FINAL

GROUNDWATER MONITORING REPORT

for the May 2002 Sampling Event
at Air Force Plant 59

Prepared for:

Air Force Center for Environmental Excellence
and
Aeronautical Systems Center

Prepared by:

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Alexandria, Virginia 22314

Contract No. F41624-00-D-8023
Task Order No. 0047

August 2002

DISCLAIMER

This *Final Groundwater Monitoring Report for the May 2002 Sampling Event* has been prepared for the United States Air Force (USAF) by Earth Tech for the purpose of satisfying the groundwater monitoring requirements defined in the April 27, 1999 letter to the New York State Department of Environmental Conservation (Earth Tech, 1999a) and *the Record of Decision* (Earth Tech, 1999b) for Air Force Plant 59. Acceptance of this report in performance of the contract under which it is prepared does not mean that the USAF adopts the conclusions, recommendations, or other views expressed herein, which are those of Earth Tech only and do not necessarily reflect the official position of the USAF.

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PREFACE

This *Final Groundwater Monitoring Report for the May 2002 Sampling Event* has been prepared by Earth Tech to describe field and laboratory operations conducted as part of the semiannual groundwater monitoring at Air Force Plant 59 (AFP 59), Johnson City, New York. Fieldwork followed guidelines set forth in the *Final Work Plan for Groundwater Monitoring at AFP 59* (Earth Tech, 1998), the Air Force Center for Environmental Excellence (AFCEE) *Model Work Plan* (United States Air Force [USAF], 1996), and the AFCEE *Model Field Sampling Plan, Version 1.1* (USAF, 1997). All work was completed under AFCEE Contract Number F41624-00-D-8023, Task Order 0047. The groundwater monitoring is being conducted to accomplish the following objective:

- To satisfy the groundwater monitoring requirements defined in the April 27, 1999 letter to the New York State Department of Environmental Conservation (Earth Tech, 1999a) and the *Record of Decision* (Earth Tech, 1999b) for Air Force Plant 59.

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13. ABSTRACT *(Maximum 200 words)*

This document is the *Final Groundwater Monitoring Report for the November 2002 Sampling Event at Air Force Plant 59 (AFP 59)*, Johnson City, New York. It summarizes the fieldwork completed during the semiannual groundwater monitoring. The monitoring was conducted to accomplish the following objective: to satisfy the groundwater monitoring requirements defined in the April 27, 1999 letter to the New York State Department of Environmental Conservation and the *Record of Decision* for Air Force Plant 59.

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LIST OF ACRONYMS AND ABBREVIATIONS

AFCEE	Air Force Center for Environmental Excellence
AFP 59	Air Force Plant 59
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
1,1-DCA	1,1-Dichloroethane
1,1-DCE	1,1-Dichloroethene
cis-1,2-DCE	cis-1,2-Dichloroethene
trans-1,2-DCE	trans-1,2-Dichloroethene
IRP	Installation Restoration Program
µg/L	Micrograms per Liter
MDL	Method Detection Limit
N/A	Not Applicable
NYSDEC	New York State Department of Environmental Conservation
QAPP	Quality Assurance Project Plan
RI/FS	Remedial Investigation/Feasibility Study
RL	Reporting Limit
1,1,1-TCA	1,1,1-Trichloroethane
TCE	Trichloroethene
USAF	United States Air Force
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

