GW-051303-RS-3	05/13/03	11:40
FNNV1	004	GW-051303-RS-4	05/13/03	12:25
FNNV2	005	TRIP BLANK	05/13/03	

NOTE(S):

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

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-051303-RS-1

GC/MS Volatiles

Lot-Sample #...: A3E140168-001 Work Order #...: FNNVV1AA Matrix.....: WG
Date Sampled...: 05/13/03 10:25 Date Received..: 05/14/03
Prep Date.....: 05/16/03 Analysis Date..: 05/16/03
Prep Batch #...: 3139182
Dilution Factor: 2 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	20	ug/L
Benzene	ND	2.0	ug/L
Bromodichloromethane	ND	2.0	ug/L
Bromoform	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
2-Butanone	ND	20	ug/L
Carbon disulfide	ND	2.0	ug/L
Carbon tetrachloride	ND	2.0	ug/L
Chlorobenzene	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	2.0	ug/L
Chloromethane	ND	2.0	ug/L
Cyclohexane	ND	2.0	ug/L
Dibromochloromethane	ND	2.0	ug/L
1,2-Dibromo-3-chloro-propane	ND	4.0	ug/L
1,2-Dibromoethane	ND	2.0	ug/L
1,2-Dichlorobenzene	ND	2.0	ug/L
1,3-Dichlorobenzene	ND	2.0	ug/L
1,4-Dichlorobenzene	ND	2.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	2.0	ug/L
1,2-Dichloroethane	ND	2.0	ug/L
1,1-Dichloroethene	ND	2.0	ug/L
cis-1,2-Dichloroethene	**47**	**1.0**	**ug/L**
trans-1,2-Dichloroethene	ND	1.0	ug/L
1,2-Dichloropropane	ND	2.0	ug/L
cis-1,3-Dichloropropene	ND	2.0	ug/L
trans-1,3-Dichloropropene	ND	2.0	ug/L
Ethylbenzene	ND	2.0	ug/L
2-Hexanone	ND	20	ug/L
Isopropylbenzene	ND	2.0	ug/L
Methyl acetate	ND	20	ug/L
Methylene chloride	ND	2.0	ug/L
Methylcyclohexane	ND	2.0	ug/L
4-Methyl-2-pentanone	ND	20	ug/L
Methyl tert-butyl ether	**62**	**10**	**ug/L**
Styrene	ND	2.0	ug/L
1,1,2,2-Tetrachloroethane	ND	2.0	ug/L

(Continued on next page)

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-051303-RS-1

GC/MS Volatiles

Lot-Sample #...: A3E140168-001 Work Order #...: FNNVV1AA Matrix.....: WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Tetrachloroethene	**2.6**	**2.0**	**ug/L**
Toluene	ND	2.0	ug/L
1,2,4-Trichloro-benzene	ND	2.0	ug/L
1,1,1-Trichloroethane	ND	2.0	ug/L
1,1,2-Trichloroethane	ND	2.0	ug/L
Trichloroethene	**26**	**2.0**	**ug/L**
Trichlorofluoromethane	ND	2.0	ug/L
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	**3.2**	**2.0**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	99	(73 - 122)
1,2-Dichloroethane-d4	95	(61 - 128)
Toluene-d8	101	(76 - 110)
4-Bromofluorobenzene	98	(74 - 116)

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-051303-RS-2

GC/MS Volatiles

Lot-Sample #...: A3E140168-002 Work Order #...: FNNVX1AA Matrix.....: WG
Date Sampled...: 05/13/03 11:00 Date Received..: 05/14/03
Prep Date.....: 05/16/03 Analysis Date..: 05/16/03
Prep Batch #...: 3139182
Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	10	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroethane	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	1.0	ug/L
Cyclohexane	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	**4.1**	**0.50**	**ug/L**
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
2-Hexanone	ND	10	ug/L
Isopropylbenzene	ND	1.0	ug/L
Methyl acetate	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L
Methylcyclohexane	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	10	ug/L
Methyl tert-butyl ether	**6.2**	**5.0**	**ug/L**
Styrene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L

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ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-051303-RS-2

GC/MS Volatiles

Lot-Sample #...: A3E140168-002 Work Order #...: FNNVX1AA Matrix.....: WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,2,4-Trichloro-benzene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	**3.6**	**1.0**	**ug/L**
Trichlorofluoromethane	ND	1.0	ug/L
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	ug/L
Vinyl chloride	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	101	(73 - 122)
1,2-Dichloroethane-d4	95	(61 - 128)
Toluene-d8	100	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-051303-RS-3

