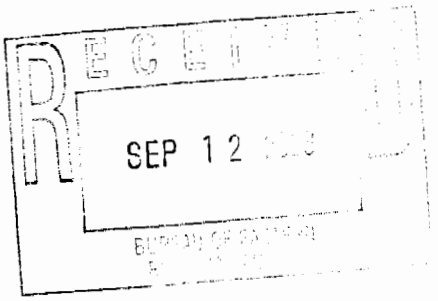
SECOND QUARTER 2003
PROGRESS REPORT

PHOTOCIRCUITS AND FORMER PASS & SEYMOUR SITES
31 & 45 SEA CLIFF AVENUE

SITE NUMBERS 1-30-009 AND 1-30-053A

Prepared for:
Photocircuits Corporation
31 Sea Cliff Avenue
Glen Cove, New York 11542



Prepared by:
Barton and Loguidice, P.C.
2 Corporate Plaza
264 Washington Avenue Extension
Albany, New York 12203

July, 2003

1.0 Introduction

This Second Quarter 2003 Progress Report (2Q03) is being submitted pursuant to the 1997 Order on Consent between Photocircuits Corporation and the New York State Department of Environmental Conservation (NYSDEC).

During the Second Quarter of 2003, the following was accomplished:

- One groundwater sampling event was conducted for monitoring wells located on both the 31 and 45A Sea Cliff Avenue sites during the period of April 28-29.
- The Soil Vapor Extraction (SVE) and Air Sparging (AS) system at the 45A Sea Cliff Avenue site was modified, and operation was continued through the second quarter of 2003.
- Installation of the hydraulic control system was completed at the 31 Sea Cliff Avenue site, and the system was started.

2.0 Discussion of Results

2.1 SVE System at 31 Sea Cliff Avenue

The SVE system at the 31 Sea Cliff Avenue site was installed as an Interim Remedial Measure (IRM), and started operation in April 2000. The SVE system, equipped with the CatOx/scrubber for extracted vapor treatment, was restarted on July 21, 2000 and was operated continuously until August 2001(except for a few brief periods for maintenance activities, and in March to mid-May, 2001 because of high water-table conditions. As discussed in the 2Q01 report, the results of vapor sample analyses and the photoionization detector (PID) readings demonstrate that contaminant mass removal versus time has clearly become asymptotic. We conclude that we have demonstrated that there is little or no residual contamination in the unsaturated zone, and that further contaminant removal from the unsaturated zone is infeasible. The SVE system is in the process of being decommissioned.

2.2 Bioremediation Pilot Test

The bioremediation pilot test was started during the week of August 28, 2000 when Terra Systems conducted the injection of a nutrient solution (substrate) into the subsurface at the 31 Sea Cliff Avenue site. Following the injection, groundwater samples were collected from the following monitoring wells/points: MW-7, MW-14, SMP-1, DMP-1, SMP-3, DMP-3, SMP-4 and DMP-4. These wells/points were sampled again on October

18-19, December 20, 2000, March 27-28, 2001and July 11-12, 2001; the March and July sampling events included several wells located along Sea Cliff Avenue (MW-8, MW-9, MW-12 and MW-13) along with the wells sampled during the previous events. By letter dated October 25, 2001, NYSDEC authorized an additional injection of substrate that had been recommended by Photocircuits. A first phase of additional substrate injection was conducted during the period of February 25 to March 3, 2002; during this period, slightly over 5,000 gallons of substrate was injected (as reported in the 1Q 02 report). On April 29, 2002, an additional injection of 5,777 gallons of substrate was injected using the injection points that had been installed during the February-March injection event. Sampling events conducted in 2002 were January 8-10, April 2-4, June 25-26 and October 2-3. Sampling in 2003 was conducted on January 13-15

The most recent sampling event was conducted on April 28-29, 2003; the results from the April 2003 sampling event are provided in Appendix A of this report (Note: well MW-7 was not sampled during this event as it was filled with oil substrate).

A status report on the pilot test (including the data from the samples collected in April 2003) was prepared by Terra Systems and is included as Appendix B of this report. The main conclusion of the report are as follows

- The addition of the edible oil substrate has enhanced the extent and rate of chlorinated solvent biodegradation at the site; degradation rates as high as 213 ug/L per day of total volatile organic compounds (TVOCs) have been observed in areas of higher concentration.

- A first order degradation half life of 456 days was calculated for the average total VOC concentration within the pilot cell area (January 2003 data); this degradation rate suggests that 90% of the total VOC mass within the pilot test cell will be removed within 43 months.

- The newly injected edible oil substrate appears to be adequately distributed.

- Bioremediation will be the primary treatment technology for contaminant destruction at the site.

2.3 IRM at 45 Sea Cliff Avenue

As discussed in the 4Q 2000 report, SVE/AS equipment was procured and delivered to the site. The SVE/AS system consists of a 10 horsepower (hp) regenerative blower and 5 hp compressor, along with electrical controls, filters, moisture separators, and valves; the system is contained within an insulated trailer, which has been located just outside of Building 7. Following delivery, the system components were connected to the piping networks for the AS and SVE wells. Two 1200 lb activated carbon adsorbers were attached in series to the blower outlet to treat recovered vapors. The SVE system was

started on November 1, 2000; because the initial contaminant concentrations were relatively high, the AS portion of the system was not started. The AS component of this system was started on March 28, 2001. The system was down from April 20-24 due to an electrical problem. The system was down most of June and July due to equipment overheating; the system was re-started on July 30 and shut down on September 20.

Monitoring data was presented in the 2Q01 report, including data from sampling of individual SVE wells (March 2001) and sampling of total SVE system effluent over time. Prior to the start of the AS component, the relationship of total contaminant mass removal versus time was clearly becoming asymptotic. The start of the AS component increased contaminant mass recovery somewhat (see the April 2001 sample results). However, the results of the May vapor sample indicate that mass removal versus time relationship became asymptotic. We concluded at that time that we demonstrated that there is little or no residual contamination at that location, and that further contaminant removal is infeasible.

Based on results from the January 2002 groundwater sampling event, Photocircuits proposed extending the SVE/AS system at the 45A Sea Cliff Avenue site from the west side to the east side of Building 7. The basis for the extension of the system and the proposed piping and equipment layout were provided in the February 13, 2002 letter to NYSDEC.

The SVE wells and AS points were installed at the proposed locations on the east side of Building 7 in late February, 2002 in preparation for the extension of the system. After field evaluation, it was decided that it would be more efficient to move the aboveground portions of the system (equipment trailer, carbon vessels) to the east side of Building 7 rather than to extend their operation by piping from the west side to the east side of Building 7, as originally proposed. The trailer and carbon vessels were moved in April, and electrical service was also provided to the new location April. Piping and mechanical connections were completed in early May; the original blower malfunctioned and a smaller replacement blower was installed.

The SVE portion system was started on May 8, 2002, and a sample of the total system effluent, prior to treatment, was collected; tetrachloroethene was detected at a concentration of 5.3 ppmv. Another effluent sample was collected on June 26; tetrachloroethene was detected at a concentration of 142 ppmv and trichloroethene was detected at a concentration of 2 ppmv. Further sampling in 2002 was conducted on October 3, December 12 (tetrachloroethene was detected at 1.2 and 1.1 ppmv in these two samples, respectively). The AS portion of the system was started on December 11, 2002. A sample was collected on January 15, 2003, with tetrachloroethene detected at 1.0 ppmv.

On May 1, 2003, the system was modified to also extract vapor from monitoring well MW-4S. The well was fitted with a cap and connected to the SVE portion of the system. Samples of system effluent were collected on May 2 and May 28, 2003, with tetrachloroethene detected at 0.9 and 1.6 ppmv, respectively. Groundwater samples were

collected from monitoring wells located on the 45A Sea Cliff Avenue site (MW-1S, -2S, -3S and -4S) during the April 2003 groundwater sampling event, and the results are attached.

2.4 Hydraulic Control along Sea Cliff Avenue

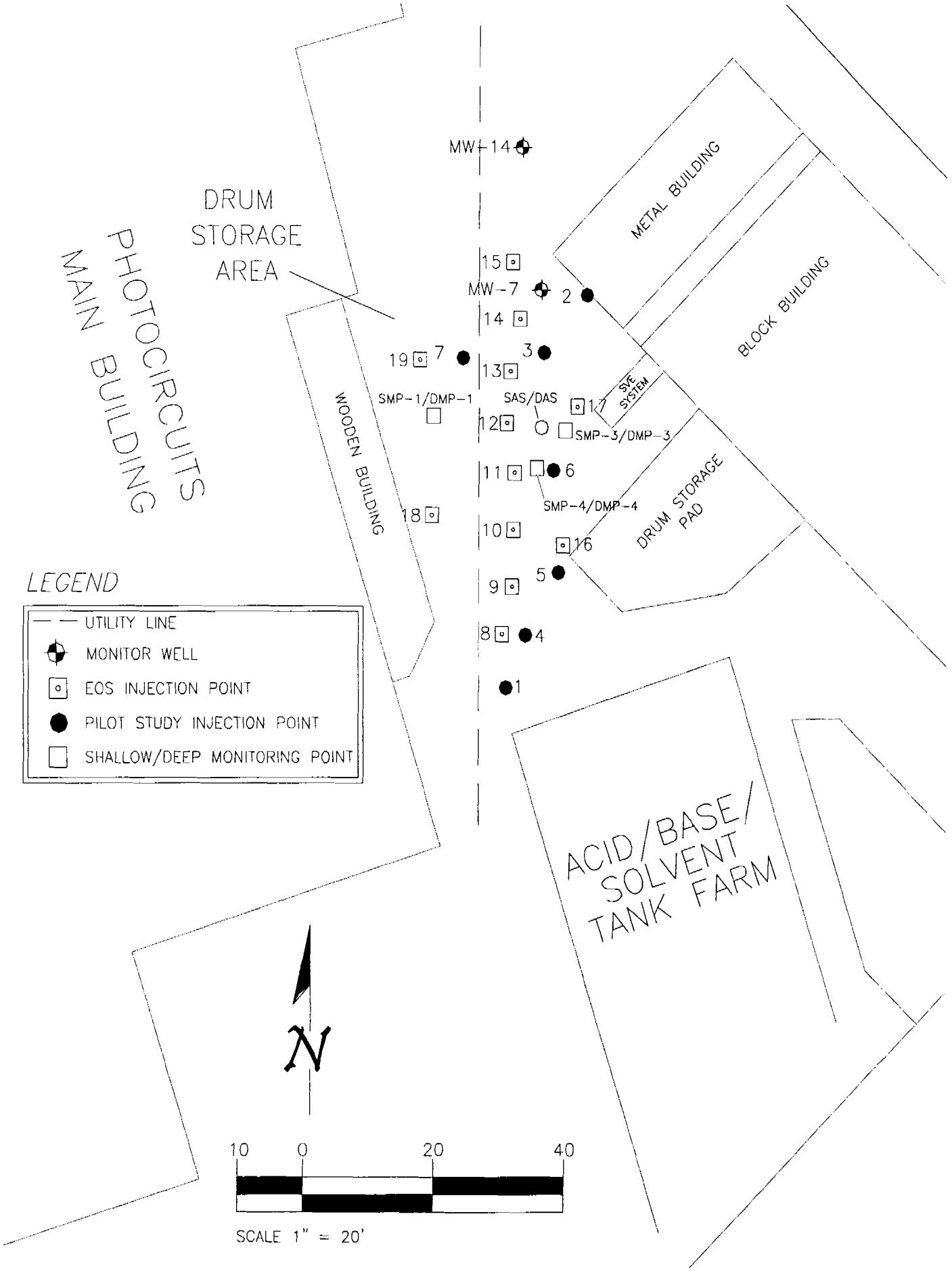
A meeting was held with NYSDEC on October 11, 2001 to discuss the progress of the bioremediation pilot test. Although there was substantial disagreement between Photocircuits and the NYSDEC over the progress of the bioremediation pilot test and the need for groundwater remediation, Photocircuits agreed to review available options for containment of groundwater along the northern boundary of the Photocircuits site (31 Sea Cliff Avenue). Photocircuits conducted the review of remedial options, and by letter dated October 26, 2001, Photocircuits presented the results of the review. The recommended approach for the conditions at the Photocircuits site is the use of hydraulic control. Photocircuits submitted a work plan for the performance of pumping tests necessary for the design of a hydraulic control system on November 13, 2001; following receipt of verbal comments from NYSDEC, Photocircuits submitted a revised work plan on December 7, 2001. Approval for implementation of the work plan was received from NYSDEC by letter dated December 19, 2001. The pumping tests were performed in January, 2002 and the remedial design report was submitted to NYSDEC on April 11, 2002. NYSDEC approval of the remedial design was received in a letter dated September 19, 2002.

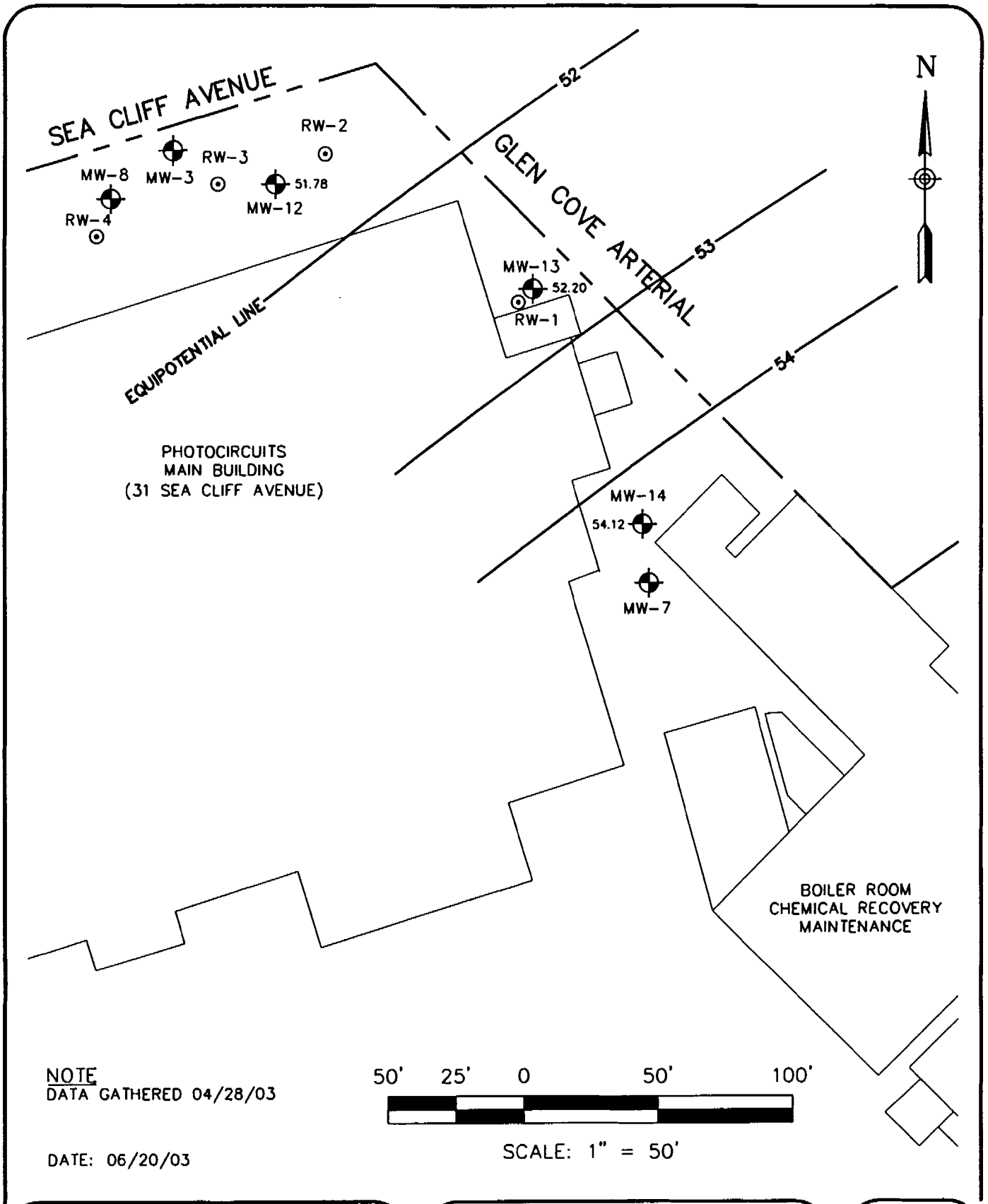
Four recovery wells were installed in January, 2003. The fifth recovery well could not be installed due to the proximity of numerous underground utility lines. Groundwater modeling conducted for the design of the hydraulic control system (appended to the remedial design report/work plan) indicates that configuration of the four wells is also capable of providing hydraulic control in the subject area. The wells were installed to depths of 80 feet below grade and were constructed as described in the work plan.

The pumps, piping and control systems were installed during the week of April 28, 2003. The layout of the piping and controls are provided on the attached figure. The system was started up on May 1, 2003, with each well pumping at an initial flow rate of one gallon per minute (gpm). On May 20, the pumping rate for each well was increased to three gpm. Water level measurements were collected prior to initiating pumping, after about three weeks pumping at one gpm and the day following the increase in pumping to three gpm; this data is provided in the attached tables and is plotted on the attached figures. These figures demonstrate that hydraulic control is being achieved in the area hydraulically downgradient of the bioremediation pilot test are, as evidenced by the alteration in the groundwater flow contours. Water quality samples were collected on May 20, and the data from the sample analyses is provided in the attached tables.

3.0 Schedule

The planned schedule of activities for the next few months is attached.


DRUM STORAGE AREA
PHOTOCIRCUITS MAIN BUILDING
METAL BUILDING
BLOCK BUILDING
WOODEN BUILDING
DRUM STORAGE PAD
ACID/BASE/ SOLVENT TANK FARM
MW-14
MW-7
SMP-1/DMP-1
SAS/DAS
SVE SYSTEM
SMP-3/DMP-3
SMP-4/DMP-4
LEGEND
UTILITY LINE
MONITOR WELL
EOS INJECTION POINT
PILOT STUDY INJECTION POINT
SHALLOW/DEEP MONITORING POINT
N
10 0 20 40
SCALE 1" = 20'



NOTE
DATA GATHERED 04/28/03

DATE: 06/20/03

SCALE: 1" = 50'

Barton & Loguidice, P.C.
Consulting Engineers
2 Corporate Plaza 264 Washington Avenue Extension Albany, NY 12203-8352

PHOTOCIRCUITS CORP.

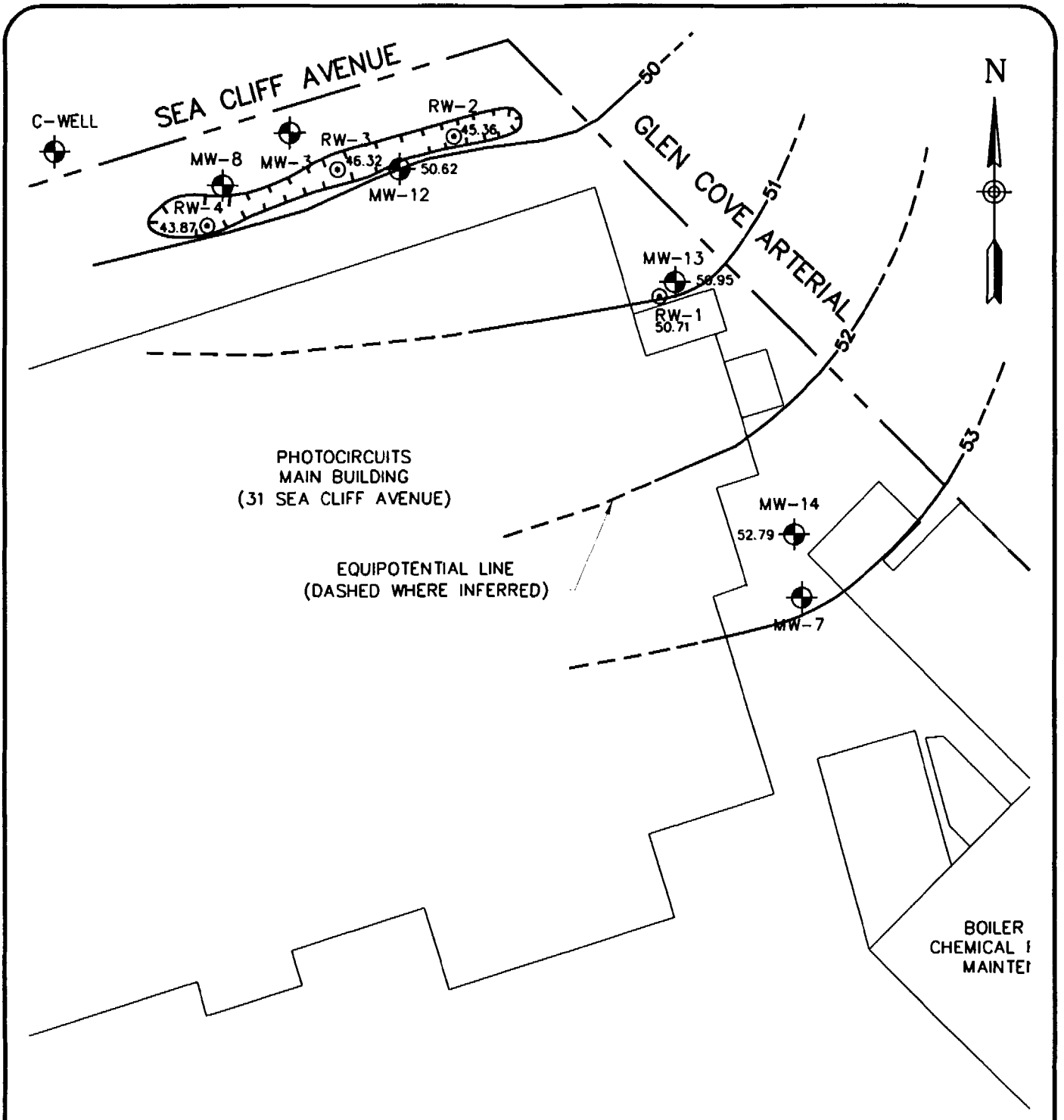
PIEZOMETRIC SURFACE FOR INTERMEDIATE DEPTH

INTERMEDIATE DEPTH
PRIOR TO PUMPING

TOWN OF GLEN COVE NASSAU COUNTY, NY

FIGURE
1

PROJECT NO.
643.001



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PHOTOCIRCUITS CORP.

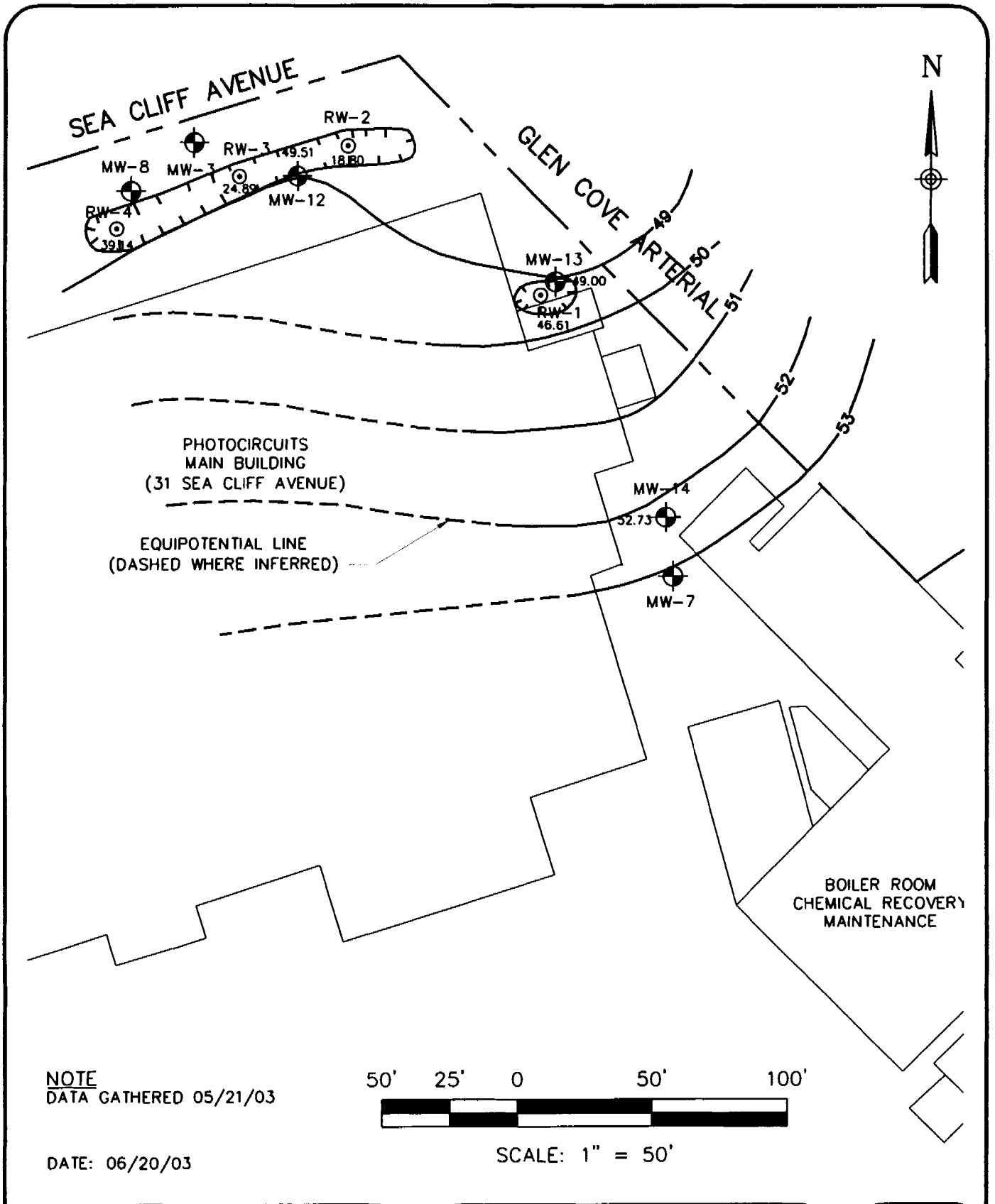
PIEZOMETRIC SURFACE FOR INTERMEDIATE DEPTH

INTERMEDIATE DEPTH
PUMPING AT 1 GPM PER
WELL FOR 3 WEEKS

TOWN OF GLEN COVE NASSAU COUNTY, NY

FIGURE
2

PROJECT NO.
643.001



NOTE
DATA GATHERED 05/21/03

DATE: 06/20/03

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2 Corporate Plaza 284 Washington Avenue Extension Albany, NY 12203-6352

PHOTOCIRCUITS CORP.

PIEZOMETRIC SURFACE FOR INTERMEDIATE DEPTH

INTERMEDIATE DEPTH
PUMPING AT 3 GPM PER
WELL FOR 12 HOURS

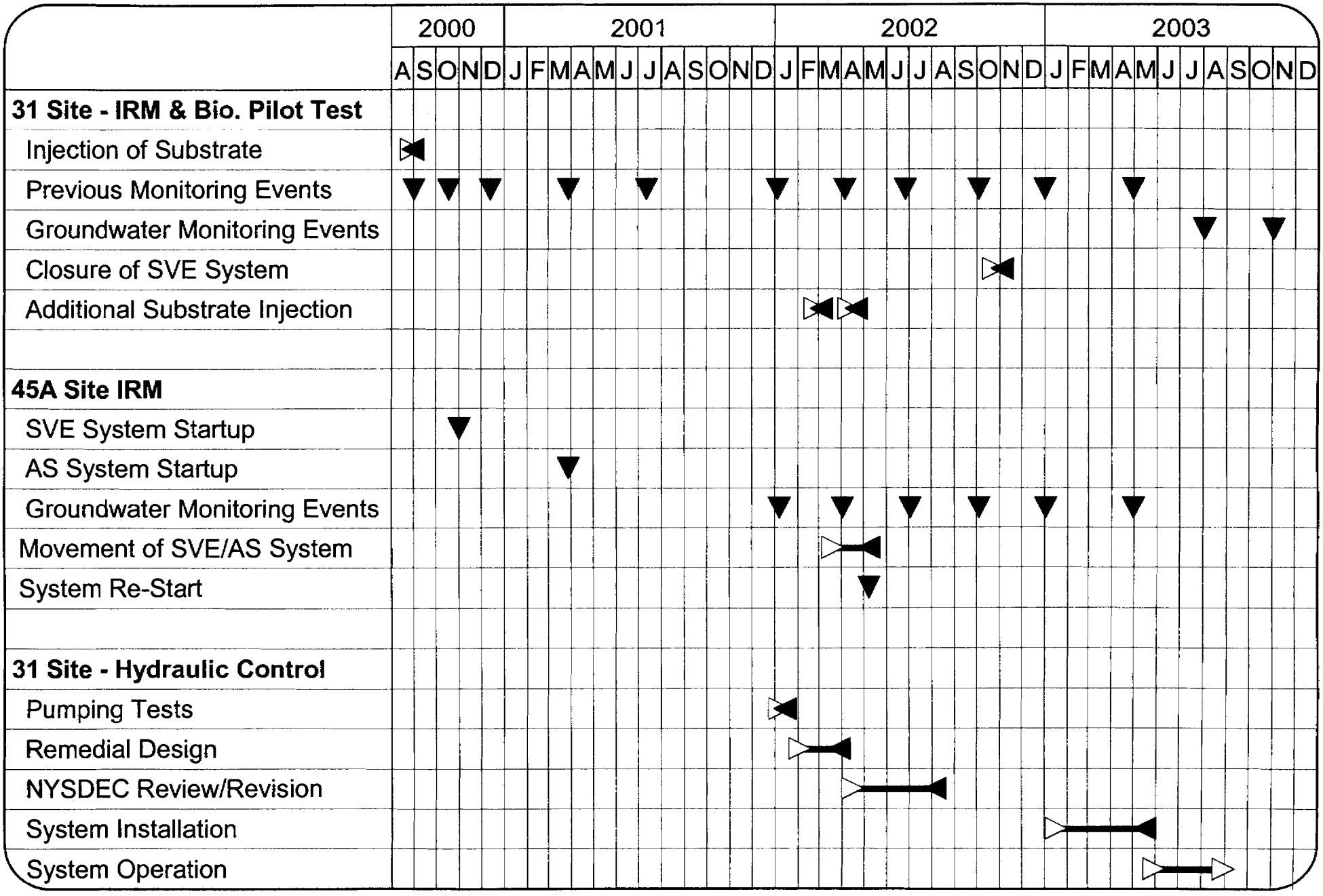
TOWN OF GLEN COVE NASSAU COUNTY, NY

FIGURE
3

PROJECT NO.
643.001

Photocircuits - Updated Schedule of Remedial Activities

31 & 45 Sea Cliff Avenue Sites



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

05/22/2003

Custody Document: P1918

Received: 04/29/2003 16:45
Sampled by: DMJ/BDD

Client: Photo Circuits

31 Sea Cliff Avenue
Glen Cove,
NY 11542

Project: Photocircuits Corp.

31 Sea Cliff Avenue
Glen Cove,
NY 11542

Manager: Andy Barber

Respectfully submitted,

Patricia Werner-Els ✓
Quality Assurance Officer

NYS Lab ID # 10969
NJ Cert. # 73812
CT Cert. # PH0645
MA Cert. # NY061
PA Cert. # 68-535
NH Cert. # 252592-BA
RI Cert. # 161

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-1
Client Sample ID: MW-8
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/03/2003

Type: Grab

Collected: 04/28/2003 18:35

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	A 941 -9744	0.58	0.58	ppb	U
75-45-6	Chlorodifluoromethane	A 941 -9744	0.62	0.62	ppb	U
74-87-3	Chloromethane	A 941 -9744	0.62	0.62	ppb	U
75-01-4	Vinyl Chloride	A 941 -9744	0.56	0.56	ppb	U
74-83-9	Bromomethane	A 941 -9744	0.90	0.90	ppb	U
75-00-3	Chloroethane	A 941 -9744	0.88	0.88	ppb	U
75-69-4	Trichlorofluoromethane	A 941 -9744	0.96	0.96	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	A 941 -9744	0.56	0.56	ppb	U
75-35-4	1,1-Dichloroethene	A 941 -9744	0.46	0.46	ppb	U
67-64-1	Acetone	A 941 -9744	2.82	2.82	ppb	U
75-15-0	Carbon disulfide	A 941 -9744	0.52	0.52	ppb	U
75-09-2	Methylene Chloride	A 941 -9744	0.30	0.30	ppb	U
156-60-5	trans-1,2-Dichloroethene	A 941 -9744	0.44	0.44	ppb	U
1634-04-4	Methyl t-butyl ether	A 941 -9744	0.11	0.11	ppb	U
75-34-3	1,1-Dichloroethane	A 941 -9744	0.44	0.44	ppb	U
590-20-7	2,2-Dichloropropane	A 941 -9744	0.74	0.74	ppb	U
156-59-2	cis-1,2-Dichloroethene	A 941 -9744	0.32	**3.99**	ppb	
78-93-3	2-Butanone	A 941 -9744	3.28	3.28	ppb	U
74-97-5	Bromochloromethane	A 941 -9744	0.13	0.13	ppb	U
67-66-3	Chloroform	A 941 -9744	0.38	0.38	ppb	U
71-55-6	1,1,1-Trichloroethane	A 941 -9744	0.44	0.44	ppb	U
56-23-5	Carbon Tetrachloride	A 941 -9744	0.64	0.64	ppb	U
563-58-6	1,1-Dichloropropene	A 941 -9744	0.80	0.80	ppb	U
71-43-2	Benzene	A 941 -9744	0.42	0.42	ppb	U
107-06-2	1,2-Dichloroethane	A 941 -9744	0.34	0.34	ppb	U
79-01-6	Trichloroethene	A 941 -9744	0.42	**1.91**	ppb	
78-87-5	1,2-Dichloropropane	A 941 -9744	0.30	0.30	ppb	U
74-95-3	Dibromomethane	A 941 -9744	0.14	0.14	ppb	U
75-27-4	Bromodichloromethane	A 941 -9744	0.17	0.17	ppb	U
110-75-8	2-Chloroethylvinylether	A 941 -9744	1.66	1.66	ppb	U
10061-01-5	cis-1,3-Dichloropropene	A 941 -9744	0.12	0.12	ppb	U
108-10-1	4-Methyl-2-pentanone	A 941 -9744	2.88	2.88	ppb	U
108-88-3	Toluene	A 941 -9744	0.40	0.40	ppb	U

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-1
Client Sample ID: MW-8
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/03/2003

Type: Grab

Collected: 04/28/2003 18:35

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	A 941 -9744	0.50	0.50	ppb	U
120-82-1	1,2,4-Trichlorobenzene	A 941 -9744	0.28	0.28	ppb	U
87-68-3	Hexachlorobutadiene	A 941 -9744	0.38	0.38	ppb	U
91-20-3	Naphthalene	A 941 -9744	0.80	0.80	ppb	U
87-61-6	1,2,3-Trichlorobenzene	A 941 -9744	0.30	0.30	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	A941-9744	96.0 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A941-9744	103.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A941-9744	96.9 %	(88 - 114)	

Environmental Testing Laboratories, Inc.