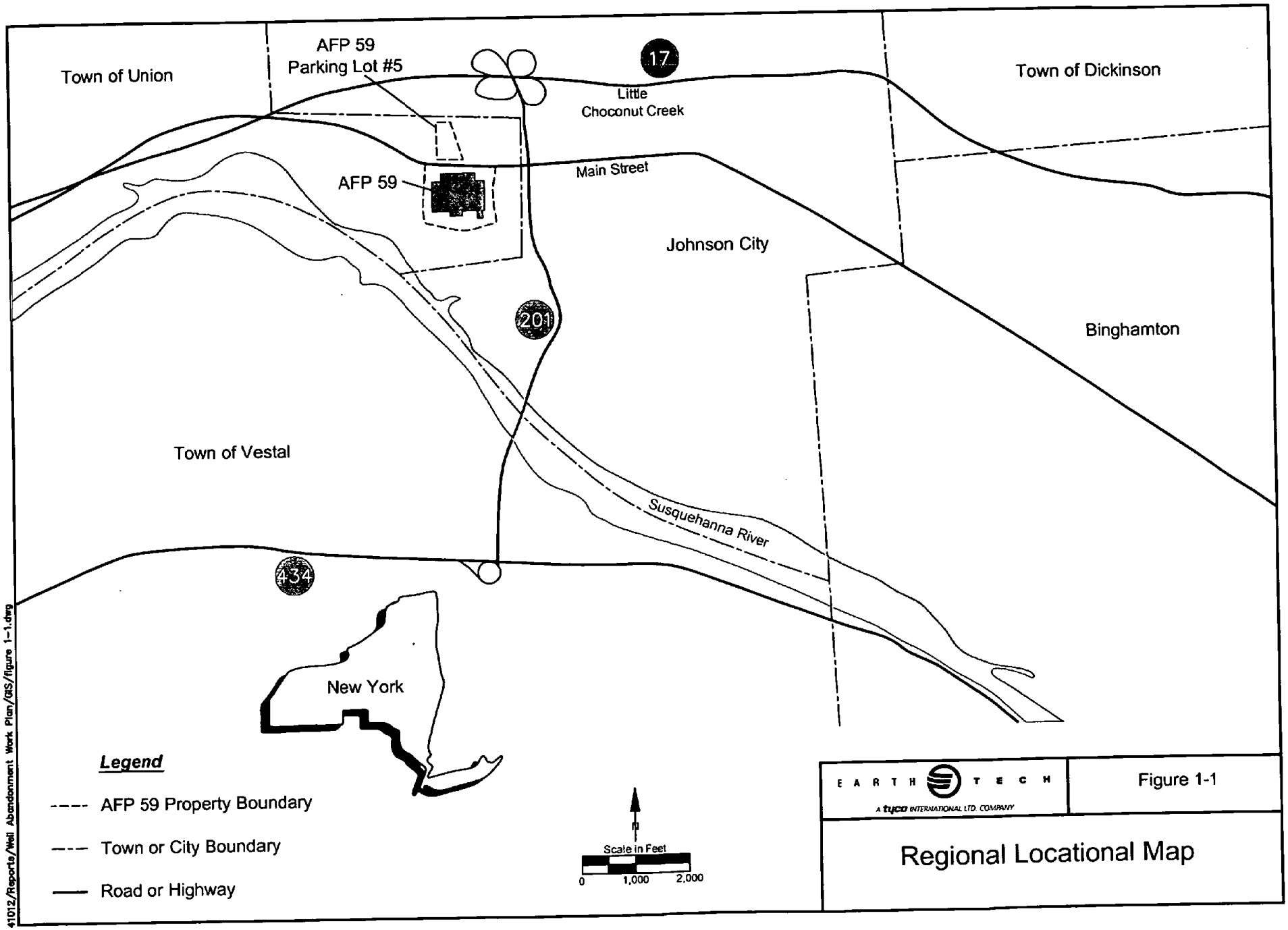
1.0 INTRODUCTION

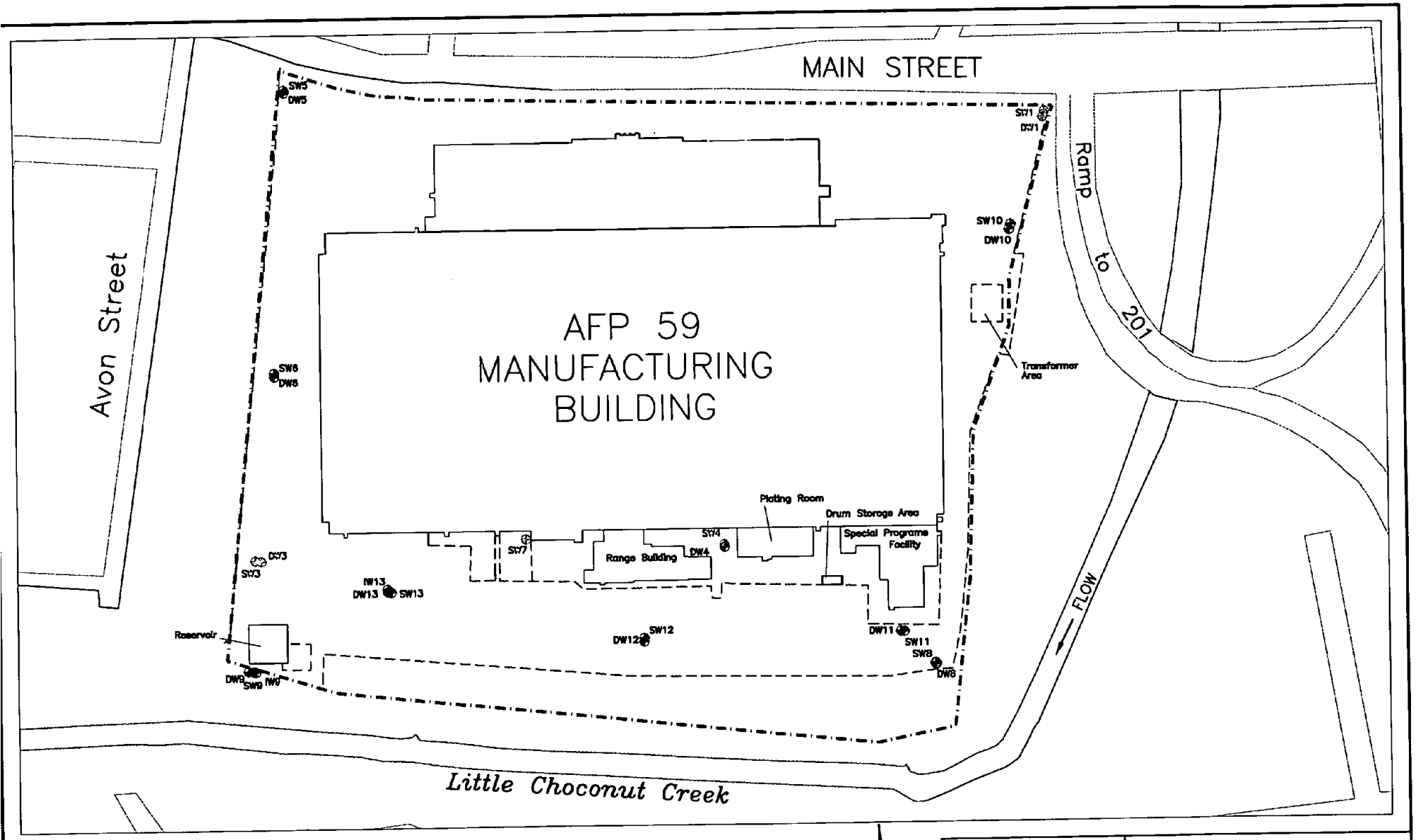
This *Final Groundwater Monitoring Report for the May 2002 Sampling Event* has been prepared by Earth Tech to describe field and laboratory operations during the May 2002 groundwater sampling event. The May 2002 sampling event was conducted as part of the semiannual groundwater monitoring at Air Force Plant 59 (AFP 59), Johnson City, New York. Earth Tech was contracted by the Air Force Center for Environmental Excellence (AFCEE) to perform two rounds of groundwater sampling (semiannual sampling) at AFP 59. Figure 1-1 shows the general location of AFP 59. Figure 1-2 shows the locations of buildings and monitoring wells at AFP 59. The groundwater monitoring is being conducted to accomplish the following objective:

- To satisfy the groundwater monitoring requirements defined in the April 27, 1999 letter to the New York State Department of Environmental Conservation (NYSDEC) (Earth Tech, 1999a) and the *Record of Decision* (Earth Tech, 1999b) for Air Force Plant 59.

All sampling activities followed protocols presented in the *Final Work Plan for Groundwater Monitoring at AFP 59* (Earth Tech, 1998), the *Final Sampling and Analysis Plan* (Earth Tech, 1994), the AFCEE *Model Work Plan* (USAF, 1996), and the AFCEE *Model Field Sampling Plan, Version 1.1* (USAF, 1997).

This report contains the following four sections: Section 1 provides the objectives of the semiannual sampling events, Section 2 provides a summary of the activities conducted during the November 2001 sampling event, Section 3 summarizes the analytical results, and Section 4 presents conclusions from the investigation.


Town of Union
AFP 59
Parking Lot #5
17
Little
Choconut Creek
Town of Dickinson
Main Street
AFP 59
Johnson City
201
Binghamton
Town of Vestal
Susquehanna River
434
New York
Legend
AFP 59 Property Boundary
Town or City Boundary
Road or Highway
N
Scale in Feet
0
1,000
2,000
EARTH TECH
A tyco INTERNATIONAL LTD. COMPANY
Figure 1-1
Regional Locational Map
41012/Reports/Well Abandonment Work Plan/GIS/figure 1-1.dwg



LEGEND

- AFP 59 Property Boundary
- Fence
- ⊕ DW3 – AFP 59 Monitoring Well
- ⊕ DW12 – AFP 59 Monitoring Well Abandoned In September 2000

0 100 200

SCALE IN FEET

EARTH TECH

FIGURE 1-2

SITE LOCATION MAP

41012/Rep/Nov 2000 GW Monitoring Rep/GIS/37136LOC.dwg

2.0 PROJECT ACTIVITIES

This section summarizes activities conducted during the May 2002 sampling event. Section 2.1 summarizes the rationale for selecting the analyses performed on samples collected during the investigation. Section 2.2 outlines the groundwater sampling procedures.