GC/MS Volatiles

Lot-Sample #...: A3E140168-003 Work Order #...: FNNV01AA Matrix.....: WG
Date Sampled...: 05/13/03 11:40 Date Received..: 05/14/03
Prep Date.....: 05/16/03 Analysis Date..: 05/16/03
Prep Batch #...: 3139182
Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	10	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroethane	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	1.0	ug/L
Cyclohexane	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	**9.0**	**0.50**	**ug/L**
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
2-Hexanone	ND	10	ug/L
Isopropylbenzene	ND	1.0	ug/L
Methyl acetate	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L
Methylcyclohexane	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	10	ug/L
Methyl tert-butyl ether	**29**	**5.0**	**ug/L**
Styrene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L

(Continued on next page)

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-051303-RS-3

GC/MS Volatiles

Lot-Sample #...: A3E140168-003 Work Order #...: FNNV01AA Matrix.....: WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,2,4-Trichloro-benzene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	**15**	**1.0**	**ug/L**
Trichlorofluoromethane	ND	1.0	ug/L
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	ug/L
Vinyl chloride	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(73 - 122)
1,2-Dichloroethane-d4	95	(61 - 128)
Toluene-d8	99	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-051303-RS-4

GC/MS Volatiles

Lot-Sample #...: A3E140168-004 Work Order #...: FNNV11AA Matrix.....: WG
Date Sampled...: 05/13/03 12:25 Date Received..: 05/14/03
Prep Date.....: 05/16/03 Analysis Date..: 05/16/03
Prep Batch #...: 3139182
Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	10	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroethane	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	1.0	ug/L
Cyclohexane	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	**2.5**	**0.50**	**ug/L**
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
2-Hexanone	ND	10	ug/L
Isopropylbenzene	ND	1.0	ug/L
Methyl acetate	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L
Methylcyclohexane	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	10	ug/L
Methyl tert-butyl ether	**8.4**	**5.0**	**ug/L**
Styrene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L

(Continued on next page)

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-051303-RS-4

GC/MS Volatiles

Lot-Sample #...: A3E140168-004 Work Order #...: FNNV11AA Matrix.....: WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,2,4-Trichloro-benzene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	**4.7**	**1.0**	**ug/L**
Trichlorofluoromethane	ND	1.0	ug/L
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	ug/L
Vinyl chloride	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	100	(73 - 122)
1,2-Dichloroethane-d4	96	(61 - 128)
Toluene-d8	97	(76 - 110)
4-Bromofluorobenzene	95	(74 - 116)

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: A3E140168-005 Work Order #...: FNNV21AA Matrix.....: WQ
Date Sampled...: 05/13/03 Date Received..: 05/14/03
Prep Date.....: 05/16/03 Analysis Date..: 05/16/03
Prep Batch #...: 3139182
Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	10	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroethane	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	1.0	ug/L
Cyclohexane	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	0.50	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
2-Hexanone	ND	10	ug/L
Isopropylbenzene	ND	1.0	ug/L
Methyl acetate	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L
Methylcyclohexane	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	10	ug/L
Methyl tert-butyl ether	ND	5.0	ug/L
Styrene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L

(Continued on next page)

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: A3E140168-005 Work Order #...: FNNV21AA Matrix.....: WQ

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,2,4-Trichloro-benzene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Trichlorofluoromethane	ND	1.0	ug/L
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	ug/L
Vinyl chloride	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	102	(73 - 122)
1,2-Dichloroethane-d4	96	(61 - 128)
Toluene-d8	97	(76 - 110)
4-Bromofluorobenzene	94	(74 - 116)

QUALITY CONTROL SECTION

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A3E140168
MB Lot-Sample #: A3E190000-182

Work Order #...: FN0NA1AA
Matrix.....: WATER

Prep Date.....: 05/16/03
Prep Batch #...: 3139182

Analysis Date..: 05/16/03
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
Bromomethane	ND	1.0	ug/L	SW846 8260B
2-Butanone	ND	10	ug/L	SW846 8260B
Carbon disulfide	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	1.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
Chloromethane	ND	1.0	ug/L	SW846 8260B
Cyclohexane	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260B
1,2-Dibromoethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
Dichlorodifluoromethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
2-Hexanone	ND	10	ug/L	SW846 8260B
Isopropylbenzene	ND	1.0	ug/L	SW846 8260B
Methyl acetate	ND	10	ug/L	SW846 8260B
Methylene chloride	ND	1.0	ug/L	SW846 8260B
Methylcyclohexane	ND	1.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260B
Methyl tert-butyl ether	ND	5.0	ug/L	SW846 8260B
Styrene	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A3E140168 Work Order #...: FN0NA1AA Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
1,2,4-Trichloro-benzene	ND	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	ug/L	SW846 8260B
Vinyl chloride	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	100	(73 - 122)
1,2-Dichloroethane-d4	94	(61 - 128)
Toluene-d8	99	(76 - 110)
4-Bromofluorobenzene	98	(74 - 116)