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-2
Client Sample ID: MW-12
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/03/2003

Type: Grab

Collected: 04/28/2003 18:45

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	A 941 -9745	0.58	0.58	ppb	U
75-45-6	Chlorodifluoromethane	A 941 -9745	0.62	0.62	ppb	U
74-87-3	Chloromethane	A 941 -9745	0.62	0.62	ppb	U
75-01-4	Vinyl Chloride	A 941 -9745	0.56	**75.3**	ppb	
74-83-9	Bromomethane	A 941 -9745	0.90	0.90	ppb	U
75-00-3	Chloroethane	A 941 -9745	0.88	0.88	ppb	U
75-69-4	Trichlorofluoromethane	A 941 -9745	0.96	0.96	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	A 941 -9745	0.56	0.56	ppb	U
75-35-4	1,1-Dichloroethene	A 941 -9745	0.46	**2.59**	ppb	
67-64-1	Acetone	A 941 -9745	2.82	2.82	ppb	U
75-15-0	Carbon disulfide	A 941 -9745	0.52	0.52	ppb	U
75-09-2	Methylene Chloride	A 941 -9745	0.30	0.30	ppb	U
156-60-5	trans-1,2-Dichloroethene	A 941 -9745	0.44	**3.84**	ppb	
1634-04-4	Methyl t-butyl ether	A 941 -9745	0.11	0.11	ppb	U
75-34-3	1,1-Dichloroethane	A 941 -9745	0.44	**38.6**	ppb	
590-20-7	2,2-Dichloropropane	A 941 -9745	0.74	0.74	ppb	U
156-59-2	cis-1,2-Dichloroethene	A 940 -9708	1.60	**369**	ppb	
78-93-3	2-Butanone	A 941 -9745	3.28	3.28	ppb	U
74-97-5	Bromochloromethane	A 941 -9745	0.13	0.13	ppb	U
67-66-3	Chloroform	A 941 -9745	0.38	0.38	ppb	U
71-55-6	1,1,1-Trichloroethane	A 941 -9745	0.44	0.44	ppb	U
56-23-5	Carbon Tetrachloride	A 941 -9745	0.64	0.64	ppb	U
563-58-6	1,1-Dichloropropene	A 941 -9745	0.80	0.80	ppb	U
71-43-2	Benzene	A 941 -9745	0.42	**2.04**	ppb	
107-06-2	1,2-Dichloroethane	A 941 -9745	0.34	0.34	ppb	U
79-01-6	Trichloroethene	A 941 -9745	0.42	**104**	ppb	
78-87-5	1,2-Dichloropropane	A 941 -9745	0.30	0.30	ppb	U
74-95-3	Dibromomethane	A 941 -9745	0.14	0.14	ppb	U
75-27-4	Bromodichloromethane	A 941 -9745	0.17	0.17	ppb	U
110-75-8	2-Chloroethylvinylether	A 941 -9745	1.66	1.66	ppb	U
10061-01-5	cis-1,3-Dichloropropene	A 941 -9745	0.12	0.12	ppb	U
108-10-1	4-Methyl-2-pentanone	A 941 -9745	2.88	2.88	ppb	U
108-88-3	Toluene	A 941 -9745	0.40	0.40	ppb	U

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-2

Client Sample ID: MW-12 Collected: 04/28/2003 18:45

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/03/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	A 941 -9745	0.24	0.24	ppb	U
79-00-5	1,1,2-Trichloroethane	A 941 -9745	0.30	0.30	ppb	U
127-18-4	Tetrachloroethene	A 941 -9745	0.76	0.76	ppb	U
142-28-9	1,3-Dichloropropane	A 941 -9745	0.080	0.080	ppb	U
591-78-6	2-Hexanone	A 941 -9745	2.88	2.88	ppb	U
124-48-1	Dibromochloromethane	A 941 -9745	0.088	0.088	ppb	U
106-93-4	1,2-Dibromoethane	A 941 -9745	0.19	0.19	ppb	U
108-90-7	Chlorobenzene	A 941 -9745	0.30	0.30	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	A 941 -9745	0.12	0.12	ppb	U
100-41-4	Ethylbenzene	A 941 -9745	0.24	0.24	ppb	U
108-38-3	m,p-xylene	A 941 -9745	0.48	0.48	ppb	U
95-47-6	o-xylene	A 941 -9745	0.24	0.24	ppb	U
100-42-5	Styrene	A 941 -9745	0.16	0.16	ppb	U
75-25-2	Bromoform	A 941 -9745	0.15	0.15	ppb	U
98-82-8	Isopropylbenzene	A 941 -9745	0.28	0.28	ppb	U
108-86-1	Bromobenzene	A 941 -9745	0.22	0.22	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	A 941 -9745	0.19	0.19	ppb	U
103-65-1	n-Propylbenzene	A 941 -9745	0.32	**105**	ppb	
96-18-4	1,2,3-Trichloropropane	A 941 -9745	0.094	0.094	ppb	U
622-96-8	p-Ethyltoluene	A 941 -9745	0.30	0.30	ppb	U
108-67-8	1,3,5-Trimethylbenzene	A 941 -9745	0.34	0.34	ppb	U
95-49-8	2-Chlorotoluene	A 941 -9745	0.30	**145**	ppb	
106-43-4	4-Chlorotoluene	A 941 -9745	0.14	**5.95**	ppb	
98-06-6	tert-Butylbenzene	A 941 -9745	0.24	0.24	ppb	U
95-63-6	1,2,4-Trimethylbenzene	A 941 -9745	0.30	0.30	ppb	U
135-98-8	sec-Butylbenzene	A 941 -9745	0.38	0.38	ppb	U
99-87-6	p-Isopropyltoluene	A 941 -9745	0.32	0.32	ppb	U
541-73-1	1,3-Dichlorobenzene	A 941 -9745	0.094	0.094	ppb	U
106-46-7	1,4-Dichlorobenzene	A 941 -9745	0.34	0.34	ppb	U
95-50-1	1,2-Dichlorobenzene	A 941 -9745	0.13	0.13	ppb	U
105-05-5	p-Diethylbenzene	A 941 -9745	0.34	0.34	ppb	U
104-51-8	n-Butylbenzene	A 941 -9745	0.52	0.52	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	A 941 -9745	0.46	0.46	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-2

Client Sample ID: MW-12 Collected: 04/28/2003 18:45

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/03/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	A 941 -9745	0.50	0.50	ppb	U
120-82-1	1,2,4-Trichlorobenzene	A 941 -9745	0.28	0.28	ppb	U
87-68-3	Hexachlorobutadiene	A 941 -9745	0.38	0.38	ppb	U
91-20-3	Naphthalene	A 941 -9745	0.80	0.80	ppb	U
87-61-6	1,2,3-Trichlorobenzene	A 941 -9745	0.30	0.30	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	A940-9708	96.1 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A940-9708	103.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A940-9708	97.6 %	(88 - 114)	
460-00-4	4-BROMOFLUOROBENZENE	A941-9745	95.8 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A941-9745	104.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A941-9745	96.8 %	(88 - 114)	

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-3

Client Sample ID: MW-13 Collected: 04/29/2003 08:50

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/03/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	A 941 -9746	0.58	0.58	ppb	U
75-45-6	Chlorodifluoromethane	A 941 -9746	0.62	0.62	ppb	U
74-87-3	Chloromethane	A 941 -9746	0.62	0.62	ppb	U
75-01-4	Vinyl Chloride	A 941 -9746	0.56	**2.60**	ppb	
74-83-9	Bromomethane	A 941 -9746	0.90	0.90	ppb	U
75-00-3	Chloroethane	A 941 -9746	0.88	0.88	ppb	U
75-69-4	Trichlorofluoromethane	A 941 -9746	0.96	0.96	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	A 941 -9746	0.56	0.56	ppb	U
75-35-4	1,1-Dichloroethene	A 941 -9746	0.46	0.46	ppb	U
67-64-1	Acetone	A 941 -9746	2.82	**22.4**	ppb	
75-15-0	Carbon disulfide	A 941 -9746	0.52	**4.89**	ppb	
75-09-2	Methylene Chloride	A 941 -9746	0.30	**1.88**	ppb	
156-60-5	trans-1,2-Dichloroethene	A 941 -9746	0.44	0.44	ppb	U
1634-04-4	Methyl t-butyl ether	A 941 -9746	0.11	0.11	ppb	U
75-34-3	1,1-Dichloroethane	A 941 -9746	0.44	**8.85**	ppb	
590-20-7	2,2-Dichloropropane	A 941 -9746	0.74	0.74	ppb	U
156-59-2	cis-1,2-Dichloroethene	A 941 -9746	0.32	**135**	ppb	
78-93-3	2-Butanone	A 941 -9746	3.28	3.28	ppb	U
74-97-5	Bromochloromethane	A 941 -9746	0.13	0.13	ppb	U
67-66-3	Chloroform	A 941 -9746	0.38	0.38	ppb	U
71-55-6	1,1,1-Trichloroethane	A 941 -9746	0.44	0.44	ppb	U
56-23-5	Carbon Tetrachloride	A 941 -9746	0.64	0.64	ppb	U
563-58-6	1,1-Dichloropropene	A 941 -9746	0.80	0.80	ppb	U
71-43-2	Benzene	A 941 -9746	0.42	0.42	ppb	U
107-06-2	1,2-Dichloroethane	A 941 -9746	0.34	0.34	ppb	U
79-01-6	Trichloroethene	A 941 -9746	0.42	**12.1**	ppb	
78-87-5	1,2-Dichloropropane	A 941 -9746	0.30	0.30	ppb	U
74-95-3	Dibromomethane	A 941 -9746	0.14	0.14	ppb	U
75-27-4	Bromodichloromethane	A 941 -9746	0.17	0.17	ppb	U
110-75-8	2-Chloroethylvinylether	A 941 -9746	1.66	1.66	ppb	U
10061-01-5	cis-1,3-Dichloropropene	A 941 -9746	0.12	0.12	ppb	U
108-10-1	4-Methyl-2-pentanone	A 941 -9746	2.88	2.88	ppb	U
108-88-3	Toluene	A 941 -9746	0.40	0.40	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-3

Client Sample ID: MW-13 Collected: 04/29/2003 08:50

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/03/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	A 941 -9746	0.24	0.24	ppb	U
79-00-5	1,1,2-Trichloroethane	A 941 -9746	0.30	0.30	ppb	U
127-18-4	Tetrachloroethene	A 941 -9746	0.76	**13.0**	ppb	
142-28-9	1,3-Dichloropropane	A 941 -9746	0.080	0.080	ppb	U
591-78-6	2-Hexanone	A 941 -9746	2.88	2.88	ppb	U
124-48-1	Dibromochloromethane	A 941 -9746	0.088	0.088	ppb	U
106-93-4	1,2-Dibromoethane	A 941 -9746	0.19	0.19	ppb	U
108-90-7	Chlorobenzene	A 941 -9746	0.30	0.30	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	A 941 -9746	0.12	0.12	ppb	U
100-41-4	Ethylbenzene	A 941 -9746	0.24	0.24	ppb	U
108-38-3	m,p-xylene	A 941 -9746	0.48	0.48	ppb	U
95-47-6	o-xylene	A 941 -9746	0.24	0.24	ppb	U
100-42-5	Styrene	A 941 -9746	0.16	0.16	ppb	U
75-25-2	Bromoform	A 941 -9746	0.15	0.15	ppb	U
98-82-8	Isopropylbenzene	A 941 -9746	0.28	0.28	ppb	U
108-86-1	Bromobenzene	A 941 -9746	0.22	0.22	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	A 941 -9746	0.19	0.19	ppb	U
103-65-1	n-Propylbenzene	A 941 -9746	0.32	**2.70**	ppb	
96-18-4	1,2,3-Trichloropropane	A 941 -9746	0.094	0.094	ppb	U
622-96-8	p-Ethyltoluene	A 941 -9746	0.30	0.30	ppb	U
108-67-8	1,3,5-Trimethylbenzene	A 941 -9746	0.34	0.34	ppb	U
95-49-8	2-Chlorotoluene	A 941 -9746	0.30	**3.52**	ppb	
106-43-4	4-Chlorotoluene	A 941 -9746	0.14	**3.41**	ppb	
98-06-6	tert-Butylbenzene	A 941 -9746	0.24	0.24	ppb	U
95-63-6	1,2,4-Trimethylbenzene	A 941 -9746	0.30	0.30	ppb	U
135-98-8	sec-Butylbenzene	A 941 -9746	0.38	0.38	ppb	U
99-87-6	p-Isopropyltoluene	A 941 -9746	0.32	0.32	ppb	U
541-73-1	1,3-Dichlorobenzene	A 941 -9746	0.094	0.094	ppb	U
106-46-7	1,4-Dichlorobenzene	A 941 -9746	0.34	0.34	ppb	U
95-50-1	1,2-Dichlorobenzene	A 941 -9746	0.13	0.13	ppb	U
105-05-5	p-Diethylbenzene	A 941 -9746	0.34	0.34	ppb	U
104-51-8	n-Butylbenzene	A 941 -9746	0.52	0.52	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	A 941 -9746	0.46	0.46	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-3

Client Sample ID: MW-13 Collected: 04/29/2003 08:50

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/03/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	A 941 -9746	0.50	0.50	ppb	U
120-82-1	1,2,4-Trichlorobenzene	A 941 -9746	0.28	0.28	ppb	U
87-68-3	Hexachlorobutadiene	A 941 -9746	0.38	0.38	ppb	U
91-20-3	Naphthalene	A 941 -9746	0.80	0.80	ppb	U
87-61-6	1,2,3-Trichlorobenzene	A 941 -9746	0.30	0.30	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	A941-9746	95.5 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A941-9746	105.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A941-9746	98.3 %	(88 - 114)	

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-4
Client Sample ID: MW-14
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/02/2003

Type: Grab

Collected: 04/28/2003 17:50

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	A 940 -9710	29.0	29.0	ppb	U
75-45-6	Chlorodifluoromethane	A 940 -9710	31.0	31.0	ppb	U
74-87-3	Chloromethane	A 940 -9710	31.0	31.0	ppb	U
75-01-4	Vinyl Chloride	A 940 -9710	28.0	**342**	ppb	
74-83-9	Bromomethane	A 940 -9710	45.0	45.0	ppb	U
75-00-3	Chloroethane	A 940 -9710	44.0	**1290**	ppb	
75-69-4	Trichlorofluoromethane	A 940 -9710	48.0	48.0	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	A 940 -9710	28.0	28.0	ppb	U
75-35-4	1,1-Dichloroethene	A 940 -9710	23.0	**296**	ppb	
67-64-1	Acetone	A 940 -9710	141	**912**	ppb	
75-15-0	Carbon disulfide	A 940 -9710	26.0	26.0	ppb	U
75-09-2	Methylene Chloride	A 940 -9710	15.0	15.0	ppb	U
156-60-5	trans-1,2-Dichloroethene	A 940 -9710	22.0	22.0	ppb	U
1634-04-4	Methyl t-butyl ether	A 940 -9710	5.30	5.30	ppb	U
75-34-3	1,1-Dichloroethane	A 940 -9710	22.0	**8860**	ppb	
590-20-7	2,2-Dichloropropane	A 940 -9710	37.0	37.0	ppb	U
156-59-2	cis-1,2-Dichloroethene	A 940 -9710	16.0	16.0	ppb	U
78-93-3	2-Butanone	A 940 -9710	164	164	ppb	U
74-97-5	Bromochloromethane	A 940 -9710	6.60	6.60	ppb	U
67-66-3	Chloroform	A 940 -9710	19.0	19.0	ppb	U
71-55-6	1,1,1-Trichloroethane	A 940 -9710	22.0	**1630**	ppb	
56-23-5	Carbon Tetrachloride	A 940 -9710	32.0	32.0	ppb	U
563-58-6	1,1-Dichloropropene	A 940 -9710	40.0	40.0	ppb	U
71-43-2	Benzene	A 940 -9710	21.0	21.0	ppb	U
107-06-2	1,2-Dichloroethane	A 940 -9710	17.0	17.0	ppb	U
79-01-6	Trichloroethene	A 940 -9710	21.0	21.0	ppb	U
78-87-5	1,2-Dichloropropane	A 940 -9710	15.0	15.0	ppb	U
74-95-3	Dibromomethane	A 940 -9710	7.20	7.20	ppb	U
75-27-4	Bromodichloromethane	A 940 -9710	8.40	8.40	ppb	U
110-75-8	2-Chloroethylvinylether	A 940 -9710	83.0	83.0	ppb	U
10061-01-5	cis-1,3-Dichloropropene	A 940 -9710	6.20	6.20	ppb	U
108-10-1	4-Methyl-2-pentanone	A 940 -9710	144	144	ppb	U
108-88-3	Toluene	A 940 -9710	20.0	20.0	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-4

Client Sample ID: MW-14 Collected: 04/28/2003 17:50

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/02/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	A 940 -9710	12.0	12.0	ppb	U
79-00-5	1,1,2-Trichloroethane	A 940 -9710	15.0	15.0	ppb	U
127-18-4	Tetrachloroethene	A 940 -9710	38.0	38.0	ppb	U
142-28-9	1,3-Dichloropropane	A 940 -9710	4.00	4.00	ppb	U
591-78-6	2-Hexanone	A 940 -9710	144	144	ppb	U
124-48-1	Dibromochloromethane	A 940 -9710	4.40	4.40	ppb	U
106-93-4	1,2-Dibromoethane	A 940 -9710	9.70	9.70	ppb	U
108-90-7	Chlorobenzene	A 940 -9710	15.0	15.0	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	A 940 -9710	6.10	6.10	ppb	U
100-41-4	Ethylbenzene	A 940 -9710	12.0	12.0	ppb	U
108-38-3	m,p-xylene	A 940 -9710	24.0	24.0	ppb	U
95-47-6	o-xylene	A 940 -9710	12.0	12.0	ppb	U
100-42-5	Styrene	A 940 -9710	8.00	8.00	ppb	U
75-25-2	Bromoform	A 940 -9710	7.30	7.30	ppb	U
98-82-8	Isopropylbenzene	A 940 -9710	14.0	14.0	ppb	U
108-86-1	Bromobenzene	A 940 -9710	11.0	11.0	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	A 940 -9710	9.40	9.40	ppb	U
103-65-1	n-Propylbenzene	A 940 -9710	16.0	16.0	ppb	U
96-18-4	1,2,3-Trichloropropane	A 940 -9710	4.70	4.70	ppb	U
622-96-8	p-Ethyltoluene	A 940 -9710	15.0	15.0	ppb	U
108-67-8	1,3,5-Trimethylbenzene	A 940 -9710	17.0	17.0	ppb	U
95-49-8	2-Chlorotoluene	A 940 -9710	15.0	15.0	ppb	U
106-43-4	4-Chlorotoluene	A 940 -9710	7.20	7.20	ppb	U
98-06-6	tert-Butylbenzene	A 940 -9710	12.0	12.0	ppb	U
95-63-6	1,2,4-Trimethylbenzene	A 940 -9710	15.0	15.0	ppb	U
135-98-8	sec-Butylbenzene	A 940 -9710	19.0	19.0	ppb	U
99-87-6	p-Isopropyltoluene	A 940 -9710	16.0	16.0	ppb	U
541-73-1	1,3-Dichlorobenzene	A 940 -9710	4.70	4.70	ppb	U
106-46-7	1,4-Dichlorobenzene	A 940 -9710	17.0	17.0	ppb	U
95-50-1	1,2-Dichlorobenzene	A 940 -9710	6.50	6.50	ppb	U
105-05-5	p-Diethylbenzene	A 940 -9710	17.0	17.0	ppb	U
104-51-8	n-Butylbenzene	A 940 -9710	26.0	26.0	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	A 940 -9710	23.0	23.0	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-4
Client Sample ID: MW-14
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/02/2003

Collected: 04/28/2003 17:50
Type: Grab

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	A 940 -9710	25.0	25.0	ppb	U
120-82-1	1,2,4-Trichlorobenzene	A 940 -9710	14.0	14.0	ppb	U
87-68-3	Hexachlorobutadiene	A 940 -9710	19.0	19.0	ppb	U
91-20-3	Naphthalene	A 940 -9710	40.0	40.0	ppb	U
87-61-6	1,2,3-Trichlorobenzene	A 940 -9710	15.0	15.0	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	A940-9710	96.0 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A940-9710	104.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A940-9710	96.3 %	(88 - 114)	

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-5

Client Sample ID: SMP-1 Collected: 04/28/2003 18:00

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/03/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	A 941 -9747	0.58	0.58	ppb	U
75-45-6	Chlorodifluoromethane	A 941 -9747	0.62	0.62	ppb	U
74-87-3	Chloromethane	A 941 -9747	0.62	0.62	ppb	U
75-01-4	Vinyl Chloride	A 941 -9747	0.56	0.56	ppb	U
74-83-9	Bromomethane	A 941 -9747	0.90	0.90	ppb	U
75-00-3	Chloroethane	A 941 -9747	0.88	**241**	ppb	
75-69-4	Trichlorofluoromethane	A 941 -9747	0.96	0.96	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	A 941 -9747	0.56	0.56	ppb	U
75-35-4	1,1-Dichloroethene	A 941 -9747	0.46	0.46	ppb	U
67-64-1	Acetone	A 941 -9747	2.82	**101**	ppb	
75-15-0	Carbon disulfide	A 941 -9747	0.52	0.52	ppb	U
75-09-2	Methylene Chloride	A 941 -9747	0.30	**2.75**	ppb	
156-60-5	trans-1,2-Dichloroethene	A 941 -9747	0.44	0.44	ppb	U
1634-04-4	Methyl t-butyl ether	A 941 -9747	0.11	0.11	ppb	U
75-34-3	1,1-Dichloroethane	A 941 -9747	0.44	**26.3**	ppb	
590-20-7	2,2-Dichloropropane	A 941 -9747	0.74	0.74	ppb	U
156-59-2	cis-1,2-Dichloroethene	A 941 -9747	0.32	0.32	ppb	U
78-93-3	2-Butanone	A 941 -9747	3.28	3.28	ppb	U
74-97-5	Bromochloromethane	A 941 -9747	0.13	0.13	ppb	U
67-66-3	Chloroform	A 941 -9747	0.38	0.38	ppb	U
71-55-6	1,1,1-Trichloroethane	A 941 -9747	0.44	0.44	ppb	U
56-23-5	Carbon Tetrachloride	A 941 -9747	0.64	0.64	ppb	U
563-58-6	1,1-Dichloropropene	A 941 -9747	0.80	0.80	ppb	U
71-43-2	Benzene	A 941 -9747	0.42	**24.4**	ppb	
107-06-2	1,2-Dichloroethane	A 941 -9747	0.34	0.34	ppb	U
79-01-6	Trichloroethene	A 941 -9747	0.42	0.42	ppb	U
78-87-5	1,2-Dichloropropane	A 941 -9747	0.30	0.30	ppb	U
74-95-3	Dibromomethane	A 941 -9747	0.14	0.14	ppb	U
75-27-4	Bromodichloromethane	A 941 -9747	0.17	0.17	ppb	U
110-75-8	2-Chloroethylvinylether	A 941 -9747	1.66	1.66	ppb	U
10061-01-5	cis-1,3-Dichloropropene	A 941 -9747	0.12	0.12	ppb	U
108-10-1	4-Methyl-2-pentanone	A 941 -9747	2.88	2.88	ppb	U
108-88-3	Toluene	A 941 -9747	0.40	**48.9**	ppb	

Environmental Testing Laboratories, Inc.

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-5

Client Sample ID: SMP-1 Collected: 04/28/2003 18:00

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/03/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	A 941 -9747	0.24	0.24	ppb	U
79-00-5	1,1,2-Trichloroethane	A 941 -9747	0.30	0.30	ppb	U
127-18-4	Tetrachloroethene	A 941 -9747	0.76	0.76	ppb	U
142-28-9	1,3-Dichloropropane	A 941 -9747	0.080	0.080	ppb	U
591-78-6	2-Hexanone	A 941 -9747	2.88	**6.98**	ppb	
124-48-1	Dibromochloromethane	A 941 -9747	0.088	0.088	ppb	U
106-93-4	1,2-Dibromoethane	A 941 -9747	0.19	0.19	ppb	U
108-90-7	Chlorobenzene	A 941 -9747	0.30	0.30	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	A 941 -9747	0.12	0.12	ppb	U
100-41-4	Ethylbenzene	A 941 -9747	0.24	0.24	ppb	U
108-38-3	m,p-xylene	A 941 -9747	0.48	0.48	ppb	U
95-47-6	o-xylene	A 941 -9747	0.24	0.24	ppb	U
100-42-5	Styrene	A 941 -9747	0.16	0.16	ppb	U
75-25-2	Bromoform	A 941 -9747	0.15	0.15	ppb	U
98-82-8	Isopropylbenzene	A 941 -9747	0.28	0.28	ppb	U
108-86-1	Bromobenzene	A 941 -9747	0.22	0.22	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	A 941 -9747	0.19	0.19	ppb	U
103-65-1	n-Propylbenzene	A 941 -9747	0.32	0.32	ppb	U
96-18-4	1,2,3-Trichloropropane	A 941 -9747	0.094	0.094	ppb	U
622-96-8	p-Ethyltoluene	A 941 -9747	0.30	0.30	ppb	U
108-67-8	1,3,5-Trimethylbenzene	A 941 -9747	0.34	0.34	ppb	U
95-49-8	2-Chlorotoluene	A 941 -9747	0.30	**10.1**	ppb	
106-43-4	4-Chlorotoluene	A 941 -9747	0.14	0.14	ppb	U
98-06-6	tert-Butylbenzene	A 941 -9747	0.24	0.24	ppb	U
95-63-6	1,2,4-Trimethylbenzene	A 941 -9747	0.30	0.30	ppb	U
135-98-8	sec-Butylbenzene	A 941 -9747	0.38	0.38	ppb	U
99-87-6	p-Isopropyltoluene	A 941 -9747	0.32	0.32	ppb	U
541-73-1	1,3-Dichlorobenzene	A 941 -9747	0.094	0.094	ppb	U
106-46-7	1,4-Dichlorobenzene	A 941 -9747	0.34	0.34	ppb	U
95-50-1	1,2-Dichlorobenzene	A 941 -9747	0.13	0.13	ppb	U
105-05-5	p-Diethylbenzene	A 941 -9747	0.34	0.34	ppb	U
104-51-8	n-Butylbenzene	A 941 -9747	0.52	0.52	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	A 941 -9747	0.46	0.46	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-5

Client Sample ID: SMP-1 Collected: 04/28/2003 18:00

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/03/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	A 941 -9747	0.50	0.50	ppb	U
120-82-1	1,2,4-Trichlorobenzene	A 941 -9747	0.28	0.28	ppb	U
87-68-3	Hexachlorobutadiene	A 941 -9747	0.38	0.38	ppb	U
91-20-3	Naphthalene	A 941 -9747	0.80	0.80	ppb	U
87-61-6	1,2,3-Trichlorobenzene	A 941 -9747	0.30	0.30	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	A941-9747	95.9 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A941-9747	103.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A941-9747	97.5 %	(88 - 114)	

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-6

Client Sample ID: DMP-1 Collected: 04/28/2003 18:05

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/05/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	A 943 -9799	0.58	0.58	ppb	U
75-45-6	Chlorodifluoromethane	A 943 -9799	0.62	0.62	ppb	U
74-87-3	Chloromethane	A 943 -9799	0.62	0.62	ppb	U
75-01-4	Vinyl Chloride	A 940 -9716	14.0	**1020**	ppb	
74-83-9	Bromomethane	A 943 -9799	0.90	0.90	ppb	U
75-00-3	Chloroethane	A 943 -9799	0.88	**34.7**	ppb	
75-69-4	Trichlorofluoromethane	A 943 -9799	0.96	0.96	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	A 943 -9799	0.56	0.56	ppb	U
75-35-4	1,1-Dichloroethene	A 943 -9799	0.46	**4.70**	ppb	
67-64-1	Acetone	A 943 -9799	2.82	**86.0**	ppb	
75-15-0	Carbon disulfide	A 943 -9799	0.52	**3.10**	ppb	
75-09-2	Methylene Chloride	A 943 -9799	0.30	**4.87**	ppb	
156-60-5	trans-1,2-Dichloroethene	A 943 -9799	0.44	**5.75**	ppb	
1634-04-4	Methyl t-butyl ether	A 943 -9799	0.11	0.11	ppb	U
75-34-3	1,1-Dichloroethane	A 940 -9716	11.0	**401**	ppb	
590-20-7	2,2-Dichloropropane	A 943 -9799	0.74	0.74	ppb	U
156-59-2	cis-1,2-Dichloroethene	A 940 -9716	8.00	**1100**	ppb	
78-93-3	2-Butanone	A 943 -9799	3.28	3.28	ppb	U
74-97-5	Bromochloromethane	A 943 -9799	0.13	0.13	ppb	U
67-66-3	Chloroform	A 943 -9799	0.38	0.38	ppb	U
71-55-6	1,1,1-Trichloroethane	A 943 -9799	0.44	0.44	ppb	U
56-23-5	Carbon Tetrachloride	A 943 -9799	0.64	0.64	ppb	U
563-58-6	1,1-Dichloropropene	A 943 -9799	0.80	0.80	ppb	U
71-43-2	Benzene	A 943 -9799	0.42	**214**	ppb	
107-06-2	1,2-Dichloroethane	A 943 -9799	0.34	0.34	ppb	U
79-01-6	Trichloroethene	A 943 -9799	0.42	**5.53**	ppb	
78-87-5	1,2-Dichloropropane	A 943 -9799	0.30	0.30	ppb	U
74-95-3	Dibromomethane	A 943 -9799	0.14	0.14	ppb	U
75-27-4	Bromodichloromethane	A 943 -9799	0.17	0.17	ppb	U
110-75-8	2-Chloroethylvinylether	A 943 -9799	1.66	1.66	ppb	U
10061-01-5	cis-1,3-Dichloropropene	A 943 -9799	0.12	0.12	ppb	U
108-10-1	4-Methyl-2-pentanone	A 943 -9799	2.88	2.88	ppb	U
108-88-3	Toluene	A 943 -9799	0.40	**14.3**	ppb	

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208 Route 109, Farmingdale NY 11735
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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-6
Client Sample ID: DMP-1
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/05/2003

Type: Grab

Collected: 04/28/2003 18:05

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	A 943 -9799	0.24	0.24	ppb	U
79-00-5	1,1,2-Trichloroethane	A 943 -9799	0.30	0.30	ppb	U
127-18-4	Tetrachloroethene	A 943 -9799	0.76	0.76	ppb	U
142-28-9	1,3-Dichloropropane	A 943 -9799	0.080	0.080	ppb	U
591-78-6	2-Hexanone	A 943 -9799	2.88	2.88	ppb	U
124-48-1	Dibromochloromethane	A 943 -9799	0.088	0.088	ppb	U
106-93-4	1,2-Dibromoethane	A 943 -9799	0.19	0.19	ppb	U
108-90-7	Chlorobenzene	A 943 -9799	0.30	0.30	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	A 943 -9799	0.12	0.12	ppb	U
100-41-4	Ethylbenzene	A 943 -9799	0.24	**2.86**	ppb	
108-38-3	m,p-xylene	A 943 -9799	0.48	**3.55**	ppb	
95-47-6	o-xylene	A 943 -9799	0.24	**2.97**	ppb	
100-42-5	Styrene	A 943 -9799	0.16	0.16	ppb	U
75-25-2	Bromoform	A 943 -9799	0.15	0.15	ppb	U
98-82-8	Isopropylbenzene	A 943 -9799	0.28	0.28	ppb	U
108-86-1	Bromobenzene	A 943 -9799	0.22	0.22	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	A 943 -9799	0.19	0.19	ppb	U
103-65-1	n-Propylbenzene	A 943 -9799	0.32	0.32	ppb	U
96-18-4	1,2,3-Trichloropropane	A 943 -9799	0.094	0.094	ppb	U
622-96-8	p-Ethyltoluene	A 943 -9799	0.30	0.30	ppb	U
108-67-8	1,3,5-Trimethylbenzene	A 943 -9799	0.34	0.34	ppb	U
95-49-8	2-Chlorotoluene	A 943 -9799	0.30	**31.9**	ppb	
106-43-4	4-Chlorotoluene	A 943 -9799	0.14	**2.10**	ppb	
98-06-6	tert-Butylbenzene	A 943 -9799	0.24	0.24	ppb	U
95-63-6	1,2,4-Trimethylbenzene	A 943 -9799	0.30	**3.02**	ppb	
135-98-8	sec-Butylbenzene	A 943 -9799	0.38	0.38	ppb	U
99-87-6	p-Isopropyltoluene	A 943 -9799	0.32	0.32	ppb	U
541-73-1	1,3-Dichlorobenzene	A 943 -9799	0.094	0.094	ppb	U
106-46-7	1,4-Dichlorobenzene	A 943 -9799	0.34	0.34	ppb	U
95-50-1	1,2-Dichlorobenzene	A 943 -9799	0.13	0.13	ppb	U
105-05-5	p-Diethylbenzene	A 943 -9799	0.34	0.34	ppb	U
104-51-8	n-Butylbenzene	A 943 -9799	0.52	0.52	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	A 943 -9799	0.46	0.46	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-6
Client Sample ID: DMP-1
Matrix: Liquid
Type: Grab
Collected: 04/28/2003 18:05
Remarks: See Case Narrative
Analyzed Date: 05/05/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	A 943 -9799	0.50	0.50	ppb	U
120-82-1	1,2,4-Trichlorobenzene	A 943 -9799	0.28	0.28	ppb	U
87-68-3	Hexachlorobutadiene	A 943 -9799	0.38	0.38	ppb	U
91-20-3	Naphthalene	A 943 -9799	0.80	**4.18**	ppb	
87-61-6	1,2,3-Trichlorobenzene	A 943 -9799	0.30	0.30	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	A940-9716	95.5 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A940-9716	103.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A940-9716	97.5 %	(88 - 114)	
460-00-4	4-BROMOFLUOROBENZENE	A943-9799	97.2 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A943-9799	103.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A943-9799	96.8 %	(88 - 114)	

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-7

Client Sample ID: SMP-3 Collected: 04/28/2003 18:10

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/02/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	A 940 -9717	2.90	2.90	ppb	U
75-45-6	Chlorodifluoromethane	A 940 -9717	3.10	3.10	ppb	U
74-87-3	Chloromethane	A 940 -9717	3.10	3.10	ppb	U
75-01-4	Vinyl Chloride	A 940 -9717	2.80	**73.9**	ppb	
74-83-9	Bromomethane	A 940 -9717	4.50	4.50	ppb	U
75-00-3	Chloroethane	A 940 -9717	4.40	**1220**	ppb	
75-69-4	Trichlorofluoromethane	A 940 -9717	4.80	4.80	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	A 940 -9717	2.80	2.80	ppb	U
75-35-4	1,1-Dichloroethene	A 940 -9717	2.30	**239**	ppb	
67-64-1	Acetone	A 940 -9717	14.1	**256**	ppb	
75-15-0	Carbon disulfide	A 940 -9717	2.60	2.60	ppb	U
75-09-2	Methylene Chloride	A 940 -9717	1.50	**13.6**	ppb	
156-60-5	trans-1,2-Dichloroethene	A 940 -9717	2.20	2.20	ppb	U
1634-04-4	Methyl t-butyl ether	A 940 -9717	0.53	0.53	ppb	U
75-34-3	1,1-Dichloroethane	A 943 -9800	11.0	**5830**	ppb	
590-20-7	2,2-Dichloropropane	A 940 -9717	3.70	3.70	ppb	U
156-59-2	cis-1,2-Dichloroethene	A 940 -9717	1.60	1.60	ppb	U
78-93-3	2-Butanone	A 940 -9717	16.4	16.4	ppb	U
74-97-5	Bromochloromethane	A 940 -9717	0.66	0.66	ppb	U
67-66-3	Chloroform	A 940 -9717	1.90	1.90	ppb	U
71-55-6	1,1,1-Trichloroethane	A 943 -9800	11.0	**4510**	ppb	
56-23-5	Carbon Tetrachloride	A 940 -9717	3.20	3.20	ppb	U
563-58-6	1,1-Dichloropropene	A 940 -9717	4.00	4.00	ppb	U
71-43-2	Benzene	A 940 -9717	2.10	2.10	ppb	U
107-06-2	1,2-Dichloroethane	A 940 -9717	1.70	1.70	ppb	U
79-01-6	Trichloroethene	A 940 -9717	2.10	2.10	ppb	U
78-87-5	1,2-Dichloropropane	A 940 -9717	1.50	1.50	ppb	U
74-95-3	Dibromomethane	A 940 -9717	0.72	0.72	ppb	U
75-27-4	Bromodichloromethane	A 940 -9717	0.84	0.84	ppb	U
110-75-8	2-Chloroethylvinylether	A 940 -9717	8.30	8.30	ppb	U
10061-01-5	cis-1,3-Dichloropropene	A 940 -9717	0.62	0.62	ppb	U
108-10-1	4-Methyl-2-pentanone	A 940 -9717	14.4	14.4	ppb	U
108-88-3	Toluene	A 940 -9717	2.00	**32.2**	ppb	

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-7
Client Sample ID: SMP-3
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/02/2003

Type: Grab

Collected: 04/28/2003 18:10

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	A 940 -9717	1.20	1.20	ppb	U
79-00-5	1,1,2-Trichloroethane	A 940 -9717	1.50	1.50	ppb	U
127-18-4	Tetrachloroethene	A 940 -9717	3.80	3.80	ppb	U
142-28-9	1,3-Dichloropropane	A 940 -9717	0.40	0.40	ppb	U
591-78-6	2-Hexanone	A 940 -9717	14.4	14.4	ppb	U
124-48-1	Dibromochloromethane	A 940 -9717	0.44	0.44	ppb	U
106-93-4	1,2-Dibromoethane	A 940 -9717	0.97	0.97	ppb	U
108-90-7	Chlorobenzene	A 940 -9717	1.50	1.50	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	A 940 -9717	0.61	0.61	ppb	U
100-41-4	Ethylbenzene	A 940 -9717	1.20	1.20	ppb	U
108-38-3	m,p-xylene	A 940 -9717	2.40	2.40	ppb	U
95-47-6	o-xylene	A 940 -9717	1.20	1.20	ppb	U
100-42-5	Styrene	A 940 -9717	0.80	0.80	ppb	U
75-25-2	Bromoform	A 940 -9717	0.73	0.73	ppb	U
98-82-8	Isopropylbenzene	A 940 -9717	1.40	1.40	ppb	U
108-86-1	Bromobenzene	A 940 -9717	1.10	1.10	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	A 940 -9717	0.94	0.94	ppb	U
103-65-1	n-Propylbenzene	A 940 -9717	1.60	1.60	ppb	U
96-18-4	1,2,3-Trichloropropane	A 940 -9717	0.47	0.47	ppb	U
622-96-8	p-Ethyltoluene	A 940 -9717	1.50	1.50	ppb	U
108-67-8	1,3,5-Trimethylbenzene	A 940 -9717	1.70	1.70	ppb	U
95-49-8	2-Chlorotoluene	A 940 -9717	1.50	1.50	ppb	U
106-43-4	4-Chlorotoluene	A 940 -9717	0.72	0.72	ppb	U
98-06-6	tert-Butylbenzene	A 940 -9717	1.20	1.20	ppb	U
95-63-6	1,2,4-Trimethylbenzene	A 940 -9717	1.50	1.50	ppb	U
135-98-8	sec-Butylbenzene	A 940 -9717	1.90	1.90	ppb	U
99-87-6	p-Isopropyltoluene	A 940 -9717	1.60	1.60	ppb	U
541-73-1	1,3-Dichlorobenzene	A 940 -9717	0.47	0.47	ppb	U
106-46-7	1,4-Dichlorobenzene	A 940 -9717	1.70	1.70	ppb	U
95-50-1	1,2-Dichlorobenzene	A 940 -9717	0.65	0.65	ppb	U
105-05-5	p-Diethylbenzene	A 940 -9717	1.70	1.70	ppb	U
104-51-8	n-Butylbenzene	A 940 -9717	2.60	2.60	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	A 940 -9717	2.30	2.30	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-7

Client Sample ID: SMP-3 Collected: 04/28/2003 18:10

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/02/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	A 940 -9717	2.50	2.50	ppb	U
120-82-1	1,2,4-Trichlorobenzene	A 940 -9717	1.40	1.40	ppb	U
87-68-3	Hexachlorobutadiene	A 940 -9717	1.90	1.90	ppb	U
91-20-3	Naphthalene	A 940 -9717	4.00	4.00	ppb	U
87-61-6	1,2,3-Trichlorobenzene	A 940 -9717	1.50	1.50	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	A940-9717	96.6 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A940-9717	104.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A940-9717	98.0 %	(88 - 114)	
460-00-4	4-BROMOFLUOROBENZENE	A943-9800	96.2 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A943-9800	105.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A943-9800	97.3 %	(88 - 114)	

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-8
Client Sample ID: DMP-3
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/02/2003

Type: Grab

Collected: 04/28/2003 18:15

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	A 940 -9718	5.80	5.80	ppb	U
75-45-6	Chlorodifluoromethane	A 940 -9718	6.20	6.20	ppb	U
74-87-3	Chloromethane	A 940 -9718	6.20	6.20	ppb	U
75-01-4	Vinyl Chloride	A 940 -9718	5.60	**146**	ppb	
74-83-9	Bromomethane	A 940 -9718	9.00	9.00	ppb	U
75-00-3	Chloroethane	A 940 -9718	8.80	**1600**	ppb	
75-69-4	Trichlorofluoromethane	A 940 -9718	9.60	9.60	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	A 940 -9718	5.60	5.60	ppb	U
75-35-4	1,1-Dichloroethene	A 940 -9718	4.60	**36.2**	ppb	
67-64-1	Acetone	A 940 -9718	28.2	**173**	ppb	
75-15-0	Carbon disulfide	A 940 -9718	5.20	5.20	ppb	U
75-09-2	Methylene Chloride	A 940 -9718	3.00	**34.7**	ppb	
156-60-5	trans-1,2-Dichloroethene	A 940 -9718	4.40	4.40	ppb	U
1634-04-4	Methyl t-butyl ether	A 940 -9718	1.06	1.06	ppb	U
75-34-3	1,1-Dichloroethane	A 943 -9801	22.0	**8320**	ppb	
590-20-7	2,2-Dichloropropane	A 940 -9718	7.40	7.40	ppb	U
156-59-2	cis-1,2-Dichloroethene	A 940 -9718	3.20	**42.7**	ppb	
78-93-3	2-Butanone	A 940 -9718	32.8	32.8	ppb	U
74-97-5	Bromochloromethane	A 940 -9718	1.32	1.32	ppb	U
67-66-3	Chloroform	A 940 -9718	3.80	3.80	ppb	U
71-55-6	1,1,1-Trichloroethane	A 940 -9718	4.40	**1510**	ppb	
56-23-5	Carbon Tetrachloride	A 940 -9718	6.40	6.40	ppb	U
563-58-6	1,1-Dichloropropene	A 940 -9718	8.00	8.00	ppb	U
71-43-2	Benzene	A 940 -9718	4.20	4.20	ppb	U
107-06-2	1,2-Dichloroethane	A 940 -9718	3.40	3.40	ppb	U
79-01-6	Trichloroethene	A 940 -9718	4.20	4.20	ppb	U
78-87-5	1,2-Dichloropropane	A 940 -9718	3.00	3.00	ppb	U
74-95-3	Dibromomethane	A 940 -9718	1.44	1.44	ppb	U
75-27-4	Bromodichloromethane	A 940 -9718	1.68	1.68	ppb	U
110-75-8	2-Chloroethylvinylether	A 940 -9718	16.6	16.6	ppb	U
10061-01-5	cis-1,3-Dichloropropene	A 940 -9718	1.24	1.24	ppb	U
108-10-1	4-Methyl-2-pentanone	A 940 -9718	28.8	28.8	ppb	U
108-88-3	Toluene	A 940 -9718	4.00	**22.5**	ppb	

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-8

Client Sample ID: DMP-3 Collected: 04/28/2003 18:15

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/02/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	A 940 -9718	2.40	2.40	ppb	U
79-00-5	1,1,2-Trichloroethane	A 940 -9718	3.00	3.00	ppb	U
127-18-4	Tetrachloroethene	A 940 -9718	7.60	**21.5**	ppb	
142-28-9	1,3-Dichloropropane	A 940 -9718	0.80	0.80	ppb	U
591-78-6	2-Hexanone	A 940 -9718	28.8	28.8	ppb	U
124-48-1	Dibromochloromethane	A 940 -9718	0.88	0.88	ppb	U
106-93-4	1,2-Dibromoethane	A 940 -9718	1.94	1.94	ppb	U
108-90-7	Chlorobenzene	A 940 -9718	3.00	3.00	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	A 940 -9718	1.22	1.22	ppb	U
100-41-4	Ethylbenzene	A 940 -9718	2.40	2.40	ppb	U
108-38-3	m,p-xylene	A 940 -9718	4.80	4.80	ppb	U
95-47-6	o-xylene	A 940 -9718	2.40	2.40	ppb	U
100-42-5	Styrene	A 940 -9718	1.60	1.60	ppb	U
75-25-2	Bromoform	A 940 -9718	1.46	1.46	ppb	U
98-82-8	Isopropylbenzene	A 940 -9718	2.80	2.80	ppb	U
108-86-1	Bromobenzene	A 940 -9718	2.20	2.20	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	A 940 -9718	1.88	1.88	ppb	U
103-65-1	n-Propylbenzene	A 940 -9718	3.20	3.20	ppb	U
96-18-4	1,2,3-Trichloropropane	A 940 -9718	0.94	0.94	ppb	U
622-96-8	p-Ethyltoluene	A 940 -9718	3.00	3.00	ppb	U
108-67-8	1,3,5-Trimethylbenzene	A 940 -9718	3.40	3.40	ppb	U
95-49-8	2-Chlorotoluene	A 940 -9718	3.00	3.00	ppb	U
106-43-4	4-Chlorotoluene	A 940 -9718	1.44	1.44	ppb	U
98-06-6	tert-Butylbenzene	A 940 -9718	2.40	2.40	ppb	U
95-63-6	1,2,4-Trimethylbenzene	A 940 -9718	3.00	3.00	ppb	U
135-98-8	sec-Butylbenzene	A 940 -9718	3.80	3.80	ppb	U
99-87-6	p-Isopropyltoluene	A 940 -9718	3.20	3.20	ppb	U
541-73-1	1,3-Dichlorobenzene	A 940 -9718	0.94	0.94	ppb	U
106-46-7	1,4-Dichlorobenzene	A 940 -9718	3.40	3.40	ppb	U
95-50-1	1,2-Dichlorobenzene	A 940 -9718	1.30	1.30	ppb	U
105-05-5	p-Diethylbenzene	A 940 -9718	3.40	3.40	ppb	U
104-51-8	n-Butylbenzene	A 940 -9718	5.20	5.20	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	A 940 -9718	4.60	4.60	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-8

Client Sample ID: DMP-3 Collected: 04/28/2003 18:15

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/02/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	A 940 -9718	5.00	5.00	ppb	U
120-82-1	1,2,4-Trichlorobenzene	A 940 -9718	2.80	2.80	ppb	U
87-68-3	Hexachlorobutadiene	A 940 -9718	3.80	3.80	ppb	U
91-20-3	Naphthalene	A 940 -9718	8.00	8.00	ppb	U
87-61-6	1,2,3-Trichlorobenzene	A 940 -9718	3.00	3.00	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	A940-9718	95.7 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A940-9718	103.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A940-9718	95.5 %	(88 - 114)	
460-00-4	4-BROMOFLUOROBENZENE	A943-9801	96.1 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A943-9801	103.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A943-9801	96.9 %	(88 - 114)	