2.1 Sample Analysis Summary

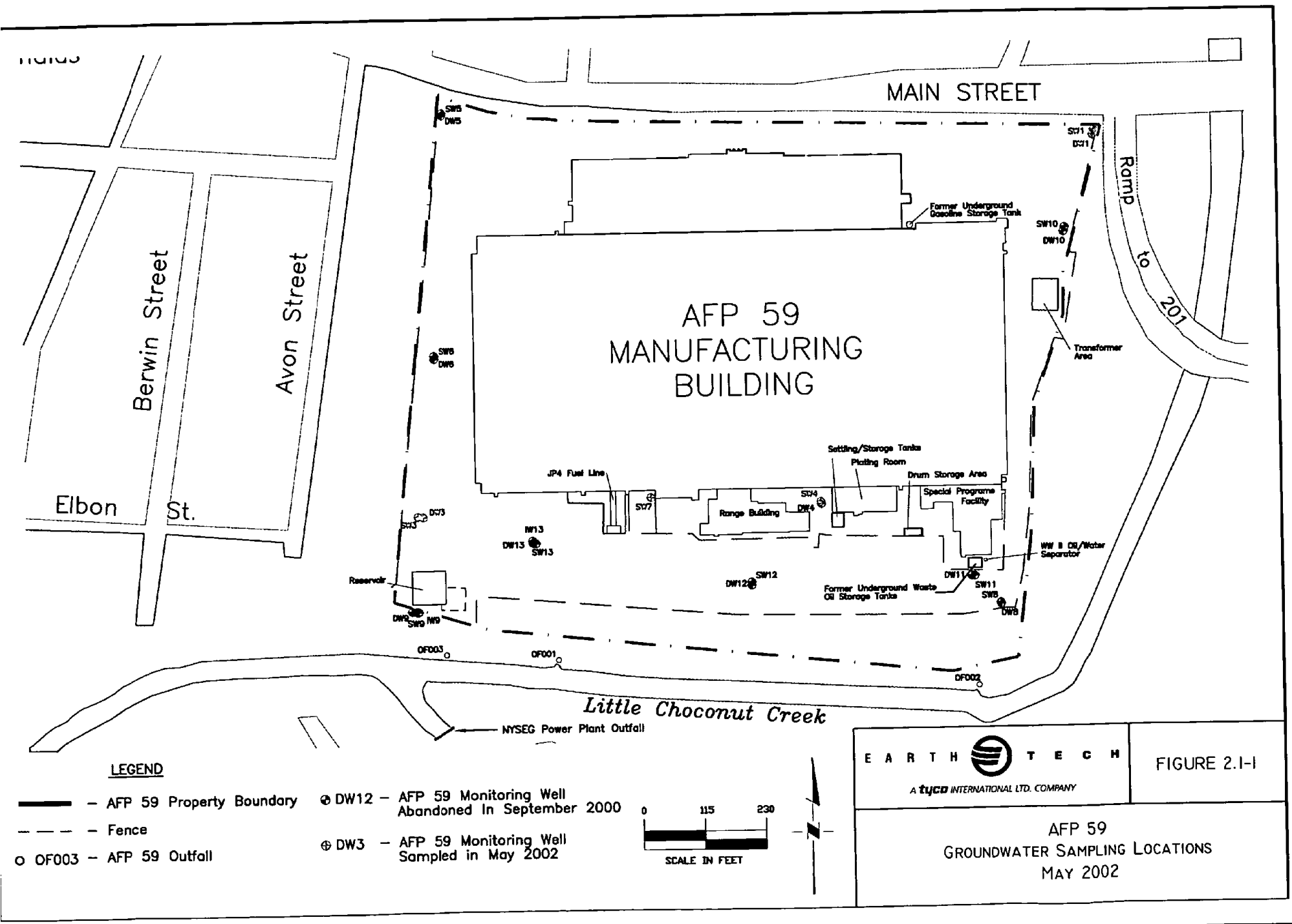
On the basis of conclusions presented in the *Final Remedial Investigation Report* (Earth Tech, 1996) and recommendations made by the NYSDEC, it was determined that VOCs represent the only chemicals of potential concern in groundwater at AFP 59. As a result, the *Record of Decision* (Earth Tech, 1999b) for AFP 59 describes the remedial alternative (i.e., the upgrade of the Camden Street Well Field groundwater treatment system) chosen as most appropriate for treating the VOCs in groundwater at AFP 59. As part of the requirements defined in the *Record of Decision* (Earth Tech, 1999b), a long-term groundwater monitoring program was established for AFP 59. The monitoring program, which is defined in the April 27, 1999 letter to the NYSDEC (Earth Tech, 1999a), is being conducted on a semiannual basis and includes sampling the following monitoring wells: SW1, DW1, SW3, DW3, SW4, and SW7. Monitoring wells SW1 and DW1 represent upgradient (background) wells; monitoring wells SW3 and DW3 represent downgradient wells; monitoring wells SW4 and SW7 have historically had the highest concentrations of VOCs.

The groundwater samples collected during the May 2002 sampling event, which represents the sixth sampling event of the long-term groundwater monitoring program, were analyzed for VOCs by USEPA Method SW8260. Table 2.1-1 lists the total number of groundwater samples collected for each sample type (e.g., environmental sample, duplicate sample) during the May 2002 sampling event, and Figure 2.1-1 shows the locations of the on-site monitoring wells sampled during May 2002 sampling event.

Table 2.1-1. Sample Analysis Summary

Method	Matrix	# Samples	# Equipment Blanks	# Ambient Blanks	# Trip Blanks	# Field Duplicates	Total # Samples
SW8260B Volatile Organics	Groundwater	6	0(1)	1	1	1	9

(1) No equipment blanks were collected because disposable bailers were used during groundwater sampling.


MAIN STREET
Berwin Street
Avon Street
Elbon St.
Ramp to 201
AFP 59
MANUFACTURING
BUILDING
Former Underground Gasoline Storage Tank
Transformer Area
Settling/Storage Tanks
Plating Room
Drum Storage Area
Special Programs Facility
JP4 Fuel Line
Range Building
WW II Oil/Water Separator
Former Underground Waste Oil Storage Tanks
Reservoir
Little Choconut Creek
NYSEG Power Plant Outfall
OF001
OF002
OF003
SW5
DW5
SW6
DW6
SW10
DW10
SW11
DW11
SW12
DW12
SW13
DW13
SW9
DW9
SW8
DW8
SW4
DW4
SW7
SW3
DW3
SW1
DW1
LEGEND
AFP 59 Property Boundary
Fence
OF003 – AFP 59 Outfall
DW12 – AFP 59 Monitoring Well Abandoned In September 2000
DW3 – AFP 59 Monitoring Well Sampled in May 2002
0
115
230
SCALE IN FEET
EARTH TECH
A tyco INTERNATIONAL LTD. COMPANY
FIGURE 2.1-1
AFP 59
GROUNDWATER SAMPLING LOCATIONS
MAY 2002

2.2 Field Activities

The primary field activity was sampling of the monitoring wells shown in Figure 2.1-1. A summary of the field activities is provided in Table 2.2-1.

Table 2.2-1. Field Activities Summary

Activity
Measure the groundwater level in all on-site monitoring wells.
Collect groundwater samples from six on-site monitoring wells.

Groundwater sampling methods followed protocols presented in the *Final Work Plan for Groundwater Monitoring at AFP 59* (Earth Tech, 1998) and in the *Final Sampling and Analysis Plan* (Earth Tech, 1994) that was prepared for the remedial investigation conducted at AFP 59. The primary objective of the groundwater sampling event was to satisfy groundwater monitoring requirements defined in the April 27, 1999 letter to the NYSDEC (Earth Tech, 1999a) and the *Record of Decision* (Earth Tech, 1999b) for Air Force Plant 59.

Groundwater sampling procedures included:

1. Measuring groundwater levels in all on-site monitoring wells;

2. Purging select on-site monitoring wells prior to sampling;

3. Measuring field-derived parameters (including temperature, pH, specific conductance, and turbidity) during monitoring well purging; and

4. Collecting groundwater samples from the purged monitoring wells.

Refer to the *Final Work Plan for Groundwater Monitoring at AFP 59* (Earth Tech, 1998) and the *Final Sampling and Analysis Plan* (Earth Tech, 1994) for a detailed description of all sampling activities and protocols.

Water level measurements were taken in all monitoring wells to determine the elevation of the water table (in the shallow zone of the aquifer) or piezometric surface (in the deep zone of the aquifer) once within a single 24-hour period. Any conditions that affected water levels were recorded in the field log. Water level measurements were taken with an electric sounder and were measured to the nearest 0.01-foot. All measuring equipment was decontaminated according to the specifications in the *Final Sampling and Analysis Plan* (Earth Tech, 1994).

Static water levels were measured each time a monitoring well was sampled and before any equipment entered the monitoring well. If the casing cap was airtight, the air pressure within the monitoring well was allowed to equilibrate after the cap was removed and prior to measurement of the water level.

3.0 INVESTIGATION RESULTS

The results of the May 2002 sampling event at AFP 59 are summarized in this section. Section 3.1 summarizes the analytical results, and Section 3.2 provides conclusions concerning the analytical and hydrogeological data. Field data are provided in Appendix B, chain-of-custody forms are provided in Appendix C, and analytical data are provided in Appendix D.

3.1 Sampling and Analysis Results

This section summarizes the data collection activities completed during the May 2002 sampling event, presents the laboratory analytical results, and provides a trend analysis of identified VOCs.

3.1.1 Review of Field and Laboratory Data

All field procedures, sample handling documentation, and laboratory procedures followed protocols presented in the *Final Work Plan for Groundwater Monitoring at AFP 59* (Earth Tech, 1998) and the *Final Sampling and Analysis Plan* (Earth Tech, 1994). All analytical data generated as a result of the May 2002 sampling event were reported as AFCEE definitive data. Analytical protocols utilized in sample preparation, analysis, and reporting were in accordance with the specific analytical method and the guidelines given in the AFCEE *Quality Assurance Project Plan (QAPP), Version 3.1* (USAF, 1998). Laboratory analyses were performed by O'Brien & Gere Laboratories, located in Syracuse, New York. Analytical methods and O'Brien & Gere Laboratories' associated method detection limits (MDLs) and reporting limits (RLs) are listed in Table 3.1-1. No data validation was performed by Earth Tech.