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 #...: A3E140168 Work Order #...: FN0NA1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: A3E190000-182 FN0NA1AD-LCSD
Prep Date.....: 05/16/03 Analysis Date..: 05/16/03
Prep Batch #...: 3139182
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	**10**	**10**	**ug/L**	**104**		**SW846 8260B**
	10	**10**	**ug/L**	**104**	**0.37**	**SW846 8260B**
Chlorobenzene	**10**	**10**	**ug/L**	**101**		**SW846 8260B**
	10	**10**	**ug/L**	**102**	**1.4**	**SW846 8260B**
1,1-Dichloroethene	**10**	**10**	**ug/L**	**103**		**SW846 8260B**
	10	**12**	**ug/L**	**120**	**16**	**SW846 8260B**
Toluene	**10**	**10**	**ug/L**	**104**		**SW846 8260B**
	10	**10**	**ug/L**	**105**	**0.82**	**SW846 8260B**
Trichloroethene	**10**	**10**	**ug/L**	**102**		**SW846 8260B**
	10	**10**	**ug/L**	**103**	**0.33**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(73 - 122)
	99	(73 - 122)
1,2-Dichloroethane-d4	98	(61 - 128)
	96	(61 - 128)
Toluene-d8	99	(76 - 110)
	99	(76 - 110)
4-Bromofluorobenzene	100	(74 - 116)
	100	(74 - 116)

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 #...: A3E140168 Work Order #...: FN0NA1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: A3E190000-182 FN0NA1AD-LCSD
Prep Date.....: 05/16/03 Analysis Date..: 05/16/03
Prep Batch #...: 3139182
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	104	(80 - 116)			SW846 8260B
	104	(80 - 116)	0.37	(0-20)	SW846 8260B
Chlorobenzene	101	(76 - 117)			SW846 8260B
	102	(76 - 117)	1.4	(0-20)	SW846 8260B
1,1-Dichloroethene	103	(63 - 130)			SW846 8260B
	120	(63 - 130)	16	(0-20)	SW846 8260B
Toluene	104	(74 - 119)			SW846 8260B
	105	(74 - 119)	0.82	(0-20)	SW846 8260B
Trichloroethene	102	(75 - 122)			SW846 8260B
	103	(75 - 122)	0.33	(0-20)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(73 - 122)
	99	(73 - 122)
1,2-Dichloroethane-d4	98	(61 - 128)
	96	(61 - 128)
Toluene-d8	99	(76 - 110)
	99	(76 - 110)
4-Bromofluorobenzene	100	(74 - 116)
	100	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A3E140168 Work Order #...: FNF061AC-MS Matrix.....: WATER
MS Lot-Sample #: A3E090279-019 FNF061AD-MSD
Date Sampled...: 05/07/03 17:10 Date Received..: 05/09/03
Prep Date.....: 05/16/03 Analysis Date..: 05/16/03
Prep Batch #...: 3139182
Dilution Factor: 333.33

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzene	ND	3300	3600	ug/L	107		SW846 8260B
	ND	3300	3600	ug/L	108	0.94	SW846 8260B
Chlorobenzene	ND	3300	3400	ug/L	102		SW846 8260B
	ND	3300	3500	ug/L	105	2.6	SW846 8260B
1,1-Dichloroethene	ND	3300	3600	ug/L	109		SW846 8260B
	ND	3300	3700	ug/L	110	0.95	SW846 8260B
Toluene	ND	3300	3500	ug/L	104		SW846 8260B
	ND	3300	3600	ug/L	107	2.3	SW846 8260B
Trichloroethene	ND	3300	3400	ug/L	102		SW846 8260B
	ND	3300	3500	ug/L	106	4.5	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	100	(73 - 122)
	102	(73 - 122)
1,2-Dichloroethane-d4	100	(61 - 128)
	99	(61 - 128)
Toluene-d8	99	(76 - 110)
	100	(76 - 110)
4-Bromofluorobenzene	103	(74 - 116)
	101	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A3E140168 Work Order #...: FNF061AC-MS Matrix.....: WATER
MS Lot-Sample #: A3E090279-019 FNF061AD-MSD
Date Sampled...: 05/07/03 17:10 Date Received..: 05/09/03
Prep Date.....: 05/16/03 Analysis Date..: 05/16/03
Prep Batch #...: 3139182
Dilution Factor: 333.33