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-9
Client Sample ID: SMP-4
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/05/2003

Type: Grab

Collected: 04/28/2003 18:20

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	A 943 -9802	1.45	1.45	ppb	U
75-45-6	Chlorodifluoromethane	A 943 -9802	1.55	1.55	ppb	U
74-87-3	Chloromethane	A 943 -9802	1.55	1.55	ppb	U
75-01-4	Vinyl Chloride	A 943 -9802	1.40	**10.1**	ppb	
74-83-9	Bromomethane	A 943 -9802	2.25	2.25	ppb	U
75-00-3	Chloroethane	A 940 -9719	13.2	**1010**	ppb	
75-69-4	Trichlorofluoromethane	A 943 -9802	2.40	2.40	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	A 943 -9802	1.40	1.40	ppb	U
75-35-4	1,1-Dichloroethene	A 943 -9802	1.15	1.15	ppb	U
67-64-1	Acetone	A 943 -9802	7.05	**433**	ppb	
75-15-0	Carbon disulfide	A 943 -9802	1.30	1.30	ppb	U
75-09-2	Methylene Chloride	A 943 -9802	0.75	**9.85**	ppb	
156-60-5	trans-1,2-Dichloroethene	A 943 -9802	1.10	1.10	ppb	U
1634-04-4	Methyl t-butyl ether	A 943 -9802	0.26	0.26	ppb	U
75-34-3	1,1-Dichloroethane	A 943 -9802	1.10	**80.4**	ppb	
590-20-7	2,2-Dichloropropane	A 943 -9802	1.85	1.85	ppb	U
156-59-2	cis-1,2-Dichloroethene	A 943 -9802	0.80	**31.0**	ppb	
78-93-3	2-Butanone	A 943 -9802	8.20	8.20	ppb	U
74-97-5	Bromochloromethane	A 943 -9802	0.33	0.33	ppb	U
67-66-3	Chloroform	A 943 -9802	0.95	0.95	ppb	U
71-55-6	1,1,1-Trichloroethane	A 943 -9802	1.10	**8.54**	ppb	
56-23-5	Carbon Tetrachloride	A 943 -9802	1.60	1.60	ppb	U
563-58-6	1,1-Dichloropropene	A 943 -9802	2.00	2.00	ppb	U
71-43-2	Benzene	A 943 -9802	1.05	1.05	ppb	U
107-06-2	1,2-Dichloroethane	A 943 -9802	0.85	0.85	ppb	U
79-01-6	Trichloroethene	A 943 -9802	1.05	**9.80**	ppb	
78-87-5	1,2-Dichloropropane	A 943 -9802	0.75	0.75	ppb	U
74-95-3	Dibromomethane	A 943 -9802	0.36	0.36	ppb	U
75-27-4	Bromodichloromethane	A 943 -9802	0.42	0.42	ppb	U
110-75-8	2-Chloroethylvinylether	A 943 -9802	4.15	4.15	ppb	U
10061-01-5	cis-1,3-Dichloropropene	A 943 -9802	0.31	0.31	ppb	U
108-10-1	4-Methyl-2-pentanone	A 943 -9802	7.20	7.20	ppb	U
108-88-3	Toluene	A 943 -9802	1.00	1.00	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-9

Client Sample ID: SMP-4 Collected: 04/28/2003 18:20

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/05/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	A 943 -9802	0.60	0.60	ppb	U
79-00-5	1,1,2-Trichloroethane	A 943 -9802	0.75	0.75	ppb	U
127-18-4	Tetrachloroethene	A 943 -9802	1.90	**102**	ppb	
142-28-9	1,3-Dichloropropane	A 943 -9802	0.20	0.20	ppb	U
591-78-6	2-Hexanone	A 943 -9802	7.20	7.20	ppb	U
124-48-1	Dibromochloromethane	A 943 -9802	0.22	0.22	ppb	U
106-93-4	1,2-Dibromoethane	A 943 -9802	0.49	0.49	ppb	U
108-90-7	Chlorobenzene	A 943 -9802	0.75	0.75	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	A 943 -9802	0.31	0.31	ppb	U
100-41-4	Ethylbenzene	A 943 -9802	0.60	0.60	ppb	U
108-38-3	m,p-xylene	A 943 -9802	1.20	**6.61**	ppb	
95-47-6	o-xylene	A 943 -9802	0.60	0.60	ppb	U
100-42-5	Styrene	A 943 -9802	0.40	0.40	ppb	U
75-25-2	Bromoform	A 943 -9802	0.37	0.37	ppb	U
98-82-8	Isopropylbenzene	A 943 -9802	0.70	0.70	ppb	U
108-86-1	Bromobenzene	A 943 -9802	0.55	0.55	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	A 943 -9802	0.47	0.47	ppb	U
103-65-1	n-Propylbenzene	A 943 -9802	0.80	0.80	ppb	U
96-18-4	1,2,3-Trichloropropane	A 943 -9802	0.23	0.23	ppb	U
622-96-8	p-Ethyltoluene	A 943 -9802	0.75	0.75	ppb	U
108-67-8	1,3,5-Trimethylbenzene	A 943 -9802	0.85	0.85	ppb	U
95-49-8	2-Chlorotoluene	A 943 -9802	0.75	0.75	ppb	U
106-43-4	4-Chlorotoluene	A 943 -9802	0.36	0.36	ppb	U
98-06-6	tert-Butylbenzene	A 943 -9802	0.60	0.60	ppb	U
95-63-6	1,2,4-Trimethylbenzene	A 943 -9802	0.75	0.75	ppb	U
135-98-8	sec-Butylbenzene	A 943 -9802	0.95	0.95	ppb	U
99-87-6	p-Isopropyltoluene	A 943 -9802	0.80	0.80	ppb	U
541-73-1	1,3-Dichlorobenzene	A 943 -9802	0.23	0.23	ppb	U
106-46-7	1,4-Dichlorobenzene	A 943 -9802	0.85	0.85	ppb	U
95-50-1	1,2-Dichlorobenzene	A 943 -9802	0.32	0.32	ppb	U
105-05-5	p-Diethylbenzene	A 943 -9802	0.85	0.85	ppb	U
104-51-8	n-Butylbenzene	A 943 -9802	1.30	1.30	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	A 943 -9802	1.15	1.15	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-9

Client Sample ID: SMP-4 Collected: 04/28/2003 18:20

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/05/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	A 943 -9802	1.25	1.25	ppb	U
120-82-1	1,2,4-Trichlorobenzene	A 943 -9802	0.70	0.70	ppb	U
87-68-3	Hexachlorobutadiene	A 943 -9802	0.95	0.95	ppb	U
91-20-3	Naphthalene	A 943 -9802	2.00	2.00	ppb	U
87-61-6	1,2,3-Trichlorobenzene	A 943 -9802	0.75	0.75	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	A940-9719	93.9 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A940-9719	101.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A940-9719	98.4 %	(88 - 114)	
460-00-4	4-BROMOFLUOROBENZENE	A943-9802	95.1 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A943-9802	101.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A943-9802	97.2 %	(88 - 114)	

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-10

Client Sample ID: DMP-4 Collected: 04/28/2003 18:25

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/02/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	A 940 -9720	14.5	14.5	ppb	U
75-45-6	Chlorodifluoromethane	A 940 -9720	15.5	15.5	ppb	U
74-87-3	Chloromethane	A 940 -9720	15.5	15.5	ppb	U
75-01-4	Vinyl Chloride	A 940 -9720	14.0	14.0	ppb	U
74-83-9	Bromomethane	A 940 -9720	22.5	22.5	ppb	U
75-00-3	Chloroethane	A 940 -9720	22.0	**5460**	ppb	
75-69-4	Trichlorofluoromethane	A 940 -9720	24.0	24.0	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	A 940 -9720	14.0	14.0	ppb	U
75-35-4	1,1-Dichloroethene	A 940 -9720	11.5	11.5	ppb	U
67-64-1	Acetone	A 940 -9720	70.5	70.5	ppb	U
75-15-0	Carbon disulfide	A 940 -9720	13.0	13.0	ppb	U
75-09-2	Methylene Chloride	A 940 -9720	7.50	7.50	ppb	U
156-60-5	trans-1,2-Dichloroethene	A 940 -9720	11.0	11.0	ppb	U
1634-04-4	Methyl t-butyl ether	A 940 -9720	2.65	2.65	ppb	U
75-34-3	1,1-Dichloroethane	A 940 -9720	11.0	**92.5**	ppb	
590-20-7	2,2-Dichloropropane	A 940 -9720	18.5	18.5	ppb	U
156-59-2	cis-1,2-Dichloroethene	A 940 -9720	8.00	8.00	ppb	U
78-93-3	2-Butanone	A 940 -9720	82.0	82.0	ppb	U
74-97-5	Bromochloromethane	A 940 -9720	3.30	3.30	ppb	U
67-66-3	Chloroform	A 940 -9720	9.50	9.50	ppb	U
71-55-6	1,1,1-Trichloroethane	A 940 -9720	11.0	11.0	ppb	U
56-23-5	Carbon Tetrachloride	A 940 -9720	16.0	16.0	ppb	U
563-58-6	1,1-Dichloropropene	A 940 -9720	20.0	20.0	ppb	U
71-43-2	Benzene	A 940 -9720	10.5	10.5	ppb	U
107-06-2	1,2-Dichloroethane	A 940 -9720	8.50	8.50	ppb	U
79-01-6	Trichloroethene	A 940 -9720	10.5	10.5	ppb	U
78-87-5	1,2-Dichloropropane	A 940 -9720	7.50	7.50	ppb	U
74-95-3	Dibromomethane	A 940 -9720	3.60	3.60	ppb	U
75-27-4	Bromodichloromethane	A 940 -9720	4.20	4.20	ppb	U
110-75-8	2-Chloroethylvinylether	A 940 -9720	41.5	41.5	ppb	U
10061-01-5	cis-1,3-Dichloropropene	A 940 -9720	3.10	3.10	ppb	U
108-10-1	4-Methyl-2-pentanone	A 940 -9720	72.0	72.0	ppb	U
108-88-3	Toluene	A 940 -9720	10.0	10.0	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-10

Client Sample ID: DMP-4 Collected: 04/28/2003 18:25

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/02/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	A 940 -9720	6.00	6.00	ppb	U
79-00-5	1,1,2-Trichloroethane	A 940 -9720	7.50	7.50	ppb	U
127-18-4	Tetrachloroethene	A 940 -9720	19.0	19.0	ppb	U
142-28-9	1,3-Dichloropropane	A 940 -9720	2.00	2.00	ppb	U
591-78-6	2-Hexanone	A 940 -9720	72.0	72.0	ppb	U
124-48-1	Dibromochloromethane	A 940 -9720	2.20	2.20	ppb	U
106-93-4	1,2-Dibromoethane	A 940 -9720	4.85	4.85	ppb	U
108-90-7	Chlorobenzene	A 940 -9720	7.50	7.50	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	A 940 -9720	3.05	3.05	ppb	U
100-41-4	Ethylbenzene	A 940 -9720	6.00	6.00	ppb	U
108-38-3	m,p-xylene	A 940 -9720	12.0	12.0	ppb	U
95-47-6	o-xylene	A 940 -9720	6.00	6.00	ppb	U
100-42-5	Styrene	A 940 -9720	4.00	4.00	ppb	U
75-25-2	Bromoform	A 940 -9720	3.65	3.65	ppb	U
98-82-8	Isopropylbenzene	A 940 -9720	7.00	7.00	ppb	U
108-86-1	Bromobenzene	A 940 -9720	5.50	5.50	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	A 940 -9720	4.70	4.70	ppb	U
103-65-1	n-Propylbenzene	A 940 -9720	8.00	8.00	ppb	U
96-18-4	1,2,3-Trichloropropane	A 940 -9720	2.35	2.35	ppb	U
622-96-8	p-Ethyltoluene	A 940 -9720	7.50	7.50	ppb	U
108-67-8	1,3,5-Trimethylbenzene	A 940 -9720	8.50	8.50	ppb	U
95-49-8	2-Chlorotoluene	A 940 -9720	7.50	7.50	ppb	U
106-43-4	4-Chlorotoluene	A 940 -9720	3.60	3.60	ppb	U
98-06-6	tert-Butylbenzene	A 940 -9720	6.00	6.00	ppb	U
95-63-6	1,2,4-Trimethylbenzene	A 940 -9720	7.50	7.50	ppb	U
135-98-8	sec-Butylbenzene	A 940 -9720	9.50	9.50	ppb	U
99-87-6	p-Isopropyltoluene	A 940 -9720	8.00	8.00	ppb	U
541-73-1	1,3-Dichlorobenzene	A 940 -9720	2.35	2.35	ppb	U
106-46-7	1,4-Dichlorobenzene	A 940 -9720	8.50	8.50	ppb	U
95-50-1	1,2-Dichlorobenzene	A 940 -9720	3.25	3.25	ppb	U
105-05-5	p-Diethylbenzene	A 940 -9720	8.50	8.50	ppb	U
104-51-8	n-Butylbenzene	A 940 -9720	13.0	13.0	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	A 940 -9720	11.5	11.5	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-10
Client Sample ID: DMP-4
Matrix: Liquid
Type: Grab
Collected: 04/28/2003 18:25
Remarks: See Case Narrative
Analyzed Date: 05/02/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	A 940 -9720	12.5	12.5	ppb	U
120-82-1	1,2,4-Trichlorobenzene	A 940 -9720	7.00	7.00	ppb	U
87-68-3	Hexachlorobutadiene	A 940 -9720	9.50	9.50	ppb	U
91-20-3	Naphthalene	A 940 -9720	20.0	20.0	ppb	U
87-61-6	1,2,3-Trichlorobenzene	A 940 -9720	7.50	7.50	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	A940-9720	96.7 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A940-9720	103.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A940-9720	97.1 %	(88 - 114)	

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-11

Client Sample ID: MW-1S

Collected: 04/29/2003 13:30

Matrix: Liquid

Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/05/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	A 943 -9803	0.58	0.58	ppb	U
75-45-6	Chlorodifluoromethane	A 943 -9803	0.62	0.62	ppb	U
74-87-3	Chloromethane	A 943 -9803	0.62	0.62	ppb	U
75-01-4	Vinyl Chloride	A 943 -9803	0.56	0.56	ppb	U
74-83-9	Bromomethane	A 943 -9803	0.90	0.90	ppb	U
75-00-3	Chloroethane	A 943 -9803	0.88	0.88	ppb	U
75-69-4	Trichlorofluoromethane	A 943 -9803	0.96	0.96	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	A 943 -9803	0.56	0.56	ppb	U
75-35-4	1,1-Dichloroethene	A 943 -9803	0.46	0.46	ppb	U
67-64-1	Acetone	A 943 -9803	2.82	2.82	ppb	U
75-15-0	Carbon disulfide	A 943 -9803	0.52	0.52	ppb	U
75-09-2	Methylene Chloride	A 943 -9803	0.30	0.30	ppb	U
156-60-5	trans-1,2-Dichloroethene	A 943 -9803	0.44	0.44	ppb	U
1634-04-4	Methyl t-butyl ether	A 943 -9803	0.11	0.11	ppb	U
75-34-3	1,1-Dichloroethane	A 943 -9803	0.44	0.44	ppb	U
590-20-7	2,2-Dichloropropane	A 943 -9803	0.74	0.74	ppb	U
156-59-2	cis-1,2-Dichloroethene	A 943 -9803	0.32	3.03	ppb	
78-93-3	2-Butanone	A 943 -9803	3.28	3.28	ppb	U
74-97-5	Bromochloromethane	A 943 -9803	0.13	0.13	ppb	U
67-66-3	Chloroform	A 943 -9803	0.38	0.38	ppb	U
71-55-6	1,1,1-Trichloroethane	A 943 -9803	0.44	0.44	ppb	U
56-23-5	Carbon Tetrachloride	A 943 -9803	0.64	0.64	ppb	U
563-58-6	1,1-Dichloropropene	A 943 -9803	0.80	0.80	ppb	U
71-43-2	Benzene	A 943 -9803	0.42	0.42	ppb	U
107-06-2	1,2-Dichloroethane	A 943 -9803	0.34	0.34	ppb	U
79-01-6	Trichloroethene	A 943 -9803	0.42	0.42	ppb	U
78-87-5	1,2-Dichloropropane	A 943 -9803	0.30	0.30	ppb	U
74-95-3	Dibromomethane	A 943 -9803	0.14	0.14	ppb	U
75-27-4	Bromodichloromethane	A 943 -9803	0.17	0.17	ppb	U
110-75-8	2-Chloroethylvinylether	A 943 -9803	1.66	1.66	ppb	U
10061-01-5	cis-1,3-Dichloropropene	A 943 -9803	0.12	0.12	ppb	U
108-10-1	4-Methyl-2-pentanone	A 943 -9803	2.88	2.88	ppb	U
108-88-3	Toluene	A 943 -9803	0.40	0.40	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-11

Client Sample ID: MW-1S

Collected: 04/29/2003 13:30

Matrix: Liquid

Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/05/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	A 943 -9803	0.24	0.24	ppb	U
79-00-5	1,1,2-Trichloroethane	A 943 -9803	0.30	0.30	ppb	U
127-18-4	Tetrachloroethene	A 943 -9803	0.76	**10.0**	ppb	
142-28-9	1,3-Dichloropropane	A 943 -9803	0.080	0.080	ppb	U
591-78-6	2-Hexanone	A 943 -9803	2.88	2.88	ppb	U
124-48-1	Dibromochloromethane	A 943 -9803	0.088	0.088	ppb	U
106-93-4	1,2-Dibromoethane	A 943 -9803	0.19	0.19	ppb	U
108-90-7	Chlorobenzene	A 943 -9803	0.30	0.30	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	A 943 -9803	0.12	0.12	ppb	U
100-41-4	Ethylbenzene	A 943 -9803	0.24	0.24	ppb	U
108-38-3	m,p-xylene	A 943 -9803	0.48	0.48	ppb	U
95-47-6	o-xylene	A 943 -9803	0.24	0.24	ppb	U
100-42-5	Styrene	A 943 -9803	0.16	0.16	ppb	U
75-25-2	Bromoform	A 943 -9803	0.15	0.15	ppb	U
98-82-8	Isopropylbenzene	A 943 -9803	0.28	0.28	ppb	U
108-86-1	Bromobenzene	A 943 -9803	0.22	0.22	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	A 943 -9803	0.19	0.19	ppb	U
103-65-1	n-Propylbenzene	A 943 -9803	0.32	0.32	ppb	U
96-18-4	1,2,3-Trichloropropane	A 943 -9803	0.094	0.094	ppb	U
622-96-8	p-Ethyltoluene	A 943 -9803	0.30	0.30	ppb	U
108-67-8	1,3,5-Trimethylbenzene	A 943 -9803	0.34	0.34	ppb	U
95-49-8	2-Chlorotoluene	A 943 -9803	0.30	0.30	ppb	U
106-43-4	4-Chlorotoluene	A 943 -9803	0.14	0.14	ppb	U
98-06-6	tert-Butylbenzene	A 943 -9803	0.24	0.24	ppb	U
95-63-6	1,2,4-Trimethylbenzene	A 943 -9803	0.30	0.30	ppb	U
135-98-8	sec-Butylbenzene	A 943 -9803	0.38	0.38	ppb	U
99-87-6	p-Isopropyltoluene	A 943 -9803	0.32	0.32	ppb	U
541-73-1	1,3-Dichlorobenzene	A 943 -9803	0.094	0.094	ppb	U
106-46-7	1,4-Dichlorobenzene	A 943 -9803	0.34	0.34	ppb	U
95-50-1	1,2-Dichlorobenzene	A 943 -9803	0.13	0.13	ppb	U
105-05-5	p-Diethylbenzene	A 943 -9803	0.34	0.34	ppb	U
104-51-8	n-Butylbenzene	A 943 -9803	0.52	0.52	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	A 943 -9803	0.46	0.46	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-11
Client Sample ID: MW-1S
Matrix: Liquid
Type: Grab
Collected: 04/29/2003 13:30
Remarks: See Case Narrative
Analyzed Date: 05/05/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	A 943 -9803	0.50	0.50	ppb	U
120-82-1	1,2,4-Trichlorobenzene	A 943 -9803	0.28	0.28	ppb	U
87-68-3	Hexachlorobutadiene	A 943 -9803	0.38	0.38	ppb	U
91-20-3	Naphthalene	A 943 -9803	0.80	0.80	ppb	U
87-61-6	1,2,3-Trichlorobenzene	A 943 -9803	0.30	0.30	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	A943-9803	95.8 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A943-9803	102.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A943-9803	97.1 %	(88 - 114)	

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-12

Client Sample ID: MW-2S

Collected: 04/29/2003 14:00

Matrix: Liquid

Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/07/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	C 960 -189	0.34	0.34	ppb	U
75-45-6	Chlorodifluoromethane	C 960 -189	0.30	0.30	ppb	U
74-87-3	Chloromethane	C 960 -189	0.28	0.28	ppb	U
75-01-4	Vinyl Chloride	C 960 -189	0.22	0.22	ppb	U
74-83-9	Bromomethane	C 960 -189	0.30	0.30	ppb	U
75-00-3	Chloroethane	C 960 -189	0.56	0.56	ppb	U
75-69-4	Trichlorofluoromethane	C 960 -189	0.26	0.26	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	C 960 -189	0.38	0.38	ppb	U
75-35-4	1,1-Dichloroethene	C 960 -189	0.32	0.32	ppb	U
67-64-1	Acetone	C 960 -189	3.16	3.16	ppb	U
75-15-0	Carbon disulfide	C 960 -189	0.26	0.26	ppb	U
75-09-2	Methylene Chloride	C 960 -189	0.32	**1.86**	ppb	
156-60-5	trans-1,2-Dichloroethene	C 960 -189	0.30	0.30	ppb	U
1634-04-4	Methyl t-butyl ether	C 960 -189	0.15	0.15	ppb	U
75-34-3	1,1-Dichloroethane	C 960 -189	0.19	0.19	ppb	U
590-20-7	2,2-Dichloropropane	C 960 -189	0.66	0.66	ppb	U
156-59-2	cis-1,2-Dichloroethene	C 960 -189	0.34	0.34	ppb	U
78-93-3	2-Butanone	C 960 -189	0.92	0.92	ppb	U
74-97-5	Bromochloromethane	C 960 -189	0.28	0.28	ppb	U
67-66-3	Chloroform	C 960 -189	0.14	0.14	ppb	U
71-55-6	1,1,1-Trichloroethane	C 960 -189	0.32	0.32	ppb	U
56-23-5	Carbon Tetrachloride	C 960 -189	0.24	0.24	ppb	U
563-58-6	1,1-Dichloropropene	C 960 -189	0.32	0.32	ppb	U
71-43-2	Benzene	C 960 -189	0.22	0.22	ppb	U
107-06-2	1,2-Dichloroethane	C 960 -189	0.24	0.24	ppb	U
79-01-6	Trichloroethene	C 960 -189	0.32	0.32	ppb	U
78-87-5	1,2-Dichloropropane	C 960 -189	0.22	0.22	ppb	U
74-95-3	Dibromomethane	C 960 -189	0.34	0.34	ppb	U
75-27-4	Bromodichloromethane	C 960 -189	0.22	0.22	ppb	U
110-75-8	2-Chloroethylvinylether	C 960 -189	0.38	0.38	ppb	U
10061-01-5	cis-1,3-Dichloropropene	C 960 -189	0.18	0.18	ppb	U
108-10-1	4-Methyl-2-pentanone	C 960 -189	1.62	1.62	ppb	U
108-88-3	Toluene	C 960 -189	0.18	0.18	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-12
Client Sample ID: MW-2S
Matrix: Liquid
Type: Grab
Collected: 04/29/2003 14:00
Remarks: See Case Narrative
Analyzed Date: 05/07/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	C 960 -189	0.26	0.26	ppb	U
79-00-5	1,1,2-Trichloroethane	C 960 -189	0.28	0.28	ppb	U
127-18-4	Tetrachloroethene	C 960 -189	0.78	0.78	ppb	U
142-28-9	1,3-Dichloropropane	C 960 -189	0.20	0.20	ppb	U
591-78-6	2-Hexanone	C 960 -189	2.02	2.02	ppb	U
124-48-1	Dibromochloromethane	C 960 -189	0.22	0.22	ppb	U
106-93-4	1,2-Dibromoethane	C 960 -189	0.22	0.22	ppb	U
108-90-7	Chlorobenzene	C 960 -189	0.26	0.26	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	C 960 -189	0.22	0.22	ppb	U
100-41-4	Ethylbenzene	C 960 -189	0.22	0.22	ppb	U
108-38-3	m,p-xylene	C 960 -189	0.66	0.66	ppb	U
95-47-6	o-xylene	C 960 -189	0.26	0.26	ppb	U
100-42-5	Styrene	C 960 -189	1.94	1.94	ppb	U
75-25-2	Bromoform	C 960 -189	0.28	0.28	ppb	U
98-82-8	Isopropylbenzene	C 960 -189	0.19	0.19	ppb	U
108-86-1	Bromobenzene	C 960 -189	0.14	0.14	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	C 960 -189	0.18	0.18	ppb	U
103-65-1	n-Propylbenzene	C 960 -189	0.24	0.24	ppb	U
96-18-4	1,2,3-Trichloropropane	C 960 -189	0.56	0.56	ppb	U
622-96-8	p-Ethyltoluene	C 960 -189	0.24	0.24	ppb	U
108-67-8	1,3,5-Trimethylbenzene	C 960 -189	0.19	0.19	ppb	U
95-49-8	2-Chlorotoluene	C 960 -189	0.30	0.30	ppb	U
106-43-4	4-Chlorotoluene	C 960 -189	0.28	0.28	ppb	U
98-06-6	tert-Butylbenzene	C 960 -189	0.30	0.30	ppb	U
95-63-6	1,2,4-Trimethylbenzene	C 960 -189	0.22	0.22	ppb	U
135-98-8	sec-Butylbenzene	C 960 -189	0.22	0.22	ppb	U
99-87-6	p-Isopropyltoluene	C 960 -189	0.24	0.24	ppb	U
541-73-1	1,3-Dichlorobenzene	C 960 -189	0.17	0.17	ppb	U
106-46-7	1,4-Dichlorobenzene	C 960 -189	0.14	0.14	ppb	U
95-50-1	1,2-Dichlorobenzene	C 960 -189	0.22	0.22	ppb	U
105-05-5	p-Diethylbenzene	C 960 -189	0.22	0.22	ppb	U
104-51-8	n-Butylbenzene	C 960 -189	0.18	0.18	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	C 960 -189	0.24	0.24	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-12
Client Sample ID: MW-2S
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/07/2003

Collected: 04/29/2003 14:00
Type: Grab

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	C 960 -189	0.30	0.30	ppb	U
120-82-1	1,2,4-Trichlorobenzene	C 960 -189	0.26	0.26	ppb	U
87-68-3	Hexachlorobutadiene	C 960 -189	0.74	0.74	ppb	U
91-20-3	Naphthalene	C 960 -189	0.92	0.92	ppb	U
87-61-6	1,2,3-Trichlorobenzene	C 960 -189	0.24	0.24	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	C960-189	98.6 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	C960-189	98.6 %	(64 - 149)	
2037-26-5	TOLUENE-D8	C960-189	98.9 %	(88 - 114)	

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-13

Client Sample ID: MW-3S

Collected: 04/29/2003 12:00

Matrix: Liquid

Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/07/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	C 960 -190	0.34	0.34	ppb	U
75-45-6	Chlorodifluoromethane	C 960 -190	0.30	0.30	ppb	U
74-87-3	Chloromethane	C 960 -190	0.28	0.28	ppb	U
75-01-4	Vinyl Chloride	C 960 -190	0.22	0.22	ppb	U
74-83-9	Bromomethane	C 960 -190	0.30	0.30	ppb	U
75-00-3	Chloroethane	C 960 -190	0.56	0.56	ppb	U
75-69-4	Trichlorofluoromethane	C 960 -190	0.26	0.26	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	C 960 -190	0.38	0.38	ppb	U
75-35-4	1,1-Dichloroethene	C 960 -190	0.32	0.32	ppb	U
67-64-1	Acetone	C 960 -190	3.16	3.16	ppb	U
75-15-0	Carbon disulfide	C 960 -190	0.26	0.26	ppb	U
75-09-2	Methylene Chloride	C 960 -190	0.32	**2.24**	ppb	
156-60-5	trans-1,2-Dichloroethene	C 960 -190	0.30	0.30	ppb	U
1634-04-4	Methyl t-butyl ether	C 960 -190	0.15	0.15	ppb	U
75-34-3	1,1-Dichloroethane	C 960 -190	0.19	0.19	ppb	U
590-20-7	2,2-Dichloropropane	C 960 -190	0.66	0.66	ppb	U
156-59-2	cis-1,2-Dichloroethene	C 960 -190	0.34	0.34	ppb	U
78-93-3	2-Butanone	C 960 -190	0.92	0.92	ppb	U
74-97-5	Bromochloromethane	C 960 -190	0.28	0.28	ppb	U
67-66-3	Chloroform	C 960 -190	0.14	0.14	ppb	U
71-55-6	1,1,1-Trichloroethane	C 960 -190	0.32	0.32	ppb	U
56-23-5	Carbon Tetrachloride	C 960 -190	0.24	0.24	ppb	U
563-58-6	1,1-Dichloropropene	C 960 -190	0.32	0.32	ppb	U
71-43-2	Benzene	C 960 -190	0.22	0.22	ppb	U
107-06-2	1,2-Dichloroethane	C 960 -190	0.24	0.24	ppb	U
79-01-6	Trichloroethene	C 960 -190	0.32	**25.7**	ppb	
78-87-5	1,2-Dichloropropane	C 960 -190	0.22	0.22	ppb	U
74-95-3	Dibromomethane	C 960 -190	0.34	0.34	ppb	U
75-27-4	Bromodichloromethane	C 960 -190	0.22	0.22	ppb	U
110-75-8	2-Chloroethylvinylether	C 960 -190	0.38	0.38	ppb	U
10061-01-5	cis-1,3-Dichloropropene	C 960 -190	0.18	0.18	ppb	U
108-10-1	4-Methyl-2-pentanone	C 960 -190	1.62	1.62	ppb	U
108-88-3	Toluene	C 960 -190	0.18	0.18	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-13
Client Sample ID: MW-3S
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/07/2003

Type: Grab

Collected: 04/29/2003 12:00

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	C 960 -190	0.26	0.26	ppb	U
79-00-5	1,1,2-Trichloroethane	C 960 -190	0.28	0.28	ppb	U
127-18-4	Tetrachloroethene	C 960 -190	0.78	**4.03**	ppb	
142-28-9	1,3-Dichloropropane	C 960 -190	0.20	0.20	ppb	U
591-78-6	2-Hexanone	C 960 -190	2.02	2.02	ppb	U
124-48-1	Dibromochloromethane	C 960 -190	0.22	0.22	ppb	U
106-93-4	1,2-Dibromoethane	C 960 -190	0.22	0.22	ppb	U
108-90-7	Chlorobenzene	C 960 -190	0.26	0.26	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	C 960 -190	0.22	0.22	ppb	U
100-41-4	Ethylbenzene	C 960 -190	0.22	0.22	ppb	U
108-38-3	m,p-xylene	C 960 -190	0.66	0.66	ppb	U
95-47-6	o-xylene	C 960 -190	0.26	0.26	ppb	U
100-42-5	Styrene	C 960 -190	1.94	1.94	ppb	U
75-25-2	Bromoform	C 960 -190	0.28	0.28	ppb	U
98-82-8	Isopropylbenzene	C 960 -190	0.19	0.19	ppb	U
108-86-1	Bromobenzene	C 960 -190	0.14	0.14	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	C 960 -190	0.18	0.18	ppb	U
103-65-1	n-Propylbenzene	C 960 -190	0.24	0.24	ppb	U
96-18-4	1,2,3-Trichloropropane	C 960 -190	0.56	0.56	ppb	U
622-96-8	p-Ethyltoluene	C 960 -190	0.24	0.24	ppb	U
108-67-8	1,3,5-Trimethylbenzene	C 960 -190	0.19	0.19	ppb	U
95-49-8	2-Chlorotoluene	C 960 -190	0.30	0.30	ppb	U
106-43-4	4-Chlorotoluene	C 960 -190	0.28	0.28	ppb	U
98-06-6	tert-Butylbenzene	C 960 -190	0.30	0.30	ppb	U
95-63-6	1,2,4-Trimethylbenzene	C 960 -190	0.22	0.22	ppb	U
135-98-8	sec-Butylbenzene	C 960 -190	0.22	0.22	ppb	U
99-87-6	p-Isopropyltoluene	C 960 -190	0.24	0.24	ppb	U
541-73-1	1,3-Dichlorobenzene	C 960 -190	0.17	0.17	ppb	U
106-46-7	1,4-Dichlorobenzene	C 960 -190	0.14	0.14	ppb	U
95-50-1	1,2-Dichlorobenzene	C 960 -190	0.22	0.22	ppb	U
105-05-5	p-Diethylbenzene	C 960 -190	0.22	0.22	ppb	U
104-51-8	n-Butylbenzene	C 960 -190	0.18	0.18	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	C 960 -190	0.24	0.24	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-13
Client Sample ID: MW-3S
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/07/2003

Collected: 04/29/2003 12:00
Type: Grab

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	C 960 -190	0.30	0.30	ppb	U
120-82-1	1,2,4-Trichlorobenzene	C 960 -190	0.26	0.26	ppb	U
87-68-3	Hexachlorobutadiene	C 960 -190	0.74	0.74	ppb	U
91-20-3	Naphthalene	C 960 -190	0.92	0.92	ppb	U
87-61-6	1,2,3-Trichlorobenzene	C 960 -190	0.24	0.24	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	C960-190	98.7 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	C960-190	98.5 %	(64 - 149)	
2037-26-5	TOLUENE-D8	C960-190	99.9 %	(88 - 114)	

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-14

Client Sample ID: MW-4S

Collected: 04/29/2003 15:10

Matrix: Liquid

Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/03/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	A 942 -9761	2.90	2.90	ppb	U
75-45-6	Chlorodifluoromethane	A 942 -9761	3.10	3.10	ppb	U
74-87-3	Chloromethane	A 942 -9761	3.10	3.10	ppb	U
75-01-4	Vinyl Chloride	A 942 -9761	2.80	2.80	ppb	U
74-83-9	Bromomethane	A 942 -9761	4.50	4.50	ppb	U
75-00-3	Chloroethane	A 942 -9761	4.40	4.40	ppb	U
75-69-4	Trichlorofluoromethane	A 942 -9761	4.80	4.80	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	A 942 -9761	2.80	2.80	ppb	U
75-35-4	1,1-Dichloroethene	A 942 -9761	2.30	2.30	ppb	U
67-64-1	Acetone	A 942 -9761	14.1	14.1	ppb	U
75-15-0	Carbon disulfide	A 942 -9761	2.60	2.60	ppb	U
75-09-2	Methylene Chloride	A 942 -9761	1.50	1.50	ppb	U
156-60-5	trans-1,2-Dichloroethene	A 942 -9761	2.20	2.20	ppb	U
1634-04-4	Methyl t-butyl ether	A 942 -9761	0.53	0.53	ppb	U
75-34-3	1,1-Dichloroethane	A 942 -9761	2.20	2.20	ppb	U
590-20-7	2,2-Dichloropropane	A 942 -9761	3.70	3.70	ppb	U
156-59-2	cis-1,2-Dichloroethene	A 942 -9761	1.60	1.60	ppb	U
78-93-3	2-Butanone	A 942 -9761	16.4	16.4	ppb	U
74-97-5	Bromochloromethane	A 942 -9761	0.66	0.66	ppb	U
67-66-3	Chloroform	A 942 -9761	1.90	1.90	ppb	U
71-55-6	1,1,1-Trichloroethane	A 942 -9761	2.20	2.20	ppb	U
56-23-5	Carbon Tetrachloride	A 942 -9761	3.20	3.20	ppb	U
563-58-6	1,1-Dichloropropene	A 942 -9761	4.00	4.00	ppb	U
71-43-2	Benzene	A 942 -9761	2.10	2.10	ppb	U
107-06-2	1,2-Dichloroethane	A 942 -9761	1.70	1.70	ppb	U
79-01-6	Trichloroethene	A 942 -9761	2.10	**21.8**	ppb	
78-87-5	1,2-Dichloropropane	A 942 -9761	1.50	1.50	ppb	U
74-95-3	Dibromomethane	A 942 -9761	0.72	0.72	ppb	U
75-27-4	Bromodichloromethane	A 942 -9761	0.84	0.84	ppb	U
110-75-8	2-Chloroethylvinylether	A 942 -9761	8.30	8.30	ppb	U
10061-01-5	cis-1,3-Dichloropropene	A 942 -9761	0.62	0.62	ppb	U
108-10-1	4-Methyl-2-pentanone	A 942 -9761	14.4	14.4	ppb	U
108-88-3	Toluene	A 942 -9761	2.00	2.00	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-14
Client Sample ID: MW-4S
Matrix: Liquid
Type: Grab
Collected: 04/29/2003 15:10
Remarks: See Case Narrative
Analyzed Date: 05/03/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	A 942 -9761	1.20	1.20	ppb	U
79-00-5	1,1,2-Trichloroethane	A 942 -9761	1.50	1.50	ppb	U
127-18-4	Tetrachloroethene	A 942 -9761	3.80	**1420**	ppb	
142-28-9	1,3-Dichloropropane	A 942 -9761	0.40	0.40	ppb	U
591-78-6	2-Hexanone	A 942 -9761	14.4	14.4	ppb	U
124-48-1	Dibromochloromethane	A 942 -9761	0.44	0.44	ppb	U
106-93-4	1,2-Dibromoethane	A 942 -9761	0.97	0.97	ppb	U
108-90-7	Chlorobenzene	A 942 -9761	1.50	1.50	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	A 942 -9761	0.61	0.61	ppb	U
100-41-4	Ethylbenzene	A 942 -9761	1.20	1.20	ppb	U
108-38-3	m,p-xylene	A 942 -9761	2.40	2.40	ppb	U
95-47-6	o-xylene	A 942 -9761	1.20	1.20	ppb	U
100-42-5	Styrene	A 942 -9761	0.80	0.80	ppb	U
75-25-2	Bromoform	A 942 -9761	0.73	0.73	ppb	U
98-82-8	Isopropylbenzene	A 942 -9761	1.40	1.40	ppb	U
108-86-1	Bromobenzene	A 942 -9761	1.10	1.10	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	A 942 -9761	0.94	0.94	ppb	U
103-65-1	n-Propylbenzene	A 942 -9761	1.60	1.60	ppb	U
96-18-4	1,2,3-Trichloropropane	A 942 -9761	0.47	0.47	ppb	U
622-96-8	p-Ethyltoluene	A 942 -9761	1.50	1.50	ppb	U
108-67-8	1,3,5-Trimethylbenzene	A 942 -9761	1.70	1.70	ppb	U
95-49-8	2-Chlorotoluene	A 942 -9761	1.50	1.50	ppb	U
106-43-4	4-Chlorotoluene	A 942 -9761	0.72	0.72	ppb	U
98-06-6	tert-Butylbenzene	A 942 -9761	1.20	1.20	ppb	U
95-63-6	1,2,4-Trimethylbenzene	A 942 -9761	1.50	1.50	ppb	U
135-98-8	sec-Butylbenzene	A 942 -9761	1.90	1.90	ppb	U
99-87-6	p-Isopropyltoluene	A 942 -9761	1.60	1.60	ppb	U
541-73-1	1,3-Dichlorobenzene	A 942 -9761	0.47	0.47	ppb	U
106-46-7	1,4-Dichlorobenzene	A 942 -9761	1.70	1.70	ppb	U
95-50-1	1,2-Dichlorobenzene	A 942 -9761	0.65	0.65	ppb	U
105-05-5	p-Diethylbenzene	A 942 -9761	1.70	1.70	ppb	U
104-51-8	n-Butylbenzene	A 942 -9761	2.60	2.60	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	A 942 -9761	2.30	2.30	ppb	U

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05/21/2003

Volatile Compounds - EPA 8260B

Sample: P1918-14
Client Sample ID: MW-4S
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/03/2003

Collected: 04/29/2003 15:10
Type: Grab

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	A 942 -9761	2.50	2.50	ppb	U
120-82-1	1,2,4-Trichlorobenzene	A 942 -9761	1.40	1.40	ppb	U
87-68-3	Hexachlorobutadiene	A 942 -9761	1.90	1.90	ppb	U
91-20-3	Naphthalene	A 942 -9761	4.00	4.00	ppb	U
87-61-6	1,2,3-Trichlorobenzene	A 942 -9761	1.50	1.50	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	A942-9761	96.3 %	(86 - 118)	
4774-33-8	DIBROMOFLUOROMETHANE	A942-9761	103.0 %	(64 - 149)	
2037-26-5	TOLUENE-D8	A942-9761	96.9 %	(88 - 114)	