Data flags were applied to the analytical data by the laboratory. During the data review process, Earth Tech reviewed the analytical data and associated data flags and assigned data qualifiers as per the guidelines given in the AFCEE *QAPP, Version 3.1* (USAF, 1998); the data quality review summary is provided in Appendix D. The following data qualifiers were assigned to the data as a result of the data review process and are defined below.

- **R** Unreliable result. Analyze may or may not be present in the sample. Supporting data necessary to confirm result.
- **B** Not detected substantially above the level reported in the laboratory or field blanks.
- **J** This is an estimated value.
- **UJ** Not detected, quantitation limit may be inaccurate or imprecise.
- **U** The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.

Table 3.1-1. Analytical Parameters, Method Detection Limits, and Reporting Limits for O'Brien & Gere Laboratories

Parameter/Method	Analyte	Water			
		MDL	Unit	RL	Unit
VOCs	1,1,1,2-Tetrachloroethane	0.013	µg/L	0.5	µg/L
SW8260B	1,1,1-TCA	0.012	µg/L	0.8	µg/L
	1,1,2,2-Tetrachloroethane	0.028	µg/L	0.5	µg/L
	1,1,2-TCA	0.02	µg/L	1.0	µg/L
	1,1-DCA	0.005	µg/L	0.4	µg/L
	1,1-DCE	0.025	µg/L	1.2	µg/L
	1,1-Dichloropropene	0.01	µg/L	1.0	µg/L
	1,2,3-Trichlorobenzene	0.05	µg/L	0.3	µg/L
	1,2,3-Trichloropropane	0.023	µg/L	3.2	µg/L
	1,2,4-Trichlorobenzene	0.041	µg/L	0.4	µg/L
	1,2,4-Trimethylbenzene	0.015	µg/L	1.3	µg/L
	1,2-DCA	0.009	µg/L	0.6	µg/L
	1,2-DCB	0.01	µg/L	0.3	µg/L
	trans-1,2-Dichloroethene	0.032	µg/L	0.6	µg/L
	1,2-Dibromo-3-chloropropane	0.15	µg/L	2.6	µg/L
	1,2-Dibromoethane	0.011	µg/L	0.6	µg/L
	1,2-Dichloropropane	0.014	µg/L	0.4	µg/L
	1,3,5-Trimethylbenzene	0.075	µg/L	0.5	µg/L
	1,3-DCB	0.012	µg/L	1.2	µg/L
	1,3-Dichloropropane	0.01	µg/L	0.4	µg/L
	1,4-DCB	0.031	µg/L	0.3	µg/L
	2,2-Dichloropropane	0.01	µg/L	3.5	µg/L
	2-Chlorotoluene	0.012	µg/L	0.4	µg/L
	4-Chlorotoluene	0.01	µg/L	0.6	µg/L
	Benzene	0.008	µg/L	0.4	µg/L
	Bromobenzene	0.019	µg/L	0.3	µg/L
	Bromochloromethane	0.01	µg/L	0.4	µg/L
	Bromodichloromethane	0.008	µg/L	0.8	µg/L
	Bromoform	0.013	µg/L	1.2	µg/L
	Bromomethane	0.023	µg/L	1.1	µg/L
	n-Butylbenzene	0.016	µg/L	1.1	µg/L
	sec-Butylbenzene	0.007	µg/L	1.3	µg/L
	tert-Butylbenzene	0.013	µg/L	1.4	µg/L
	Carbon tetrachloride	0.008	µg/L	2.1	µg/L
	Chlorobenzene	0.01	µg/L	0.4	µg/L
	Chloroethane	0.02	µg/L	1.0	µg/L
	Chloroform	0.011	µg/L	0.3	µg/L
	Chloromethane	0.034	µg/L	1.3	µg/L
	cis-1,2-DCE	0.026	µg/L	1.2	µg/L

Table 3.1-1. Analytical Parameters, Method Detection Limits, and Reporting Limits for O'Brien & Gere Laboratories (Continued)

Parameter/Method	Analyte	Water			
		MDL	Unit	RL	Unit
VOCs	cis-1,3-Dichloropropene	0.02	µg/L	1.0	µg/L
SW8260B	Dibromochloromethane	0.007	µg/L	0.5	µg/L
	Dibromomethane	0.016	µg/L	2.4	µg/L
	Dichlorodifluoromethane	0.01	µg/L	1.0	µg/L
	trans-1,3-Dichloropropene	0.01	µg/L	1.0	µg/L
	Ethylbenzene	0.006	µg/L	0.6	µg/L
	Hexachlorobutadiene	0.092	µg/L	1.1	µg/L
	Isopropylbenzene	0.01	µg/L	0.5	µg/L
	p-Isopropyltoluene	0.013	µg/L	1.2	µg/L
	Methylene Chloride	0.04	µg/L	2.0	µg/L
	Naphthalene	0.02	µg/L	1.0	µg/L
	n-Propylbenzene	0.006	µg/L	0.4	µg/L
	Styrene	0.008	µg/L	0.5	µg/L
	Tetrachloroethene	0.012	µg/L	1.4	µg/L
	Trichloroethene	0.01	µg/L	1.0	µg/L
	Trichlorofluoromethane	0.014	µg/L	0.8	µg/L
	Toluene	0.012	µg/L	1.1	µg/L
	Vinyl Chloride	0.021	µg/L	1.1	µg/L
	(m&p)-Xylene	0.021	µg/L	0.6	µg/L
	o-Xylene	0.007	µg/L	1.1	µg/L
	Xylene (total)	0.021	µg/L	1.1	µg/L

3.1.2 Data Summary

The number and locations of groundwater samples are outlined below. Figure 3.1-1 shows the locations of the monitoring wells sampled during the May 2002 sampling event.

The following monitoring wells were sampled:

- Shallow monitoring wells SW1, SW3, SW4, and SW7; and
- Deep monitoring wells DW1 and DW3.

3.1.3 VOCs Detected in Groundwater Samples

This section discusses the VOCs that were detected in the groundwater samples, including those samples collected from both site and background monitoring wells. The analytical results for groundwater samples collected from monitoring wells installed in the shallow and deep zones of the aquifer are discussed separately below. The analytical results for all groundwater samples collected during the May 2002 sampling event are summarized in Table 3.1-2. Appendix D provides a complete listing of all groundwater analytical results.

Shallow Zone of the Aquifer. VOCs detected in groundwater samples are shown in Figure 3.1-2. Table 3.1-3 summarizes all VOCs detected in groundwater samples collected from monitoring wells screened in the shallow zone, the number of samples above the laboratory MDL, the minimum and maximum concentrations detected, and the location of the maximum concentration.

VOCs were detected in the groundwater samples collected from monitoring wells SW3, SW4, and SW7 (see Figure 3.1-2). Chlorinated hydrocarbons were the only detected VOCs in the samples collected from the shallow zone of the aquifer.

No VOCs were detected in the groundwater sample collected from monitoring well SW1. The following maximum concentrations were detected in the groundwater sample collected from monitoring well SW4: 1,1,1-trichloroethane at 2.54 µg/L; 1,1-dichloroethane (1,1-DCA) at 0.79 J µg/L; 1,1-dichloroethene (1,1-DCE) at 0.34 J µg/L; tetrachloroethene (PCE) at 0.53 J µg/L; trichloroethene (TCE) at 21.63 µg/L and trichlorofluoromethane at 0.58 J µg/L. The maximum concentration of cis-1,2-Dichloroethene (cis-1,2-DCE) in the shallow zone of the aquifer was detected in the duplicate sample from monitoring well SW7 at 2.79 J µg/L.