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**107**	**(78 - 118)**			**SW846 8260B**
	108	**(78 - 118)**	**0.94**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**102**	**(76 - 117)**			**SW846 8260B**
	105	**(76 - 117)**	**2.6**	**(0-20)**	**SW846 8260B**
1,1-Dichloroethene	**109**	**(62 - 130)**			**SW846 8260B**
	110	**(62 - 130)**	**0.95**	**(0-20)**	**SW846 8260B**
Toluene	**104**	**(70 - 119)**			**SW846 8260B**
	107	**(70 - 119)**	**2.3**	**(0-20)**	**SW846 8260B**
Trichloroethene	**102**	**(62 - 130)**			**SW846 8260B**
	106	**(62 - 130)**	**4.5**	**(0-20)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	100	(73 - 122)
	102	(73 - 122)
1,2-Dichloroethane-d4	100	(61 - 128)
	99	(61 - 128)
Toluene-d8	99	(76 - 110)
	100	(76 - 110)
4-Bromofluorobenzene	103	(74 - 116)
	101	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

CHAIN OF CUSTODY RECORD

CONESTOGA-ROVERS & ASSOCIATES
STOCKTON

SHIPPED TO (Laboratory Name): STL

REFERENCE NUMBER: 12366-30

SAMPLER'S SIGNATURE: Robt T. Siegfried PRINTED NAME: Bob Siegfried

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. of Containers	PARAMETERS: VOCs	REMARKS
	5-13-03	1025	GW-051303-RS-1	W	3		Call Paul Wiseman CRA - Detroit for Confirmation
		1100	GW-051303-RS-2		3		
		1140	GW-051303-RS-3		3		
		1225	GW-051303-RS-4		3		72 hr. TURN
			TRIP - BLANK		1		

TOTAL NUMBER OF CONTAINERS: 13

HEALTH/CHEMICAL HAZARDS

RELINQUISHED BY: ① Robt T. Siegfried	DATE: 5-13-03 TIME: 1515	RECEIVED BY: ①	DATE: TIME:
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:

METHOD OF SHIPMENT: WAY BILL No.

White –Fully Executed Copy
Yellow –Receiving Laboratory Copy
Pink –Shipper Copy
Goldenrod –Sampler Copy

SAMPLE TEAM:

RECEIVED FOR LABORATORY BY:

DATE: 5/14/03 TIME: 1025

No CRA 01033

1001 (D) APR 28/97(NF) REV. 0 (F-15)

24

STL North Canton

CHAIN OF CUSTODY RECORD **REVISED**

SHIPPED TO (Laboratory Name): STL	REFERENCE NUMBER: ~~12366-30~~ 17366-30

SAMPLER'S SIGNATURE: Robt J Siegfried PRINTED NAME: Bob Siegfried

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. of Containers	PARAMETERS: VOCs									REMARKS
	5-13-03	1025	GW-051303-RS-1	W	3	X									Call Zvi Williams
	↓	1100	GW-051303-RS-2		3	X									CRA - Detroit
		1110	GW-051303-RS-3		3	X									for Confirmation
	↓	1225	GW-051303-RS-4		3	X									
			TRIP - BLANK		1	X									72 hr. Turn

TOTAL NUMBER OF CONTAINERS: 13

HEALTH/CHEMICAL HAZARDS

RELINQUISHED BY: ① Robt J Siegfried	DATE: 5-13-03 TIME: 1315	RECEIVED BY: ①	DATE: TIME:
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:

METHOD OF SHIPMENT: WAY BILL No.

White —Fully Executed Copy
Yellow —Receiving Laboratory Copy
Pink —Shipper Copy
Goldenrod —Sampler Copy

SAMPLE TEAM:

RECEIVED FOR LABORATORY BY:

DATE: TIME:

1001 (D) / 15)

SEVERN TRENT STL

END OF REPORT

SEVERN TRENT STL

ANALYTICAL REPORT

PROJECT NO. 017366-30

SATURN OF PLEASANTON

Lot #: A3E310104

Paul Wiseman

ENCORE Environmental Consultan
14496 Sheldon Rd Suite 200
Plymouth, MI 48170

SEVERN TRENT LABORATORIES, INC.

Amy L. McCormick
Project Manager

June 20, 2003

CASE NARRATIVE

A3E310104

The following report contains the analytical results for four water samples and one quality control sample submitted to STL North Canton by Encore Environmental Consultant from the Saturn of Pleasanton Site, project number 017366-30. The samples were received May 30, 2003, according to documented sample acceptance procedures.

The samples presented in this report were analyzed for the parameter listed on the analytical methods summary page in accordance with the method indicated. Preliminary results were provided to the Chemistry Department on June 13, 2003. A summary of QC data for these analyses is included at the rear of the report.