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05/21/2003

Total Iron by Method SW846 6010

Sample: P1918-1

Client Sample ID: MW-8 Collected: 04/28/2003 18:35

Matrix: Liquid Type: Grab

Remarks:

Analyzed Date: 05/02/2003

Preparation Date(s) : 05/01/2003

Analytical Results

Cas No	Analyte	MDL	Concentration	Units	Q
7439-89-6	Iron	0.018	**0.061**	ppm	

Sample: P1918-2

Client Sample ID: MW-12 Collected: 04/28/2003 18:45

Matrix: Liquid Type: Grab

Remarks:

Analyzed Date: 05/02/2003

Preparation Date(s) : 05/01/2003

Analytical Results

Cas No	Analyte	MDL	Concentration	Units	Q
7439-89-6	Iron	0.018	**42.1**	ppm	

Sample: P1918-3

Client Sample ID: MW-13 Collected: 04/29/2003 08:50

Matrix: Liquid Type: Grab

Remarks:

Analyzed Date: 05/02/2003

Preparation Date(s) : 05/01/2003

Analytical Results

Cas No	Analyte	MDL	Concentration	Units	Q
7439-89-6	Iron	0.018	**61.1**	ppm	

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05/21/2003

Total Iron by Method SW846 6010

Sample: P1918-4
Client Sample ID: MW-14
Matrix: Liquid
Remarks:
Analyzed Date: 05/02/2003
Preparation Date(s) : 05/01/2003
Collected: 04/28/2003 17:50
Type: Grab

Analytical Results

Cas No	Analyte	MDL	Concentration	Units	Q
7439-89-6	Iron	0.018	219	ppm	

Sample: P1918-5
Client Sample ID: SMP-1
Matrix: Liquid
Remarks:
Analyzed Date: 05/02/2003
Preparation Date(s) : 05/01/2003
Collected: 04/28/2003 18:00
Type: Grab

Analytical Results

Cas No	Analyte	MDL	Concentration	Units	Q
7439-89-6	Iron	0.018	42.2	ppm	

Sample: P1918-6
Client Sample ID: DMP-1
Matrix: Liquid
Remarks:
Analyzed Date: 05/02/2003
Preparation Date(s) : 05/01/2003
Collected: 04/28/2003 18:05
Type: Grab

Analytical Results

Cas No	Analyte	MDL	Concentration	Units	Q
7439-89-6	Iron	0.018	13.1	ppm	

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05/21/2003

Total Iron by Method SW846 6010

Sample: P1918-7
Client Sample ID: SMP-3
Matrix: Liquid
Remarks:
Analyzed Date: 05/02/2003
Preparation Date(s) : 05/01/2003
Collected: 04/28/2003 18:10
Type: Grab

Analytical Results

Cas No	Analyte	MDL	Concentration	Units	Q
7439-89-6	Iron	0.018	9.00	ppm	

Sample: P1918-8
Client Sample ID: DMP-3
Matrix: Liquid
Remarks:
Analyzed Date: 05/02/2003
Preparation Date(s) : 05/01/2003
Collected: 04/28/2003 18:15
Type: Grab

Analytical Results

Cas No	Analyte	MDL	Concentration	Units	Q
7439-89-6	Iron	0.018	3.70	ppm	

Sample: P1918-9
Client Sample ID: SMP-4
Matrix: Liquid
Remarks:
Analyzed Date: 05/02/2003
Preparation Date(s) : 05/01/2003
Collected: 04/28/2003 18:20
Type: Grab

Analytical Results

Cas No	Analyte	MDL	Concentration	Units	Q
7439-89-6	Iron	0.018	209	ppm	

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05/21/2003

Total Iron by Method SW846 6010

Sample: P1918-10

Client Sample ID: DMP-4 Collected: 04/28/2003 18:25

Matrix: Liquid Type: Grab

Remarks:

Analyzed Date: 05/02/2003

Preparation Date(s) : 05/01/2003

Analytical Results

Cas No	Analyte	MDL	Concentration	Units	Q
7439-89-6	Iron	0.018	62.1	ppm	

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05/21/2003

Nitrogen/Nitrate - EPA 353.2

Sample: P1918-1
Client Sample ID: MW-8 Collected: 04/28/2003 18:35
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 05/01/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14797-55-8	Nitrate	0.025	**6.14**	ppm	

Sample: P1918-2
Client Sample ID: MW-12 Collected: 04/28/2003 18:45
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 05/01/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14797-55-8	Nitrate	0.025	**0.10**	ppm	

Sample: P1918-3
Client Sample ID: MW-13 Collected: 04/29/2003 08:50
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 05/01/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14797-55-8	Nitrate	0.025	**0.57**	ppm	

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05/21/2003

Nitrogen/Nitrate - EPA 353.2

Sample: P1918-4
Client Sample ID: MW-14 Collected: 04/28/2003 17:50
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 05/01/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14797-55-8	Nitrate	0.025	**0.025**	ppm	

Sample: P1918-5
Client Sample ID: SMP-1 Collected: 04/28/2003 18:00
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 05/01/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14797-55-8	Nitrate	0.025	**0.11**	ppm	

Sample: P1918-6
Client Sample ID: DMP-1 Collected: 04/28/2003 18:05
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 05/01/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14797-55-8	Nitrate	0.025	**0.088**	ppm	

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05/21/2003

Nitrogen/Nitrate - EPA 353.2

Sample: P1918-7
Client Sample ID: SMP-3 Collected: 04/28/2003 18:10
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 05/01/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14797-55-8	Nitrate	0.025	**0.076**	ppm	

Sample: P1918-8
Client Sample ID: DMP-3 Collected: 04/28/2003 18:15
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 05/01/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14797-55-8	Nitrate	0.025	**0.051**	ppm	

Sample: P1918-9
Client Sample ID: SMP-4 Collected: 04/28/2003 18:20
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 05/01/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14797-55-8	Nitrate	0.025	**0.050**	ppm	

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05/21/2003

Nitrogen/Nitrate - EPA 353.2

Sample: P1918-10

Client Sample ID: DMP-4 Collected: 04/28/2003 18:25

Matrix: Liquid Type: Grab

Remarks:

Analyzed Date: 05/01/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14797-55-8	Nitrate	0.025	**0.18**	ppm	

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05/21/2003

Sulfate - EPA 375.4

Sample: P1918-1
Client Sample ID: MW-8
Matrix: Liquid
Remarks:
Analyzed Date: 05/06/2003
Type: Grab
Collected: 04/28/2003 18:35

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14808-79-8	Sulfate	1.12	28.1	ppm	

Sample: P1918-2
Client Sample ID: MW-12
Matrix: Liquid
Remarks:
Analyzed Date: 05/06/2003
Type: Grab
Collected: 04/28/2003 18:45

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14808-79-8	Sulfate	5.58	244	ppm	

Sample: P1918-3
Client Sample ID: MW-13
Matrix: Liquid
Remarks:
Analyzed Date: 05/06/2003
Type: Grab
Collected: 04/29/2003 08:50

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14808-79-8	Sulfate	5.58	442	ppm	

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05/21/2003

Sulfate - EPA 375.4

Sample: P1918-4
Client Sample ID: MW-14
Matrix: Liquid
Remarks:
Analyzed Date: 05/06/2003
Type: Grab
Collected: 04/28/2003 17:50

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14808-79-8	Sulfate	5.58	**141**	ppm	

Sample: P1918-5
Client Sample ID: SMP-1
Matrix: Liquid
Remarks:
Analyzed Date: 05/06/2003
Type: Grab
Collected: 04/28/2003 18:00

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14808-79-8	Sulfate	1.12	**25.2**	ppm	

Sample: P1918-6
Client Sample ID: DMP-1
Matrix: Liquid
Remarks:
Analyzed Date: 05/06/2003
Type: Grab
Collected: 04/28/2003 18:05

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14808-79-8	Sulfate	5.58	**523**	ppm	

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05/21/2003

Sulfate - EPA 375.4

Sample: P1918-7
Client Sample ID: SMP-3
Matrix: Liquid
Remarks:
Analyzed Date: 05/06/2003

Type: Grab

Collected: 04/28/2003 18:10

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14808-79-8	Sulfate	1.12	**75.2**	ppm	

Sample: P1918-8
Client Sample ID: DMP-3
Matrix: Liquid
Remarks:
Analyzed Date: 05/06/2003

Type: Grab

Collected: 04/28/2003 18:15

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14808-79-8	Sulfate	27.9	**1290**	ppm	

Sample: P1918-9
Client Sample ID: SMP-4
Matrix: Liquid
Remarks:
Analyzed Date: 05/06/2003

Type: Grab

Collected: 04/28/2003 18:20

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14808-79-8	Sulfate	5.58	**119**	ppm	

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05/21/2003

Sulfate - EPA 375.4

Sample: P1918-10

Client Sample ID: DMP-4 Collected: 04/28/2003 18:25

Matrix: Liquid Type: Grab

Remarks:

Analyzed Date: 05/06/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
14808-79-8	Sulfate	5.58	222	ppm	

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05/21/2003

Total Organic Carbon - Method 415.1

Sample: P1918-1
Client Sample ID: MW-8
Matrix: Liquid
Remarks:
Analyzed Date: 05/20/2003
Type: Grab
Collected: 04/28/2003 18:35

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
	TOC	0.51	**6.58**	ppm	

Sample: P1918-2
Client Sample ID: MW-12
Matrix: Liquid
Remarks:
Analyzed Date: 05/20/2003
Type: Grab
Collected: 04/28/2003 18:45

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
	TOC	0.51	**59.2**	ppm	

Sample: P1918-3
Client Sample ID: MW-13
Matrix: Liquid
Remarks:
Analyzed Date: 05/20/2003
Type: Grab
Collected: 04/29/2003 08:50

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
	TOC	0.51	**38.9**	ppm	

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05/21/2003

Total Organic Carbon - Method 415.1

Sample: P1918-4
Client Sample ID: MW-14 Collected: 04/28/2003 17:50
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 05/20/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
	TOC	0.51	2650	ppm	

Sample: P1918-5
Client Sample ID: SMP-1 Collected: 04/28/2003 18:00
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 05/20/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
	TOC	0.51	1280	ppm	

Sample: P1918-6
Client Sample ID: DMP-1 Collected: 04/28/2003 18:05
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 05/20/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
	TOC	0.51	284	ppm	

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05/21/2003

Total Organic Carbon - Method 415.1

Sample: P1918-7
Client Sample ID: SMP-3 Collected: 04/28/2003 18:10
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 05/20/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
	TOC	0.51	184	ppm	

Sample: P1918-8
Client Sample ID: DMP-3 Collected: 04/28/2003 18:15
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 05/20/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
	TOC	0.51	166	ppm	

Sample: P1918-9
Client Sample ID: SMP-4 Collected: 04/28/2003 18:20
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 05/20/2003

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
	TOC	0.51	1160	ppm	

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05/21/2003

Total Organic Carbon - Method 415.1

Sample: P1918-10

Client Sample ID: DMP-4

Matrix: Liquid

Remarks:

Analyzed Date: 05/20/2003

Type: Grab

Collected: 04/28/2003 18:25

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
	TOC	0.51	306	ppm	

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05/21/2003

Case Narrative

VOLATILES by EPA 8260:

The following compounds were calibrated at 25, 50, 100, 150 and 200 ppb levels in the initial calibration curve:

Acetone
2-Butanone
4-Methyl-2-pentanone
2-Hexanone

M&P-Xylenes and 2-Chloroethylvinylether were calibrated at 10, 40, 100, 200 and 300 ppb levels.

All other compounds were calibrated at 5, 20, 50, 100 and 150 ppb levels.

P1918-4, -5 and -10: The pH of these samples was 6.0.

Patricia Werner-Els

Reviewed By Quality Assurance Officer

Environmental Testing Laboratories, Inc.
208 Route 109, Farmingdale NY 11735
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05/21/2003

ORGANIC METHOD QUALIFIERS

Q - Qualifier - specified entries and their meanings are as follows:

U - The analytical result is a non-detect.

J - Indicates an estimated value. The concentration reported was detected below the Method Detection Limit.

B - The analyte was found in the associated method blank as well as the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

E - The concentration of the analyte exceeded the calibration range of the instrument.

D - This flag indicates a system monitoring compound diluted out.

INORGANIC METHOD QUALIFIERS

C - (Concentration) qualifiers are as follows:

B - Entered if the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).

U - Entered when the analyte was analyzed for, but not detected.

Q - Qualifier specific entries and their meanings are as follows:

E - Reported value is estimated because of the presence of interferences.

M - (Method) qualifiers are as follows:

A - Flame AA
AS - Semi-automated Spectrophotometric
AV - Automated Cold Vapor AA
C - Manual Spectrophotometric
F - Furnace AA
P - ICP
T - Titrimetric

OTHER QUALIFIERS

ND - Not Detected

NA - Not Applicable

NR - Not Required

* - Outside Expected Range (NYCDEP Table I/II or Surrogate Limits)

x - Outside Expected Range

OTHER

- All soil and sediment samples are reported on a dry weight basis.

03-03173
P1918

Rec'vd Date: 04/30/03 07:30

CHAIN OF CUSTODY DOCUMENT

P 01918

Project Name: Photocircuits | Project Manager: Andy Barber | Sampler (Signature): DMJ/BDD | (Print): Darik Jordan Bryce Dign

Project Address: 31 Sea Cliff Ave, Glen Cove, NY

Client Photocircuits J/N: 643.001 ☐ Rush by / /

SAMPLE INFO Type: SS = Split Spoon; G = Grab; C = Composite; B = Blank Matrix: L = Liquid; S = Soil; SL = Sludge; A* = Air; W = Wipe *Air - Vol. (Liters) include: Flow (CFM)

ID	Date	Time	Type	Matrix	Sample Location	Total. # Cont.	601/602	BTX/BTEX	MTBE	624/8260/8021	625/8270/BN	PCB/Pesticides	Pet.Prods./8100M	RCRA Metals	pH/Flash/React	418.1 - TRPH	8260B	TOC	Nitrate	Sulfate	Iron
1	4/28/03	18:35	G	L	MW-8	6											X	X	X	X	X
2	4/28/03	18:45	↓	↓	MW-12	6											X	X	X	X	X
3	4/29/03	8:50			MW-13	6											X	X	X	X	X
4	4/28/03	17:50			MW-14	6											X	X	X	X	X
5	4/28/03	18:00			SMP-1	6											X	X	X	X	X
6	4/28/03	18:05			DMP-1	6											X	X	X	X	X
7	4/28/03	18:10			SMP-3	6											X	X	X	X	X
8	4/28/03	18:15			DMP-3	6											X	X	X	X	X
9	4/28/03	18:20			SMP-4	6											X	X	X	X	X
10	4/28/03	18:25			DMP-4	6											X	X	X	X	X
11	4/29/03	13:30			MW-15	2											X				
12	4/29/03	14:00			MW-25	2											X				
13	4/29/03	12:00			MW-35	2											X				
14	4/29/03	15:10	↓	↓	MW-45	2											X				
15																					

Relinquished by (Signature):	Date / Time	Printed Name & Agent:	Received by (Signature):	Date / Time	Printed Name & Agent
[signature]	Date 4/29/03 Time 16:00	Darik M. Jordan B&L	[signature]	Date 4/29/03 Time 16:00	Thomas Migliorelli Photocircuits
Relinquished by (Signature): [signature]	Date 4/29/03 Time 16:30	Printed Name & Agent:	Received for Lab by (Signature): [signature]	Date 4/29/03 Time 4:45	Printed Name: ccoto Coleman

Comments & Special Instructions	QA/QC Type:	Number & Type of Containers:	Preservatives:	Temp: 5

Environmental Testing Laboratories, Inc.

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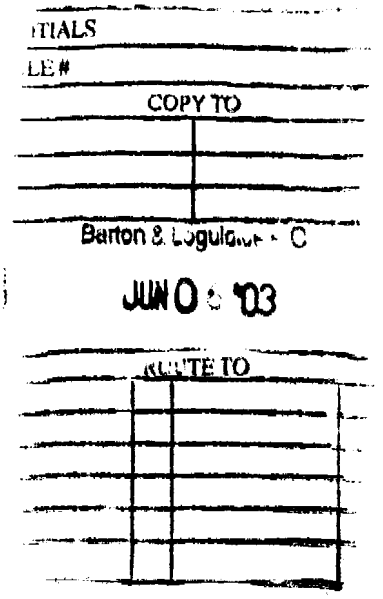
06/02/2003

Custody Document: P1916

Received: 05/22/2003 15:09
Sampled by: David Hanny



Client: Photocircuits Corporation

31 Sea Cliff Avenue
Glen Cove,
NY 11542

Project: Photocircuits Corp.

31 Sea Cliff Avenue
Glen Cove,
NY 11542

Manager: Andy Barber

Respectfully submitted,

Patricia Werner-Els

Quality Assurance Officer

NYS Lab ID # 10969
NJ Cert. # 73812
CT Cert. # PH0645
MA Cert. # NY061
PA Cert. # 68-535
NH Cert. # 252592-BA
RI Cert. # 161

Environmental Testing Laboratories, Inc.

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06/02/2003

Volatiles - EPA 8260B in AIR

Sample: P1916-6

Client Sample ID: 45 A Site Influent
Matrix: Air
Type: Grab
Collected: 05/21/2003 11:50
Volume: 5.2 L
Remarks: See Case Narrative
Analyzed Date: 05/29/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	C 982 -685	0.018	0.018	mg/M3	U
74-87-3	Chloromethane	C 982 -685	0.012	0.012	mg/M3	U
75-01-4	Vinyl Chloride	C 982 -685	0.012	0.012	mg/M3	U
74-83-9	Bromomethane	C 982 -685	0.018	0.018	mg/M3	U
75-00-3	Chloroethane	C 982 -685	0.020	0.020	mg/M3	U
75-69-4	Trichlorofluoromethane	C 982 -685	0.0055	0.0055	mg/M3	U
75-35-4	1,1-Dichloroethene	C 982 -685	0.0081	0.0081	mg/M3	U
75-09-2	Methylene Chloride	C 982 -685	0.040	0.040	mg/M3	U
156-60-5	t-1,2-Dichloroethene	C 982 -685	0.012	0.012	mg/M3	U
75-34-3	1,1-Dichloroethane	C 982 -685	0.012	0.012	mg/M3	U
590-20-7	2,2-Dichloropropane	C 982 -685	0.0086	0.0086	mg/M3	U
156-59-2	c-1,2-Dichloroethene	C 982 -685	0.012	0.012	mg/M3	U
67-66-3	Chloroform	C 982 -685	0.0075	0.0075	mg/M3	U
74-97-5	Bromochloromethane	C 982 -685	0.016	0.016	mg/M3	U
71-55-6	1,1,1-Trichloroethane	C 982 -685	0.0089	**0.048**	mg/M3	
563-58-6	1,1-Dichloropropene	C 982 -685	0.032	0.032	mg/M3	U
56-23-5	Carbon Tetrachloride	C 982 -685	0.0086	0.0086	mg/M3	U
107-06-2	1,2 Dichloroethane	C 982 -685	0.014	0.014	mg/M3	U
71-43-2	Benzene	C 982 -685	0.0063	0.0063	mg/M3	U
79-01-6	Trichloroethene	C 982 -685	0.0098	**0.14**	mg/M3	
78-87-5	1,2-Dichloropropane	C 982 -685	0.0078	0.0078	mg/M3	U
75-27-4	Bromodichloromethane	C 982 -685	0.0046	0.0046	mg/M3	U
74-95-3	Dibromomethane	C 982 -685	0.0066	0.0066	mg/M3	U
10061-01-5	c-1,3-Dichloropropene	C 982 -685	0.023	0.023	mg/M3	U
108-88-3	Toluene	C 982 -685	0.0060	0.0060	mg/M3	U
10061-02-6	t-1,3-Dichloropropene	C 982 -685	0.023	0.023	mg/M3	U
79-00-5	1,1,2-Trichloroethane	C 982 -685	0.0049	0.0049	mg/M3	U
142-28-9	1,3-Dichloropropane	C 982 -685	0.0089	0.0089	mg/M3	U
127-18-4	Tetrachloroethene	C 983 -710	0.049	**10.8**	mg/M3	
124-48-1	Dibromochloromethane	C 982 -685	0.0052	0.0052	mg/M3	U
106-93-4	1,2-Dibromoethane	C 982 -685	0.0049	0.0049	mg/M3	U
108-90-7	Chlorobenzene	C 982 -685	0.0046	0.0046	mg/M3	U
630-20-6	1,1,1,2-Tetrachloroethane	C 982 -685	0.0055	0.0055	mg/M3	U

Environmental Testing Laboratories, Inc.

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06/02/2003

Volatiles - EPA 8260B in AIR

Sample: P1916-6

Client Sample ID: 45 A Site Influent

Matrix: Air

Type: Grab

Collected: 05/21/2003 11:50

Volume: 5.2 L

Remarks: See Case Narrative

Analyzed Date: 05/29/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
100-41-4	Ethylbenzene	C 982 -685	0.0049	0.0049	mg/M3	U
108-38-3	m,p-xylene	C 982 -685	0.0075	0.0075	mg/M3	U
95-47-6	o-xylene	C 982 -685	0.0060	0.0060	mg/M3	U
100-42-5	Styrene	C 982 -685	0.0035	0.0035	mg/M3	U
98-82-8	Isopropylbenzene	C 982 -685	0.0029	0.0029	mg/M3	U
75-25-2	Bromoform	C 982 -685	0.0063	0.0063	mg/M3	U
79-34-5	1,1,2,2-Tetrachloroethane	C 982 -685	0.0092	0.0092	mg/M3	U
96-18-4	1,2,3-Trichloropropane	C 982 -685	0.021	0.021	mg/M3	U
103-65-1	n-Propylbenzene	C 982 -685	0.0063	0.0063	mg/M3	U
108-86-1	Bromobenzene	C 982 -685	0.0086	0.0086	mg/M3	U
108-67-8	1,3,5-Trimethylbenzene	C 982 -685	0.0049	0.0049	mg/M3	U
95-49-8	2-Chlorotoluene	C 982 -685	0.0058	0.0058	mg/M3	U
106-43-4	4-Chlorotoluene	C 982 -685	0.0092	0.0092	mg/M3	U
99-87-6	4-Isopropyltoluene	C 982 -685	0.0043	0.0043	mg/M3	U
95-63-6	1,2,4-trimethylbenzene	C 982 -685	0.0046	0.0046	mg/M3	U
135-98-8	sec-Butylbenzene	C 982 -685	0.0058	0.0058	mg/M3	U
98-06-6	tert-Butylbenzene	C 982 -685	0.0043	0.0043	mg/M3	U
541-73-1	1,3 Dichlorobenzene	C 982 -685	0.0055	0.0055	mg/M3	U
106-46-7	1,4-Dichlorobenzene	C 982 -685	0.0069	0.0069	mg/M3	U
104-51-8	n-Butylbenzene	C 982 -685	0.0063	0.0063	mg/M3	U
95-50-1	1,2-Dichlorobenzene	C 982 -685	0.0032	0.0032	mg/M3	U
96-12-8	1,2-Dibromo-3-chloropropane	C 982 -685	0.0069	0.0069	mg/M3	U
120-82-1	1,2,4-Trichlorobenzene	C 982 -685	0.0069	0.0069	mg/M3	U
87-68-3	Hexachlorobutadiene	C 982 -685	0.0035	0.0035	mg/M3	U
91-20-3	Naphthalene	C 982 -685	0.0060	0.0060	mg/M3	U
87-61-6	1,2,3-Trichlorobenzene	C 982 -685	0.024	0.024	mg/M3	U
1634-04-4	MTBE	C 982 -685	0.018	0.018	mg/M3	U

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Phone - 631-249-1456 Fax - 631-249-8344

06/02/2003

Volatiles - EPA 8260B in AIR

Sample: P1916-6

Client Sample ID: 45 A Site Influent
Matrix: Air
Type: Grab
Collected: 05/21/2003 11:50
Volume: 5.2 L
Remarks: See Case Narrative
Analyzed Date: 05/29/2003

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	C982-685	98.7 %	(77 - 128)	
4774-33-8	DIBROMOFLUOROMETHANE	C982-685	95.6 %	(69 - 157)	
2037-26-5	TOLUENE-D8	C982-685	99.8 %	(70 - 124)	
460-00-4	4-BROMOFLUOROBENZENE	C983-710	102.0 %	(77 - 128)	
4774-33-8	DIBROMOFLUOROMETHANE	C983-710	102.0 %	(69 - 157)	
2037-26-5	TOLUENE-D8	C983-710	101.0 %	(70 - 124)	

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

06/02/2003

Volatile Compounds - EPA 8260B

Sample: P1916-1

Client Sample ID: RW-1 Collected: 05/21/2003 10:45

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/23/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	C 978 -605	0.85	0.85	ppb	U
75-45-6	Chlorodifluoromethane	C 978 -605	0.75	0.75	ppb	U
74-87-3	Chloromethane	C 978 -605	0.70	0.70	ppb	U
75-01-4	Vinyl Chloride	C 978 -605	0.55	**390**	ppb	
74-83-9	Bromomethane	C 978 -605	0.75	0.75	ppb	U
75-00-3	Chloroethane	C 978 -605	1.40	1.40	ppb	U
75-69-4	Trichlorofluoromethane	C 978 -605	0.65	0.65	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	C 978 -605	0.95	0.95	ppb	U
75-35-4	1,1-Dichloroethene	C 978 -605	0.80	**29.1**	ppb	
67-64-1	Acetone	C 978 -605	7.90	7.90	ppb	U
75-15-0	Carbon disulfide	C 978 -605	0.65	0.65	ppb	U
75-09-2	Methylene Chloride	C 978 -605	0.80	**9.66**	ppb	
156-60-5	trans-1,2-Dichloroethene	C 978 -605	0.75	**49.4**	ppb	
1634-04-4	Methyl t-butyl ether	C 978 -605	0.37	0.37	ppb	U
75-34-3	1,1-Dichloroethane	C 978 -605	0.47	**104**	ppb	
590-20-7	2,2-Dichloropropane	C 978 -605	1.65	1.65	ppb	U
156-59-2	cis-1,2-Dichloroethene	A 973 -462	8.00	**3130**	ppb	
78-93-3	2-Butanone	C 978 -605	2.30	2.30	ppb	U
74-97-5	Bromochloromethane	C 978 -605	0.70	0.70	ppb	U
67-66-3	Chloroform	C 978 -605	0.36	0.36	ppb	U
71-55-6	1,1,1-Trichloroethane	C 978 -605	0.80	**5.11**	ppb	
56-23-5	Carbon Tetrachloride	C 978 -605	0.60	0.60	ppb	U
563-58-6	1,1-Dichloropropene	C 978 -605	0.80	0.80	ppb	U
71-43-2	Benzene	C 978 -605	0.55	**5.91**	ppb	
107-06-2	1,2-Dichloroethane	C 978 -605	0.60	0.60	ppb	U
79-01-6	Trichloroethene	A 973 -462	10.5	**1470**	ppb	
78-87-5	1,2-Dichloropropane	C 978 -605	0.55	0.55	ppb	U
74-95-3	Dibromomethane	C 978 -605	0.85	0.85	ppb	U
75-27-4	Bromodichloromethane	C 978 -605	0.55	0.55	ppb	U
110-75-8	2-Chloroethylvinylether	C 978 -605	0.95	0.95	ppb	U
10061-01-5	cis-1,3-Dichloropropene	C 978 -605	0.45	0.45	ppb	U
108-10-1	4-Methyl-2-pentanone	C 978 -605	4.05	4.05	ppb	U
108-88-3	Toluene	C 978 -605	0.46	**5.22**	ppb	

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

06/02/2003

Volatile Compounds - EPA 8260B

Sample: P1916-1

Client Sample ID: RW-1 Collected: 05/21/2003 10:45

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/23/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	C 978 -605	0.65	0.65	ppb	U
79-00-5	1,1,2-Trichloroethane	C 978 -605	0.70	0.70	ppb	U
127-18-4	Tetrachloroethene	C 978 -605	1.95	**72.4**	ppb	
142-28-9	1,3-Dichloropropane	C 978 -605	0.50	0.50	ppb	U
591-78-6	2-Hexanone	C 978 -605	5.05	5.05	ppb	U
124-48-1	Dibromochloromethane	C 978 -605	0.55	0.55	ppb	U
106-93-4	1,2-Dibromoethane	C 978 -605	0.55	0.55	ppb	U
108-90-7	Chlorobenzene	C 978 -605	0.65	0.65	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	C 978 -605	0.55	0.55	ppb	U
100-41-4	Ethylbenzene	C 978 -605	0.55	0.55	ppb	U
108-38-3	m,p-xylene	C 978 -605	1.65	1.65	ppb	U
95-47-6	o-xylene	C 978 -605	0.65	0.65	ppb	U
100-42-5	Styrene	C 978 -605	4.85	4.85	ppb	U
75-25-2	Bromoform	C 978 -605	0.70	0.70	ppb	U
98-82-8	Isopropylbenzene	C 978 -605	0.49	0.49	ppb	U
108-86-1	Bromobenzene	C 978 -605	0.36	0.36	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	C 978 -605	0.44	0.44	ppb	U
103-65-1	n-Propylbenzene	C 978 -605	0.60	**143**	ppb	
96-18-4	1,2,3-Trichloropropane	C 978 -605	1.40	1.40	ppb	U
622-96-8	p-Ethyltoluene	C 978 -605	0.60	0.60	ppb	U
108-67-8	1,3,5-Trimethylbenzene	C 978 -605	0.47	0.47	ppb	U
95-49-8	2-Chlorotoluene	C 978 -605	0.75	**182**	ppb	
106-43-4	4-Chlorotoluene	C 978 -605	0.70	0.70	ppb	U
98-06-6	tert-Butylbenzene	C 978 -605	0.75	0.75	ppb	U
95-63-6	1,2,4-Trimethylbenzene	C 978 -605	0.55	0.55	ppb	U
135-98-8	sec-Butylbenzene	C 978 -605	0.55	0.55	ppb	U
99-87-6	p-Isopropyltoluene	C 978 -605	0.60	0.60	ppb	U
541-73-1	1,3-Dichlorobenzene	C 978 -605	0.41	0.41	ppb	U
106-46-7	1,4-Dichlorobenzene	C 978 -605	0.34	0.34	ppb	U
95-50-1	1,2-Dichlorobenzene	C 978 -605	0.55	0.55	ppb	U
105-05-5	p-Diethylbenzene	C 978 -605	0.55	0.55	ppb	U
104-51-8	n-Butylbenzene	C 978 -605	0.44	0.44	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	C 978 -605	0.60	0.60	ppb	U

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

06/02/2003

Volatile Compounds - EPA 8260B

Sample: P1916-1
Client Sample ID: RW-1
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/23/2003

Type: Grab

Collected: 05/21/2003 10:45

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	C 978 -605	0.75	0.75	ppb	U
120-82-1	1,2,4-Trichlorobenzene	C 978 -605	0.65	0.65	ppb	U
87-68-3	Hexachlorobutadiene	C 978 -605	1.85	1.85	ppb	U
91-20-3	Naphthalene	C 978 -605	2.30	2.30	ppb	U
87-61-6	1,2,3-Trichlorobenzene	C 978 -605	0.60	0.60	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	A973-462	98.2 %	(89 - 110)	
4774-33-8	DIBROMOFLUOROMETHANE	A973-462	99.1 %	(72 - 121)	
2037-26-5	TOLUENE-D8	A973-462	99.7 %	(89 - 111)	
460-00-4	4-BROMOFLUOROBENZENE	C978-605	98.4 %	(89 - 110)	
4774-33-8	DIBROMOFLUOROMETHANE	C978-605	92.5 %	(72 - 121)	
2037-26-5	TOLUENE-D8	C978-605	101.0 %	(89 - 111)	

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

06/02/2003

Volatile Compounds - EPA 8260B

Sample: P1916-2
Client Sample ID: RW-2
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/23/2003

Type: Grab

Collected: 05/21/2003 10:50

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	C 978 -606	0.17	0.17	ppb	U
75-45-6	Chlorodifluoromethane	C 978 -606	0.15	**4.00**	ppb	
74-87-3	Chloromethane	C 978 -606	0.14	0.14	ppb	U
75-01-4	Vinyl Chloride	C 978 -606	0.11	**113**	ppb	
74-83-9	Bromomethane	C 978 -606	0.15	0.15	ppb	U
75-00-3	Chloroethane	C 978 -606	0.28	**1.26**	ppb	
75-69-4	Trichlorofluoromethane	C 978 -606	0.13	0.13	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	C 978 -606	0.19	0.19	ppb	U
75-35-4	1,1-Dichloroethene	C 978 -606	0.16	**8.93**	ppb	
67-64-1	Acetone	C 978 -606	1.58	1.58	ppb	U
75-15-0	Carbon disulfide	C 978 -606	0.13	0.13	ppb	U
75-09-2	Methylene Chloride	C 978 -606	0.16	0.16	ppb	U
156-60-5	trans-1,2-Dichloroethene	C 978 -606	0.15	**5.22**	ppb	
1634-04-4	Methyl t-butyl ether	C 978 -606	0.074	0.074	ppb	U
75-34-3	1,1-Dichloroethane	C 978 -606	0.095	**94.7**	ppb	
590-20-7	2,2-Dichloropropane	C 978 -606	0.33	0.33	ppb	U
156-59-2	cis-1,2-Dichloroethene	A 973 -463	8.00	**547**	ppb	
78-93-3	2-Butanone	C 978 -606	0.46	0.46	ppb	U
74-97-5	Bromochloromethane	C 978 -606	0.14	0.14	ppb	U
67-66-3	Chloroform	C 978 -606	0.072	0.072	ppb	U
71-55-6	1,1,1-Trichloroethane	C 978 -606	0.16	0.16	ppb	U
56-23-5	Carbon Tetrachloride	C 978 -606	0.12	0.12	ppb	U
563-58-6	1,1-Dichloropropene	C 978 -606	0.16	0.16	ppb	U
71-43-2	Benzene	C 978 -606	0.11	**1.96**	ppb	
107-06-2	1,2-Dichloroethane	C 978 -606	0.12	**1.01**	ppb	
79-01-6	Trichloroethene	A 973 -463	10.5	**211**	ppb	
78-87-5	1,2-Dichloropropane	C 978 -606	0.11	0.11	ppb	U
74-95-3	Dibromomethane	C 978 -606	0.17	0.17	ppb	U
75-27-4	Bromodichloromethane	C 978 -606	0.11	0.11	ppb	U
110-75-8	2-Chloroethylvinylether	C 978 -606	0.19	0.19	ppb	U
10061-01-5	cis-1,3-Dichloropropene	C 978 -606	0.090	0.090	ppb	U
108-10-1	4-Methyl-2-pentanone	C 978 -606	0.81	0.81	ppb	U
108-88-3	Toluene	C 978 -606	0.092	**4.42**	ppb	

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

06/02/2003

Volatile Compounds - EPA 8260B

Sample: P1916-2

Client Sample ID: RW-2 Collected: 05/21/2003 10:50

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/23/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	C 978 -606	0.13	0.13	ppb	U
79-00-5	1,1,2-Trichloroethane	C 978 -606	0.14	0.14	ppb	U
127-18-4	Tetrachloroethene	C 978 -606	0.39	**44.5**	ppb	
142-28-9	1,3-Dichloropropane	C 978 -606	0.099	0.099	ppb	U
591-78-6	2-Hexanone	C 978 -606	1.01	1.01	ppb	U
124-48-1	Dibromochloromethane	C 978 -606	0.11	0.11	ppb	U
106-93-4	1,2-Dibromoethane	C 978 -606	0.11	0.11	ppb	U
108-90-7	Chlorobenzene	C 978 -606	0.13	0.13	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	C 978 -606	0.11	0.11	ppb	U
100-41-4	Ethylbenzene	C 978 -606	0.11	0.11	ppb	U
108-38-3	m,p-xylene	C 978 -606	0.33	**1.01**	ppb	
95-47-6	o-xylene	C 978 -606	0.13	**1.55**	ppb	
100-42-5	Styrene	C 978 -606	0.97	0.97	ppb	U
75-25-2	Bromoform	C 978 -606	0.14	0.14	ppb	U
98-82-8	Isopropylbenzene	C 978 -606	0.097	0.097	ppb	U
108-86-1	Bromobenzene	C 978 -606	0.072	0.072	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	C 978 -606	0.088	0.088	ppb	U
103-65-1	n-Propylbenzene	C 978 -606	0.12	0.12	ppb	U
96-18-4	1,2,3-Trichloropropane	C 978 -606	0.28	0.28	ppb	U
622-96-8	p-Ethyltoluene	C 978 -606	0.12	0.12	ppb	U
108-67-8	1,3,5-Trimethylbenzene	C 978 -606	0.095	0.095	ppb	U
95-49-8	2-Chlorotoluene	A 973 -463	7.50	**638**	ppb	
106-43-4	4-Chlorotoluene	C 978 -606	0.14	**51.1**	ppb	
98-06-6	tert-Butylbenzene	C 978 -606	0.15	0.15	ppb	U
95-63-6	1,2,4-Trimethylbenzene	C 978 -606	0.11	0.11	ppb	U
135-98-8	sec-Butylbenzene	C 978 -606	0.11	0.11	ppb	U
99-87-6	p-Isopropyltoluene	C 978 -606	0.12	0.12	ppb	U
541-73-1	1,3-Dichlorobenzene	C 978 -606	0.083	0.083	ppb	U
106-46-7	1,4-Dichlorobenzene	C 978 -606	0.068	0.068	ppb	U
95-50-1	1,2-Dichlorobenzene	C 978 -606	0.11	0.11	ppb	U
105-05-5	p-Diethylbenzene	C 978 -606	0.11	0.11	ppb	U
104-51-8	n-Butylbenzene	C 978 -606	0.088	0.088	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	C 978 -606	0.12	0.12	ppb	U

Environmental Testing Laboratories, Inc.
208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

06/02/2003

Volatile Compounds - EPA 8260B

Sample: P1916-2
Client Sample ID: RW-2 Collected: 05/21/2003 10:50
Matrix: Liquid Type: Grab
Remarks: See Case Narrative
Analyzed Date: 05/23/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	C 978 -606	0.15	0.15	ppb	U
120-82-1	1,2,4-Trichlorobenzene	C 978 -606	0.13	0.13	ppb	U
87-68-3	Hexachlorobutadiene	C 978 -606	0.37	0.37	ppb	U
91-20-3	Naphthalene	C 978 -606	0.46	0.46	ppb	U
87-61-6	1,2,3-Trichlorobenzene	C 978 -606	0.12	0.12	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	A973-463	97.4 %	(89 - 110)	
4774-33-8	DIBROMOFLUOROMETHANE	A973-463	99.6 %	(72 - 121)	
2037-26-5	TOLUENE-D8	A973-463	101.0 %	(89 - 111)	
460-00-4	4-BROMOFLUOROBENZENE	C978-606	97.2 %	(89 - 110)	
4774-33-8	DIBROMOFLUOROMETHANE	C978-606	92.6 %	(72 - 121)	
2037-26-5	TOLUENE-D8	C978-606	101.0 %	(89 - 111)	

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

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06/02/2003

Volatile Compounds - EPA 8260B

Sample: P1916-3

Client Sample ID: RW-3 Collected: 05/21/2003 10:55

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/29/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	A 973 -464	0.29	0.29	ppb	U
75-45-6	Chlorodifluoromethane	A 973 -464	0.31	0.31	ppb	U
74-87-3	Chloromethane	A 973 -464	0.31	0.31	ppb	U
75-01-4	Vinyl Chloride	A 973 -464	0.28	**1.37**	ppb	
74-83-9	Bromomethane	A 973 -464	0.45	0.45	ppb	U
75-00-3	Chloroethane	A 973 -464	0.44	0.44	ppb	U
75-69-4	Trichlorofluoromethane	A 973 -464	0.48	0.48	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	A 973 -464	0.28	0.28	ppb	U
75-35-4	1,1-Dichloroethene	A 973 -464	0.23	**3.01**	ppb	
67-64-1	Acetone	A 973 -464	1.41	1.41	ppb	U
75-15-0	Carbon disulfide	A 973 -464	0.26	**2.67**	ppb	
75-09-2	Methylene Chloride	A 973 -464	0.15	0.15	ppb	U
156-60-5	trans-1,2-Dichloroethene	A 973 -464	0.22	0.22	ppb	U
1634-04-4	Methyl t-butyl ether	A 973 -464	0.053	0.053	ppb	U
75-34-3	1,1-Dichloroethane	A 973 -464	0.22	**5.56**	ppb	
590-20-7	2,2-Dichloropropane	A 973 -464	0.37	0.37	ppb	U
156-59-2	cis-1,2-Dichloroethene	A 973 -464	0.16	**23.3**	ppb	
78-93-3	2-Butanone	A 973 -464	1.64	1.64	ppb	U
74-97-5	Bromochloromethane	A 973 -464	0.066	0.066	ppb	U
67-66-3	Chloroform	A 973 -464	0.19	0.19	ppb	U
71-55-6	1,1,1-Trichloroethane	A 973 -464	0.22	0.22	ppb	U
56-23-5	Carbon Tetrachloride	A 973 -464	0.32	0.32	ppb	U
563-58-6	1,1-Dichloropropene	A 973 -464	0.40	0.40	ppb	U
71-43-2	Benzene	A 973 -464	0.21	0.21	ppb	U
107-06-2	1,2-Dichloroethane	A 973 -464	0.17	0.17	ppb	U
79-01-6	Trichloroethene	A 973 -464	0.21	**11.8**	ppb	
78-87-5	1,2-Dichloropropane	A 973 -464	0.15	0.15	ppb	U
74-95-3	Dibromomethane	A 973 -464	0.072	0.072	ppb	U
75-27-4	Bromodichloromethane	A 973 -464	0.084	0.084	ppb	U
110-75-8	2-Chloroethylvinylether	A 973 -464	0.83	0.83	ppb	U
10061-01-5	cis-1,3-Dichloropropene	A 973 -464	0.062	0.062	ppb	U
108-10-1	4-Methyl-2-pentanone	A 973 -464	1.44	1.44	ppb	U
108-88-3	Toluene	A 973 -464	0.20	0.20	ppb	U