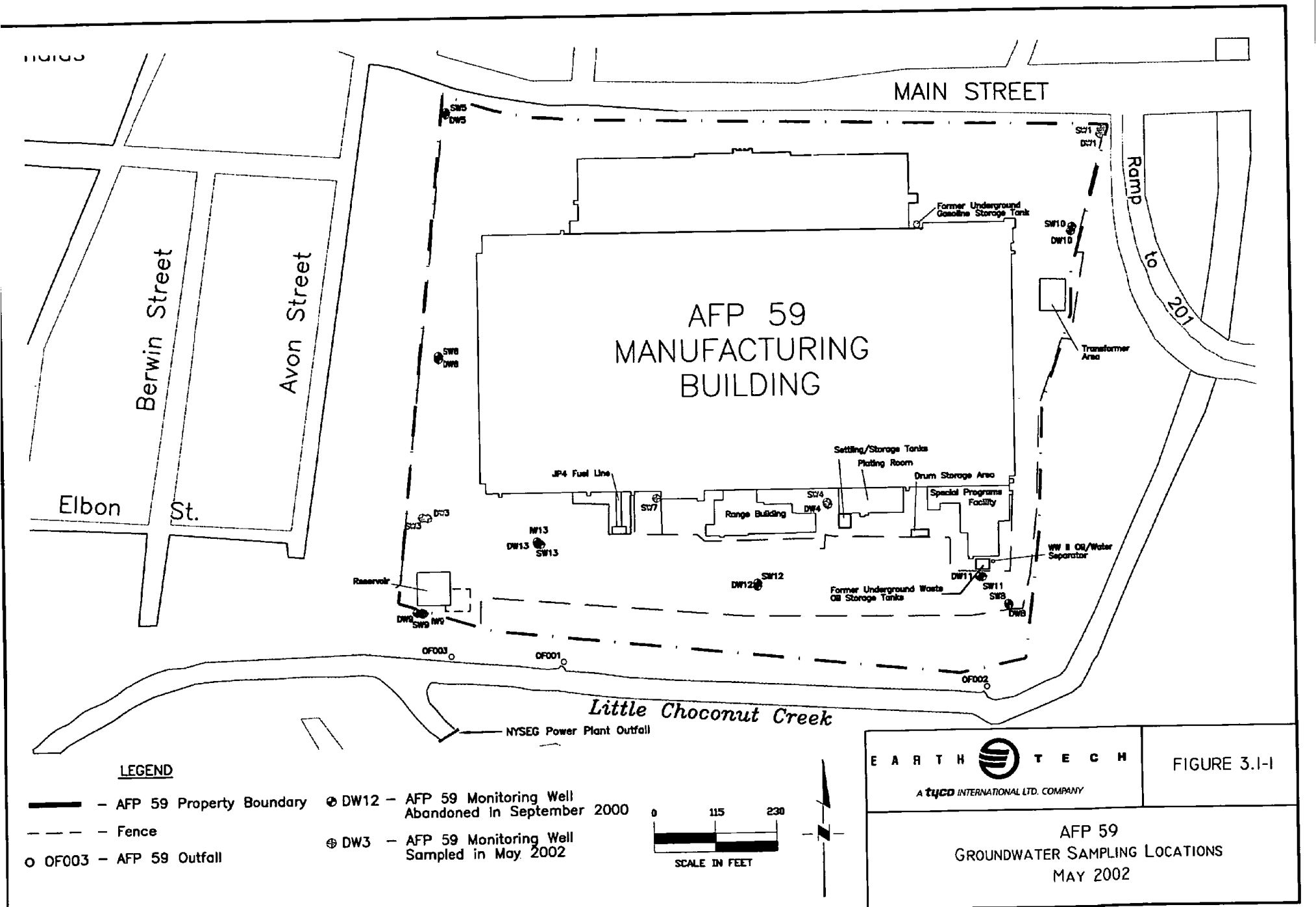

MAIN STREET
Berwin Street
Avon Street
Elbon St.
Ramp to 201
AFP 59
MANUFACTURING
BUILDING
Former Underground Gasoline Storage Tank
Transformer Area
Settling/Storage Tanks
Plating Room
Drum Storage Area
Special Programs Facility
JP4 Fuel Line
Range Building
WW II Oil/Water Separator
Former Underground Waste Oil Storage Tanks
Reservoir
SW5
DW5
SW6
DW6
SW7
SW8
DW8
SW9
DW9
SW10
DW10
SW11
DW11
SW12
DW12
SW13
DW13
SW21
DW21
OF001
OF002
OF003
Little Choconut Creek
NYSEG Power Plant Outfall
LEGEND
– AFP 59 Property Boundary
– – – – Fence
o OF003 – AFP 59 Outfall
DW12 – AFP 59 Monitoring Well Abandoned in September 2000
DW3 – AFP 59 Monitoring Well Sampled in May 2002
0
115
230
SCALE IN FEET
EARTH TECH
A tyco INTERNATIONAL LTD. COMPANY
FIGURE 3.1-1
AFP 59
GROUNDWATER SAMPLING LOCATIONS
MAY 2002

Table 3.1-2. Groundwater Data Summary for VOCs

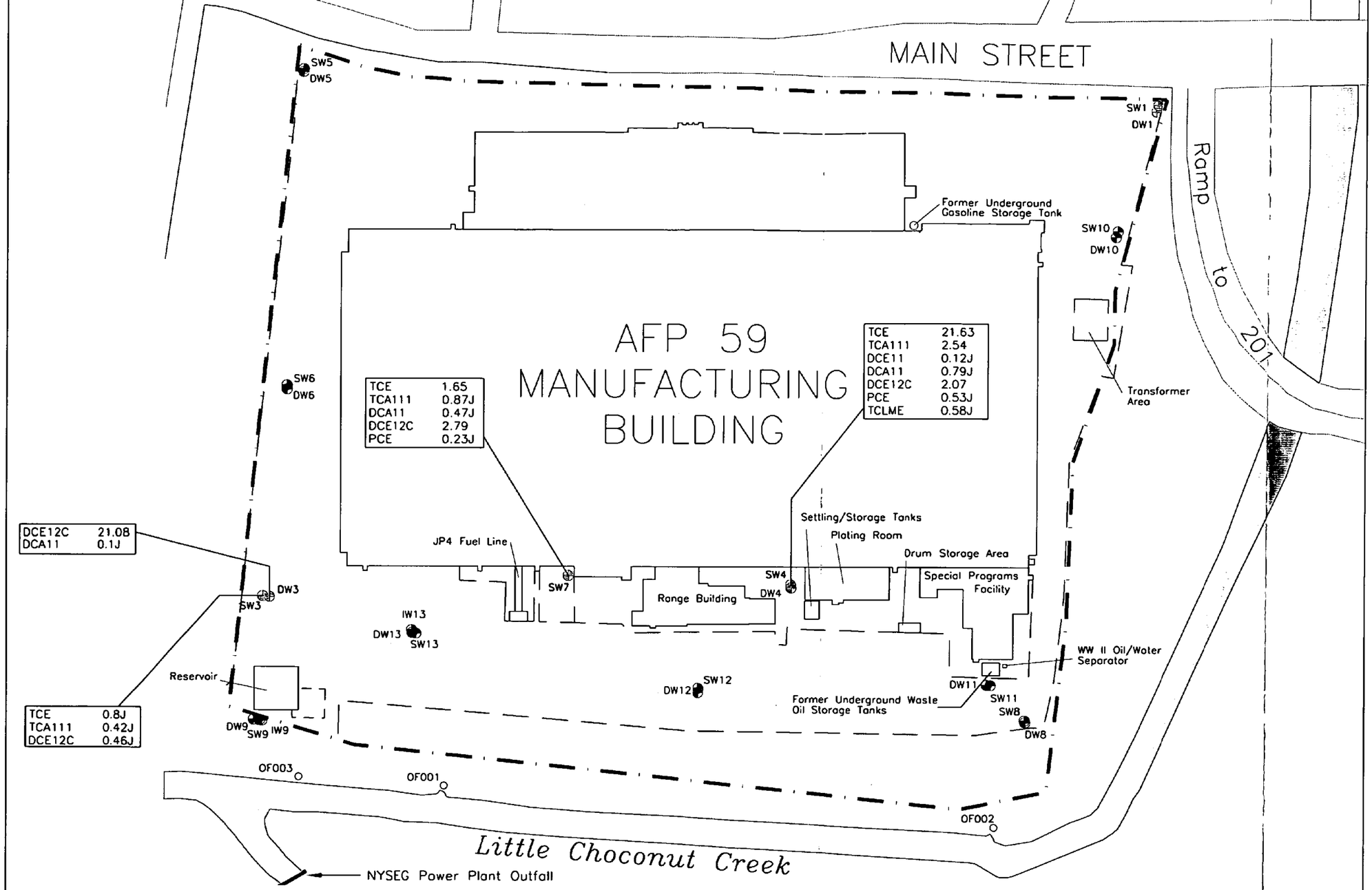
Parameters	Action Levels*	59SW1WG1	59DW1WG1	59SW3WG1	59DW3WG1
1,1,1-Trichloroethane	5	--	--	0.42 J	--
Trichloroethene	5	--	--	0.8 J	--
1,1-Dichloroethene	5	--	--	--	--
Cis-1,2-Dichloroethene	5	--	--	0.46 J	**21.08**
1,1-Dichloroethane	5	--	--	--	0.1 J
Trichlorofluoromethane	5	--	--	--	--
Tetrachloroethene	5	--	--	--	--