SUPPLEMENTAL QC INFORMATION

GC/MS VOLATILES

Sample(s) that contain results between the MDL and the RL were flagged with "J". There is the possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

STL utilizes USEPA approved methods in all analytical work. The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Amy McCormick
Project Manager

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

STL North Canton conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. STL North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed below.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals
Methylene chloride	Phthalate Esters	Copper
Acetone		Iron
2-Butanone		Zinc
		Lead*

- *for analyses run on TJA Trace ICP, ICPMS or GFAA only*

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable. The acceptance criteria do not apply to samples that are diluted for organics if the native sample amount is 4x the concentration of the spike.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepped and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepped and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide, PCB, PAH, and Herbicide methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria.

ANALYTICAL METHODS SUMMARY

A3E310104

PARAMETER	ANALYTICAL METHOD
Volatile Organics by GC/MS	SW846 8260B

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A3E310104

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FPPJK	001	GW-052803-RS-1	05/28/03	11:10
FPPJL	002	GW-052803-RS-2	05/28/03	12:25
FPPJM	003	GW-052803-RS-3	05/28/03	14:15
FPPJN	004	GW-052803-RS-4	05/28/03	15:35
FPPJP	005	TRIP BLANK	05/28/03	

NOTE(S):

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

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-052803-RS-1

GC/MS Volatiles

Lot-Sample #...: A3E310104-001 Work Order #...: FPPJK1AA Matrix.....: WG
Date Sampled...: 05/28/03 11:10 Date Received..: 05/30/03
Prep Date.....: 06/09/03 Analysis Date..: 06/09/03
Prep Batch #...: 3160375
Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**5.5 J**	**10**	**ug/L**
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroethane	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	1.0	ug/L
Cyclohexane	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	**0.53**	**0.50**	**ug/L**
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
2-Hexanone	ND	10	ug/L
Isopropylbenzene	ND	1.0	ug/L
Methyl acetate	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L
Methylcyclohexane	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	10	ug/L
Methyl tert-butyl ether	**0.75 J**	**5.0**	**ug/L**
Styrene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L

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ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-052803-RS-1

GC/MS Volatiles

Lot-Sample #...: A3E310104-001 Work Order #...: FPPJK1AA Matrix.....: WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,2,4-Trichloro-benzene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	**0.63 J**	**1.0**	**ug/L**
Trichlorofluoromethane	ND	1.0	ug/L
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	ug/L
Vinyl chloride	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(73 - 122)
1,2-Dichloroethane-d4	94	(61 - 128)
Toluene-d8	96	(76 - 110)
4-Bromofluorobenzene	81	(74 - 116)

NOTE(S):

J Estimated result. Result is less than RL.

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-052803-RS-2

GC/MS Volatiles

Lot-Sample #...: A3E310104-002 Work Order #...: FPPJL1AA Matrix.....: WG
Date Sampled...: 05/28/03 12:25 Date Received..: 05/30/03
Prep Date.....: 06/09/03 Analysis Date..: 06/09/03
Prep Batch #...: 3160375
Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**2.6 J**	**10**	**ug/L**
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroethane	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	1.0	ug/L
Cyclohexane	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	**1.2**	**0.50**	**ug/L**
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
2-Hexanone	ND	10	ug/L
Isopropylbenzene	ND	1.0	ug/L
Methyl acetate	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L
Methylcyclohexane	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	10	ug/L
Methyl tert-butyl ether	**3.0 J**	**5.0**	**ug/L**
Styrene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L

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ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-052803-RS-2

GC/MS Volatiles

Lot-Sample #...: A3E310104-002 Work Order #...: FPPJL1AA Matrix.....: WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Tetrachloroethene	**0.67 J**	**1.0**	**ug/L**
Toluene	ND	1.0	ug/L
1,2,4-Trichloro-benzene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	**2.5**	**1.0**	**ug/L**
Trichlorofluoromethane	ND	1.0	ug/L
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	ug/L
Vinyl chloride	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	97	(73 - 122)
1,2-Dichloroethane-d4	93	(61 - 128)
Toluene-d8	95	(76 - 110)
4-Bromofluorobenzene	78	(74 - 116)

NOTE(S):

J Estimated result. Result is less than RL.