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

06/02/2003

Volatile Compounds - EPA 8260B

Sample: P1916-3

Client Sample ID: RW-3 Collected: 05/21/2003 10:55

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/29/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	A 973 -464	0.12	0.12	ppb	U
79-00-5	1,1,2-Trichloroethane	A 973 -464	0.15	0.15	ppb	U
127-18-4	Tetrachloroethene	A 973 -464	0.38	**3.85**	ppb	
142-28-9	1,3-Dichloropropane	A 973 -464	0.040	0.040	ppb	U
591-78-6	2-Hexanone	A 973 -464	1.44	1.44	ppb	U
124-48-1	Dibromochloromethane	A 973 -464	0.044	0.044	ppb	U
106-93-4	1,2-Dibromoethane	A 973 -464	0.097	0.097	ppb	U
108-90-7	Chlorobenzene	A 973 -464	0.15	0.15	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	A 973 -464	0.061	0.061	ppb	U
100-41-4	Ethylbenzene	A 973 -464	0.12	0.12	ppb	U
108-38-3	m,p-xylene	A 973 -464	0.24	0.24	ppb	U
95-47-6	o-xylene	A 973 -464	0.12	0.12	ppb	U
100-42-5	Styrene	A 973 -464	0.080	0.080	ppb	U
75-25-2	Bromoform	A 973 -464	0.073	0.073	ppb	U
98-82-8	Isopropylbenzene	A 973 -464	0.14	0.14	ppb	U
108-86-1	Bromobenzene	A 973 -464	0.11	0.11	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	A 973 -464	0.094	0.094	ppb	U
103-65-1	n-Propylbenzene	A 973 -464	0.16	0.16	ppb	U
96-18-4	1,2,3-Trichloropropane	A 973 -464	0.047	0.047	ppb	U
622-96-8	p-Ethyltoluene	A 973 -464	0.15	0.15	ppb	U
108-67-8	1,3,5-Trimethylbenzene	A 973 -464	0.17	0.17	ppb	U
95-49-8	2-Chlorotoluene	A 973 -464	0.15	**5.08**	ppb	
106-43-4	4-Chlorotoluene	A 973 -464	0.072	0.072	ppb	U
98-06-6	tert-Butylbenzene	A 973 -464	0.12	0.12	ppb	U
95-63-6	1,2,4-Trimethylbenzene	A 973 -464	0.15	0.15	ppb	U
135-98-8	sec-Butylbenzene	A 973 -464	0.19	0.19	ppb	U
99-87-6	p-Isopropyltoluene	A 973 -464	0.16	0.16	ppb	U
541-73-1	1,3-Dichlorobenzene	A 973 -464	0.047	0.047	ppb	U
106-46-7	1,4-Dichlorobenzene	A 973 -464	0.17	0.17	ppb	U
95-50-1	1,2-Dichlorobenzene	A 973 -464	0.065	0.065	ppb	U
105-05-5	p-Diethylbenzene	A 973 -464	0.17	0.17	ppb	U
104-51-8	n-Butylbenzene	A 973 -464	0.26	0.26	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	A 973 -464	0.23	0.23	ppb	U

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

06/02/2003

Volatile Compounds - EPA 8260B

Sample: P1916-3

Client Sample ID: RW-3 Collected: 05/21/2003 10:55

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/29/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	A 973 -464	0.25	0.25	ppb	U
120-82-1	1,2,4-Trichlorobenzene	A 973 -464	0.14	0.14	ppb	U
87-68-3	Hexachlorobutadiene	A 973 -464	0.19	0.19	ppb	U
91-20-3	Naphthalene	A 973 -464	0.40	0.40	ppb	U
87-61-6	1,2,3-Trichlorobenzene	A 973 -464	0.15	0.15	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	A973-464	98.2 %	(89 - 110)	
4774-33-8	DIBROMOFLUOROMETHANE	A973-464	98.6 %	(72 - 121)	
2037-26-5	TOLUENE-D8	A973-464	101.0 %	(89 - 111)	

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

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06/02/2003

Volatile Compounds - EPA 8260B

Sample: P1916-4

Client Sample ID: RW-4 Collected: 05/21/2003 11:00

Matrix: Liquid Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/28/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	C 980 -643	1.70	1.70	ppb	U
75-45-6	Chlorodifluoromethane	C 980 -643	1.50	1.50	ppb	U
74-87-3	Chloromethane	C 980 -643	1.40	1.40	ppb	U
75-01-4	Vinyl Chloride	C 980 -643	1.10	1.10	ppb	U
74-83-9	Bromomethane	C 980 -643	1.50	1.50	ppb	U
75-00-3	Chloroethane	C 980 -643	2.80	2.80	ppb	U
75-69-4	Trichlorofluoromethane	C 980 -643	1.30	1.30	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	C 980 -643	1.90	1.90	ppb	U
75-35-4	1,1-Dichloroethene	C 980 -643	1.60	1.60	ppb	U
67-64-1	Acetone	C 980 -643	15.8	15.8	ppb	U
75-15-0	Carbon disulfide	C 980 -643	1.30	1.30	ppb	U
75-09-2	Methylene Chloride	C 980 -643	1.60	1.60	ppb	U
156-60-5	trans-1,2-Dichloroethene	C 980 -643	1.50	**9.94**	ppb	
1634-04-4	Methyl t-butyl ether	C 980 -643	0.74	0.74	ppb	U
75-34-3	1,1-Dichloroethane	C 980 -643	0.95	**41.0**	ppb	
590-20-7	2,2-Dichloropropane	C 980 -643	3.30	3.30	ppb	U
156-59-2	cis-1,2-Dichloroethene	C 980 -643	1.70	**404**	ppb	
78-93-3	2-Butanone	C 980 -643	4.60	4.60	ppb	U
74-97-5	Bromochloromethane	C 980 -643	1.40	1.40	ppb	U
67-66-3	Chloroform	C 980 -643	0.72	0.72	ppb	U
71-55-6	1,1,1-Trichloroethane	C 980 -643	1.60	1.60	ppb	U
56-23-5	Carbon Tetrachloride	C 980 -643	1.20	1.20	ppb	U
563-58-6	1,1-Dichloropropene	C 980 -643	1.60	1.60	ppb	U
71-43-2	Benzene	C 980 -643	1.10	1.10	ppb	U
107-06-2	1,2-Dichloroethane	C 980 -643	1.20	1.20	ppb	U
79-01-6	Trichloroethene	C 980 -643	1.60	**182**	ppb	
78-87-5	1,2-Dichloropropane	C 980 -643	1.10	1.10	ppb	U
74-95-3	Dibromomethane	C 980 -643	1.70	1.70	ppb	U
75-27-4	Bromodichloromethane	C 980 -643	1.10	1.10	ppb	U
110-75-8	2-Chloroethylvinylether	C 980 -643	1.90	1.90	ppb	U
10061-01-5	cis-1,3-Dichloropropene	C 980 -643	0.90	0.90	ppb	U
108-10-1	4-Methyl-2-pentanone	C 980 -643	8.10	8.10	ppb	U
108-88-3	Toluene	C 980 -643	0.92	0.92	ppb	U

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06/02/2003

Volatile Compounds - EPA 8260B

Sample: P1916-4
Client Sample ID: RW-4
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/28/2003

Type: Grab

Collected: 05/21/2003 11:00

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	C 980 -643	1.30	1.30	ppb	U
79-00-5	1,1,2-Trichloroethane	C 980 -643	1.40	1.40	ppb	U
127-18-4	Tetrachloroethene	C 980 -643	3.90	**20.9**	ppb	
142-28-9	1,3-Dichloropropane	C 980 -643	0.99	0.99	ppb	U
591-78-6	2-Hexanone	C 980 -643	10.1	10.1	ppb	U
124-48-1	Dibromochloromethane	C 980 -643	1.10	1.10	ppb	U
106-93-4	1,2-Dibromoethane	C 980 -643	1.10	1.10	ppb	U
108-90-7	Chlorobenzene	C 980 -643	1.30	1.30	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	C 980 -643	1.10	1.10	ppb	U
100-41-4	Ethylbenzene	C 980 -643	1.10	1.10	ppb	U
108-38-3	m,p-xylene	C 980 -643	3.30	3.30	ppb	U
95-47-6	o-xylene	C 980 -643	1.30	1.30	ppb	U
100-42-5	Styrene	C 980 -643	9.70	9.70	ppb	U
75-25-2	Bromoform	C 980 -643	1.40	1.40	ppb	U
98-82-8	Isopropylbenzene	C 980 -643	0.97	0.97	ppb	U
108-86-1	Bromobenzene	C 980 -643	0.72	0.72	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	C 980 -643	0.88	0.88	ppb	U
103-65-1	n-Propylbenzene	C 980 -643	1.20	1.20	ppb	U
96-18-4	1,2,3-Trichloropropane	C 980 -643	2.80	2.80	ppb	U
622-96-8	p-Ethyltoluene	C 980 -643	1.20	1.20	ppb	U
108-67-8	1,3,5-Trimethylbenzene	C 980 -643	0.95	0.95	ppb	U
95-49-8	2-Chlorotoluene	C 980 -643	1.50	**11.6**	ppb	
106-43-4	4-Chlorotoluene	C 980 -643	1.40	1.40	ppb	U
98-06-6	tert-Butylbenzene	C 980 -643	1.50	1.50	ppb	U
95-63-6	1,2,4-Trimethylbenzene	C 980 -643	1.10	1.10	ppb	U
135-98-8	sec-Butylbenzene	C 980 -643	1.10	1.10	ppb	U
99-87-6	p-Isopropyltoluene	C 980 -643	1.20	1.20	ppb	U
541-73-1	1,3-Dichlorobenzene	C 980 -643	0.83	0.83	ppb	U
106-46-7	1,4-Dichlorobenzene	C 980 -643	0.68	0.68	ppb	U
95-50-1	1,2-Dichlorobenzene	C 980 -643	1.10	1.10	ppb	U
105-05-5	p-Diethylbenzene	C 980 -643	1.10	1.10	ppb	U
104-51-8	n-Butylbenzene	C 980 -643	0.88	0.88	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	C 980 -643	1.20	1.20	ppb	U

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06/02/2003

Volatile Compounds - EPA 8260B

Sample: P1916-4

Client Sample ID: RW-4

Matrix: Liquid

Type: Grab

Collected: 05/21/2003 11:00

Remarks: See Case Narrative

Analyzed Date: 05/28/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	C 980 -643	1.50	1.50	ppb	U
120-82-1	1,2,4-Trichlorobenzene	C 980 -643	1.30	1.30	ppb	U
87-68-3	Hexachlorobutadiene	C 980 -643	3.70	3.70	ppb	U
91-20-3	Naphthalene	C 980 -643	4.60	4.60	ppb	U
87-61-6	1,2,3-Trichlorobenzene	C 980 -643	1.20	1.20	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	C980-643	96.1 %	(89 - 110)	
4774-33-8	DIBROMOFLUOROMETHANE	C980-643	93.3 %	(72 - 121)	
2037-26-5	TOLUENE-D8	C980-643	103.0 %	(89 - 111)	

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06/02/2003

Volatile Compounds - EPA 8260B

Sample: P1916-5

Client Sample ID: Trip Blank

Collected: 05/21/2003

Matrix: Liquid

Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/28/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
75-71-8	Dichlorodifluoromethane	C 980 -644	0.17	0.17	ppb	U
75-45-6	Chlorodifluoromethane	C 980 -644	0.15	0.15	ppb	U
74-87-3	Chloromethane	C 980 -644	0.14	0.14	ppb	U
75-01-4	Vinyl Chloride	C 980 -644	0.11	0.11	ppb	U
74-83-9	Bromomethane	C 980 -644	0.15	0.15	ppb	U
75-00-3	Chloroethane	C 980 -644	0.28	0.28	ppb	U
75-69-4	Trichlorofluoromethane	C 980 -644	0.13	0.13	ppb	U
76-13-1	1,1,2-Trichlorotrifluoroethane	C 980 -644	0.19	0.19	ppb	U
75-35-4	1,1-Dichloroethene	C 980 -644	0.16	0.16	ppb	U
67-64-1	Acetone	C 980 -644	1.58	1.58	ppb	U
75-15-0	Carbon disulfide	C 980 -644	0.13	0.13	ppb	U
75-09-2	Methylene Chloride	C 980 -644	0.16	0.16	ppb	U
156-60-5	trans-1,2-Dichloroethene	C 980 -644	0.15	0.15	ppb	U
1634-04-4	Methyl t-butyl ether	C 980 -644	0.074	0.074	ppb	U
75-34-3	1,1-Dichloroethane	C 980 -644	0.095	0.095	ppb	U
590-20-7	2,2-Dichloropropane	C 980 -644	0.33	0.33	ppb	U
156-59-2	cis-1,2-Dichloroethene	C 980 -644	0.17	0.17	ppb	U
78-93-3	2-Butanone	C 980 -644	0.46	0.46	ppb	U
74-97-5	Bromochloromethane	C 980 -644	0.14	0.14	ppb	U
67-66-3	Chloroform	C 980 -644	0.072	0.072	ppb	U
71-55-6	1,1,1-Trichloroethane	C 980 -644	0.16	0.16	ppb	U
56-23-5	Carbon Tetrachloride	C 980 -644	0.12	0.12	ppb	U
563-58-6	1,1-Dichloropropene	C 980 -644	0.16	0.16	ppb	U
71-43-2	Benzene	C 980 -644	0.11	0.11	ppb	U
107-06-2	1,2-Dichloroethane	C 980 -644	0.12	0.12	ppb	U
79-01-6	Trichloroethene	C 980 -644	0.16	0.16	ppb	U
78-87-5	1,2-Dichloropropane	C 980 -644	0.11	0.11	ppb	U
74-95-3	Dibromomethane	C 980 -644	0.17	0.17	ppb	U
75-27-4	Bromodichloromethane	C 980 -644	0.11	0.11	ppb	U
110-75-8	2-Chloroethylvinylether	C 980 -644	0.19	0.19	ppb	U
10061-01-5	cis-1,3-Dichloropropene	C 980 -644	0.090	0.090	ppb	U
108-10-1	4-Methyl-2-pentanone	C 980 -644	0.81	0.81	ppb	U
108-88-3	Toluene	C 980 -644	0.092	0.092	ppb	U

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06/02/2003

Volatile Compounds - EPA 8260B

Sample: P1916-5
Client Sample ID: Trip Blank
Matrix: Liquid
Remarks: See Case Narrative
Analyzed Date: 05/28/2003

Type: Grab

Collected: 05/21/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
10061-02-6	trans-1,3-Dichloropropene	C 980 -644	0.13	0.13	ppb	U
79-00-5	1,1,2-Trichloroethane	C 980 -644	0.14	0.14	ppb	U
127-18-4	Tetrachloroethene	C 980 -644	0.39	0.39	ppb	U
142-28-9	1,3-Dichloropropane	C 980 -644	0.099	0.099	ppb	U
591-78-6	2-Hexanone	C 980 -644	1.01	1.01	ppb	U
124-48-1	Dibromochloromethane	C 980 -644	0.11	0.11	ppb	U
106-93-4	1,2-Dibromoethane	C 980 -644	0.11	0.11	ppb	U
108-90-7	Chlorobenzene	C 980 -644	0.13	0.13	ppb	U
630-20-6	1,1,1,2-Tetrachloroethane	C 980 -644	0.11	0.11	ppb	U
100-41-4	Ethylbenzene	C 980 -644	0.11	0.11	ppb	U
108-38-3	m,p-xylene	C 980 -644	0.33	0.33	ppb	U
95-47-6	o-xylene	C 980 -644	0.13	0.13	ppb	U
100-42-5	Styrene	C 980 -644	0.97	0.97	ppb	U
75-25-2	Bromoform	C 980 -644	0.14	0.14	ppb	U
98-82-8	Isopropylbenzene	C 980 -644	0.097	0.097	ppb	U
108-86-1	Bromobenzene	C 980 -644	0.072	0.072	ppb	U
79-34-5	1,1,2,2-Tetrachloroethane	C 980 -644	0.088	0.088	ppb	U
103-65-1	n-Propylbenzene	C 980 -644	0.12	0.12	ppb	U
96-18-4	1,2,3-Trichloropropane	C 980 -644	0.28	0.28	ppb	U
622-96-8	p-Ethyltoluene	C 980 -644	0.12	0.12	ppb	U
108-67-8	1,3,5-Trimethylbenzene	C 980 -644	0.095	0.095	ppb	U
95-49-8	2-Chlorotoluene	C 980 -644	0.15	0.15	ppb	U
106-43-4	4-Chlorotoluene	C 980 -644	0.14	0.14	ppb	U
98-06-6	tert-Butylbenzene	C 980 -644	0.15	0.15	ppb	U
95-63-6	1,2,4-Trimethylbenzene	C 980 -644	0.11	0.11	ppb	U
135-98-8	sec-Butylbenzene	C 980 -644	0.11	0.11	ppb	U
99-87-6	p-Isopropyltoluene	C 980 -644	0.12	0.12	ppb	U
541-73-1	1,3-Dichlorobenzene	C 980 -644	0.083	0.083	ppb	U
106-46-7	1,4-Dichlorobenzene	C 980 -644	0.068	0.068	ppb	U
95-50-1	1,2-Dichlorobenzene	C 980 -644	0.11	0.11	ppb	U
105-05-5	p-Diethylbenzene	C 980 -644	0.11	0.11	ppb	U
104-51-8	n-Butylbenzene	C 980 -644	0.088	0.088	ppb	U
95-93-2	1,2,4,5-Tetramethylbenzene	C 980 -644	0.12	0.12	ppb	U

Environmental Testing Laboratories, Inc.

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06/02/2003

Volatile Compounds - EPA 8260B

Sample: P1916-5

Client Sample ID: Trip Blank

Collected: 05/21/2003

Matrix: Liquid

Type: Grab

Remarks: See Case Narrative

Analyzed Date: 05/28/2003

Analytical Results

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	C 980 -644	0.15	0.15	ppb	U
120-82-1	1,2,4-Trichlorobenzene	C 980 -644	0.13	0.13	ppb	U
87-68-3	Hexachlorobutadiene	C 980 -644	0.37	0.37	ppb	U
91-20-3	Naphthalene	C 980 -644	0.46	0.46	ppb	U
87-61-6	1,2,3-Trichlorobenzene	C 980 -644	0.12	0.12	ppb	U

Surrogate Results

Cas No	Analyte	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	C980-644	95.4 %	(89 - 110)	
4774-33-8	DIBROMOFLUOROMETHANE	C980-644	92.9 %	(72 - 121)	
2037-26-5	TOLUENE-D8	C980-644	101.0 %	(89 - 111)	

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06/02/2003

Case Narrative

8260:

The following compounds were calibrated at 25, 50, 100, 150 and 200 ppb levels in the initial calibration curve:

Acetone
2-Butanone
4-Methyl-2-pentanone
2-Hexanone

M&P-Xylenes and 2-Chloroethylvinylether were calibrated at 10, 40, 100, 200 and 300 ppb levels.

All other compounds were calibrated at 5, 20, 50, 100 and 150 ppb levels.

Patricia Werner-Els

Reviewed By Quality Assurance Officer

Environmental Testing Laboratories, Inc.
208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

06/02/2003

ORGANIC METHOD QUALIFIERS

Q - Qualifier - specified entries and their meanings are as follows:

U - The analytical result is a non-detect.

J - Indicates an estimated value. The concentration reported was detected below the Method Detection Limit.

B - The analyte was found in the associated method blank as well as the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

E - The concentration of the analyte exceeded the calibration range of the instrument.

D - This flag indicates a system monitoring compound diluted out.

INORGANIC METHOD QUALIFIERS

C - (Concentration) qualifiers are as follows:

B - Entered if the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).

U - Entered when the analyte was analyzed for, but not detected.

Q - Qualifier specific entries and their meanings are as follows:

E - Reported value is estimated because of the presence of interferences.

M - (Method) qualifiers are as follows:

A - Flame AA
AS - Semi-automated Spectrophotometric
AV - Automated Cold Vapor AA
C - Manual Spectrophotometric
F - Furnace AA
P - ICP
T - Titrimetric

OTHER QUALIFIERS

ND - Not Detected

NA - Not Applicable

NR - Not Required

* - Outside Expected Range (NYCDEP Table I/II or Surrogate Limits)

x - Outside Expected Range

OTHER

- All soil and sediment samples are reported on a dry weight basis.

03-03849

P1916

Rec'vd Date: 05/22/03 15:09

CHAIN OF CUSTODY DOCUMENT

P 01916

...esults to Andy Barber 518-218-1805

Project Name: PhotoCircuits | Project Manager: Andy BARBER | Sampler (Signature): David R. Hanny (Print): David Hanny

Project Address: Attn: Charlie Nehrig 31 Sea Cliff Avenue, Glen Cove NY

Client PhotoCircuits J/N: 643.001 | ☐ Rush by / /

SAMPLE INFO Type: SS = Split Spoon; G = Grab; C = Composite; B = Blank; Matrix: L = Liquid; S = Soil; SL = Sludge; A* = Air; W = Wipe | *Air - Vol. (Liters) include: Flow (CFM)

ID	Date	Time	Type	Matrix	Sample Location	Total. # Cont.	601/602 BTX/BTEX MTBE	624/8260/8021 B	625/8270/BN	PCB/Pesticides	Pet.Prods./8100M	RCRA Metals	pH/Flash/React	418.1 - TRPH
1	5/21/03	1045		L	RW-1	2	X							
2	"	1050		"	RW-2	2	X							
3	"	1055		"	RW-3	2	X							
4	"	1100		"	RW-4	2	X							
5	"			"	TRIP BLANK	2	X							
6														
	5/21/03	1150		A	45A Site INFLUENT	1	X							
8														
9														
10														
11														
12														
13														
14														
15														

Relinquished by (Signature):	Date / Time	Printed Name & Agent:	Received by (Signature):	Date / Time	Printed Name & Agent
David R. Hanny	5/21/03 1155	DAVID HANNY BARTON & LOGUIDICE	Kenn Ott	5/22/03 10:00	Ken CANDARO
Relinquished by (Signature):	Date / Time	Printed Name & Agent:	Received for Lab by (Signature):	Date 5-22-03 Time 15:09	Printed Name Neh Berg

Comments & Special Instructions	QA/QC Type:	Number & Type of Containers:	Preservatives:	Temp:
		10- voa's 1- Tedlar Bag	Hcl- voa's	5 °C

OFFICE COPY

Terra Systems
INCORPORATED

APRIL 2003
STATUS REPORT
PHOTOCIRCUITS ACCELERATED ANAEROBIC BIOREMEDIATION PILOT

PREPARED FOR:

PHOTOCIRCUITS CORPORATION
31 SEA CLIFF AVENUE
GLEN COVE, NY 11542

PREPARED BY:

TERRA SYSTEMS, INC.
1035 PHILADELPHIA PIKE
SUITE E
WILMINGTON DE 19809

SEPTEMBER 9, 2003

Terra Systems
INCORPORATED

September 9, 2003

Charlie Nehrig
Photocircuits Corporation
31 Sea Cliff Avenue
Glen Cove, NY 11542

RE: April 2003 Status Report Photocircuits Accelerated Anaerobic Bioremediation Pilot

Dear Charlie:

Attached is the April 2003 Status Report for the Photocircuits Accelerated Anaerobic Bioremediation Project. Data from the beginning of the project in August 2000 through April 2003 is provided and discussed. Please let me know if you have any questions.

In addition, the light hydrocarbon gas data from August 4 to 5, 2003 is attached.

Sincerely,
TERRA SYSTEMS, INC.

Michael D. Lee, Ph.D.
Vice-President

cc: Andy Barber

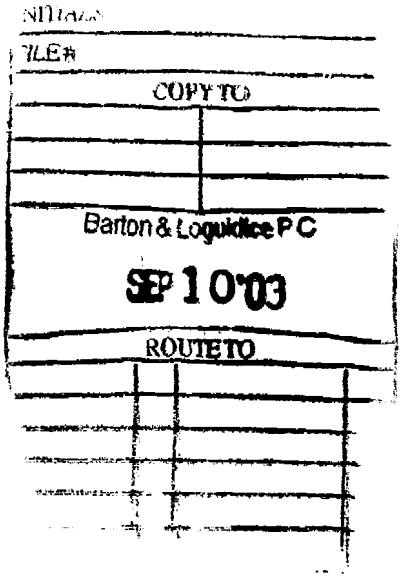

TABLE OF CONTENTS

FIGURES

TABLES

Table 6. Summary of Changes in Concentrations of Chloroethenes, Chloroethanes, Electron Acceptors, and Electron Donor by Well

ABBREVATIONS

1DCA 1,1-Dichloroethane
1DCE 1,1-Dichloroethene or 1,1-Dichloroethylene or Vinylidene Chloride
1TCA 1,1,1-Trichloroethane
bgs Below Ground Surface
CA Chloroethane
cDCE cis-1,2-Dichloroethene or cis-1,2-chloroethylene
msl mean sea level
MTBE Methyl Tert Butyl Ether
µg/L Microgram per Liter
µM Micromole per Liter
PCE Tetrachloroethene or Perchloroethylene
SRS™ Slow Release Substrate
TCE Trichloroethene or Trichloroethylene
tDCE trans-1,2-Dichloroethene or trans-1,2-Dichloroethylene
TOC Total Organic Carbon
TSI Terra Systems, Inc.
VC Vinyl Chloride
VOC Volatile Organic Carbon

1.0 EXECUTIVE SUMMARY

In August 2000, Photocircuits Corporation initiated a pilot study at its 31 Sea Cliff Ave. property to treat chlorinated volatile organic compounds (VOC) using in situ anaerobic bioremediation. The site is characterized by VOC contamination of a sandy, silt, and gravel aquifer. Monitoring data indicate that some biodegradation of these contaminants was occurring at the site prior to the start of the pilot study. The two primary objectives of this pilot study are to 1) evaluate the use of substrate injection to enhance in situ anaerobic biological degradation of chlorinated VOCs in the study area and 2) obtain operating and performance data to optimize the design and operation of a full-scale system. During the operational period of this pilot study, there is no emphasis on reducing any contaminants to a specific regulatory level.

The study area, which encompasses a triangular area roughly 92 feet wide, 157 feet long, and 60 feet deep, underlies the former drum storage area of the Photocircuits Corporation facility. Prior to the start of the pilot test, total chlorinated contaminant concentrations in wells within the pilot area ranged from 457 to 539,000 µg/L. The initial pilot bioremediation system consisted of six injection points in a line spaced about 15 to 20 feet apart. A slow release substrate (SRS) containing edible oil was designed to provide a slow release food grade carbon source over a period in excess of twelve months. A total of 3,600 gallons of the soybean oil emulsion was injected. The substrate concentrations were selected based on previous experience. An additional 5,722 gallons of the emulsified substrate was injected in months 17 and 19 (February and April 2002) at twelve injection points. VOC and substrate concentrations have been monitored eleven times over a thirty-two month period at eight wells spaced throughout the treatment area. VOC and substrate concentrations have also been monitored at six wells downgradient of the treatment area to determine if the substrate has migrated outside of the area and if the substrate amendment has affected these wells.

The system has been operating since August 31, 2000. Substrate monitoring data after the first injection indicated that substrate was delivered throughout the treatment area with the highest substrate levels found in well MW-14. In the initial injection event in August 2000, the emulsion moved into this well from several of the injection points and displaced much of the contaminated groundwater within this well. Well MW-7 has contained the emulsion since April 2002 and has not been sampled. Contaminant levels increased in MW-7 between August 2000 and January 2002 when the last sample was collected from this well. An increase in total VOCs has also been observed in wells MW-14 and DMP-4 since the first injection of substrate in August 2000. Desorption of contaminants adsorbed to the soil due to enhanced biological activity may be contributing to the increased contaminant concentrations in MW-14, MW-7, and DMP-4. Contaminants that partitioned into the injected oil may also be released. Where substrate levels were above 50 mg/L, significant declines in total VOC concentrations (63-99%) were generally observed. Degradation rates for the total VOCs (9/1/00 concentration minus 4/28/03 concentration divided by 970 days) were as high as 213 µg/L-day (well SMP-3) in higher concentration areas with greater than 100,000 µg/L total volatiles. In other areas with lower concentrations, total VOC degradation rates were lower, in the range of 7.9 (SMP-4) to 31 µg/L-day (SMP-1). The average total contaminant concentrations within the pilot cell have fallen by 84% since September 2000. This average includes the wells sampled on 4/28/03 and the well (MW-7) last sampled on 1/8/02. The substrate reinjection in February and April 2002 increased

the TOC concentrations in all wells within the pilot. In April 2003, TOC levels ranged from 166 mg/L in DMP-3 to 2,650 mg/L in MW-14 with an average of 754 mg/L. About 2,200 gallons of emulsion was injected upgradient of the monitoring wells where it should provide a continuous source of organic carbon.

2.0 INTRODUCTION

The enclosed report describes the field pilot study of *in situ* anaerobic bioremediation of a chlorinated solvent plume at the Photocircuits Corporation's 31 Sea Cliff Avenue, Glen Cove, NY facility. The study, which was initiated on August 31, 2000, has the following objectives:

- Determine if the addition of a food grade carbon source will enhance the extent and rate of chlorinated solvent biodegradation at the site.
- Determine the rate of chlorinated solvent biodegradation to estimate the time frame required for contaminant removal.
- Determine if the food grade carbon source can be adequately distributed in the formation such that the microorganisms can utilize it.
- Determine what role bioremediation technology has in the overall remediation strategy for the site.

3.0 BACKGROUND

The Photocircuits Corporation's 31 Sea Cliff Avenue facility, Glen Cove, New York is located on the north shore of Long Island. The plant site is bordered on the north by a light industrial area, to the south and east are arterial roads, and to the west by railroad tracks. The site is generally flat and is covered by manufacturing buildings and parking lots.

3.1 Site Geology/Hydrology

Based on analysis of soil borings and details of well construction at the Photocircuits site, the surficial deposit below the facility is primarily composed of interbedded sand, silt, gravel, and clay layers.

3.2 Nature and Extent of Contamination

The groundwater at the facility has been impacted by chlorinated ethene and chlorinated ethane compounds from various sources. Prior to the start of the pilot test, total volatile organic contaminant concentrations (TVOC) in groundwater ranged from 457 to 539,000 µg/L. Generally, the contamination extends to approximately 90 below ground surface (bgs) with the highest concentrations in the 20 to 50 ft. bgs zone.

3.3 Rationale for Use of Technology

As part of the technology review program, Photocircuits Corporation engaged Terra Systems, Inc. (TSI) to conduct an anaerobic bioremediation field pilot study at the facility. The study, which encompasses a triangular area roughly 92 feet wide and 157 long that had been used for drum storage, commenced in August-September, 2000. Eight monitoring points (MW-14, MW-7, SMP-1, DMP-1, SMP-3, DMP-3, SMP-4, and DMP-4) are being utilized to track the progress of the pilot study. Beginning in March 2001, groundwater samples were also collected from 4 additional wells (MW-8, MW-9, MW-12, and MW-13) to determine if any of the injected substrate had migrated away from the study area. Wells MW-10 and MW-11 were monitored in January 2002 and January 2003. The locations of these wells are shown in Figure 1 with the exception of MW-9, MW-10, and MW-11 that are further to the west. It should be noted that these wells are not expected to be impacted by the bioremediation study.

Ground surface in the vicinity of the study area is about 60 feet above mean sea level (msl). In the pilot area, wells are screened between 10 and 52 feet msl. Downgradient wells 8, 10, and 11 are deep monitoring wells and wells MW-9, MW-12, and MW-13 are shallow wells. The screen intervals for the wells are shown below:

- Well MW-14 10 to 20 feet msl
- MW-7 37 to 52 feet msl
- SMP-1 50 to 52 feet msl
- SMP-3 45 to 47 feet msl
- SMP-4 45 to 47 feet msl
- DMP-1 40 to 42 feet msl

- DMP-3 35 to 37 feet msl,
- DMP-4 38 to 40 feet msl
- MW-8 –111 and –96 feet msl
- MW-9 31 to 46 feet msl
- MW-10 -72 to – 57 feet msl,
- MW-11 -112 to –97 feet mls
- MW-12 9 to 19 feet msl, and
- MW-13 11 to 21 feet msl.

Historical data indicates that anaerobic biodegradation is occurring at the site as evidenced by the presence of daughter products from the breakdown of tetrachloroethene (PCE) and trichloroethene (TCE) including cis-1,2-dichloroethene (cDCE), trans-1,2-dichloroethene (tDCE), vinyl chloride (VC), and ethene. Acetylene can be produced by the abiotic reaction of PCE or TCE with ferrous sulfide (Butler and Hayes 2000). 1,1,1-Trichloroethane (1TCA) breaks down to 1,1-dichloroethene (1DCE), 1,1-dichloroethane (1DCA), chloroethane (CA), and ethane. However, VC and ethene can also be generated from the breakdown of the 1TCA, 1DCA, and 1DCE. Based on a review of the site historical data, it appears that the biological degradation process is limited by the availability of organic carbon.

3.4 Technology Description

Anaerobic bioremediation, also referred to as reductive dechlorination, of chlorinated solvents is a well documented process that converts chlorinated ethenes and ethanes to innocuous gases.

The following technology description is from a report entitled "Cost and Performance Report – In Situ Anaerobic Bioremediation Pinellas Northeast Site Largo, Florida" prepared for the U.S. Department of Energy (1998) by Sandia National Laboratories and Hazardous Waste Remedial Actions Program.

Bacteria metabolize soluble organic and inorganic compounds to provide energy for the growth and maintenance of bacterial cells. The complex organic molecules that bacteria consume are converted to new cells and various simpler compounds, such as carbon dioxide, that are released back into the environment. This process is referred to as biodegradation. Biodegradation has been used very cost effectively for more than a century in public and industrial wastewater treatment systems. Since bacteria occur naturally in both soil and ground water environments, bioremediation technologies attempt to stimulate the activity of these naturally occurring (or introduced bacteria) to degrade contaminants in a cost-effective manner. Bioremediation is being considered more often as the processes that control the biological degradation of contaminants in soil and ground water become better understood.

In order to produce new bacterial cells, bacteria require carbon, nitrogen, phosphorus, and energy sources, as well as a number of trace minerals. Electrons are released by the biochemical reactions that metabolize complex organic compounds for energy. Biological systems capture this biochemical energy through a series of electron transfer (redox) reactions. The bacteria that are most commonly used in bioremediation systems use organic compounds as their source of carbon and energy; these carbon compounds are referred to as electron donors. Bacterial respiration requires that some chemical compound is available to act as a terminal electron

acceptor. Common electron acceptors used by bacteria include oxygen, nitrate, sulfate, Fe^{3+}, and carbon dioxide.

Recently, a class of anaerobic bacteria has been identified that uses halogenated organic compounds as their electron acceptors. The chlorinated VOCs present in the soil and ground water at the Northeast site are among the halogenated organic compounds that can be used in this manner. Halogenated compounds have a high oxidation state; and when a halogen (e.g. chlorine) is chemically replaced by hydrogen, the oxidation state of the chemical is reduced. This process is referred to as reductive dehalogenation, and it forms the basis of the anaerobic process used by the in situ bacteria at the Photocircuits site. Under anaerobic conditions, chlorinated compounds can be degraded via reductive dehalogenation reactions to successively lower chlorinated degradation products, and finally to compounds of significantly lower toxicity. This process is illustrated for PCE below.

$$\underset{\text{step 1}}{\text{PCE} \rightarrow} \underset{\text{step 2}}{\text{TCE} \rightarrow} \underset{\text{step 3}}{\text{DCE} \rightarrow} \underset{\text{step 4}}{\text{VC} \rightarrow} \text{ethene, ethane}$$

Biological activity is frequently limited by the availability of a single growth factor (e.g. electron acceptor, electron donor, nitrogen, etc.) and supplying the proper growth factor can often stimulate bacterial growth and biodegradation rates. For in situ bioremediation applications, nutrients or electron acceptors are often injected into the contaminated area to enhance the existing microbial degradation processes. Effectively delivering nutrients requires that factors such as site permeability and geochemistry be considered. Each class of contaminant varies in its susceptibility to biodegradation and factors such as aquifer oxidation-reduction potential, microbial ecology, and contaminant toxicity will affect the success of bioremediation at a site. The effective application of in situ bioremediation therefore depends upon careful consideration of the geologic and hydrologic properties at the site and on the type and concentration of contaminants to be treated.

Evaluations of the monitoring data from the Photocircuits site suggested that microbial dechlorination is occurring naturally. cDCE and VC are degradation products of TCE that were measured in high concentrations, but were not contaminants originally disposed of at the site, which suggests that a population of dechlorinating microorganisms is relatively active at Photocircuits

The report continues on to outline the technology advantages and disadvantages which are listed below:

Technology Advantages

- Contaminants are treated in situ with little waste generation
- Contaminant degradation can be relatively fast
- Bioremediation is capable of reducing contaminants to very low levels
- The process stimulates a microbial population that can continue to feed off the dissolved phase of a continuing source after nutrient injection ceases, and
- Often provides a low overall remediation cost relative to other technologies.

Technology Disadvantages

- Contaminant degradation enhancement is dependent on adequate nutrient delivery to all areas of contamination before the nutrients are directly metabolized, which often is primarily a function of site hydrogeology and the appropriate mixing of nutrients, contaminants, and active microbes,
- Site conditions (e.g. soil and ground water chemistry, reductive processes, etc.) must be conducive to the stimulation of biological activity to be effective,
- Bioremediation will not directly degrade contaminants occurring in an immiscible phase,
- High concentrations of contaminants often are toxic to microorganisms,
- Bioremediation may be difficult to optimize at sites with multiple contaminants of concern,
- Incomplete biodegradation of contaminants can lead to the generation of degradation products that are just as toxic or even more so than the parent contaminants, and
- Regulatory concerns over chemical injections into aquifers.

4.0 MATERIALS AND METHODS

4.1 Study Area

The study area encompasses a triangular area roughly 92 feet by 157 feet with a contaminated interval of 50 feet (from the water table at 10 feet to 60 feet) underlies the former drum storage area of the Photocircuits Corporation 31 Sea Cliff Ave, Glen Cove, NY facility. Eight monitoring points (MW-14, MW-7, SMP-1, DMP-1, SMP-3, DMP-3, SMP-4, and DMP-4) are being utilized to track the progress of the pilot study. Beginning in March 2001 groundwater samples were also collected from four additional wells (MW-8, MW-9, MW-12, and MW-13) to determine if the injected substrate had migrated away from the study area. Wells MW-10 and MW-11 were sampled in January 2002 and January 2003. It should be noted that these wells are not expected to be impacted by the bioremediation study.

4.2 Technical Challenges

The key technical challenges for this study are:

a. ability to move a carbon source throughout the contaminated area;
b. estimation of quantity of chlorinated compounds
c. determination of minimum level of TOC required to optimize reductive dechlorination

4.3 Key Design Criteria

The in situ anaerobic bioremediation pilot system was designed for two main objectives;

- develop a nutrient delivery system capable of providing a mixture of nutrients to the subsurface within the heterogeneous aquifer, such that the nutrients will be delivered to all levels in the treatment area within an approximately 24 month operating period, and
- deliver a sufficient quantity of substrate to the treatment area to last for approximately 24 months.

4.4 Treatment System Schematic and Operation

The test area was injected with emulsified soybean oil in August 29 to September 1, 2000. The key objective of the pilot study is to determine if the addition of a food grade carbon source will enhance the extent and rate of chlorinated solvent biodegradation at the site. TSI formulated an emulsion containing soybean oil, lecithin (a soybean derivative that acts as an emulsifier), and water to provide required organic carbon. The soybean oil is broken down into smaller organic molecules and hydrogen that are then used by the dechlorinating bacteria. In the second injection event, soybean oil, a surfactant mix, a quick release substrate package, sodium bromide (a tracer), and activated carbon-treated water was used to prepare an emulsion.

Figure 2 is a schematic of the pilot anaerobic biotreatment system showing the monitoring wells and the injection locations within the treatment cell. Injection points 1 to 7 were used in the first injection event. In this injection event, the nutrients were distributed throughout the vertical extent of the treatment area by a Geoprobe® rig at the beginning of the pilot. The Geoprobe®

pushed a drivepoint to about 50 feet bgs. The drill rod was pulled back two feet to inject the fluids under pressure with a Rupe pump. The rod was then withdrawn four feet and additional fluid was injected. This process continued until about 22 ft bgs. Approximately 3,500 gallons of soybean oil emulsion containing soybean oil, soybean lecithin, and tap water (treated to remove chlorine) was injected into five points. Forty gallons of soybean oil was injected at an additional point. About 4,530 pounds of soybean oil and lecithin was injected. In addition to pressure injection of the emulsion followed by injection of chase water to disperse the nutrients, natural groundwater flow has dispersed the substrate.