Parameters	Action Levels*	59SW4WG1	59SW7WG1	59SW7WG9 (Duplicate Sample)
1,1,1-Trichloroethane	5	2.54	0.87 J	0.74 J
Trichloroethene	5	**21.63**	1.77 J	1.65
1,1-Dichloroethene	5	0.34 J	--	--
Cis-1,2-Dichloroethene	5	2.07	2.69 J	2.79
1,1-Dichloroethane	5	0.79 J	0.46 J	0.47 J
Trichlorofluoromethane	5	0.58 J	--	--
Tetrachloroethene	5	0.53 J	0.23 J	0.22 J

Key: * = New York State Drinking Water Standard.
-- = Analyte was analyzed for but not detected.

Qualifiers: J = The analyte was positively identified, but the quantitation is an estimation.

Note: Concentrations in bold font and shaded cells exceed the New York State Drinking Water Standard for the associated compound.



Fence

Monitoring Well Abandoned September 2000

Monitoring Well Sampled May 2002

AFP 59 Outfall

DCA11 = 1,1-dichloroethane
DCE11 = 1,1-dichloroethene
DCE12C = cis-1,2-dichloroethene
FC11 = Trichlorofluoromethane
PCE = Tetrachloroethane
TCA111 = 1,1,1-trichloroethane
TCE = Trichloroethene
TCLME = Chloroform
J = Analyte was positively identified, but the quantitation is estimated.

Notes:

1. Concentrarions are reported in ug/L.
2. If no data is present at a monitoring well location, no VOCs were detected in the groundwater sample
3. At locations where duplicates were collected, the maximum concentration is presented

50 25 0 50 100
SCALE IN FEET

EARTH TECH
A tyco INTERNATIONAL LTD. COMPANY

FIGURE 3.1-2

AFP 59
VOC'S DETECTED IN GROUNDWATER
MAY 2002

Table 3.1-3 VOCs Detected in Shallow Zone Groundwater Samples

Analyte	Number of Samples Above MDL	Range (µg/L)		Location of Maximum Detection
		Minimum Detected	Maximum Detected	
1,1,1-Trichloroethane[1]	4 of 5	0.42 J	2.54	SW4
Trichloroethene[1]	4 of 5	0.8J	21.63	SW4
1,1-Dichloroethene	1of 5	0.34 J	0.34	SW4
Cis-1,2-Dichloroethene[1]	4 of 5	0.46 J	2.79	SW7
1,1-Dichloroethane[2]	3 of 5	0.46 J	0.79 J	SW4
Trichlorofluoromethane	1 of 5	0.58 J	0.58 J	SW4
Tetrachloroethene[2]	3 of 5	0.22 J	0.53 J	SW4

Key: µg/L = Micrograms per liter
MDL = Method detection limit

Qualifiers: J = The analyte was positively identified, but the quantitation is an estimation.

(1) Trichloroethene, 1,1,1-trichloroethane, and cis-1,2-dichloroethene were only detected at monitoring wells SW3, SW4, and SW7 (normal and duplicate samples).

(2) 1,1-Dichloroethane and tetrachloroethane were only detected at monitoring wells SW4 and SW7; the maximum concentrations were detected in the normal sample from SW4.

Note: Only analytes detected in one or more of the groundwater samples are included in this summary table.

Deep Zone of the Aquifer. Fewer VOCs were detected in groundwater samples collected from the deep monitoring wells than in groundwater samples collected from the shallow monitoring wells (see Figure 3.1-2, AFP 59 Groundwater Sampling Locations, May 2002). Table 3.1-4 summarizes all VOCs detected in groundwater samples collected from monitoring wells screened in the deep zone of the aquifer, the number of samples above the laboratory MDL, the minimum and maximum concentrations detected, and the location of the maximum concentration.

Table 3.1-4. VOCs Detected in Deep Zone Groundwater Samples

Analyte	Number of Samples Above MDL	Range (µg/L)		Location of Maximum Detection
		Minimum Detected	Maximum Detected	
1,1- Dichloroethane	1 of 2	0.1 J	0.1 J	DW3
cis-1,2-Dichloroethene	1 of 2	21.08	21.08	DW3

Key: µg/L = Micrograms per liter
MDL = Method detection limit

Note: Only analytes detected in one or more samples are included in this summary table.

Two VOCs, 1,1- Dichloroethane (0.1 J µg/L) and cis-1,2-DCE (21.08 µg/L), were detected in the groundwater sample collected from monitoring well DW3. These were the only VOCs detected in the samples collected from the deep zone of the aquifer. No VOCs were detected in groundwater sample collected from well DW1 (see Figure 3.1-2).

3.1.4 Trend Analysis

Table 3.1-5 presents concentrations of the most commonly detected chlorinated hydrocarbons in groundwater at AFP 59 over time. Only monitoring wells that were sampled as part of the groundwater monitoring program are included in the table.

In the groundwater samples collected from the shallow monitoring wells during the May 2002 sampling event, concentrations of the chlorinated hydrocarbons in monitoring wells SW1 and SW3 remained relatively constant compared to the previous sampling event. The concentration of VOCs, particularly TCE (5.7 µg/L to 21.63 µg/L) and 1,1,1-Tricloroethane (0.88 µg/L to 2.54 µg/L), detected at monitoring well SW4 increased compared to the November 2001 sampling event. The concentration of cis-1,2-DCE detected in the groundwater sample collected from SW7 decreased significantly (25.89 µg/L to 2.79 µg/L) relative to the November 2001 sampling event. In the groundwater sample collected from the deep monitoring well DW3 during the May 2002 sampling event, the concentration of cis-1,2-DCE increased (13.58 µg/L to 21.08 µg/L) relative to the previous sampling event. No VOCs were detected in the groundwater sample collected from deep monitoring well DW1. This is consistent with previous sampling events.