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-052803-RS-3

GC/MS Volatiles

Lot-Sample #...: A3E310104-003 Work Order #...: FPPJM1AA Matrix.....: WG
Date Sampled...: 05/28/03 14:15 Date Received..: 05/30/03
Prep Date.....: 06/09/03 Analysis Date..: 06/09/03
Prep Batch #...: 3160375
Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**8.4 J**	**10**	**ug/L**
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroethane	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	1.0	ug/L
Cyclohexane	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	**2.2**	**0.50**	**ug/L**
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
2-Hexanone	ND	10	ug/L
Isopropylbenzene	ND	1.0	ug/L
Methyl acetate	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L
Methylcyclohexane	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	10	ug/L
Methyl tert-butyl ether	**12**	**5.0**	**ug/L**
Styrene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L

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ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-052803-RS-3

GC/MS Volatiles

Lot-Sample #...: A3E310104-003 Work Order #...: FPPJM1AA Matrix.....: WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,2,4-Trichloro-benzene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	**1.3**	**1.0**	**ug/L**
Trichlorofluoromethane	ND	1.0	ug/L
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	ug/L
Vinyl chloride	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	97	(73 - 122)
1,2-Dichloroethane-d4	93	(61 - 128)
Toluene-d8	98	(76 - 110)
4-Bromofluorobenzene	79	(74 - 116)

NOTE(S):

J Estimated result. Result is less than RL.

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-052803-RS-4

GC/MS Volatiles

Lot-Sample #...: A3E310104-004 Work Order #...: FPPJN1AA Matrix.....: WG
Date Sampled...: 05/28/03 15:35 Date Received..: 05/30/03
Prep Date.....: 06/09/03 Analysis Date..: 06/09/03
Prep Batch #...: 3160375
Dilution Factor: 1.43 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**4.9 J**	**14**	**ug/L**
Benzene	ND	1.4	ug/L
Bromodichloromethane	ND	1.4	ug/L
Bromoform	ND	1.4	ug/L
Bromomethane	ND	1.4	ug/L
2-Butanone	ND	14	ug/L
Carbon disulfide	ND	1.4	ug/L
Carbon tetrachloride	ND	1.4	ug/L
Chlorobenzene	ND	1.4	ug/L
Chloroethane	ND	1.4	ug/L
Chloroform	ND	1.4	ug/L
Chloromethane	ND	1.4	ug/L
Cyclohexane	ND	1.4	ug/L
Dibromochloromethane	ND	1.4	ug/L
1,2-Dibromo-3-chloro-propane	ND	2.9	ug/L
1,2-Dibromoethane	ND	1.4	ug/L
1,2-Dichlorobenzene	ND	1.4	ug/L
1,3-Dichlorobenzene	ND	1.4	ug/L
1,4-Dichlorobenzene	ND	1.4	ug/L
Dichlorodifluoromethane	ND	1.4	ug/L
1,1-Dichloroethane	**2.6**	**1.4**	**ug/L**
1,2-Dichloroethane	ND	1.4	ug/L
1,1-Dichloroethene	ND	1.4	ug/L
cis-1,2-Dichloroethene	**3.4**	**0.72**	**ug/L**
trans-1,2-Dichloroethene	ND	0.72	ug/L
1,2-Dichloropropane	ND	1.4	ug/L
cis-1,3-Dichloropropene	ND	1.4	ug/L
trans-1,3-Dichloropropene	ND	1.4	ug/L
Ethylbenzene	ND	1.4	ug/L
2-Hexanone	ND	14	ug/L
Isopropylbenzene	ND	1.4	ug/L
Methyl acetate	ND	14	ug/L
Methylene chloride	ND	1.4	ug/L
Methylcyclohexane	ND	1.4	ug/L
4-Methyl-2-pentanone	ND	14	ug/L
Methyl tert-butyl ether	**4.9 J**	**7.2**	**ug/L**
Styrene	ND	1.4	ug/L
1,1,2,2-Tetrachloroethane	ND	1.4	ug/L

(Continued on next page)

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: GW-052803-RS-4

GC/MS Volatiles

Lot-Sample #...: A3E310104-004 Work Order #...: FPPJN1AA Matrix.....: WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Tetrachloroethene	**4.2**	**1.4**	**ug/L**
Toluene	ND	1.4	ug/L
1,2,4-Trichloro-benzene	ND	1.4	ug/L
1,1,1-Trichloroethane	ND	1.4	ug/L
1,1,2-Trichloroethane	ND	1.4	ug/L
Trichloroethene	**38**	**1.4**	**ug/L**
Trichlorofluoromethane	ND	1.4	ug/L
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.4	ug/L
Vinyl chloride	ND	1.4	ug/L
Xylenes (total)	ND	1.4	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(73 - 122)
1,2-Dichloroethane-d4	92	(61 - 128)
Toluene-d8	94	(76 - 110)
4-Bromofluorobenzene	77	(74 - 116)

NOTE(S):

J Estimated result. Result is less than RL.