During the period of February 25, 2002 to March 3, 2002, Terra Systems, Inc. constructed and utilized a low pressure injection system to inject substrate into the pilot area with twelve injection wells (injection points 8-19). The injection system consisted of 7 one-inch wells installed to 60 ft. bgs and 5 one-inch wells installed to 55 ft. bgs. Eight of the wells were spaced 7.5 feet apart in a line. Two additional wells were placed on either side of the line. All of the wells had 20 ft. of PVC blank riser and 40 and 35 ft. of PVC screen (0.02 slot) respectively. The wells were installed using the Geoprobe™ direct-push method. Approximately 5,777 gallons of the emulsion was prepared and injected in February and April 2002. A total of 5,777 gallons of the emulsion containing 9,588 pounds of the soybean oil and surfactant mix, 94 pounds of a quick release substrate package, and 5.9 pounds of sodium bromide was injected.

4.5 Operating Parameters

The major operating parameters needed to assess the performance and cost of the bioremediation system were considered to be substrate concentrations and substrate longevity.

5.0 RESULTS

The bioremediation pilot study at the Photocircuits Corporation site is being conducted to assess the applicability of substrate injection to accelerate the degradation of the chlorinated contaminants of concern and to identify optimal operating parameters. These data will be used to determine the expected costs and performance of a full-scale system at the site.

5.1 Performance Evaluation Criteria

The performance criteria considered in evaluating this in situ anaerobic bioremediation system included:

- Substrate transport and utilization in the remediation study area,
- Contaminant degradation rates and the reduction in mass of the contaminants,
- Fate of chlorinated solvent degradation compounds, and
- Levels to which contaminants can be reduced.

The evaluation data were collected by a monitoring program of eleven field sampling events over a 32 month period.

5.2 Organization of Data

The analytical data from the pilot collected from each of the seven sampling events are summarized in the following five tables.

- Table 1 presents the volatile organic data (VOCs), final biodegradation byproducts (ethene and ethane), important electron acceptors (total iron, sulfate, nitrate, and methane), and electron donor as represented by total organic carbon (TOC).

- Table 2 converts the concentrations of the chlorinated ethenes and chlorinated ethanes to micromolar units so that one unit of PCE is equivalent to one unit of TCE, cDCE, tDCE, VC, and ethene. Similarly one unit of 1TCA is equivalent to one unit of 1DCE, 1DCA, CA, or ethane.

- Table 3 presents the field data collected in January, April, June, and October 2002 and January and April 2003.

- Table 4 summarizes the changes between the samples collected within the pilot cell immediately after the oil emulsion injection and the samples collected twenty-five months later. For wells MW-14 and MW-7, samples could not be collected in April, June, or October 2002 because of the accumulation of emulsion. Well MW-14 was sampled in January and April 2003, but not MW-7. Positive changes indicate that the concentrations of the analyte have decreased. A negative change indicates that the concentrations have increased. In a number of cases, the contaminants were not detected in the initial samples collected after emulsion injection or in the samples

collected after twenty-five months. In these cases, the percent change was calculated using the analyte detection limit and the percent changes are designated as greater than (>) or less than (<) the calculated change.

- For the downgradient wells, Table 5 summarizes the percent changes between the sample collected on 3/28/01 and the sample collected on 4/28-29/03 for wells MW-8, MW-9, MW-12, and MW-13, and between 1/22/02 and 1/14/03 for wells MW-10 and MW-11.

- Table 6 summarizes the changes in the chloroethenes, chloroethanes, electron acceptors, and electron donor for all wells from the beginning of the pilot in August-September 2000 to January 2002 or April 2003.

5.3 Project To Date Results

The following table summarizes the status of the key performance measures for this project as of January 2003. Details are described in subsequent sections..

Performance Measures	Values/Results
Treatment Volume: Soil Ground Water Treated:	 Approximately 92' X 157' X 60', 866,640 ft^3 Approximately 1,620,617gallons
System substrate transport effectiveness:	Demonstrated distribution throughout pilot area
Substrate effectiveness:	Enhanced dechlorination
Substrate viability	Lasted for more than one year
Total volatile contaminant degradation rates; 100 mg/L concentration levels 1 – 100 mg/L concentration levels	 213 µg/L-day 7.9 to 31 µg/L-day
Reduction of total contaminants of concern:	Achieved reductions of 63% to >99% except in MW-14, MW-7 (through 1/8/02), and DMP-4
Chlorinated solvent degradation product production	General decline in all contaminants with some temporary increases in degradation products, followed by reduction of the degradation products themselves by biological degradation
Waste generated	None
Achievable contaminant reduction levels:	Estimated 90% within 43 months

5.3.1 Chlorinated Ethene Results

In the monitoring wells within the pilot cell, cis-1,2-DCE, VC, and ethene were initially the predominant chlorinated ethenes with little of the parent compounds, PCE or TCE, being detected. Trans-1,2-DCE is a minor product, present at 1.1% or less of the total chlorinated ethenes. Chlorinated ethenes concentrations greater than 1,000 µg/L were initially only detected in SMP-1 and DMP-3.

PCE, TCE, cDCE, tDCE, and VC were not detected in wells SMP-1 and DMP-4 in April 2003; only ethene remained in these wells. TCE, cDCE, tDCE, VC, and ethene concentrations increased in well DMP-1 between October 2002 and January 2003, but then decreased in the April 2003 sampling event. However, ethene represented 53% of the chlorinated ethenes in well

DMP-1. Relatively low levels of TCE, cDCE, tDCE, and VC were also found in well MW-7 at the last sampling point in January 2002 with ethene being the primary product. With the increased substrate levels observed in MW-7, the chlorinated ethene concentrations are expected to decline; however, due the presence of the emulsion in this well has not been sampled. PCE, TCE, and cDCE were found in April 2003 at relatively low levels in wells DMP-3 and SMP-4. VC concentrations increased in wells MW-14, SMP-3, DMP-3, and SMP-4.

As previously discussed, the goal of the process is to convert PCE into ethene because the ethene is considered to be environmentally acceptable. Ethene has not been associated with long-term toxicological problems and is a natural occurring plant hormone (Sims et al 1991). Unfortunately, given the field conditions, it is difficult to conduct a material balance. Ethene may be converted to carbon dioxide, ethane, or another product. Ethene may also be transported away with the groundwater, or production of ethene may have slowed due to some limitation on the microbial population including lack of substrate, insufficient nutrients, or lower concentrations of the parent compounds.

Ethene concentrations have increased in wells MW-14, MW-7 (through 1/8/02), DMP-1, and SMP-3 through 4/28/03 from the initial levels observed on 8/31/00-9/1/00. Ethene concentrations for the other four wells of the pilot were lower than measured initially in September 2000. The continued presence of ethene in all of the wells in the pilot area shows that complete dechlorination of the chlorinated ethenes is occurring. Low levels of acetylene, an abiotic degradation product from the reaction of PCE or TCE with ferrous sulfide and ferrous disulfide, were detected in wells MW-14, SMP-1, and SMP-3 in January, April, June, and October 2002

The addition of soybean oil emulsion has resulted in an increase in intermediate and final daughter products from the chlorinated ethenes in pilot area wells MW-14, MW-7, SMP-1, SMP-3, DMP-3, SMP-4, and DMP-4.

In the downgradient monitoring wells sampled in March 2001, July 2001, January 2002, April 2002, June 2002, October 2002, January 2003, and April 2003, wells MW-8, MW-10, MW-11, MW-12, and MW-13 had parent compounds PCE and/or TCE. Concentrations greater than 1,000 µg/L of chlorinated ethenes only detected in MW-12. Since March 2001, six months after the first substrate injection, TCE, cDCE, tDCE, and VC concentrations have declined in MW-12 with increased ethene concentrations. The first emulsion injection appeared to have had an effect on MW-12 based upon the increases in ethene, methane, and TOC. However, TCE, cDCE, and VC concentrations have changed little since January 2002. The availability of substrate may be limiting the extent of dechlorination at this well. Ethene has only been detected at low levels in the other downgradient wells. The very low levels of TCE and cDCE found in MW-8 had dissipated from April 2002 until to January 2003, but were detected again in April 2003. Little change in the concentrations of PCE, TCE, cDCE, or VC was noted in the deep well MW-10 between 1/22/02 and 1/14/03. Low levels of TCE and cDCE appeared in the deep well MW-11 in January 2003. PCE, TCE, cDCE, tDCE, and VC concentrations have decreased slightly in MW-13, but ethene has only been detected at low concentrations of 4.5 µg/L or less in this well. The area around MW-13 appears to be substrate-limited and does not appear to have been impacted by the oil emulsion injection.

5.3.2 Chlorinated Ethane Results

The analytical data for the pilot test to date provides evidence for biodegradation of the chlorinated ethanes. Wells DMP-1, SMP-3, DMP-3, and SMP-4 had the highest initial concentrations of total chlorinated ethanes with greater than 1,000 µg/L. 1TCA was the primary chlorinated ethane contaminant in wells SMP-3 and DMP-3. Reduced products such as 1,1-dichloroethane, chloroethane, and ethane predominated in wells MW-14, MW-7, SMP-1, DMP-1, SMP-4, and DMP-4.

Well SMP-3 has shown a 97% (178,000 µg/L to 4,510 µg/L) reduction in the 1TCA concentrations. 1TCA levels in wells DMP-3, SMP-4, and DMP-4 have dropped by >80 to 99.7 percent. 1DCA concentrations have dropped in SMP-3 (85%), SMP-1 (95%), and SMP-4 (98%). However, increased 1DCA concentrations have been noted in MW-14, MW-7 (through 1/8/02), DMP-1, DMP-3, and DMP-4 probably as a result of the dechlorination of 1TCA. Large reductions in the 1DCE concentrations have been observed in wells DMP-3 (77%) and SMP-4 (>99%), but 1DCE increased in MW-14, DMP-1, and SMP-3. CA concentrations have declined by 99% in DMP-1 (3,290 to 34.7 µg/L), 70% in DMP-3, and by 17% in SMP-4, but increased in MW-14, MW-7 (through 1/8/02), SMP-1, and SMP-3. Based upon these results and laboratory studies currently underway with an anaerobic culture derived from the Photocircuits groundwater, we believe that direct utilization of 1TCA and 1DCA may be occurring rather than a reductive dechlorination reaction where daughter products such as CA are produced and degraded. Acetic acid has been reported as a byproduct of 1TCA degradation (Lee and Davis 2000). Alternatively, sulfides generated from the reduction of sulfate may be reacting abiotically with the 1TCA and 1DCA (Gander et al. 2002).

Well SMP-4 has shown decreases in the 1TCA, 1DCA, CA, and ethane concentrations over the thirty-two months following the first injection of the oil emulsion. There was a rebound in concentrations of these compounds between December 2000 and January 2002 in SMP-4. When substrate levels were elevated after the second application of SRS™, the 1TCA and 1DCA concentrations dropped. Concentrations of 1TCA, 1DCA, and 1DCE higher than initial levels were observed in wells MW-14, MW-7 (through 1/8/02), DMP-1, SMP-3, DMP-3, and DMP-4. However, further degradation products CA and ethane levels are elevated in wells MW-14, MW-7, SMP-1, DMP-1, SMP-3, DMP-3, and DMP-4. Chloroethane can be biodegraded under aerobic and methanogenic conditions (Lee and Davis 2000).

Relatively low levels of 1TCA and daughter products were found in downgradient monitoring wells MW-12 and MW-13, which were first monitored for this program in March 2001. No chlorinated ethanes were found in MW-8 or MW-9 until 3.7 µg/L CA was found in MW-8 on 10/2/02. In the deep well MW-10, concentrations of 1DCA, 2DCA, 1DCE were relatively stable between January 2002 and January 2003, but CA was detected. A low level of 1DCA was detected in MW-11 in January 2003. 1DCA and ethane concentrations increased in MW-12 between July 2001 to April 2002, but are now below the levels seen in March 2001. 1DCE concentrations have fallen in MW-12. In MW-13, 1TCA, 1DCA, 1DCE, and ethane concentrations have decreased by 97 to >99%. The substrate injections have had little impact on the downgradient wells except potentially MW-12 where the TOC increased to 73 mg/L in April 2002, but then fell to <0.51 mg/L in June 2002, and increased to 59 mg/L in April 2003.

5.3.3 Other Organic Compounds Results

Several other organic compounds were detected in the groundwater including acetone, methylene chloride, 2-butanone, toluene, benzene, p-ethyltoluene, 1,3,5-trimethylbenzene, 2-chlorotoluene, 4-chlorotoluene 1,2,4-trimethylbenzene, naphthalene, o-xylene, n-propylbenzene, and methyl tert butyl ether (MTBE). Over the thirty-two months of the project operation to date, acetone concentrations decreased by >99.7% in DMP-1, but increased in MW-14 and SMP-4. In April 2003, acetone was found at 433 µg/L in SMP-4 and represented 25% of the total volatiles in this well. Methylene chloride decreased in all wells with declines by as much as >99.7 percent in SMP-1, >95% in DMP-1, >99.7% in SMP-3, 97% in SMP-4, 93% in DMP-3, 67% in DMP-4, 38% in MW-7 (through 1/8/02), and >1% in MW-14 through April 2003. Methylene chloride can also be anaerobically degraded. Toluene concentrations have declined in seven wells in the project area, but increased in well MW-14. Although toluene can be also degraded anaerobically, the addition of soybean oil may have little effect on its biodegradation of toluene as dechlorinators are probably not involved in the biotransformation of toluene. 2-Chlorotoluene concentrations declined by 98% in SMP-4 and 88% in DMP-4, but increased in MW-7 (through 1/8/02) and DMP-1. 2-Chlorotoluene may be biodegraded to toluene and potentially further under anaerobic conditions. MTBE was first detected at 9.0 µg/L in SMP-3 in July 2001. MTBE was found at levels up to 125 µg/L in DMP-3, SMP-1, SMP-3, and DMP-4 in January 2002. We are speculating that the MTBE plume is from an off-site source since it was not used on the Photocircuits site. MTBE was not detected in any monitoring well in October 2002, January 2003, or April 2003. The MTBE appears to have flushed through the system. In April 2003, other potential components of gasoline including benzene, toluene, o-xylene, 1,2,4-trimethyl benzene, 1,3,5-trimethyl benzene, and/or naphthalene were detected in wells SMP-1, DMP-1, SMP-3, and DMP-3, but not wells SMP-4 or DMP-4.

Few of the contaminants other than the chlorinated ethenes and ethanes were found in the downgradient wells. 2-Chlorotoluene concentrations have decreased in MW-12 by 63% and by 78% in MW-13 between 3/28/01 and 4/28/03. 4-Chlorotoluene has been found in MW-12. A low level of o-xylene was found in MW-12 in January 2002, but none was detected in subsequent samples. Benzene was also detected in MW-12 in January 2002 and April 2003. Acetone and benzene have been detected in MW-13, but concentrations of benzene was below detection limits in April 2003. None of these compounds were detected in wells MW-10 or MW-11 in January 2002 or January 2003.

5.3.4 Sum of VOAs

The sum of the concentrations of all of the contaminants in each well was calculated excluding the final degradation endproduct gases, acetylene, ethene, and ethane. The sum of the VOAs has declined by up to 99% in SMP-1 with large decreases in DMP-1 (76%), SMP-3 (94%), DMP-3 (63%), and SMP-4 (82%). The sum of VOAs has increased by 3,267% in MW-14 as the contaminated groundwater displaced during injection came back into the well and potentially as VOCs adsorbed into the oil were released. Increases in the sum of VOAs were also observed to a lesser degree in MW-7 (-33 through 1/8/02) and DMP-4 (-106%). The overall average of the sum of the volatiles has declined by 84% over the course of the pilot and full scale implementation. This average includes the seven wells sampled on 4/28/03 and the well (MW-7) last sampled on 1/8/02.

A first order degradation half-life of 456 days was calculated for the average total volatile contaminants within the pilot cell. Based upon this degradation rate, 90 percent of the total contaminants should be removed within 43 months.

Since 3/28/01, the total volatiles in the downgradient wells outside of the influence of the substrate injection have fallen in MW-10 (1%), MW-12 (60%), and MW-13 (86%), but increased in MW-8 (-228%), and MW-11 (-5617%) and have remained non-detect in MW-9.

5.3.5 Substrate Distribution

The total organic carbon concentrations in April 2003 within the pilot cell ranged from 166 mg/L in DMP-3 to 2,650 mg/L in MW-14. Well MW-7 contained the emulsion in April 2003 and was not sampled. It presumably contains very high levels of TOC. TOC levels were above 100 mg/L in all wells in April 2003. A substrate level of 50 mg/L TOC should provide sufficient carbon to support dechlorination and other electron accepting processes such as methanogenesis and sulfate-reduction. TOC levels increased from the January 2002 sampling event in all wells as a result of the February-April 2002 injection event.

The substrate injection has apparently impacted TOC levels only in well MW-12 of the downgradient wells. Downgradient wells MW-8, MW-9, MW-10, MW-11, MW-12, and MW-13 appear to be substrate-limited.

5.3.6 Electron Acceptor Results

As the microbes break down the emulsion, sulfate would be depleted and the concentrations of iron and methane would increase. Nitrate-nitrogen was present in April 2003 at low concentrations of <0.025 to 0.18 mg/L. and is a minor electron acceptor. The predominant electron acceptor in the groundwater in April 2003 was sulfate with concentrations that ranged from 25 mg/L in SMP-1 to 1,290 mg/L in DMP-3. Sulfate concentrations have declined from the initial concentrations in September 2000 in wells MW-14 (97%), SMP-1 (89%), DMP-1 (76% from 29,600 to 523 mg/L), SMP-3 (74%), and SMP-4 (87%) as would be expected with consumption of the oil emulsion. However, sulfate levels have increased in MW-7 (though 1/8/02), DMP-3, and DMP-4 over the course of the pilot. The average sulfate concentration in the cell has declined by 91%. Total iron concentrations within the pilot in April 2003 ranged from 3.7 mg/L in DMP-3 to 209 mg/L in SMP-4, which indicated that iron is also an important electron acceptor. Total iron concentrations have increased in five of the eight wells in the study area. The drop in dissolved iron concentrations in the other wells may be due to precipitation of the ferrous iron with sulfide produced from the utilization of sulfate. During the most recent sampling event in April 2003, methanogenic conditions (>1,000 µg/L) was detected in all wells. Methane concentrations have increased in all eight monitoring wells in the project area between September 2000 to April 2003.

Well MW-8 appears to be under aerobic conditions based upon the presence of dissolved oxygen, nitrate, and sulfate, and the low levels of iron and methane. This well is largely uncontaminated. While MW-9 has little organic contamination, it appears to have been impacted by the biodegradation processes upgradient as it has elevated iron and methane levels and decreased sulfate levels. No electron acceptor data was available for wells MW-10 and MW-11.

Well MW-12 is under sulfate or iron-reducing conditions based upon the elevated iron levels and drops in sulfate concentrations. Methane and iron concentrations have increased in MW-13 and sulfate levels have declined.

5.3.7 Field Parameters

Field parameters including water level, pH, temperature, specific conductivity, redox potential, dissolved oxygen, and bromide (a tracer added with the emulsion) were collected in January, April, June, and October 2002 and January and April 2003 for wells MW-7, SMP-1, DMP-1, SMP-3, DMP-3, SMP-4, and DMP-4. Field parameters were collected for downgradient wells MW-8, MW-9, MW-12, and MW-13 for the April 2, June 26, and October 3, 2002 and the January 14, and April 28, 2003 sampling events. The water levels ranged between 6.42 feet (SMP-1) to 7.96 feet (MW-8) below the top of the casing for wells from which this data was collected in January 2002. The pH was generally neutral, between 6.3 and 7.6. Well SMP-3 had an elevated pH readings, 8.7-9.9, but declined to 7.0 in January 2003. The pH dropped to slightly acidic conditions of 5.3-6.1 in SMP-4. Downgradient wells MW-12 and MW-13 were slightly acidic to neutral, 6.2 to 7.3. The pH in the downgradient well MW-8 ranged from slightly acidic, 6.4 to slightly basic, 8.7. Groundwater temperatures ranged between 11.5 to 24.8 °C. In general the specific conductivity of the groundwater was high, between 2,660 and 5,890 umhos/cm. Downgradient wells MW-8 and MW-9 had lower specific conductivity readings of 120 to 221 µmhos/cm. Downgradient wells MW-12 and MW-13 had higher specific conductivity levels.

Negative redox potentials of –50 (SMP-4) to -334 mV (DMP-3) were found in the wells within the pilot cell in April 2003. Downgradient wells MW-8 and MW-9 had positive redox potentials in January 2002 to April 2003, which is consistent with the low levels of contaminants found in these wells. Although well MW-13 has higher contaminant levels, its redox potential ranged from –10 to 300 mV. The redox potential of MW-12 has ranged between –136 mV to 69 mV. A low (<1.0 mg/L) dissolved oxygen reading was observed in well DMP-3 in April 2003. Higher dissolved oxygen levels were found in SMP-1, DMP-1, SMP-3, SMP-4 and DMP-4; the high dissolved oxygen levels are not consistent with the low redox potentials and anaerobic conditions found in these wells. Bromide was injected with the emulsion. Wells SMP-1, DMP-1, SMP-3, DMP-3, SMP-4, and DMP-4 had bromide levels of greater than 10 mg/L in June 2002. These wells generally had elevated TOC levels. Bromide levels increased between April and June 2002 in all monitoring wells within the cell except DMP-4. The highest bromide levels were in wells DMP-1, DMP-3, and SMP-4. Wells DMP-3 and SMP-4 had high TOC concentrations. Bromide was not measured for the October 2002, January 2003, or April 2003 samples.

6.0 DISCUSSION

Previous studies have demonstrated the anaerobic dechlorination of PCE using aquifer solids and water in the laboratory (Parsons et al. 1985, Scholz-Muramatsu et al. 1995, and DiStefano et al. 1991). Previous field studies have also demonstrated the anaerobic dechlorination of PCE (Beeman et al. 1994, Ellis et al. 2000). Therefore, microbial reductive dehalogenation is a potential remedial mechanism for halogenated compounds in groundwater aquifers.

The objective of the technology is to convert PCE and 1TCA into ethene and ethane. The produced ethene is considered to be environmentally acceptable, because ethene has not been associated with long-term toxicological problems and is a natural occurring plant hormone (Sims et al. 1991). Furthermore, ethene is known to further biodegrade to carbon dioxide under aerobic environmental conditions (Beeman et al 1994).

VC has been thought to persist in anaerobic environments and to be more toxic to bacteria than the parent compounds (Barrio-Lage et al. 1991). However, subsequent work has clearly established that VC is biodegraded to ethene and ethane. The pattern of increase and disappearance of cDCE and VC is suggestive of microbial succession.

Conditions continue to be favorable for accelerated anaerobic biodegradation of the chlorinated solvents at the Photocircuits site based upon the following positive results from the pilot to date including:

- decreases in the parent compound concentrations observed in many wells, particularly the large drops in the 1TCA and 1DCA concentrations in wells SMP-3 and DMP-3
- increases in the daughter products including final products ethene and ethane in many of the wells.
- good distribution of substrate and its consumption
- prevalence of reducing conditions based upon the removal of sulfate and the production of dissolved iron and methane

There have been eleven groundwater sampling events during the course of the study. As of April 2003, the average total volatile contaminant concentrations within the pilot have decreased by 84%.

During the treatment period of 32 months, we have successfully demonstrated that the addition of a food grade carbon source will enhance the extent and rate of chlorinated solvent biodegradation at this site as indicated by the following observations:

- Total contaminant concentrations have decreased by an average 84%.
- The average concentrations of the parent compound 1,1,1-trichloroethane has decreased by 96%.
- PCE, TCE, cDCE, and VC were not detected in wells SMP-1 and DMP-4 in April 2003.
- Three monitoring wells (MW-7, MW-14, and DMP-4) have shown increased total volatile concentrations since September 1, 2000 by 31 to 3,267%. Well MW-7 could not be sampled in April 2002, June 2002, October 2002, January 2003, and April 2003 due

7.0 CONCLUSIONS

Although the pilot study is an on-going program, there is now sufficient data to facilitate a comparison of the project to date results with the project's objectives. The following summary presents the project objectives in bold with the results.

Determine if the addition of a food grade carbon source will enhance the extent and rate of chlorinated solvent biodegradation at the site.

The overall average of the sum of the volatiles has declined by 84% over the course of 32 months. Increases in intermediate and final daughter products from the chlorinated ethenes and ethanes have been observed in all of the primary monitoring wells.

Degradation rates for the total VOCs are as high as 213 µg/L per day in higher concentration areas. In areas with lower total volatile concentrations, degradation rates range from 7.9 to 31 µg/L per day. Wells MW-7 (through January 2002), MW-14, and DMP-4 have shown increases in total VOCs through their last sampling point in April 2003. The increase in the total VOCs was in well DMP-4 was associated with an increase in the degradation product CA.

Determine the rate of chlorinated solvent biodegradation to estimate the time frame required for contaminant removal.

A first order degradation half-life of 456 days was calculated for the average total volatile contaminants within the pilot cell. This average includes the wells sampled on 4/28/03 and the well MW-7 last sampled on 1/8/02. Based upon this degradation rate, 90% of the total contaminants should be removed within 43 months.

Determine if the food grade carbon source can be adequately distributed in the formation such that the microorganisms can utilize it.

TOC levels in excess of 50 mg/L were established in all eight of the primary monitoring wells in the study area. The TOC levels after system start up ranged from 39 mg/L to 23,500 mg/L. TOC levels declined from the beginning of the pilot in most wells as the emulsified oil was utilized. TOC levels rose in all wells in the pilot cell after the second injection of the emulsion and ranged from 166 to 2,650 mg/L in April 2003. Although it is not possible to do a mass balance because of site conditions, evidence of primary contaminant reduction combined with increases in intermediate and final daughter products strongly suggests that the TOC decreases are a result of biological utilization.

Determine what role bioremediation has in the overall remediation strategy for the site.

Based on the results to date, it appears that bioremediation can cost effectively destroy the contaminants in an acceptable time frame. As a consequence, it appears that bioremediation will be the primary treatment technology for contaminant destruction at this site.

to the presence of emulsion and the percent change calculations are from September 2000 to January 2002. However, when viewed over the last 13 years, the total VOC concentrations in MW-7 have decreased 96%. From 11/1/99 to 4/28/03, total VOC concentrations have decreased by 60% in MW-14. Since first monitored in May 1999, well DMP-4 has shown an increase in total volatiles from 1,636 to 5,553 µg/L largely due to an increase in the 1TCA degradation product CA between June and April 2003.

It is difficult to determine the total contaminant mass present at this site because of the limited number of soil samples and limited definition of the vertical distribution of this contamination. The total contaminant mass was estimated to be approximately 1,195 pounds based upon the average soil concentrations found in the 1996 or earlier soil borings and a contaminated volume of 361,100 ft^3 (a triangular area 92 feet by 157 feet with a contaminated interval below the water table from 10 to 60 feet below ground surface).

Please note that the goal of this study has been to gather sufficient data to determine the rate and extent of chlorinated solvent biodegradation. If the study area could be isolated such that the contaminant mass did not receive any additional contaminants, Terra Systems, Inc. estimates that based upon the current degradation rates that approximately 90% of the total contaminant mass can be removed in 43 months. Although an acceptable remediation end point has not been defined for this site, the data suggests that this reduction will be environmentally acceptable since it significantly reduces the probability that chlorinated solvents will migrate off-site.

The one unexplained observation is the increase in contaminant concentrations in MW-14, MW-7 through 1/8/02, and DMP-4. There are several potential reasons for the increased concentrations: 1) desorption of contaminants adsorbed to the soil due to enhanced biological activity may be contributing to the increase; or 2) contaminated groundwater displaced during the injection process could be moving back into the well. We are working to understand this phenomenon.

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8.0 REFERENCES

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FIGURES

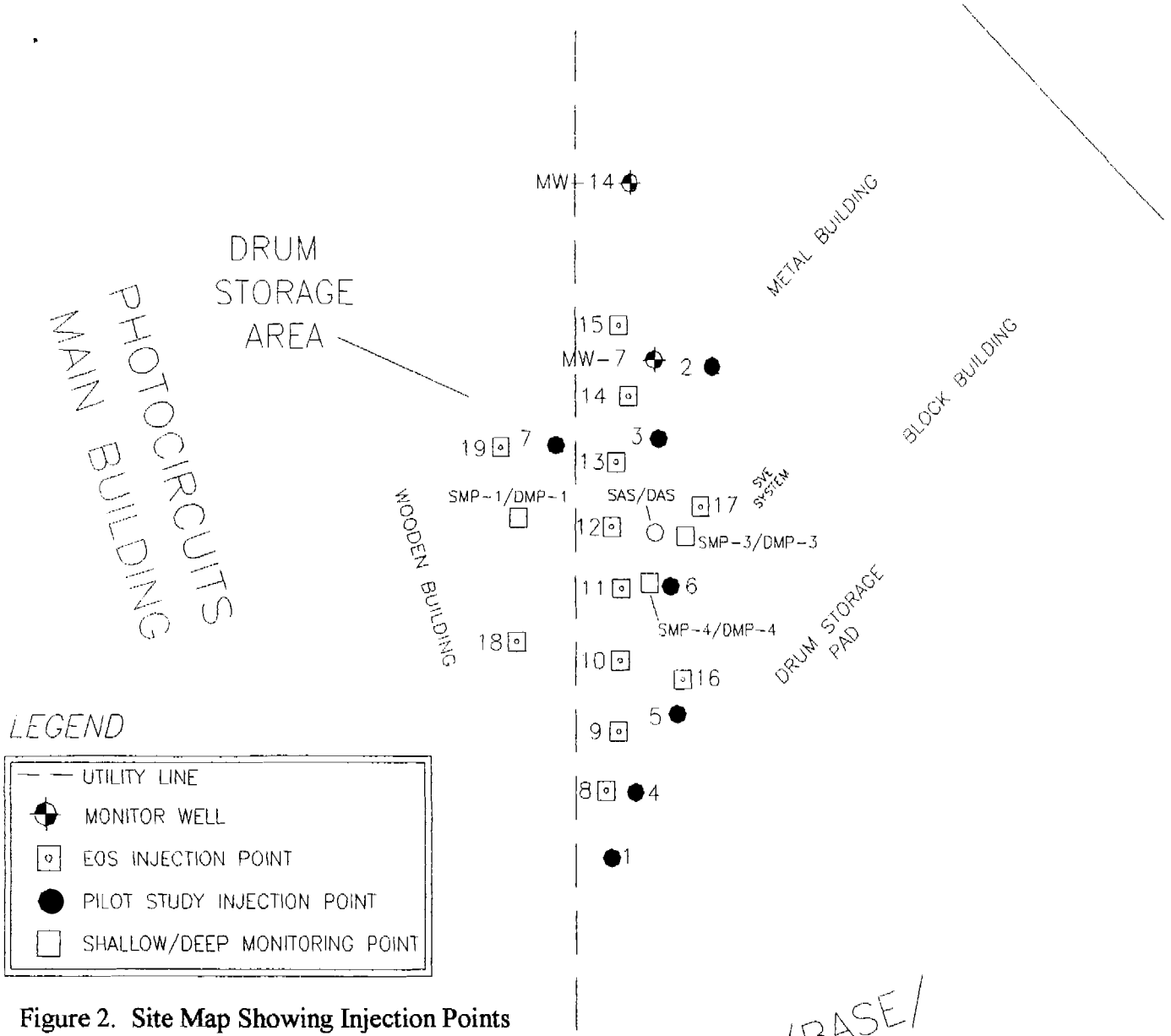
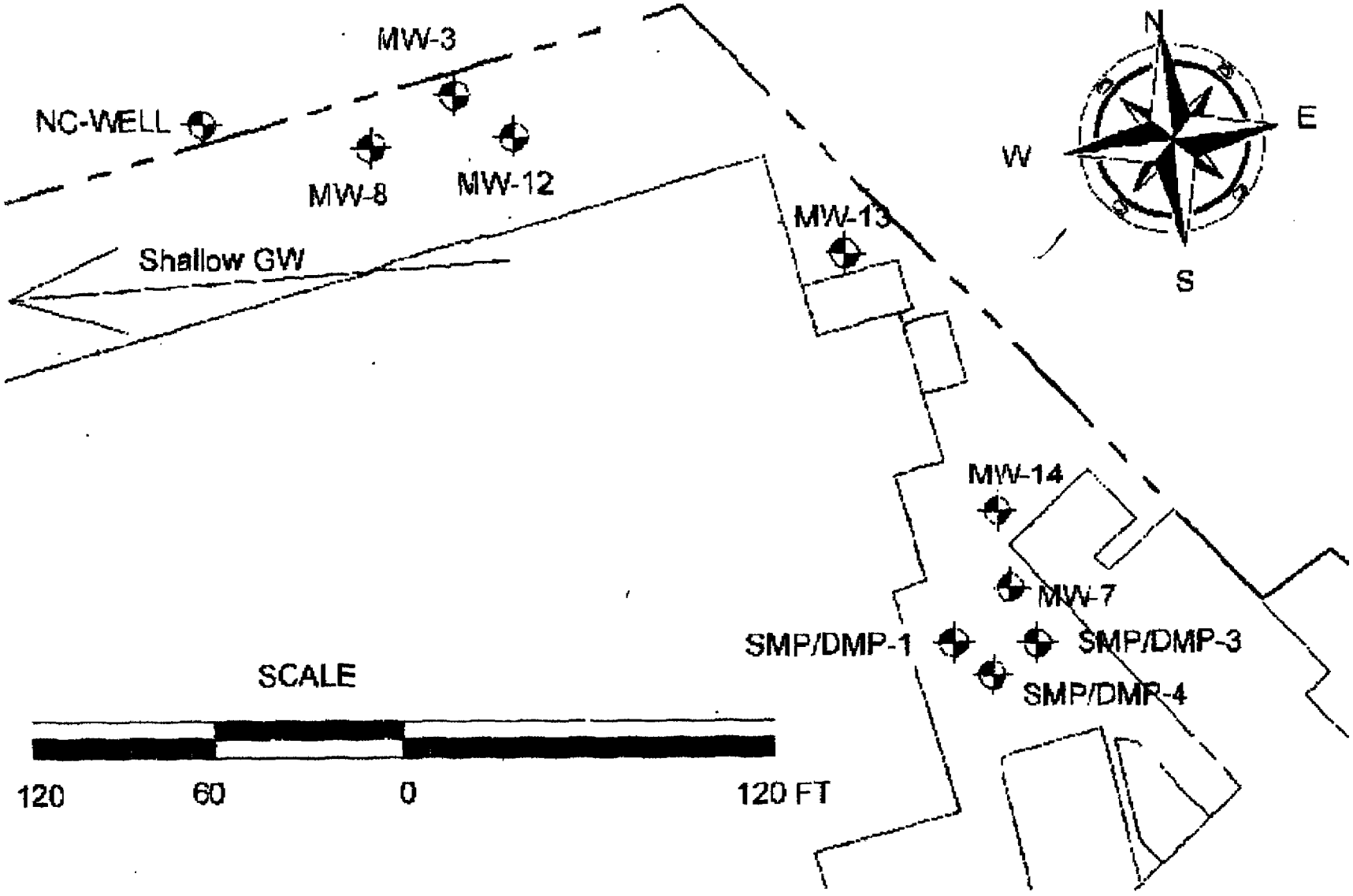


Figure 2. Site Map Showing Injection Points and Monitoring Wells Within Pilot Cell

FIGURES

Figure 1. Site Map Showing Well Locations



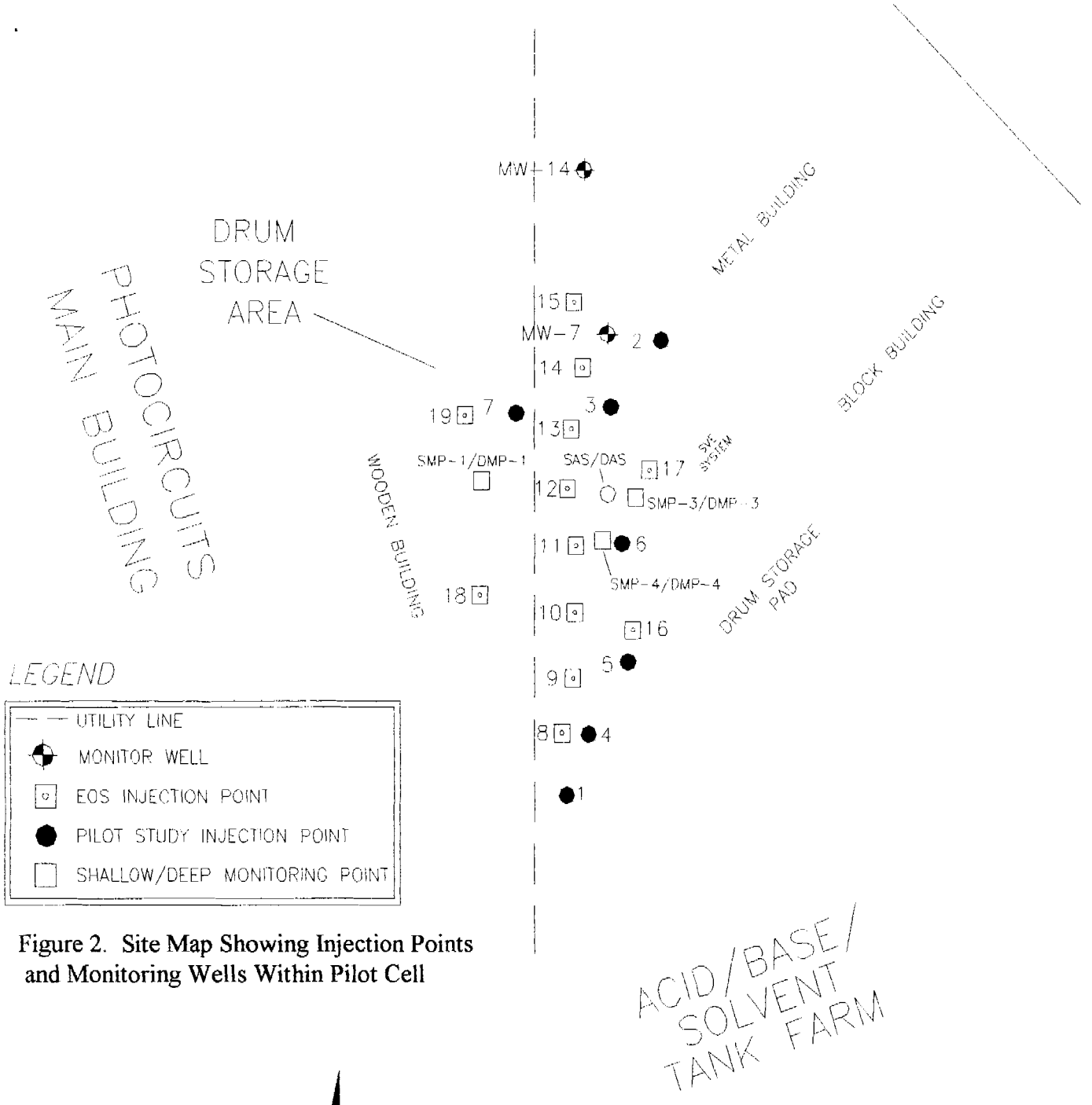


Figure 2. Site Map Showing Injection Points and Monitoring Wells Within Pilot Cell