Table 3.1-5. Trend Analysis of VOCs in Groundwater

Well ID	Date Sampled	Concentration of Analyte in Groundwater (µg/L)					
		TCA	TCE	VC	11DCE	12DCE	11DCA
SW1	Sept. 1986[1]	--	--	--	--	--	--
	Jan. 1992[2]	0.5	--	--	--	--	--
	Dec. 1994[3]	--	--	--	--	--	--
	Nov. 1999[3]	--	--	--	--	--	--
	May 2000[3]	--	--	--	--	--	--
	Nov. 2000[3]	--	--	--	--	--	--
	May 2001[3]	--	--	--	--	--	--
	Nov. 2001[3]	0.11 J	--	--	--	--	--
	May 2002[3]	--	--	--	--	--	--
DW1	Jan. 1992[2]	0.6	--	--	--	--	--
	Dec. 1994[3]	--	--	--	--	1.8 (c)	--
	Nov. 1999[3]	--	--	--	--	--	--
	May 2000[3]	--	--	--	--	--	--
	Nov. 2000[3]	--	--	--	--	--	--
	May 2001[3]	--	--	--	--	--	--
	Nov. 2001[3]	--	--	--	--	--	--
	May 2002[3]	--	--	--	--	--	--
SW3	Sept. 1986[1]	--	6	--	--	--	--
	Jan. 1992[2]	12	9	--	--	--	5
	Dec. 1994[3]	0.50	1.8	--	--	--	--
	Dec. 1995[3]	0.86	2.8	--	--	0.44 (c)	--
	July 1997[4]	--	1	--	--	--	--
	Nov. 1998[3]	0.22	0.81	--	--	0.10 (c)	--
	Apr. 1999[3]	0.51	0.71	--	--	0.17 (c)	--
	Nov. 1999[3]	0.29	0.9	--	--	0.39 (c)	--
	May 2000[3]	0.69	1	--	--	1.29 (c)	0.55
	Nov. 2000[3]	0.43	0.9	--	--	0.22 (c)	--
	May 2001[3]	0.46	0.8	--	--	1.29 (c)	0.32
	Nov. 2001[3]	0.32 J	0.5 J	--	--	--	--
	May 2002[3]	0.42 J	0.8 J	--	--	0.46 J	--
DW3	Jan. 1992[2]	0.3	--	--	--	--	0.3
	Dec. 1994[3]	--	--	0.28	--	36 (c)	0.26
	Dec. 1995[3]	--	--	--	--	5.2 (c)	--
	April 1997[4]	--	--	--	--	41 (c)	--
	July 1997[4]	--	--	--	--	49 (c)	--
	Nov. 1998[3]	--	--	0.35	--	66 (c)	0.34
	Apr. 1999[3]	--	--	0.28	0.11	67.00 (c)	0.35
	Nov 1999[3]	--	--	--	--	--	0.11
	May 2000[3]	--	--	--	--	0.25 (t) 24.98 (c)	0.16
	Nov. 2000[3]	--	--	--	--	16.85	--
	May 2001[3]	--	--	--	--	13.29	--
	Nov. 2001[3]	--	--	--	--	13.58	--
	May 2002[3]	--	--	--	--	21.08	0.1 J
SW4	Jan. 1992[2]	2	97	--	0.3	--	0.6
	Dec. 1994[3]	20	370	--	2.1	19 (c)	8.5
	Dec. 1995[3]	34	1200	--	4.9	2.1 (t) 34 (c)	6.9
	April 1997[4]	--	--	--	--	71 (c)	7.1

Table 3.1-5. Trend Analysis of VOCs in Groundwater (Continued)

Well ID	Date Sampled	Concentration of Analyte in Groundwater (µg/L)					
		TCA	TCE	VC	11DCE	12DCE	11DCA
SW4 (cont)	July 1997[4]	23	290	--	--	15 (c)	--
	Nov. 1998[3]	8.0	46	0.42	0.82	10 (c)	9.0
	Apr. 1999[3]	1.9	9.53	--	--	1.85 (c)	0.87
	Nov. 1999[3]	2.13	9.5	--	0.18	7.15 (c)	7.7
	May 2000[3]	2.88	8	0.11	0.21	0.49 (t) 4.3 (c)	1.67
	Nov. 2000[3]	1.14	15.2	1.49	0.29	11.18 (c)	15.25
	May 2001[3]	3.35	34	--	0.36	0.38 (t) 3.19 (c)	1.3
	Nov. 2001[3]	0.88	5.7	0.43 J	0.12 J	5.27 (c)	7.18
	May 2002[3]	2.54	21.63	--	0.34 J	2.07(c)	0.79 J
SW7	Jan. 1992[2]	0.2	0.4	--	--	--	--
	Dec. 1994[3]	4.6	15	6.2	1	0.3(t) 150(c)	33
	Dec. 1995[3]	2.2	7.9	6.8	0.80	130 (c)	20
	July 1997[4]	--	4	--	--	2 (c)	--
	Nov. 1998[3]	2.5	11	3.4	0.65	0.28 (t) 82 (c)	12
	Apr. 1999[3]	1.23	3.95	--	--	5.25 (c)	1.46
	Nov. 1999[3]	1.01	5.7	--	0.19	18.8 (c)	3.38
	May 2000[3]	0.67	1.5	--	--	0.12 (t) 2.43 (c)	0.71
	Nov. 2000[3]	0.91	3.8	0.52	0.15	16.06 (c)	3.48
	May 2001[3]	1.18	1.9	--	--	1.46 (c)	0.47
	Nov. 2001[3]	0.8 J	4.7	0.85 J	0.19 J	0.13 J (t) 25.89 (c)	3.02
	May 2002[3]	0.87 J	1.65	--	--	2.79 (c)	0.47 J

Key:

µg/L	=	Micrograms per liter	VC	=	Vinyl chloride
(c)	=	cis-1,2-Dichloroethene	11DCE	=	1,1-Dichloroethene
(t)	=	trans-1,2-Dichloroethene	12DCE	=	1,2-Dichloroethene
TCA	=	1,1,1-Trichloroethane	11DCA	=	1,1-Dichloroethane
TCE	=	Trichloroethene	DPW	=	Deep production well
(1)	=	Fred C. Hart Associates	(3)	=	Earth Tech
(2)	=	Argonne National Laboratories	(4)	=	United States Geological Services

Notes:

1. At monitoring well locations where a duplicate groundwater sample was collected, the higher analytical value between the normal and duplicate samples is reported in this table
2. For 1992 data, the maximum value of either round A or B of sampling was used.
3. A double dash (--) indicates the analyte was not detected during the sampling event.

4.0 CONCLUSIONS

This section provides conclusions from analytical data generated as a result of the May 2002 sampling event. As defined in Section 1.0, the objective of the groundwater sampling event was to satisfy groundwater monitoring requirements defined in the April 27, 1999 letter to the NYSDEC (Earth Tech, 1999a) and the *Record of Decision* (Earth Tech, 1999b) for Air Force Plant 59.

The VOCs detected in groundwater samples collected from monitoring wells screened in the shallow and deep zones of the aquifer during the May 2002 sampling event are similar to the VOCs that have been detected during previous investigations. Chlorinated hydrocarbons were the only VOCs detected in site groundwater, with TCE, 1,1,1-TCA, 1,1-DCA, 1,1-DCE, tetrachloroethene, trichlorofluoromethane and cis-1,2-DCE being the most commonly detected. No VOCs were detected in background monitoring wells SW1 and DW1.

Historically, the highest concentrations of VOCs in the shallow zone of the aquifer at AFP 59 have been detected in groundwater samples collected from monitoring wells SW4 and SW7, which are located immediately downgradient of the Plating Room (the suspected source of VOCs in groundwater). In May 2002, at monitoring well SW4, the concentration of cis-1,2-DCE detected increased significantly, relative to the November 2001 sampling event, and the highest concentrations of VOCs were detected at SW4. There was only one VOC detection that was above New York State drinking water standards: TCE (21.63 µg/L) in SW4. The New York State drinking water standard for the aforementioned constituents is 5 µg/L.

Three VOCs were detected in the groundwater sample collected from monitoring well SW3, which was the only shallow monitoring well sampled along the western (downgradient) boundary of the site during this event. None of these detections exceeded New York State drinking water standards. Therefore, groundwater in the shallow zone of the aquifer that migrates off site toward the Camden Street Well Field complies with New York State drinking water standards.

The primary VOC detected in the groundwater sample collected from deep monitoring well DW3 was cis-1,2-DCE (21.08 µg/L). Although the 21.08 µg/L detection of cis-1,2-DCE exceeds the New York State drinking water standard, it does not exceed the Federal drinking water standard of 70 µg/L.

A trend analysis of chlorinated hydrocarbon levels over time at AFP 59 is presented in Section 3.1.4. Despite an increase in the concentration of TCE at SW4 relative to the November 2001 sampling event, historic data indicate that levels of chlorinated hydrocarbons have remained constant or decreased through time (see Table 3.1-5).