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: A3E310104-005 Work Order #...: FPPJP1AA Matrix.....: WQ
Date Sampled...: 05/28/03 Date Received..: 05/30/03
Prep Date.....: 06/09/03 Analysis Date..: 06/09/03
Prep Batch #...: 3160375
Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**1.6 J**	**10**	**ug/L**
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroethane	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	1.0	ug/L
Cyclohexane	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	0.50	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
2-Hexanone	ND	10	ug/L
Isopropylbenzene	ND	1.0	ug/L
Methyl acetate	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L
Methylcyclohexane	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	10	ug/L
Methyl tert-butyl ether	ND	5.0	ug/L
Styrene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L

(Continued on next page)

ENCORE ENVIRONMENTAL CONSULTANT

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: A3E310104-005 Work Order #...: FPPJP1AA Matrix.....: WQ

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,2,4-Trichloro-benzene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Trichlorofluoromethane	ND	1.0	ug/L
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	ug/L
Vinyl chloride	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	95	(73 - 122)
1,2-Dichloroethane-d4	94	(61 - 128)
Toluene-d8	96	(76 - 110)
4-Bromofluorobenzene	78	(74 - 116)

NOTE(S):

J Estimated result. Result is less than RL.

QUALITY CONTROL SECTION

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A3E310104
MB Lot-Sample #: A3F090000-375

Work Order #...: FP7LX1AA

Matrix.....: WATER

Prep Date.....: 06/09/03
Prep Batch #...: 3160375

Analysis Date..: 06/09/03
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
Bromomethane	ND	1.0	ug/L	SW846 8260B
2-Butanone	ND	10	ug/L	SW846 8260B
Carbon disulfide	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	1.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
Chloromethane	ND	1.0	ug/L	SW846 8260B
Cyclohexane	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
1,2-Dibromo-3-chloropropane	ND	2.0	ug/L	SW846 8260B
1,2-Dibromoethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
Dichlorodifluoromethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
2-Hexanone	ND	10	ug/L	SW846 8260B
Isopropylbenzene	ND	1.0	ug/L	SW846 8260B
Methyl acetate	ND	10	ug/L	SW846 8260B
Methylene chloride	ND	1.0	ug/L	SW846 8260B
Methylcyclohexane	ND	1.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260B
Methyl tert-butyl ether	ND	5.0	ug/L	SW846 8260B
Styrene	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A3E310104 Work Order #...: FP7LX1AA Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
1,2,4-Trichloro-benzene	0.42 J	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	ug/L	SW846 8260B
Vinyl chloride	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	95	(73 - 122)
1,2-Dichloroethane-d4	91	(61 - 128)
Toluene-d8	95	(76 - 110)
4-Bromofluorobenzene	79	(74 - 116)

NOTE(S):

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

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A3E310104
LCS Lot-Sample#: A3F090000-375
Prep Date.....: 06/09/03
Prep Batch #...: 3160375
Dilution Factor: 1

Work Order #...: FP7LX1AC-LCS
FP7LX1AD-LCSD
Analysis Date..: 06/09/03

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	10	9.6	ug/L	96		**SW846 8260B**
	10	9.2	ug/L	92	4.8	**SW846 8260B**
Chlorobenzene	10	10	ug/L	101		**SW846 8260B**
	10	10	ug/L	101	0.28	**SW846 8260B**
1,1-Dichloroethene	10	9.4	ug/L	94		**SW846 8260B**
	10	8.9	ug/L	89	5.2	**SW846 8260B**
Toluene	10	9.8	ug/L	98		**SW846 8260B**
	10	9.7	ug/L	97	1.6	**SW846 8260B**
Trichloroethene	10	9.1	ug/L	91		**SW846 8260B**
	10	9.2	ug/L	92	0.41	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(73 - 122)
	93	(73 - 122)
1,2-Dichloroethane-d4	99	(61 - 128)
	93	(61 - 128)
Toluene-d8	101	(76 - 110)
	101	(76 - 110)
4-Bromofluorobenzene	88	(74 - 116)
	87	(74 - 116)