TABLES

Table 1. Photocircuits Anaerobic Pilot Analytical Summary

Well		MW-14							
Date		8/31/2000	10/19/2000	12/20/2000	3/28/2001	7/11/2001	1/8/2002	1/14/2003	4/28/2003
Days		0	49	111	209	314	495	866	970
Tetrachloroethene	µg/L		<1.4	<0.40	<5.5	<4.0	<2.4	<31	<38
Trichloroethene	µg/L	<0.85	<1.35	<0.85	<10	<3.4	<3.4	<23	<21
cis-1,2-Dichloroethene	µg/L	<0.95	<1.7	<0.95	<15	<2.8	<3.6	<21	<16
trans-1,2-Dichloroethene	µg/L	<1.35	<1.40	<1.35	<11	<2.8	<5.8	<23	<22
Vinyl Chloride	µg/L	<1.75	10.6	<1.75	114	145	173	<25.5	342
Ethene	µg/L	43	47	60	65	130	90		68
Acetylene	µg/L						5.7		<1.2
1,1,1-Trichloroethane	µg/L	14.4	<1.7	8.9	994	2040	1520	1020	1630
1,1-Dichloroethane	µg/L	126	216	293	9230	18800	14100	8580	8860
1,2-Dichloroethane	µg/L	<0.80	<0.95	<0.80	<10	34.2	<3.2	<11.5	<17
1,1-Dichloroethene	µg/L	<1.05	6.3	<1.05	443	751	542	323	296
Chloroethane	µg/L	15.6	<1.25	<1.65	132	298	501	848	1290
Ethane	µg/L	52	69	48	34	66	49		18
Acetone	µg/L	97.8	170	126	<74	551	986	<566	912
Methylene Chloride	µg/L	15.1	<1.50	<1.0	220	156	134	<31.5	<15
2-Butanone	µg/L	124	75.3	<5.1	<125	863	344	<826	<164
Toluene	µg/L	3.0	<0.80	<0.80	<7.5	32.4	25	<19	<20
Benzene	µg/L	<0.70	<0.70	<0.70	<5	<2.6	<3.4	<20	<21
p-Ethyltoluene	µg/L	<1.2	<1.05	<1.2	<8	<4.4	<4.8	<31	<15
1,3,5-Trimethylbenzene	µg/L	<0.60	<1.50	<0..60	<17	<2.2	<2.4	<28.5	<17
2-Chlorotoluene	µg/L	<0.85	<1.35	<0.85	<10.5	<3.2	<4.2	<19	<15
1,2,4-Trimethylbenzene	µg/L	<0.65	<1.25	<0.65	<11	<4.4	<2.6	<30	<15
Naphthalene	µg/L	<1.35	<0.90	<1.35	<9.5	<8.2	<5.4	<47	<40
o-Xylene	µg/L	<0.40	<1.35	<0.40	<8	<3.2	<3.2	<16.5	<12
n-Propylbenzene	µg/L	<0.70	<1.40	<0.70	<10.5	<6.2	<2.8	<31	<16
Methyl T-Butyl Ether	µg/L	<1.25	<1.15	<1.25	<14	<1.6	<3.6	<29	<5.3
Sum VOAs (w/o Gases)	µg/L	396	478	428	11133	23671	18325	10771	13330
Methane	µg/L	44	58	380	1800	6400	8050		10600
Iron, Total	mg/L	55.2	13.2	69	197	188	279	186	219
Sulfate	mg/L	5470	779	32.6	307	1270	441	5.97	141
Nitrate-Nitrogen	mg/L		0.15	0.17	<0.025	<0.0015	<0.13	<0.025	<0.025
Total Organic Carbon	mg/L	23500	868	1990	2590	3530	2630	1900	2650

Table 1. Photocircuits Anaerobic Pilot Analytical Summary

Well		MW-7					
Date		8/31/2000	10/19/2000	12/20/2000	3/27/2001	7/11/2001	1/8/2002
Days		0	49	111	208	314	495
Tetrachloroethene	µg/L	<0.40	<0.56	<0.40	<2.2	<0.20	<0.12
Trichloroethene	µg/L	<0.85	19.3	<0.85	<4	16	2.7
cis-1,2-Dichloroethene	µg/L	47.3	283	355	149	187	8.3
trans-1,2-Dichloroethene	µg/L	<1.35	<0.56	<1.35	<4.4	2.6	2.1
Vinyl Chloride	µg/L	39.3	67.1	139	60	63.9	10.5
Ethene	µg/L	63	170	110	33	94	110
Acetylene	µg/L						<1.2
1,1,1-Trichloroethane	µg/L	<0.55	<0.62	<0.55	<4	<0.16	<0.14
1,1-Dichloroethane	µg/L	122	214	268	135	207	193
1,2-Dichloroethane	µg/L	<0.80	<0.38	<0.80	<4	<0.13	3.7
1,1-Dichloroethene	µg/L	<1.05	<0.96	<1.05	<3.6	1.9	<0.22
Chloroethane	µg/L	258	181	201	160	269	390
Ethane	µg/L	<6	130	81	34	71	68
Acetone	µg/L	<9.45	52.2	<9.45	<29.6	18.5	<2.3
Methylene Chloride	µg/L	12.8	6.0	<1	51.6	3.9	8.0
2-Butanone	µg/L	<5.1	<1.64	<5.1	<50	<6.25	17.2
Toluene	µg/L	6.2	8.4	8.3	<3	8.6	0.95
Benzene	µg/L	4.0	3.5	<0.7	<2	2.8	6.5
p-Ethyltoluene	µg/L	<1.2	<0.68	<1.2	<3.2	<0.22	<0.24
1,3,5-Trimethylbenzene	µg/L	<0.60	<0.60	<0.6	<6.8	<0.11	<0.12
2-Chlorotoluene	µg/L	<0.85	5.2	<0.85	<4.2	6.3	8.4
1,2,4-Trimethylbenzene	µg/L	<0.65	<0.50	<0.65	<4.4	1.2	0.93
Naphthalene	µg/L	<1.35	<0.36	<1.35	<3.8	1.2	<0.27
o-Xylene	µg/L	<0.40	<0.54	<0.4	<3.2	1.1	<0.16
n-Propylbenzene	µg/L	<0.70	<0.56	<0.7	<4.2	<0.31	<0.14
Methyl T-Butyl Ether	µg/L	<1.25	<0.46	<1.25	<5.6	<0.080	<0.18
Sum VOAs (w/o Gases)	µg/L	490	840	971	556	791	652
Methane	µg/L	660	1900	760	1050	5930	5050
Iron, Total	mg/L	2.22	1.84	3.93	6.72	8.78	13.1
Sulfate	mg/L	104	117	264	203	68.9	949
Nitrate-Nitrogen	mg/L		<0.015	0.023	0.029	0.017	0.085
Total Organic Carbon	mg/L	38.8	53.1	60	72.9	58.5	1.67

Table 1. Photocircuits Anaerobic Pilot Analytical Summary

Well		SMP-1										
Date		8/31/2000	10/18/2000	12/20/2000	3/27/2001	7/11/2001	1/8/2002	4/2/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003
Days		0	48	111	208	314	495	579	663	762	865	970
Tetrachloroethene	µg/L	<16	<0.40	<22	<5.5	<2.0	<6.0	<12	<5.5	<0.22	<2.48	<0.76
Trichloroethene	µg/L	<34	79	860	1530	25.3	4410	26600	41	<0.72	<1.84	<0.42
cis-1,2-Dichloroethene	µg/L	24900	37500	30100	<0.27	12300	18000	42500	25700	680	<1.68	<0.32
trans-1,2-Dichloroethene	µg/L	<54	69.9	<40	132	34.5	68.5	376	<15.5	<0.62	<1.84	<0.44
Vinyl Chloride	µg/L	4710	5990	5090	4770	4230	3490	1780	8920	2540	<2.04	<0.56
Ethene	µg/L	930	2400	1140	900	1890	650	800	1820	3710	1180	800
Acetylene	µg/L						<11	7.4	<1.2	<2.2	<2.2	<5.5
1,1,1-Trichloroethane	µg/L	<22	<0.55	<34	356	158	<7.0	<11	<13	<0.52	<1.4	<0.44
1,1-Dichloroethane	µg/L	506	486	628	708	536	456	366	295	197	29.5	26.3
1,2-Dichloroethane	µg/L	<32	<0.80	<17	<10	<1.3	<8.0	<11.5	<11.5	<0.46	<0.92	<0.34
1,1-Dichloroethene	µg/L	<42	64.3	<27	184	55.1	143	296	50.5	<0.54	<2.52	<0.46
Chloroethane	µg/L	<72	71.6	<53	<15	<1.8	<33.5	<30.5	<12.0	37.6	38.7	241
Ethane	µg/L	<6	<6	<25	<25	<25	<12	<1.3	3.6	4.6	1.8	<6.0
Acetone	µg/L	<378	<9.45	<166	<74	<14.4	<115	<156	<56.5	<2.26	<45.3	101
Methylene Chloride	µg/L	482	43.1	<56	<20.5	11.9	<18.5	<27	<10.5	<0.42	<2.52	2.75
2-Butanone	µg/L	<204	<5.1	<68	<125	<62.5	<860	<250	<190	<7.6	<66.1	<3.28
Toluene	µg/L	<32	61.1	<19	126	51.4	55	194	114	58.5	25.7	48.9
Benzene	µg/L	<28	4.40	<34	<5	<1.3	<8.5	<8	<10.5	94	22.8	24.4
p-Ethyltoluene	µg/L	<48	<1.2	<20	<8	11.3	<12	<12	<8.0	<0.32	<2.48	<0.30
1,3,5-Trimethylbenzene	µg/L	<24	<0.60	<20	<17	<1.1	<6.0	<10	<10	<0.4	<2.28	<0.34
2-Chlorotoluene	µg/L	<34	16.3	<25	<10.5	47.3	<10.5	<13.5	<12.5	17.8	<1.52	10.1
1,2,4-Trimethylbenzene	µg/L	<26	<0.65	<0.65	<11	15.7	<6.5	<8.5	<8.5	<0.34	<2.4	<0.30
Naphthalene	µg/L	<54	<1.35	<16	<9.5	21.2	<13.5	<7	<14.5	<0.58	<3.76	<0.80
o-Xylene	µg/L	<16	<0.40	<18	<8	11.4	<8.0	<10	<12.5	5.7	<1.32	<0.24
n-Propylbenzene	µg/L	<28	<0.70	<17	<10.5	<3.1	<7.0	<10.5	<8.0	<0.32	<2.48	<0.32
Methyl T-Butyl Ether	µg/L	<50	<1.25	<25	<14	<0.80	117	<17	<9.0	<0.36	<2.32	<0.11
Sum VOAs (w/o Gases)	µg/L	30598	44386	36678	7806	17509	26740	72112	35121	3631	117	454
Methane	µg/L	3400	6200	2500	2060	3400	1100	2110	1890	2570	3680	5290
Iron, Total	mg/L	19.8	11.6	15.1	11.1	29.9	16.4	18.3	11.2	12.2	13	42.2
Sulfate	mg/L	236	360	443	813	905	732	513	143	134	60.4	25.2
Nitrate-Nitrogen	mg/L		0.054	0.071	12.3	0.016	<0.13	0.046	<0.025	<0.025	0.084	0.11
Total Organic Carbon	mg/L	91.7	83.4	88	59.7	45.9	23.8	63.1	125	139	186	1280

Table 1. Photocircuits Anaerobic Pilot Analytical Summary

Well		DMP-1										
Date		8/31/2000	10/18/2000	12/20/2000	3/27/2001	7/11/2001	1/8/2002	4/2/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003
Days		0	48	111	208	314	495	579	663	762	865	970
Tetrachloroethene	µg/L	<0.40	<0.080	<0.40	<5.5	<1.0	<0.60	<0.48	1.1	<0.11	<3.1	<0.76
Trichloroethene	µg/L	<0.85	<0.17	<0.85	<10	4.5	<0.85	29.3	10.5	1.6	<2.3	5.53
cis-1,2-Dichloroethene	µg/L	50.4	1.70	17.4	73.5	38.4	<0.90	44.3	62.1	127	1610	1100
trans-1,2-Dichloroethene	µg/L	<1.35	<0.27	<1.35	<11	<0.70	<1.4	3.9	2.8	4.2	<2.3	5.75
Vinyl Chloride	µg/L	188	3.5	40	125	42.7	<4.25	62	25.4	180	1780	1020
Ethene	µg/L	560	1080	920	690	110	93	160	210	430	1080	900
Acetylene	µg/L						<1.2	<1.2	<1.2	<1.2	<1.2	<2.2
1,1,1-Trichloroethane	µg/L	<0.55	<0.11	<0.55	193	28.1	<0.70	<0.44	0.89	<0.26	<1.75	<0.44
1,1-Dichloroethane	µg/L	91.8	17.6	357	1130	1320	423	240	412	414	486	401
1,2-Dichloroethane	µg/L	<0.80	<0.16	<0.80	<10	14.9	<0.80	<0.46	2.9	2.3	<1.15	<0.34
1,1-Dichloroethene	µg/L	<1.05	<0.21	<1.05	<9	<0.70	<1.10	<0.6	<0.27	<0.27	<3.15	4.7
Chloroethane	µg/L	3290	43.4	232	159	193	97	69.7	36.9	15.5	<2.45	34.7
Ethane	µg/L	<6	<6	<50	<100	<50	0.8	<1.3	1.8	1.7	16	24
Acetone	µg/L	8670	139	557	<74	1150	<11.5	<6.24	48.8	46.8	<56.6	86
Methylene Chloride	µg/L	68.3	1.40	22.4	191	32.8	<01.85	<1.08	1.7	1.8	<3.15	4.87
2-Butanone	µg/L	<5.1	<1.02	5.1	<125	<31.3	<86	<10	<3.8	<3.8	<82.7	<3.28
Toluene	µg/L	36.5	2.80	24.1	40.5	9.1	<0.70	2.2	5.8	7.2	14.4	14.3
Benzene	µg/L	<0.70	<0.14	5.5	<5	<0.65	<0.85	<0.32	<0.21	48	98	214
p-Ethyltoluene	µg/L	2.9	<0.24	<1.2	<8	<1.1	<1.2	<0.4	1.4	1.7	<3.1	<0.30
1,3,5-Trimethylbenzene	µg/L	2.8	<0.12	<0.60	<17	<0.55	<0.60	<0.4	1.3	1.6	<2.85	<0.34
2-Chlorotoluene	µg/L	23.7	<0.17	18.2	<10.5	33.7	79.7	57.6	30.1	27.8	36.2	31.9
1,2,4-Trimethylbenzene	µg/L	8.4	0.77	8.4	<11	4.8	4.7	3.4	3.2	4.0	<3.0	3.02
Naphthalene	µg/L	3.1	<0.27	<1.35	<9.5	<2.05	<1.35	<0.28	<0.29	1.6	<4.7	4.18
o-Xylene	µg/L	<0.40	<0.080	<0.40	<8	<0.80	<0.80	<0.4	0.82	1.1	<1.65	2.97
n-Propylbenzene	µg/L	<0.70	<0.14	16.9	<10.5	<1.55	<0.70	<0.42	<0.16	<0.16	<3.1	<0.32
Methyl T-Butyl Ether	µg/L	<1.25	<0.25	<1.25	<14	<0.40	<0.90	<0.68	<0.18	<0.18	<2.9	0.11
Sum VOAs (w/o Gases)	µg/L	12436	210	1304	1912	2872	604	512	648	886	4025	2933
Methane	µg/L	8200	23000	10300	4660	730	330	160	520	2530	3520	15900
Iron, Total	mg/L	88.5	4.45	3.1	21.7	8.65	15.9	4.11	6.8	4.2	2.88	13.1
Sulfate	mg/L	29600	37.7	179	715	1420	1200	2070	590	1040	1020	523
Nitrate-Nitrogen	mg/L		0.20	0.024	0.05	0.019	<0.13	<0.025	0.004	0.027	0.16	0.088
Total Organic Carbon	mg/L	299	224	137	132	54.5	8.14	41.1	24.3	58.7	101	284

Table 1. Photocircuits Anaerobic Pilot Analytical Summary

Well		SMP-3										
Date		9/1/2000	10/19/2000	12/20/2000	3/27/2001	7/11/2001	1/8/2002	4/2/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003
Days		0	49	111	208	314	495	579	662	761	864	969
Tetrachloroethene	µg/L	<80	<80	<8	13.7	12.2	<6.0	<24	<5.5	9.6	<6.2	<3.8
Trichloroethene	µg/L	<170	<170	<17	<0.2	<1.7	<8.5	<34	<18	2.6	<4.6	<2.10
cis-1,2-Dichloroethene	µg/L	<190	<190	<19	2.3	16.4	<9.0	<36	<12	7.5	<4.2	<1.6
trans-1,2-Dichloroethene	µg/L	<270	<270	<27	<0.22	<1.4	<14	<56	<15.5	1.7	<4.6	<2.2
Vinyl Chloride	µg/L	<350	<350	<35	38.8	98.8	<42.5	<170	118	105	<5.1	73.9
Ethene	µg/L	84	98	39	18	110	180	220	260	130	96	94
Acetylene	µg/L						2.1	5.4	2.2	6.3	<1.2	<1.2
1,1,1-Trichloroethane	µg/L	178000	235000	32600	33700	13100	14500	7610	8070	5660	5780	4510
1,1-Dichloroethane	µg/L	38200	47800	4770	<0.5	17600	8860	20500	10800	7620	7160	5830
1,2-Dichloroethane	µg/L	<160	<160	<16	6	20.6	<8.0	<32	<11.5	5.3	<2.3	<1.70
1,1-Dichloroethene	µg/L	<210	<210	<21	<0.27	164	146	<44	112	337	312	239
Chloroethane	µg/L	<330	<330	<33	76.6	411	346	<134	354	509	519	1220
Ethane	µg/L	39	45	41	23	29	17	36	33	11	11	7.5
Acetone	µg/L	<1890	<1890	<189	3690	536	<115	<460	<56.5	70.3	<113	256
Methylene Chloride	µg/L	2400	<200	<20	14.6	122	89	152	<10.5	24.7	<6.3	13.6
2-Butanone	µg/L	<1020	<1020	<102	<2.5	<62.5	<860	<3440	<190	<3.8	<165	<16.4
Toluene	µg/L	<160	<160	<16	31.7	96.5	54.5	<28	76	53.8	33.2	32.2
Benzene	µg/L	<140	<140	<14	<0.1	20.6	<8.5	<34	<10.5	2.6	<4.0	<2.10
p-Ethyltoluene	µg/L	<240	<240	<24	<0.16	<2.2	<12	<48	<8.0	<0.16	<6.2	<1.50
1,3,5-Trimethylbenzene	µg/L	<120	<120	<12	0.63	<1.1	<6.0	<24	<10	<0.2	<5.7	<1.70
2-Chlorotoluene	µg/L	<170	<170	<17	5.1	<1.6	<10.5	<42	<12.5	21.8	<3.8	<1.50
1,2,4-Trimethylbenzene	µg/L	<130	<130	<13	<0.22	<2.2	<6.5	<26	<8.5	1.6	<6.0	<1.50
Naphthalene	µg/L	<270	<270	<27	<0.19	<4.1	<13.5	<54	<14.5	1.1	<9.4	<4.00
o-Xylene	µg/L	<80	<80	<8	<0.	<1.4	<8.0	<32	<12.5	0.82	<3.3	<1.2
n-Propylbenzene	µg/L	<140	<140	<14	<0.21	<3.1	<7.0	<28	<8.0	<0.16	<6.2	<1.60
Methyl T-Butyl Ether	µg/L	<250	<250	<25	<0.28	9.0	117	<36	<9.0	<0.18	<5.8	<0.53
Sum VOAs (w/o Gases)	µg/L	218600	282800	37370	37579	32207	24113	28262	19530	14434	13804	12175
Methane	µg/L	100	140	44	36	500	1020	2000	5500	740	19500	16000
Iron, Total	mg/L	50.6	5.91	69.6	3.92	32.5	5.39	8.46	4.63	10.1	55.3	9
Sulfate	mg/L	286	392	154	53.7	1050	1640	3640	119	558	14.1	75.2
Nitrate-Nitrogen	mg/L		<0.015	0.53	0.037	<0.015	<0.13	0.009	0.017	<0.025	0.19	0.076
Total Organic Carbon	mg/L	294	432	22.7	48.1	176	34.4	1600	173	40.3	39.1	184

Table 1. Photocircuits Anaerobic Pilot Analytical Summary

Well		DMP-3										
Date		9/1/2000	10/19/2000	12/20/2000	3/27/2001	7/11/2001	1/8/2002	4/2/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003
Days		0	49	111	208	314	495	579	662	761	864	969
Tetrachloroethene	µg/L	<16	60.5	<4.0	<1.1	72.3	34	<12	<2.2	<0.11	<31	21.5
Trichloroethene	µg/L	<34	<13.5	<8.5	<2	8.6	<8.5	<8	<7.2	<0.36	<23	<4.20
cis-1,2-Dichloroethene	µg/L	<38	<17	<9.5	<3	14.9	<9.0	<10.5	<4.8	1.6	<21	42.7
trans-1,2-Dichloroethene	µg/L	<54	<14	<13.5	<2.2	<1.4	<14	<10	<6.2	1.3	<23	<4.40
Vinyl Chloride	µg/L	1040	928	818	145	785	654	397	113	61.2	<25.5	146
Ethene	µg/L	430	450	310	290	490	360	220	620	550	970	340
Acetylene	µg/L						<1.2	<1.2	<1.2	<1.2	<1.2	<2.2
1,1,1-Trichloroethane	µg/L	19700	14300	23400	793	24000	19500	11600	1350	234	5970	1510
1,1-Dichloroethane	µg/L	5230	4860	4200	764	3250	2260	3770	2410	3980	10800	8320
1,2-Dichloroethane	µg/L	<32	<9.5	<8.0	<2	25.4	<8.0	<11.5	36.6	29.5	<11.5	<3.4
1,1-Dichloroethene	µg/L	156	<24	<10.5	<1.8	168	<11	<15	17.4	5.6	<31.5	36.2
Chloroethane	µg/L	5370	6970	3760	729	6630	2260	1900	10100	8640	9050	1600
Ethane	µg/L	5.7	9.4	44	12	8.2	8.6	16	31	26	35	17
Acetone	µg/L	<378	<65	<94.5	<14.8	<14.4	<115	<156	945	121	<566	173
Methylene Chloride	µg/L	436	149	<10	31.8	58.7	<18.5	<27	91.8	62	<31.5	34.7
2-Butanone	µg/L	<204	<41	<51	<25	<62.5	<860	<250	<76	<3.8	<826	<32.8
Toluene	µg/L	232	134	103	15.7	140	108	84	85.6	30.5	56.5	22.5
Benzene	µg/L	<28	<7.0	<7.0	<1	<1.3	<8.5	<8	<4.2	<0.21	<20	<4.2
p-Ethyltoluene	µg/L	<48	<17	<12	<1.6	9.9	<12	<12	<3.2	<0.16	<31	<3.0
1,3,5-Trimethylbenzene	µg/L	<24	<15	<6	<3.4	<1.1	<6.0	<10	<4.0	1.5	<28.5	<3.40
2-Chlorotoluene	µg/L	<34	<13.5	<8.5	<2.1	51.5	<10.5	<13.5	<5.0	18.7	<19	<3.00
1,2,4-Trimethylbenzene	µg/L	<26	<12.5	<6.5	<2.2	17	<6.5	<8.5	<3.4	4.5	<30	<3.00
Naphthalene	µg/L	<54	<9.0	<13.5	<1.9	<4.1	<13.5	<7	<5.8	1.9	<47	<8.0
o-Xylene	µg/L	<16	<13.5	<4.0	<1.6	<1.6	<8.0	<10	<5.0	1.8	<16.5	<2.40
n-Propylbenzene	µg/L	<28	<14.0	<7.0	<2.1	<3.1	<7.0	<10.5	<3.2	<0.16	<31	<3.20
Methyl T-Butyl Ether	µg/L	<50	<11.5	<12.5	<2.8	<0.80	125	<17	26.6	<0.18	<29	<1.06
Sum VOAs (w/o Gases)	µg/L	32164	27402	32281	2479	35231	24941	17751	15176	13195	25877	11907
Methane	µg/L	390	890	800	930	870	1400	3850	11100	3100	10700	5280
Iron, Total	mg/L	60.4	66.8	74.3	20.8	77.5	39.0	35.8	114	38.8	11.9	3.7
Sulfate	mg/L	124	186	137	94.6	173	188	127	185	1200	486	1290
Nitrate-Nitrogen	mg/L		0.93	0.35	0.073	0.0030	<0.13	0.029	<0.025	<0.025	1.17	0.051
Total Organic Carbon	mg/L	98.2	88.6	104	27.8	51.8	29.6	102	349	201	316	166

Table 1. Photocircuits Anaerobic Pilot Analytical Summary

Well		SMP-4									
Date		9/1/2000	10/19/2000	12/20/2000	3/27/2001	7/11/2001	1/8/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003
Days		0	48	110	207	313	494	662	761	864	969
Tetrachloroethene	µg/L	13.2	<5.6	<0.80	<5.5	9.3	32	70.2	37.5	<31	102
Trichloroethene	µg/L	<0.85	<5.4	<1.7	<10	<1.7	<3.4	6.5	<0.36	<23	9.8
cis-1,2-Dichloroethene	µg/L	143	<6.8	<1.9	<15	10.8	<3.6	30	27.2	<21	31
trans-1,2-Dichloroethene	µg/L	<1.35	<5.6	<2.7	<11	<1.4	<5.6	0.62	<0.31	<23	<1.10
Vinyl Chloride	µg/L	175	34.6	37.6	72.5	111	126	4.9	2.1	<25.5	10.1
Ethene	µg/L	220	190	220	170	160	340	87	29	28	82
Acetylene	µg/L						<1.2	<1.2	<1.2	<1.2	<1.2
1,1,1-Trichloroethane	µg/L	3150	246	997	3100	2610	2700	23	11.5	<17.5	8.54
1,1-Dichloroethane	µg/L	4070	1740	1180	2230	3270	2890	135	149	184	80.4
1,2-Dichloroethane	µg/L	26.2	<3.8	<1.6	<10	19.7	<3.2	<0.46	3.0	<11.5	<0.85
1,1-Dichloroethene	µg/L	105	<9.6	<2.1	<9	48.2	130	<0.54	<0.27	<31.5	<1.15
Chloroethane	µg/L	1220	827	3000	1590	945	776	147	459	1060	1010
Ethane	µg/L	<6	<6	39	<10	<10	2.4	12	2.7	3.1	4
Acetone	µg/L	<9.4	<26	<18.9	<74	<14.4	<46	365	421	1650	433
Methylene Chloride	µg/L	295	123	<2	278	127	66.8	7.5	8.8	<31.5	9.85
2-Butanone	µg/L	<5.1	<16.4	<10.2	<125	<62.5	<344	<7.6	137	<826	<8.20
Toluene	µg/L	116	37.6	25.5	<7.5	48.2	69.6	<0.40	0.96	<19	<1.00
Benzene	µg/L	<0.70	<2.8	<1.4	<5	<1.3	<3.4	<0.42	<0.21	<20	<1.05
p-Ethyltoluene	µg/L	4.8	<6.8	<2.4	<8	<2.2	<4.8	<0.32	<0.16	<31	<0.75
1,3,5-Trimethylbenzene	µg/L	3.2	<6.0	<1.2	<17	<1.1	<2.4	<0.40	<0.2	<28.5	<0.85
2-Chlorotoluene	µg/L	45.5	<5.4	<1.7	<10.5	21.4	<4.2	<0.50	<0.25	<19	<0.75
1,2,4-Trimethylbenzene	µg/L	8.6	<5.0	<1.3	<11	<2.2	<2.6	<0.34	<0.17	<30	<0.75
Naphthalene	µg/L	<1.35	<3.6	<2.7	<9.5	<4.1	<5.4	<0.58	<0.29	<47	<2.00
o-Xylene	µg/L	<0.40	<5.4	<0.8	<8	<1.6	<3.2	<0.50	<0.25	<16.5	<0.60
n-Propylbenzene	µg/L	<0.70	<5.6	<1.4	<10.5	<3.1	<2.8	<0.32	<0.16	<31	<0.80
Methyl T-Butyl Ether	µg/L	<1.25	<4.6	<2.5	<14	<0.80	<3.6	<0.36	<0.18	<29	<0.26
Sum VOAs (w/o Gases)	µg/L	9376	3008	5240	7271	7221	6790	790	1257	2894	1695
Methane	µg/L	450	470	1100	3650	1800	2600	4120	3300	14600	23300
Iron, Total	mg/L	76.2	38.9	47.1	54.5	41.2	17.8	1010	1110	541	209
Sulfate	mg/L	933	470	435	1700	1910	1630	119	73.1	5.24	119
Nitrate-Nitrogen	mg/L		<0.015	0.31	0.19	0.037	<0.13	<0.025	<0.025	0.99	0.05
Total Organic Carbon	mg/L	73.6	60.4	<0.94	34.6	46.5	31.0	3440	3680	1900	1160

Table 1. Photocircuits Anaerobic Pilot Analytical Summary

Well		DMP-4										
Date		9/1/2000	10/19/2000	12/20/2000	3/27/2001	7/11/2001	1/8/2002	4/2/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003
Days		0	48	110	207	313	494	578	662	761	864	969
Tetrachloroethene	µg/L	<0.40	<0.080	<0.080	<0.11	<2.0	<1.2	<0.48	<0.55	<0.11	<31	<19.0
Trichloroethene	µg/L	<0.85	<1.70	<0.17	<0.20	<1.7	<1.7	<0.32	<1.8	<0.36	<23	<10.5
cis-1,2-Dichloroethene	µg/L	<0.95	<1.90	<0.19	<0.30	<1.4	<1.8	<0.42	<1.2	<0.24	<21	<8.00
trans-1,2-Dichloroethene	µg/L	<1.35	<2.70	<0.27	3.4	<1.4	<2.8	<0.40	<1.55	1.9	<23	<14.0
Vinyl Chloride	µg/L	<1.75	<3.50	<0.35	2.9	<0.70	<8.5	<0.20	<1.15	5.4	<25.5	<11.0
Ethene	µg/L	250	260	220	160	<6	230	150	200	140	89	170
Acetylene	µg/L						<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,1,1-Trichloroethane	µg/L	56.3	130	<0.11	15.3	18.4	<1.4	<0.44	<1.3	<0.26	<17.5	<11.0
1,1-Dichloroethane	µg/L	29.7	20.1	<0.14	50.1	30.0	16.3	38.6	78.1	78.2	<21.5	92.5
1,2-Dichloroethane	µg/L	<0.80	<1.60	<0.16	8.7	<1.3	<1.6	<0.46	6.5	10.3	<11.5	<8.50
1,1-Dichloroethene	µg/L	<1.05	<2.10	<0.21	<0.18	<1.4	<2.2	<0.6	<1.35	<0.27	<31.5	<11.5
Chloroethane	µg/L	2420	2580	3300	3680	2680	1210	1260	1330	3240	3510	5460
Ethane	µg/L	<6	<6	37	<6	<6	2.4	<1.3	4.7	1.1	2.3	4.4
Acetone	µg/L	<9.45	<18.9	<1.89	58.4	<14.4	<23	<6.24	<5.65	<1.13	<566	<70.5
Methylene Chloride	µg/L	22.8	16.6	3.9	19.8	20.8	8.4	12.2	22.2	26.9	<31.5	<7.5
2-Butanone	µg/L	<5.1	<10.2	<1.02	<2.5	<62.5	<172	<10	<19	<3.8	<826	<82.0
Toluene	µg/L	11	7.5	3.1	6.1	<1.4	6.9	10.2	7.3	20.2	<19	<10.0
Benzene	µg/L	<0.70	<1.40	<0.14	<0.10	<1.3	<1.7	<0.321	<1.05	<0.21	<20	<10.5
p-Ethyltoluene	µg/L	3.7	<2.40	<0.24	1.2	<2.2	<2.4	<0.48	<0.80	2.9	<31	<7.50
1,3,5-Trimethylbenzene	µg/L	9.2	<1.20	2.5	3.4	<1.1	<1.2	6.9	<1.0	2.9	<28.5	<8.50
2-Chlorotoluene	µg/L	64.5	44.5	17.1	31.6	31.9	34.2	40.2	21.1	27.2	<19	<7.50
1,2,4-Trimethylbenzene	µg/L	18.3	15.9	5.3	<0.22	9.2	9.0	13.5	5.3	6.4	<30	<7.50
Naphthalene	µg/L	4.3	<2.70	<0.27	1.6	<4.1	<2.7	<0.28	<1.45	1.8	<47	<20.0
o-Xylene	µg/L	4.8	<0.80	<0.008	5.0	<1.6	<1.6	3.6	<1.25	2.6	<16.5	<6.00
n-Propylbenzene	µg/L	44.3	<1.40	<0.14	<0.21	<3.1	<1.4	<0.42	<0.80	<0.16	<31	<8.00
Methy T-Butyl Ether	µg/L	<1.25	<2.4	<0.25	<0.28	<0.80	21.9	<0.68	<0.90	<0.18	<29	<2.65
Sum VOAs (w/o Gases)	µg/L	2689	2815	3332	3888	2790	1307	1385	1471	3427	3510	5553
Methane	µg/L	180	210	190	300	<6	250	240	2480	8600	21500	22300
Iron, Total	mg/L	48.2	39.2	42.5	85.4	116	31.6	29.1	44.1	15.8	56.8	62.1
Sulfate	mg/L	133	171	98.5	209	323	146	176	249	225	3.77	222
Nitrate-Nitrogen	mg/L		0.22	0.31	0.17	<0.015	<0.13	0.051	<0.025	<0.025	<0.025	0.18
Total Organic Carbon	mg/L	43.7	52.4	50.9	34.6	35.7	7.1	71.7	161	78.3	291	306

Table 1. Photocircuits Anaerobic Pilot Analytical Summary

Well		MW-8								MW-9			
Date		3/28/2001	7/12/2001	1/8/2002	4/3/2002	6/26/2002	10/3/2002	1/15/2003	4/28/2003	3/28/2001	7/12/2001	1/8/2002	1/14/2003
Days		0	314	494	579	663	554	658	761	0	314	494	657
Tetrachloroethene	µg/L	<0.11	<0.20	<0.12	<0.24	<0.22	<0.11	<0.62	<0.76	<0.11	<0.20	<0.24	<0.62
Trichloroethene	µg/L	1.8	1.7	0.97	<0.16	<0.72	<0.36	<0.46	1.91	<0.20	<0.17	<0.16	<0.46
cis-1,2-Dichloroethene	µg/L	<0.30	1.2	<0.18	<0.21	<0.48	<0.24	<0.42	3.99	<0.30	<0.14	<0.21	<0.42
trans-1,2-Dichloroethene	µg/L	<0.22	<0.14	<0.28	<0.20	<0.62	<0.23	<0.46	<0.44	<0.22	<0.14	<0.20	<0.46
Vinyl Chloride	µg/L	<0.25	<0.070	<0.85	<0.10	<0.46	<1.3	<0.51	<0.56	<0.25	<0.070	<0.10	<0.51
Ethene	µg/L	<6	<6	<1.3	<1.3	1.2	<1.2	4.6	<1.3	<6	<6		
Acetylene	µg/L			<1.2	<1.2	<1.2	<0.26	<1.2	<1.2				
1,1,1-Trichloroethane	µg/L	<0.20	<0.16	<0.14	<0.22	<0.52	<0.3	<0.35	<0.44	<0.20	<0.16	<0.22	<0.35
1,1-Dichloroethane	µg/L	<0.14	<0.12	<0.25	<0.22	<0.60	<0.31	<0.43	<0.44	<0.14	<0.12	<0.22	<0.43
1,2-Dichloroethane	µg/L	<0.20	<0.13	<0.16	<0.23	<0.46	<0.23	<0.23	<0.34	<0.20	<0.13	<0.23	<0.23
1,1-Dichloroethene	µg/L	<0.18	<0.14	<0.22	<0.30	<0.54	<0.27	<0.63	<0.46	<0.18	<0.14	<0.30	<0.63
Chloroethane	µg/L	<0.30	<0.18	<0.67	<0.61	<0.48	3.7	<0.49	<0.88	<0.3	<0.18	<0.61	<0.49
Ethane	µg/L	<6	<6	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<6	<6		
Acetone	µg/L	<1.48	<1.44	<2.3	<3.12	<2.26	<1.13	<11.3	<2.82	<1.48	<1.44	<3.12	<11.3
Methylene Chloride	µg/L	<0.41	<0.15	<0.37	<0.54	<0.42	<0.21	<0.63	<0.30	<0.41	<0.15	<0.54	<0.63
2-Butanone	µg/L	<2.5	<6.25	<17.2	<5.0	<7.6	<3.8	<16.5	<3.28	<2.5	<6.25	<5.0	<16.5
Toluene	µg/L	<0.15	<0.14	<0.14	<0.14	<0.40	<0.2	<0.38	<0.40	<0.15	<0.14	<0.14	<0.38
Benzene	µg/L	<0.10	<0.13	<0.17	<0.16	<0.42	<0.21	<0.4	<0.42	<0.10	<0.13	<0.16	<0.4
p-Ethyltoluene	µg/L	<0.16	<0.22	<0.24	<0.24	<0.32	<0.16	<0.62	<0.30	<0.16	<0.22	<0.24	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.34	<0.11	<0.12	<0.20	<0.40	<0.2	<0.57	<0.34	<0.34	<0.11	<0.20	<0.57
2-Chlorotoluene	µg/L	<0.21	<0.16	<0.21	<0.27	<0.50	<0.25	<0.38	<0.30	<0.21	<0.16	<0.27	<0.38
4-Chlorotoluene	µg/L												
1,2,4-Trimethylbenzene	µg/L	<0.22	<0.22	<0.13	<0.26	<0.34	<0.17	<0.60	<0.30	<0.22	<0.22	<0.17	<0.60
Naphthalene	µg/L	<0.19	<0.41	<0.27	<0.14	<0.58	<0.29	<0.94	<0.80	<0.19	<0.41	<0.14	<0.94
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.20	<0.50	<0.25	<0.33	<0.24	<0.16	<0.16	<0.20	<0.33
n-Propylbenzene	µg/L	<0.21	<0.31	<0.14	<0.21	<0.32	<0.16	<0.62	<0.32	<0.21	<0.31	<0.21	<0.62
Methyl t-Butyl Ether	µg/L	<0.28	<0.080	<0.18	<0.34	<0.36	<0.18	<0.58	<0.11	<0.28	<0.080	<0.34	<0.58
Sum VOAs (w/o Gases)	µg/L	1.8	2.9	1.0	0.0	0.0	3.7	0	5.9	0.0	0.0	0.0	0
Methane	mg/L	<6	61	9.1	<0.7	20	3.1	76.0	2.1	300	940		
Iron, Total	mg/L	0.023	0.088	<0.096	<0.096	0.013	0.23	0.069	0.061	10.4	21.9		
Sulfate	mg/L	22.6	23.4	27.4	23.2	143	1.46	32.5	28.1	4.43	23.1		
Nitrate-Nitrogen	mg/L	6.1	5.63	6.93	6.66	6.67	5.67	6.28	6.14	<0.025	<0.015		
Total Organic Carbon	mg/L	4.97	<0.94	<0.94	1.41	6.6	4.7	33.4	6.58	7.98	6.79		

Table 1. Photocircuits Anaerobic Pilot Analytical Summary

Well		MW-10		MW-11		MW-12							
Date		1/22/2002	1/14/2003	1/22/2002	1/14/2003	3/28/2001	7/12/2001	1/9/2002	4/3/2002	6/26/2002	10/3/2002	1/15/2003	4/28/2003
Days		0	37635	0	37635	0	106	287	371	455	554	658	461
Tetrachloroethene	µg/L	2.3	<0.62	<0.12	<0.62	<0.11	<0.20	<0.24	<2.4	<1.1	<0.55	<0.62	<0.76
Trichloroethene	µg/L	6.7	4.7	<0.17	9.9	122	0.93	16.5	31	67.8	82.5	48.7	104
cis-1,2-Dichloroethene	µg/L	231	244	<0.18	18.1	1280	18.2	430	503	467	488	311	369
trans-1,2-Dichloroethene	µg/L	<0.20	<0.46	<0.28	<0.46	7.3	<0.14	5.6	<2.0	<2.1	<1.55	<0.46	3.84
Vinyl Chloride	µg/L	2.7	<0.51	<0.85	<0.51	244	5.7	298	333	151	83.1	48.8	75.3
Ethene	µg/L					6.7	69	180	130	190	17	<1.3	16
Acetylene	µg/L								<1.2	<1.2	<1.2	<1.2	<1.2
1,1,1-Trichloroethane	µg/L	<0.22	<0.35	<0.14	<0.35	<0.20	<0.16	<0.22	<2.2	<2.6	<1.3	<0.35	<0.44
1,1-Dichloroethane	µg/L	206	190	<0.25	6.3	72.2	3.7	329	684	345	94.2	38.6	38.6
1,2-Dichloroethane	µg/L	5	5.8	<0.16	<0.23	2.9	<0.13	1.4	<2.3	<2.3	<1.15	<0.23	<0.34
1,1-Dichloroethene	µg/L	50.3	40.8	<0.25	<0.63	8.4	<0.14	2.3	<3	<2.7	<1.35	<0.63	2.59
Chloroethane	µg/L	<0.49	13.5	<0.67	<0.49	<0.30	<0.18	6.1	<6.1	<2.4	<1.2	<0.49	<0.88
Ethane	µg/L					<6	13	22	11	18	0.8	<1.3	2.9
Acetone	µg/L	<3.12	<11.3	<2.3	<11.3	<1.48	<1.44	<3.12	<31.2	<1.9	<5.65	<11.3	2.82
Methylene Chloride	µg/L	<0.54	<0.63	<0.37	<0.63	<0.41	<0.15	<0.54	<5.4	<2.1	<1.05	<0.63	<0.30
2-Butanone	µg/L	<5.0	<16.5	<17.2	<16.5	<2.5	<6.25	<5.0	<50	<38	<19	<16.5	<3.28
Toluene	µg/L	<0.14	<0.38	<0.14	<0.38	0.97	<0.14	5.6	11.4	<2.0	<1.0	<0.38	<0.40
Benzene	µg/L	<0.16	<0.4	<0.17	<0.4	5.3	<0.13	5.4	<1.6	<2.1	<1.05	<0.4	2.04
p-Ethyltoluene	µg/L	<0.24	<0.62	<0.24	<0.62	<0.16	<0.22	<0.24	<2.4	<1.6	<0.8	<0.62	<0.30
1,3,5-Trimethylbenzene	µg/L	<0.20	<0.57	<0.12	<0.57	<0.34	<0.11	<0.20	<2.0	<2.0	<1	<0.57	<0.34
2-Chlorotoluene	µg/L	<0.27	<0.38	<0.21	<0.38	393	26.9	2690	3660	1940	554	68	145
4-Chlorotoluene	µg/L					14.5	<0.17	82.8	139	147	<1.1	<0.55	5.95
1,2,4-Trimethylbenzene	µg/L	<0.17	<0.60	<0.13	<0.60	<0.22	<0.22	<0.17	<1.7	<1.7	<0.85	<0.60	<0.30
Naphthalene	µg/L	<0.14	<0.94	<0.27	<0.94	<0.19	<0.41	<0.14	<1.4	<2.9	<1.45	<0.94	<0.80
o-Xylene	µg/L	<0.20	<0.33	<0.16	<0.33	<0.16	<0.16	2.3	<2.0	<2.5	<1.25	<0.33	<0.24
n-Propylbenzene	µg/L	<0.21	<0.62	<0.14	<0.62	<0.21	<0.31	<0.21	<2.1	<1.6	<0.8	<0.62	105
Methyl t-Butyl Ether	µg/L	<0.34	<0.58	<0.18	<0.58	<0.28	<0.080	<0.34	<3.4	<1.8	<0.9	<0.58	<0.11
Sum VOAs (w/o Gases)	µg/L	504	498.8	0	34.3	2151	55	3875	5361	3118	1302	515.1	854
Methane	mg/L					420	1800	2170	1670	3470	310	33	620
Iron, Total	mg/L					7.29	55.6	61.0	934	46.7	37.1	13.2	42.1
Sulfate	mg/L					417	824	418	1160	100	407	236	244
Nitrate-Nitrogen	mg/L					<0.025	0.070	0.005	0.099	<0.025	0.031	0.026	0.10
Total Organic Carbon	mg/L					33.3	36.6	<0.94	72.6	<0.51	29.4	43.6	59.2

Table 1. Photocircuits Anaerobic Pilot Analytical Summary

Well		MW-13							
Date		3/28/2001	7/12/2001	1/10/2002	4/3/2002	6/26/2002	10/3/2002	1/14/2003	4/29/2003
Days		0	106	288	371	455	554	0	762
Tetrachloroethene	µg/L	82.8	120	216	227	16.2	80.5	69	13
Trichloroethene	µg/L	85.9	114	216	132	13.9	77.2	69.8	12.1
cis-1,2-Dichloroethene	µg/L	784	897	1950	988	69.6	501	697	135
trans-1,2-Dichloroethene	µg/L	3.6	4.7	11.9	8.0	<0.31	3.0	<0.46	<0.44
Vinyl Chloride	µg/L	38.6	58.6	112	74	4.6	26.2	16.3	2.60
Ethene	µg/L	<6	<6	1.6	<1.3	1.1	<1.3	<1.3	4.5
Acetylene	µg/L			<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,1,1-Trichloroethane	µg/L	40	36.7	32.2	19.7	1.2	4.3	3.9	<0.44
1,1-Dichloroethane	µg/L	323	351	476	305	17	96.8	95.1	8.85
1,2-Dichloroethane	µg/L	2.6	2.3	2.8	<0.23	<0.23	<0.23	<0.23	<0.34
1,1-Dichloroethene	µg/L	60.6	60.4	75.5	43.6	2.8	13.3	10.5	<0.46
Chloroethane	µg/L	<0.30	<0.18	<0.61	<0.61	<0.24	<0.24	<0.49	<0.88
Ethane	µg/L	5.8	6.7	23	8.7	2.7	1.8	<1.3	<1.3
Acetone	µg/L	<1.48	<1.44	18.7	<3.12	<1.13	<1.13	<11.3	22.4
Methylene Chloride	µg/L	<0.41	<0.15	<0.54	<0.54	<0.21	<0.21	<0.63	1.88
2-Butanone	µg/L	<2.5	<6.25	<5.0	<5.0	<3.8	<3.8	<16.5	<3.28
Toluene	µg/L	<0.15	<0.14	<0.14	<0.14	<0.20	<0.20	<0.38	<0.40
Benzene	µg/L	7.1	7.1	8.0	4.7	<0.21	2.0	2.1	<0.42
p-Ethyltoluene	µg/L	<0.16	<0.22	<0.24	<0.24	<0.16	<0.16	<0.62	<0.30
1,3,5-Trimethylbenzene	µg/L	<0.34	<0.11	<0.20	<0.20	<0.20	<0.20	<0.57	<0.34
2-Chlorotoluene	µg/L	16.3	43.2	76.4	27.8	2.5	10.2	4.6	3.52
4-Chlorotoluene	µg/L								
1,2,4-Trimethylbenzene	µg/L	<0.22	<0.22	<0.17	<0.17	<0.17	<0.17	<0.60	<0.30
Naphthalene	µg/L	<0.19	<0.41	<0.14	<0.14	<0.29	<0.29	<0.94	<0.80
o-Xylene	µg/L	<0.16	<0.16	<0.20	<0.20	<0.25	<0.25	<0.33	<0.24
n-Propylbenzene	µg/L	<0.21	<0.31	<0.21	<0.21	<0.25	<0.16	<0.62	2.70
Methyl t-Butyl Ether	µg/L	<0.28	<0.080	<0.34	<0.34	<0.18	<0.18	<0.58	<0.11
Sum VOAs (w/o Gases)	µg/L	1445	1695	3196	1830	128	815	968.3	202.1
Methane	mg/L	12	21	250	110	140	920	1040	1030
Iron, Total	mg/L	0.54	0.48	0.93	0.76	0.27	5.04	2.31	61.1
Sulfate	mg/L	597	579	648	366	22.7	377	365	442
Nitrate-Nitrogen	mg/L	3.95	4.68	3.54	4.84	2.15	3.42	3.73	0.57
Total Organic Carbon	mg/L	9.52	13.3	<0.94	15.4	<0.51	6.0	29.8	38.9

Table 2. Photocircuits Anaerobic Pilot Chlorinated Solvents in Micromolar Concentrations

Contaminant	Well	MW-14							
Date		8/31/2000	10/19/2000	12/20/2000	3/28/2001	7/11/2001	1/8/2002	1/14/2003	4/28/2003
Tetrachloroethene	µM		<0.0084	<0.0024	<0.033	<0.024	<0.014	<0.19	<0.023
Trichloroethene	µM	<0.0065	<0.010	<0.0065	<0.076	<0.026	<0.026	<0.18	<0.16
cis-1,2-Dichloroethene	µM	<0.0098	<0.018	<0.0098	<0.15	<0.029	<0.037	<0.22	<0.17
trans-1,2-Dichloroethene	µM	<0.014	<0.014	<0.014	<0.11	<0.021	<0.060	<0.24	<0.23
Vinyl Chloride	µM	<0.028	0.17	<0.028	1.8	2.3	2.8	<0.41	5.5
Ethene	µM	1.5	1.7	2.1	2.3	4.6	3.2		2.4
Acetylene	µM						0.22		<0.046
1,1,1-Trichloroethane	µM	0.11	<0.013	0.067	7.5	15.3	11.4	7.6	12.2
1,1-Dichloroethane	µM	1.3	2.2	3.0	93.2	189.9	142.4	86.7	89.5
1,2-Dichloroethane	µM	<0.0081	<0.0096	<0.0081	<0.10	0.35	<0.032	<0.12	<0.17
1,1-Dichloroethene	µM	<0.011	0.065	<0.011	4.6	7.8	5.6	3.3	3.1
Chloroethane	µM	0.24	<0.019	<0.026	2.0	4.6	7.8	13.1	20.0
Ethane	µM	1.7	2.3	1.6	1.1	2.2	1.6		0.60

Contaminant	Well	MW-7					
Date		8/31/2000	10/19/2000	12/20/2000	3/27/2001	7/11/2001	1/8/2002
Tetrachloroethene	µM	<0.0024	<0.0034	<0.0024	<0.013	<0.0012	<0.00072
Trichloroethene	µM	<0.0065	0.15	<0.0065	<0.030	0.12	0.021
cis-1,2-Dichloroethene	µM	0.49	2.9	3.7	1.5	1.9	0.086
trans-1,2-Dichloroethene	µM	<0.014	<0.0058	<0.014	<0.045	0.027	0.022
Vinyl Chloride	µM	0.63	1.1	2.2	1.0	1.0	0.17
Ethene	µM	2.3	6.1	3.9	1.2	3.4	3.9
Acetylene	µM						<0.046
1,1,1-Trichloroethane	µM	<0.0041	<0.046	<0.0041	<0.030	<0.0012	<0.0010
1,1-Dichloroethane	µM	1.2	2.2	2.7	1.4	2.1	1.9
1,2-Dichloroethane	µM	<0.0081	<0.0038	<0.0081	<0.040	<0.0013	0.037
1,1-Dichloroethene	µM	<0.011	<0.0099	<0.011	<0.037	0.020	<0.0023
Chloroethane	µM	4.0	2.8	3.1	2.5	4.2	6.0
Ethane	µM	<0.20	4.3	2.7	1.1	2.4	2.3

Table 2. Photocircuits Anaerobic Pilot Chlorinated Solvents in Micromolar Concentrations

Contaminant	Well	SMP-1										
Date		8/31/2000	10/18/2000	12/20/2000	3/27/2001	7/11/2001	1/8/2002	4/2/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003
Tetrachloroethene	µM	<0.096	<0.0024	<0.13	<0.033	<0.012	<0.036	<0.091	<0.042	<0.0013	<0.015	<0.0046
Trichloroethene	µM	<0.026	0.60	6.5	11.6	0.19	33.6	202.4	0.31	<0.0055	<0.014	<0.0032
cis-1,2-Dichloroethene	µM	257	387	311	<0.0028	127	186	439	265	7.0	<0.017	<0.0033
trans-1,2-Dichloroethene	µM	<0.56	0.72	<0.41	1.4	0.36	0.71	3.9	<0.16	<0.0064	<0.019	<0.0045
Vinyl Chloride	µM	75	96	81	76	68	56	28	143	41	<0.033	<0.0090
Ethene	µM	33	86	41	32	68	23	29	65	133	42	29
Acetylene	µM						<0.42	0.28	<0.046	<0.085	<0.085	<0.21
1,1,1-Trichloroethane	µM	<0.16	<0.0041	<0.25	2.7	1.2	<0.052	<0.082	<0.097	<0.010	<0.010	<0.0032
1,1-Dichloroethane	µM	5.1	4.9	6.3	7.2	5.4	4.6	3.7	3.0	2.0	0.30	0.27
1,2-Dichloroethane	µM	<0.32	<0.0081	<0.17	<0.033	<0.033	<0.081	<0.12	<0.12	<0.0093	<0.0093	<0.0034
1,1-Dichloroethene	µM	<0.43	0.66	<0.27	1.9	0.57	1.5	3.1	0.52	<0.025	<0.025	<0.0046
Chloroethane	µM	<1.1	1.1	<0.82	<0.23	<0.23	<0.52	<0.47	<0.19	0.58	0.60	3.7
Ethane	µM	<0.20	<0.20	<0.83	<0.83	<0.83	<0.43	<0.43	0.12	0.15	0.060	<0.20

Contaminant	Well	DMP-1										
Date		8/31/2000	10/18/2000	12/20/2000	3/27/2001	7/11/2001	1/8/2002	4/2/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003
Tetrachloroethene	µM	<0.0024	<0.00048	<0.0024	<0.033	<0.0060	<0.0036	<0.0037	0.0066	<0.00066	<0.019	<0.0046
Trichloroethene	µM	<0.0065	<0.0018	<0.0065	<0.076	0.034	<0.0065	0.22	0.080	0.012	<0.018	0.042
cis-1,2-Dichloroethene	µM	0.52	0.018	0.179566563	0.76	0.40	<0.0093	0.46	0.64	1.3	17	11.4
trans-1,2-Dichloroethene	µM	<0.014	<0.0028	<0.014	<0.11	<0.0072	<0.014	0.040	0.029	0.043	<0.024	0.059
Vinyl Chloride	µM	3.0	0.056	0.640	2.0	0.68	<0.068	0.99	0.41	2.9	28	16.3
Ethene	µM	20	39	33	25	3.9	3.3	5.7	7.5	15.4	39	32.1
Acetylene	µM						<0.046	<0.046	<0.046	<0.046	<0.046	<0.085
1,1,1-Trichloroethane	µM	<0.0041	<0.00082	<0.0041	1.4	0.21	<0.0052	<0.0033	0.0067	<0.0019	<0.0013	<0.0033
1,1-Dichloroethane	µM	0.93	0.18	3.61	11	13	4.3	2.4	4.2	4.2	4.9	4.1
1,2-Dichloroethane	µM	<0.0081	<0.0016	<0.0081	<0.10	0.15	<0.0081	<0.0046	0.029	0.023	<0.012	<0.0034
1,1-Dichloroethene	µM	<0.011	<0.0022	<0.011	<0.093	<0.0071	<0.011	<0.0062	<0.0028	<0.0027	<0.033	0.47
Chloroethane	µM	51	0.67	3.60	2.5	3.0	1.5	1.1	0.57	0.24	<0.038	0.54
Ethane	µM	<0.20	<0.20	<1.7	<3.3	<1.7	0.027	<0.043	0.060	0.057	0.53	0.80

Table 2. Photocircuits Anaerobic Pilot Chlorinated Solvents in Micromolar Concentrations

Contaminant	Well	SMP-3										
Date		9/1/2000	10/19/2000	12/20/2000	3/27/2001	7/11/2001	1/8/2002	4/2/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003
Tetrachloroethene	µM	<0.48	<0.48	<0.048	0.083	0.074	<0.036	<0.14	<0.033	0.058	<0.038	<0.023
Trichloroethene	µM	<1.3	<1.3	<0.13	<0.0015	<0.013	<0.065	<0.26	<0.14	0.073	<0.035	<0.016
cis-1,2-Dichloroethene	µM	<2.0	<2.0	<0.20	0.024	0.17	<0.093	<0.37	<0.12	0.077	<0.043	<0.017
trans-1,2-Dichloroethene	µM	<2.8	<2.8	<0.28	<0.0023	<0.014	<0.14	<0.58	<0.16	0.018	<0.047	<0.023
Vinyl Chloride	µM	<5.6	<5.6	<0.56	0.62	1.6	<0.68	<2.72	1.9	1.7	<0.082	1.2
Ethene	µM	3.0	3.5	1.4	0.64	3.9	6.4	7.9	9.3	4.6	3.4	3.4
Acetylene	µM						0.081	0.21	0.085	0.24	<0.046	<0.046
1,1,1-Trichloroethane	µM	1334	1762	244	253	98	109	57	60	42	43	34
1,1-Dichloroethane	µM	386	483	48	<0.0051	178	89	207	109	77	72	59
1,2-Dichloroethane	µM	<1.6	<1.6	<0.16	0.061	0.21	<0.081	<0.32	<0.12	0.017	<0.023	<0.017
1,1-Dichloroethene	µM	<2.2	<2.2	<0.22	<0.0028	1.7	1.5	<0.45	1.2	3.5	3.2	2.5
Chloroethane	µM	<5.1	<5.1	<0.51	1.2	6.4	5.4	<2.1	5.5	7.9	8.0	18.9
Ethane	µM	1.3	1.5	1.4	0.77	0.97	0.57	1.20	1.1	0.37	0.37	0.25

Contaminant	Well	DMP-3										
Date		9/1/2000	10/19/2000	12/20/2000	3/27/2001	7/11/2001	1/8/2002	4/2/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003
Tetrachloroethene	µM	<0.097	0.36	<0.024	<0.0066	0.44	0.21	<0.072	<0.013	<0.00066	<0.19	0.13
Trichloroethene	µM	<0.26	<0.10	<0.065	<0.015	0.065	<0.065	<0.061	<0.055	<0.0029	<0.18	<0.032
cis-1,2-Dichloroethene	µM	<0.39	<0.18	<0.098	<0.031	0.15	<0.093	<0.11	<0.050	0.017	<0.22	0.44
trans-1,2-Dichloroethene	µM	<0.56	<0.14	<0.14	<0.023	<0.014	<0.14	<0.10	<0.064	0.013	<0.24	<0.045
Vinyl Chloride	µM	17	15	13	2.3	12.6	10.5	6.4	1.8	1.0	<0.41	2.3
Ethene	µM	15.4	16.1	11.1	10.4	17.5	12.9	7.9	22	19.6	35	12.1
Acetylene	µM						<0.046	<0.046	<0.046	<0.046	<0.046	<0.046
1,1,1-Trichloroethane	µM	148	107	175	5.9	180	146	87	10	1.8	45	11.3
1,1-Dichloroethane	µM	53	49	42	7.7	32.8	22.8	38.1	24	40.2	109	84.0
1,2-Dichloroethane	µM	<0.32	<0.096	<0.081	<0.020	0.26	<0.081	<0.112	0.37	0.30	<0.12	<0.034
1,1-Dichloroethene	µM	1.6	<0.25	<0.11	<0.018	1.7	<0.11	<0.15	0.18	0.058	<0.32	0.37
Chloroethane	µM	83	108	58	11	103	35	29	157	134	140	25
Ethane	µM	0.19	0.31	1.5	0.40	0.27	0.29	0.53	1.0	0.87	1.2	0.57

Table 2. Photocircuits Anaerobic Pilot Chlorinated Solvents in Micromolar Concentrations

Contaminant	Well	SMP-4									
Date		9/1/2000	10/19/2000	12/20/2000	3/27/2001	7/11/2001	1/8/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003
Tetrachloroethene	µM	0.080	<0.0034	<0.0048	<0.033	0.056	0.193	0.42	0.23	<0.19	0.62
Trichloroethene	µM	<0.0065	<0.041	<0.013	<0.076	<0.076	<0.076	0.049	<0.0027	<0.18	0.075
cis-1,2-Dichloroethene	µM	1.5	<0.070	<0.0020	<0.15	0.11	<0.026	0.31	0.28	<0.22	0.32
trans-1,2-Dichloroethene	µM	<0.014	<0.058	<0.0028	<0.11	<0.014	<0.058	<0.0064	<0.0032	<0.24	<0.011
Vinyl Chloride	µM	2.8	0.55	0.60	1.2	1.8	2.0	0.078	0.034	<0.41	0.16
Ethene	µM	7.9	6.8	7.9	6.1	5.7	12.1	3.1	1.0	1.0	2.9
Acetylene	µM						<0.046	<0.046	<0.046	<0.046	<0.046
1,1,1-Trichloroethane	µM	24	1.8	7.5	23	20	20	0.17	0.086	<0.13	0.064
1,1-Dichloroethane	µM	41	18	12	23	33	29	1.4	1.5	1.9	0.81
1,2-Dichloroethane	µM	0.26	<0.038	<0.016	<0.10	0.20	<0.032	<0.0046	0.030	<0.12	<0.0086
1,1-Dichloroethene	µM	1.1	<0.099	<0.022	<0.093	0.50	1.3	<0.0056	<0.0028	<0.32	<0.012
Chloroethane	µM	19	13	47	25	15	12	2.3	7.1	16	15.7
Ethane	µM	<0.20	<0.20	1.3	<0.33	<0.33	0.080	0.40	0.090	0.10	0.13

Contaminant	Well	DMP-4										
Date		9/1/2000	10/19/2000	12/20/2000	3/27/2001	7/11/2001	1/8/2002	4/2/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003
Tetrachloroethene	µM	<0.0024	<0.00048	<0.00048	<0.00066	<0.012	<0.0072	<0.0029	<0.0033	<0.00066	<0.19	<0.11
Trichloroethene	µM	<0.0065	<0.013	<0.013	<0.0015	<0.013	<0.013	<0.0024	<0.14	<0.0027	<0.18	<0.080
cis-1,2-Dichloroethene	µM	<0.0098	<0.020	<0.0020	<0.0031	<0.014	<0.019	<0.0043	<0.012	<0.0025	<0.22	<0.083
trans-1,2-Dichloroethene	µM	<0.014	<0.028	<0.0028	0.035	<0.014	<0.029	<0.0041	<0.016	0.020	<0.24	<0.14
Vinyl Chloride	µM	<0.028	<0.056	<0.0056	0.046	<0.011	<0.14	<0.0032	<0.018	0.086	<0.41	<0.18
Ethene	µM	8.9	9.3	7.9	5.7	<0.21	8.2	5.4	7.1	5.0	3.2	6.1
Acetylene	µM						<0.046	<0.046	<0.046	<0.046	<0.046	<0.046
1,1,1-Trichloroethane	µM	0.42	0.97	<0.00082	0.11	0.14	<0.010	<0.0033	<0.0097	<0.0019	<0.13	<0.082
1,1-Dichloroethane	µM	0.30	0.20	<0.0014	0.51	0.30	0.16	0.39	0.79	0.79	<0.22	0.93
1,2-Dichloroethane	µM	<0.0081	<0.016	<0.0016	0.088	<0.013	<0.016	<0.0046	0.066	0.10	<0.12	<0.086
1,1-Dichloroethene	µM	<0.011	<0.022	<0.0022	<0.0019	<0.014	<0.022	<0.062	<0.014	<0.0028	<0.33	<0.12
Chloroethane	µM	38	40	51	57	42	19	20	21	50	54	85
Ethane	µM	<0.20	<0.20	1.2	<0.20	<0.20	0.080	<0.043	0.16	0.04	0.077	0.15

Table 2. Photocircuits Anaerobic Pilot Chlorinated Solvents in Micromolar Concentrations

Contaminant	Well	MW-8							
Date		3/28/2001	7/12/2001	1/8/2002	4/3/2002	6/25/2002	10/3/2002	1/15/2003	4/28/2003
Tetrachloroethene	µM	<0.00066	<0.0012	<0.00072	<0.0014	<0.0013	<0.0066	<0.0037	<0.0046
Trichloroethene	µM	0.014	0.013	0.0074	<0.0012	<0.0055	<0.0027	<0.0035	0.015
cis-1,2-Dichloroethene	µM	<0.0031	0.012	<0.0019	<0.022	<0.0050	<0.0025	<0.0043	0.041
trans-1,2-Dichloroethene	µM	<0.0022	<0.0014	<0.0029	<0.0021	<0.0064	<0.0032	<0.047	<0.0045
Vinyl Chloride	µM	<0.0040	<0.0011	<0.014	<0.0016	<0.0074	<0.0037	<0.0082	<0.0090
Ethene	µM	<0.21	<0.21	<0.046	<0.046	0.043	<0.0046	0.16	<0.046
Acetylene	µM			<0.046	<0.046	<0.046	<0.046	<0.046	<0.046
1,1,1-Trichloroethane	µM	<0.0015	<0.0012	<0.0010	<0.0016	<0.0039	<0.0020	<0.0026	<0.0033
1,1-Dichloroethane	µM	<0.0014	<0.0012	<0.0025	<0.0022	<0.0062	<0.0030	<0.043	<0.0044
1,2-Dichloroethane	µM	<0.0020	<0.0013	<0.0016	<0.0023	<0.0046	<0.0023	<0.0023	<0.0034
1,1-Dichloroethene	µM	<0.0019	<0.0014	<0.0023	<0.0030	<0.0056	<0.0028	<0.0065	<0.0047
Chloroethane	µM	<0.0047	<0.0028	<0.010	<0.0095	<0.0074	0.057	<0.0076	<0.014
Ethane	µM	<0.20	<0.20	<0.043	<0.043	<0.043	<0.043	<0.043	<0.043

Contaminant	Well	MW-9			MW-10		MW-11		
Date		3/28/2001	7/12/2001	1/8/2002	1/14/2003	1/22/2002	1/14/2003	1/22/2002	1/14/2003
Tetrachloroethene	µM	<0.00066	<0.0012	<0.0014	<0.0037	0.014	<0.0037	<0.00072	<0.0037
Trichloroethene	µM	<0.0015	<0.0013	<0.0012	<0.0035	0.051	0.036	<0.0013	0.075
cis-1,2-Dichloroethene	µM	<0.0031	<0.014	<0.0022	<0.0043	2.4	2.5	<0.0019	0.19
trans-1,2-Dichloroethene	µM	<0.0022	<0.0014	<0.0021	<0.047	<0.0021	<0.0047	<0.0029	<0.0047
Vinyl Chloride	µM	<0.0040	<0.0011	<0.0016	<0.0082	0.043	<0.0082	<0.14	<0.0082
Ethene	µM	<0.21	<0.21						
Acetylene	µM								
1,1,1-Trichloroethane	µM	<0.0015	<0.0012	<0.0016	<0.0026	<0.0016	<0.0026	<0.0010	<0.0026
1,1-Dichloroethane	µM	<0.0014	<0.0012	<0.0023	<0.043	2.1	1.9	<0.0025	0.064
1,2-Dichloroethane	µM	<0.0020	<0.0013	<0.0023	<0.0023	0.051	0.059	<0.0016	<0.0023
1,1-Dichloroethene	µM	<0.0019	<0.0014	<0.0030	<0.0065	0.52	0.42	<0.0025	<0.0065
Chloroethane	µM	<0.0047	<0.0028	<0.0095	<0.0076	<0.0047	0.21	<0.010	<0.0076
Ethane	µM	<0.20	<0.20						

Table 2. Photocircuits Anaerobic Pilot Chlorinated Solvents in Micromolar Concentrations

Contaminant	Well	MW-12							
Date		3/28/2001	7/12/2001	1/9/2002	4/3/2002	6/26/2002	10/3/2002	1/15/2003	4/28/2003
Tetrachloroethene	µM	<0.00066	<0.0012	<0.0144	<0.014	<0.0066	<0.0033	<0.0037	<0.0046
Trichloroethene	µM	0.93	0.0071	0.13	0.24	0.52	0.63	0.37	0.79
cis-1,2-Dichloroethene	µM	13.2	0.19	4.4	5.2	4.8	5.0	3.2	3.8
trans-1,2-Dichloroethene	µM	0.075	<0.0014	0.058	<0.021	<0.032	<0.016	<0.047	0.040
Vinyl Chloride	µM	3.9	0.091	4.8	5.3	2.4	1.3	0.78	1.2
Ethene	µM	0.24	2.5	6.4	4.6	6.8	0.61	<0.046	0.57
Acetylene	µM			<0.046	<0.046	<0.046	<0.046	<0.046	<0.046
1,1,1-Trichloroethane	µM	<0.0015	<0.0012	<0.0016	<0.016	<0.019	<0.0097	<0.0026	<0.0033
1,1-Dichloroethane	µM	0.73	0.037	3.3	6.9	3.5	1.0	0.39	0.39
1,2-Dichloroethane	µM	0.029	<0.0013	0.014	<0.023	<0.023	<0.012	<0.0023	<0.0034
1,1-Dichloroethene	µM	0.087	<0.0014	0.024	<0.0031	<0.011	<0.014	<0.0065	0.027
Chloroethane	µM	<0.0047	<0.0047	0.095	<0.095	<0.037	<0.019	<0.0076	<0.0093
Ethane	µM	<0.20	0.43	0.73	0.37	0.60	0.027	<0.043	0.097

Contaminant	Well	MW-13							
Date		3/28/2001	7/12/2001	1/10/2002	4/3/2002	6/26/2002	10/3/2002	1/14/2003	4/29/2003
Tetrachloroethene	µM	0.50	0.72	1.3	1.4	0.10	0.49	0.42	0.078
Trichloroethene	µM	0.65	0.87	1.6	1.0	0.11	0.59	0.53	0.092
cis-1,2-Dichloroethene	µM	8.1	9.3	20.1	10.2	0.72	5.2	7.2	1.39
trans-1,2-Dichloroethene	µM	0.037	0.049	0.123	0.083	<0.0032	0.031	<0.0047	<0.0045
Vinyl Chloride	µM	0.62	0.94	1.8	1.2	0.074	0.42	0.26	0.042
Ethene	µM	<0.21	<0.21	0.057	<0.046	0.039	<0.046	<0.046	0.16
Acetylene	µM			<0.046	<0.046	<0.046	<0.046	<0.046	<0.046
1,1,1-Trichloroethane	µM	0.30	0.28	0.24	0.15	0.0090	0.032	0.029	<0.0033
1,1-Dichloroethane	µM	3.3	3.5	4.8	3.1	0.17	0.98	1.0	0.089
1,2-Dichloroethane	µM	0.026	0.023	0.028	<0.002	<0.0023	<0.0023	<0.0023	<0.0034
1,1-Dichloroethene	µM	0.63	0.62	0.78	0.45	0.029	0.14	0.11	<0.0034
Chloroethane	µM	<0.0047	<0.0025	<0.0095	<0.0095	<0.0037	<0.0037	<0.0076	<0.014
Ethane	µM	0.19	0.22	0.77	0.29	0.090	0.060	<0.043	<0.043

Table 3. Photocircuits Anaerobic Pilot Field Data

Well		MW-7		SMP-1					DMP-1					
Well Depth	ft	23.2		9.1					19.04					
Well Diameter	inch	4		1					1					
Date		1/8/2002	4/2/2002	1/8/2002	4/2/2002	6/25/2002	10/2/2002	4/28/2003	1/8/2002	4/2/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003
Water Level	ft	7.12		6.42					6.88					
pH		7.4	7.1	7.5	7.3	7.5	7.3	7.1	7.3		7.3	7.4	7.6	7.8
Temperature	°C	17.9	16.81	11.64	14.84	18.74	24.80	14.82	17.85		17.7	21.27	17.4	14.85
Spec. Conductivity	umhos/cm	4235	4100	2660	5250	3468	22	4230	5560		3597	4838	4000	4384
Redox PotenIAL	mV	-53	-40	31	-130	-84	-76	-114	-142		-154	-153	-85	-155
Dissolved Oxygen	mg/L	0.36	0.45	2.27	1.72	5.37	4.22	3.61	1.98		2.55	1.74	2.35	1.56
Bromide	mg/L				20	39				311	977			

Well		SMP-3						DMP-3					
Well Depth	ft	14.6						24.35					
Well Diameter	inch	1						1					
Date		1/8/2002	4/2/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003	1/8/2002	4/2/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003
Water Level	ft	6.8						6.91					
pH		9.9	8.7	8.8	8.8	7.0	7.4	6.9	7.1	6.3	6.6	7.0	7.5
Temperature	°C	12.06	11.47	19.18	22.80	13.35	15.41	17.95	16.14	16.94	19.65	17.76	15.57
Spec. Conductivity	umhos/cm	5550	5640	5890	4058	359	650	3200	3120	3929	5863	5460	4685
Redox PotenIAL	mV	-44	-52	-95	-120	-62	-161	-120	-110	-146	-154	-159	-334
Dissolved Oxygen	mg/L	3.87	2.94	1.16	2.16	5.41	4.61	1.57	1.43	0.21	0.59	0.44	2.15
Bromide	mg/L		5	55					16	179			

Well		SMP-4						DMP-4					
Well Depth	ft	15.82						20.55					
Well Diameter	inch	1						1					
Date		1/8/2002	4/2/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003	1/8/2002	4/2/2002	6/25/2002	10/2/2002	1/13/2003	4/28/2003
Water Level	ft	6.82						6.71					
pH		7.6	7.5	5.3	6.1	5.7	5.8	7.1	7.1	6.7	7.1	7.0	7.0
Temperature	°C	16.54	14.82	18.77	22.40	11.68	15.55	17.64	16.2	17.2	20.42	16.50	14.74
Spec. Conductivity	umhos/cm	5186	5130	4440	5530	3200	850	2716	3140	2853	4480	3579	4850
Redox PotenIAL	mV	-165	-170	-25	-35	-10	-50	-121	-80	-176	-178	-129	-163
Dissolved Oxygen	mg/L	0.73	0.65	7.5	1.32	7.19	4.4	0.41	0.72	0.58	0.61	2.3	0.78
Bromide	mg/L			336					38	19			

Well		MW-8						MW-9		MW-12				
Well Depth	ft	>102												
Well Diameter	inch	4												
Date		1/8/2002	4/2/2002	6/25/2002	10/3/2002	1/15/2003	4/28/2003	4/2/2002	1/14/2003	4/2/2002	6/25/2002	10/3/2002	1/15/2003	4/28/2003
Water Level	ft	7.96												
pH		8.7	8.4	6.4	8.2	7.2	7.0	7.1	6.8	6.5	6.6	6.6	7.1	6.8
Temperature	°C	15.43	14.87	12.89	13.46	14.15	14.49	14.26	15.97	14.2	14.6	16.27	14.89	15.48
Spec. Conductivity	umhos/cm	183	190	221	173	178	191	200	120	4120	4680	4130	1860	2598
Redox PotenIAL	mV	240	270	273	84	139	98	250	178	-30	-136	-122	69	-132
Dissolved Oxygen	mg/L	8.78	5.32	4.62	10.3	13.56	13.96	0.92	4.04	0.7	0.38	1.14	11.88	1.28
Bromide	mg/L		5.8	2.0						11	4.1			

Well		MW-13				
Well Depth	ft					
Well Diameter	inch					
Date		4/2/2002	6/25/2002	10/3/2002	1/14/2003	4/29/2003
Water Level	ft					
pH		6.2	6.6	6.6	7.0	7.3
Temperature	°C	16.9	16.00	17.94	17.94	16.76
Spec. Conductivity	umhos/cm	1520	960	1558	1361	885
Redox PotenIAL	mV	300	279	-10	101	-3
Dissolved Oxygen	mg/L	1.21	0.48	0.6	3.87	1.9
Bromide	mg/L	7.4	0.6			

Table 4. Photocircuits Anaerobic Pilot Percent Change between 9/1/00 and 1/8/02 or 4/28/03

Compound	MW-14	MW-7	SMP-1	DMP-1	SMP-3	DMP-3	SMP-4	DMP-4
First Sampled	**8/31/2000**	**8/31/2000**	**8/31/2000**	**8/31/2000**	**9/1/2000**	**9/1/2000**	**9/1/2000**	**9/1/2000**
Last Sampled	**4/28/2003**	**1/8/2002**	**1/13/2003**	**1/13/2003**	**1/13/2003**	**1/13/2003**	**1/13/2003**	**1/13/2003**
Acetone	-479	0	<73	99	86	<54	>-4506	0
Methylene Chloride	>1	38	99	93	99.7	93	97	>67
Toluene	<-567	85	>-53	61	<80	90	>99.1	>12
2-Chlorotoluene	0	>-888	<70	-35	0	0	>98	>88
Sum VOAs (w/o gases)	-3267	-33	99	76	94	63	82	-106
Methane	-23991	-665	-56	-94	-15900	-1254	-5078	-12289
Iron	-297	-490	-113	85	82	94	-174	-29
Sulfate	97	-813	89	98	74	-940	87	-67
TOC	89	96	-1296	5	37	-69	-1476	-600
PCE	0	0	0	0	0	>-34	-673	0
TCE	0	>-218	0	>-551	0	0	>-1053	0
cDCE	0	82	>99.999	-2083	0	>-12	78	0
tDCE	0	>-56	0	>-326	0	0	0	0
VC	>-19443	73	>99.99	-443	<79	86	94	0
Ethene	-58	-75	14	-61	-12	21	63	32
1TCA	-11219	0	0	0	97	92	99.7	>80
1DCA	-6932	-58	95	-337	85	-59	98	-211
1DCE	>-28090	0	0	>-348	>-14	77	>99	0
CA	-8169	-51	>-235	99	>-270	70	17	-126
Ethane	65	>-1033	0	>-300	81	-198	<33	<27

Table 5. Photocircuits Downgradient Wells Percent Change Between 3/28/01 and 4/28/03

Compound	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13
First Sampled	3/28/2001	3/28/2001	1/22/2002	1/22/2002	3/28/2001	3/28/2001
Last Sampled	4/28/2003	1/14/2003	1/14/2003	1/14/2003	4/28/2003	4/29/2003
Acetone	0	0	0	0	0	>-1414
Methylene Chloride	0	0	0	0	0	>-359
Toluene	0	0	0	0	>59	0
2-Chlorotoluene	0	0	0	0	63	78
Sum VOAs (w/o gases)	-228	0	1	>-5617	60	86
Methane	<65				-48	-8483
Iron	-165				-478	-11215
Sulfate	-24				41	26
TOC	-32				98	-309
PCE	0	0	>73	0	0	84
TCE	-6	0	30	>-5722	15	86
cDCE	>-1230	0	-6	>-9956	71	83
tDCE	0	0	0	0	47	>88
VC	0	0	>81	0	69	93
Ethene	0				-139	25
1TCA	0	0	0	0	0	>99
1DCA	0	0	8	>-2420	47	97
1DCE	0	0	19	0	69	>99
CA	0	0	>-2655	0	0	0
Ethane	0				<52	>78

Table 6. Summary of Changes in Concentrations of Chloroethenes, Chloroethanes, Electron Acceptor Electron Donor by Well

Well	Chlorinated Ethene Dechlorination	Chlorinated Ethane Dechlorination	Electron Acceptors	Electron Donor Availability
MW-14	Ethene high, VC increasing since March 2001 and now primary chlorinated ethene. Not sampled 4/02, 6/02, or 10/02 because of emulsion.	1TCA, 1DCA, 1DCE, and CA, increased between December 2000 and July 2001 as contaminated water displaced by emulsion moved back into well. Concentrations of 1DCA and 1DCE decreased since peak in July 2001, CA increasing. Ethane fairly stable.	Sulfate decreased by 97%, methane and iron up greatly.	TOC availability good. Emulsion found 4/02, 6/02, and 10/02 and TOC levels have been above 1,000 mg/L.
MW-7	Ethene generally predominant product, TCE up slightly. cDCE and VC down by 82 and 73% from start of pilot. tDCE up slightly. Not sampled since 1/02 because of emulsion.	1DCA and CA up, CA major product. Ethane produced.	Sulfate increased from 69 to 949 mg/L from 7/11/01 to 1/8/02, methane and iron up greatly.	TOC had fallen to 1.7 mg/L in 1/02. Emulsion found thereafter.
SMP-1	TCE and cDCE up beginning in January 2002, but fell between July and October 2002 as VC increased and then fell. Ethene increased as more substrate became available and now is only chlorinated ethene.	No 1TCA detected since 7/01. 1DCA down by 95% and 1DCE not detected. CA produced. Little ethane.	Sulfate down 89% from start of pilot; sulfate levels decreasing with higher substrate. Methane and iron up from start of pilot.	TOC rebounded to 1,280 mg/L in 4/03; enhanced dechlorination.
DMP-1	TCE, cDCE, tDCE, and VC concentrations up from start of pilot, but ethene predominant product.	1DCA up 337% and 1DCE detected in April 2003, CA down by 99%, little ethane detected.	Sulfate down 98%, methane increased, but iron also down.	TOC increased from 24 mg/L in 6/02 to 284 mg/L in 4/03. Adequate supply.
SMP-3	PCE, TCE, cDCE, and tDCE not detected. VC detected, but ethene predominant product.	1TCA down by 97%, 1DCA down 85%, 1DCE and CA increasing as 1TCA and 1DCA degraded. Some ethane.	Sulfate decreased from 3,640 mg/L in April 2002 to 75 mg/L in April 2003, methane increased greatly and iron variable.	TOC in April 2002 up to 1,600 mg/L, but then fell below optimal levels. Adequate TOC levels in April 2003 (184 mg/L).
DMP-3	Low levels of PCE, cDCE, and VC detected 4/03. Ethene major product.	1TCA down by 92%, 1DCA up by 59%, and 1DCE down by 77%. CA decreased by 70%. Ethane up.	Sulfate increased. Methane up, but iron decreasing.	TOC increased to 349 mg/L in 6/02 and has remained above 100 mg/L.
SMP-4	PCE and TCE up slightly, cDCE, and VC down, ethene decreased, but still predominant chlorinated ethene.	1TCA, 1DCA, 1DCE, and CA down by up to 99.7%, but little ethane.	Sulfate decreased to 119 mg/L in April 2003, methane and iron increased greatly.	High levels of TOC (3,680 mg/L found on 10/2/02) and have remained elevated above 1,000 mg/L .
DMP-4	No detectable PCE, TCE, cDCE, tDCE, or VC in April 2003. Ethene predominants.	1TCA down >80, 1DCA up 211%, 1DCE non-detect 4/03 CA predominant product and increasing. Little ethane.	Sulfate up 67%, iron and methane also increased.	TOC increased to 306 mg/L in April 2003, adequate levels.

Table 6 continued. Summary of Changes in Concentrations of Chloroethenes, Chloroethanes, Electron Acceptors, and Electron Donor by Well

Well	Chlorinated Ethene Dechlorination	Chlorinated Ethane Dechlorination	Electron Acceptors	Electron Donor Availability
MW-8	PCE, tDCE, VC and ethene not detected 4/03. Low levels of TCE and cDCE found.	No chlorinated ethanes or ethane detected in April 2003.	Little sulfate, iron, or methane.	Little TOC available.
MW-9	No chlorinated ethenes or ethene detected in January 2002.	No chlorinated ethanes or ethane detected.	Low sulfate, some methane and iron.	Little TOC available.
MW-12	TCE, cDCE, tDCE, and VC increasing, ethene lower than in January2002 to June 2002.	1DCA decreasing from peack concentration in January 2002, 1TCA and CA not detected, low 1DCE, ethane detected at low level.	Sulfate decreased by 41, iron and methane increased.	TOC level was 59 mg/L; probably adequate levels. .
MW-13	Decreases in PCE, TCE, cDCE, tDCE, and VC concentrations, trace ethene.	Decreases in 1TCA (>99%), 1DCA (97%), 1DCE (>99), and ethane (78%) concentrations. No CA.	Methane and iron increased, and sulfate down 26%.	TOC level of 39 mg/L in April 2003, below optimal.