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 #...: A3E310104 **Work Order #...:** FP7LX1AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: A3F090000-375 FP7LX1AD-LCSD
Prep Date.....: 06/09/03 **Analysis Date..:** 06/09/03
Prep Batch #...: 3160375
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**96**	**(80 - 116)**			**SW846 8260B**
	92	**(80 - 116)**	**4.8**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**101**	**(76 - 117)**			**SW846 8260B**
	101	**(76 - 117)**	**0.28**	**(0-20)**	**SW846 8260B**
1,1-Dichloroethene	**94**	**(63 - 130)**			**SW846 8260B**
	89	**(63 - 130)**	**5.2**	**(0-20)**	**SW846 8260B**
Toluene	**98**	**(74 - 119)**			**SW846 8260B**
	97	**(74 - 119)**	**1.6**	**(0-20)**	**SW846 8260B**
Trichloroethene	**91**	**(75 - 122)**			**SW846 8260B**
	92	**(75 - 122)**	**0.41**	**(0-20)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(73 - 122)
	93	(73 - 122)
1,2-Dichloroethane-d4	99	(61 - 128)
	93	(61 - 128)
Toluene-d8	101	(76 - 110)
	101	(76 - 110)
4-Bromofluorobenzene	88	(74 - 116)
	87	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A3E310104 **Work Order #...:** FPP4J1AC-MS **Matrix.....:** WATER
MS Lot-Sample #: A3E310165-008 FPP4J1AD-MSD
Date Sampled...: 05/30/03 11:26 **Date Received..:** 05/31/03
Prep Date.....: 06/09/03 **Analysis Date..:** 06/09/03
Prep Batch #...: 3160375
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzene	ND	10	10	ug/L	102		SW846 8260B
	ND	10	9.7	ug/L	97	5.0	SW846 8260B
Chlorobenzene	ND	10	10	ug/L	105		SW846 8260B
	ND	10	9.9	ug/L	99	6.2	SW846 8260B
1,1-Dichloroethene	ND	10	9.0	ug/L	90		SW846 8260B
	ND	10	9.1	ug/L	91	1.2	SW846 8260B
Toluene	ND	10	10	ug/L	103		SW846 8260B
	ND	10	9.8	ug/L	98	5.1	SW846 8260B
Trichloroethene	ND	10	9.4	ug/L	94		SW846 8260B
	ND	10	9.0	ug/L	90	5.4	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(73 - 122)
	100	(73 - 122)
1,2-Dichloroethane-d4	99	(61 - 128)
	100	(61 - 128)
Toluene-d8	100	(76 - 110)
	101	(76 - 110)
4-Bromofluorobenzene	86	(74 - 116)
	87	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A3E310104
MS Lot-Sample #: A3E310165-008
Date Sampled...: 05/30/03 11:26
Prep Date.....: 06/09/03
Prep Batch #...: 3160375
Dilution Factor: 1

Work Order #...: FPP4J1AC-MS
FPP4J1AD-MSD
Date Received..: 05/31/03
Analysis Date..: 06/09/03

Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	102	(78 - 118)			**SW846 8260B**
	97	(78 - 118)	5.0	(0-20)	**SW846 8260B**
Chlorobenzene	105	(76 - 117)			**SW846 8260B**
	99	(76 - 117)	6.2	(0-20)	**SW846 8260B**
1,1-Dichloroethene	90	(62 - 130)			**SW846 8260B**
	91	(62 - 130)	1.2	(0-20)	**SW846 8260B**
Toluene	103	(70 - 119)			**SW846 8260B**
	98	(70 - 119)	5.1	(0-20)	**SW846 8260B**
Trichloroethene	94	(62 - 130)			**SW846 8260B**
	90	(62 - 130)	5.4	(0-20)	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(73 - 122)
	100	(73 - 122)
1,2-Dichloroethane-d4	99	(61 - 128)
	100	(61 - 128)
Toluene-d8	100	(76 - 110)
	101	(76 - 110)
4-Bromofluorobenzene	86	(74 - 116)
	87	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

CHAIN OF CUSTODY RECORD

SHIPPED TO (Laboratory Name):	REFERENCE NUMBER:
STL	017366-30

SAMPLER'S SIGNATURE: Robert T Siegfried PRINTED NAME: BOB SIEGFRIED

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. of Containers	PARAMETERS: VOCs	REMARKS
	5-28-03	1110	GW-052803-RS-1	W	3	X	72 HR. TAT
	↓	1225	GW-052803-RS-2	↓	3	↓	Call Paul Wiseman
		1415	GW-052803-RS-3		3		CRA - Detroit for
		1535	GW-052803-RS-4		3		confirmation
			TRIP BLANK		1		734-453-5123

TOTAL NUMBER OF CONTAINERS: 13 HEALTH/CHEMICAL HAZARDS:

RELINQUISHED BY: ① Robert T. Siegfried	DATE: 5-29-03 TIME: 1400	RECEIVED BY: ①	DATE: TIME:
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:

METHOD OF SHIPMENT: WAY BILL No.

White –Fully Executed Copy
Yellow –Receiving Laboratory Copy
Pink –Shipper Copy
Goldenrod –Sampler Copy

SAMPLE TEAM:

RECEIVED FOR LABORATORY BY: Cassie Thewes
DATE: 5-30-03 TIME: 10:52a

044

REV. 0 (F-15)

STL North Canton

24

SEVERN TRENT STL

END OF REPORT