Appendix A. References

APPENDIX A. REFERENCES

Earth Tech, 1994. *Installation Restoration Program Investigation - Final Sampling and Analysis Plan.*

Earth Tech, 1996. *Installation Restoration Program Remedial Investigation - Final Remedial Investigation Report.*

Earth Tech, 1998. *Final Work Plan for Groundwater Monitoring at Air Force Plant 59.*

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APPENDIX B. FIELD DATA

GROUNDWATER PURGING AND SAMPLING RECORD

Date: 05/20/02 | Well ID: SW1 | Sample Number: 595W1W61 | Recorded By: BW, PG
Project Name: AFP 59 | Well Location: | Duplicate Number: | Checked By:
Project Number:

EQUIPMENT

pH/Conductivity/Temperature Meter #: Horiba U-10 | Purging Equipment: Grundfos Ready Flo
PID #: NA | Sampling Equipment: Disposable bailer
Electric Sounder #:

WELL DATA

10 l gal

Elevation: | Water Column in Well: 12.9' | Total Vol. Extr.:
Well Diameter: 2" | Borehole Diameter: 8" | Ambient PID: NA
Well Depth: 28.40 | Water Column in Borehole: 12.9' | Well Mouth PID: NA
Depth to Well Water: 15.50' | Standing Water Vol.: 33.6 gal

Ground Condition of Well:
Remarks:

	PURGING				SAMPLING	
	1	2	3	4	1	2
Time 0948	0953	1000	1007	1014	1021	1028
Rate (gal/min)	2.0	2.0	2.0	2.0	2.0	2.0
Temperature °C	11.7	11.8	11.8	11.8	11.7	11.8
pH	6.17	6.65	6.75	6.80	6.81	6.80
Conductivity (mS/cm)	2.78	2.79	2.78	2.75	2.74	2.73
Vol. Purged (gal)	10	25	39	53	68	82
Turd (NTU) Remarks	6.3	3.58	2.78	2.75	2.74	2.76

COLLECTED SAMPLES

	1	2	3	4	5	6
Sample Time	1048					
Analytical Param	VOCs (8260B)					
Volume Required	3, 40mL vials					
Preservation	HCl, 4°C					
Field Filtered	No					
Time						

0461.FIG

GROUNDWATER PURGING AND SAMPLING RECORD

Date: 05/20/02	Well ID: SW1	Sample Number: 59SW1W01	Recorded By: BL / PG
Project Name: AFP 59	Well Location:	Duplicate Number:	Checked By:
Project Number:			

EQUIPMENT

pH/Conductivity/Temperature Meter #:	Purging Equipment:
PID #:	Sampling Equipment:
Electric Sounder #:	

WELL DATA

Elevation:	Water Column in Well:	Total Vol. Extr.:
Well Diameter:	Borehole Diameter:	Ambient PID:
Well Depth:	Water Column in Borehole:	Well Mouth PID:
Depth to Well Water:	Standing Water Vol.:	

Ground Condition of Well:
Remarks:

	PURGING				SAMPLING	
	1	2	3	4	1	2
Time	1035	1038	→		→	
Rate (gal/min)	2.0	2.0				
Temperature °C	11.7	11.5				
pH	6.85	6.56				
Conductivity (mS/cm)	2.74	2.76				
Vol. Purged (gal)	96	107				
Turb. (NTU)	2.75	2.72				
~~Remarks~~						

COLLECTED SAMPLES

	1	2	3	4	5	6
Sample Time						
Analytical Param						
Volume Required						
Preservation						
Field Filtered						
Time						

GROUNDWATER PURGING AND SAMPLING RECORD

Date: 05/20/02 | Well ID: DW1 | Sample Number: 59DW1W61 | Recorded By: BW, PG

Project Name: AFP 59 | Well Location: | Duplicate Number: | Checked By:

Project Number:

EQUIPMENT

pH/Conductivity/Temperature Meter #: Horiba U-10 | Purging Equipment: Grundfos Ready Flo

PID #: NA | Sampling Equipment: Disposable bailer

Electric Sounder #: WDC

WELL DATA

Elevation:

Well Diameter: 4"

Well Depth: ~~4"~~ BGL 64.40

Depth to Well Water: 15.50'

Water Column in Well: 48.9'

Borehole Diameter: 6"

Water Column in Borehole: 48.9'

Standing Water Vol.: 71.9'

Total Vol. Extr.: 215.5

Ambient PID: NA

Well Mouth PID: NA

Ground Condition of Well:

Remarks:

	PURGING				SAMPLING	
	1	2	3	4	~~5~~	~~6~~
Time 1106	1110	1120	1130	1140	1150	1200
Rate (gal/min)	3.0	3.0 BGL	3.0	3.0	3.0	3.0
Temperature °C	12.1	~~4~~ 12.0	12.0	12.1	12.0	11.9
pH	7.10	7.05	7.08	7.05	7.08	7.09
Conductivity (mS/cm)	1.63	1.58	1.58	1.57	1.58	1.59
Vol. Purged (gal)	12	43	73	104	134	164
~~Remarks~~ Turb. (NTU)	994	445	610	340	336	333

COLLECTED SAMPLES

	1	2	3	4	5	6
Sample Time	BGL ~~+21=1221~~					
Analytical Param	VOCs (8260B)					
Volume Required	3, 40mL vials					
Preservation	HCL, 4°C					
Field Filtered	No					
Time						

0461.FIG

GROUNDWATER PURGING AND SAMPLING RECORD

Date: 05/20/02	Well ID: DW1	Sample Number: 59DW1WG1	Recorded By: BW, PG
Project Name: AFP 59	Well Location:	Duplicate Number:	Checked By:
Project Number:			

EQUIPMENT

pH/Conductivity/Temperature Meter #:	Purging Equipment:
PID #:	Sampling Equipment:
Electric Sounder #:	

WELL DATA

Elevation:	Water Column in Well:	Total Vol. Extr.:
Well Diameter:	Borehole Diameter:	Ambient PID:
Well Depth:	Water Column in Borehole:	Well Mouth PID:
Depth to Well Water:	Standing Water Vol.:	

Ground Condition of Well:
Remarks:

	PURGING				SAMPLING	
	1	2	3	4	1	2
Time	1210	1217				
Rate (gal/min)	3.0	3.0				
Temperature °C	11.9	11.9				
pH	7.09	7.10				
Conductivity (mS/cm)	1.59	1.59				
Vol. Purged (gal)	194	215				
Turb. (NTU)	332	331				
Remarks						

COLLECTED SAMPLES

	1	2	3	4	5	6
Sample Time	1221					
Analytical Param	VOCs (8260B)					
Volume Required	3, 40mL vials					
Preservation	HCl, 4°C					
Field Filtered	No					
Time						

GROUNDWATER PURGING AND SAMPLING RECORD

Date: 05/20/02 | Well ID: SW3 | Sample Number: 59SW3W61 | Recorded By: BW, PG
Project Name: AFP 59 | Well Location: | Duplicate Number: | Checked By:
Project Number:

EQUIPMENT

pH/Conductivity/Temperature Meter #: Horiba U-10 | Purging Equipment: Grundfos Ready Flo
PID #: NA | Sampling Equipment: Disposable bailer
Electric Sounder #:

WELL DATA

Elevation: | Water Column in Well: 17.25' | Total Vol. Extr.: 135
Well Diameter: 2" | Borehole Diameter: 8" | Ambient PID: NA
Well Depth: 30.80' | Water Column in Borehole: 17.25' | Well Mouth PID: NA
Depth to Well Water: 13.55' | Standing Water Vol.: ~~17.25~~ 45.02

Ground Condition of Well:
Remarks:

	PURGING				SAMPLING	
	1	2	3	4	x5	x6
Time (BGW ~~1330~~ 1330)	1335	1342	1349	1356	1403	1410
Rate (gal/min)	2.1	2.5	2.5	2.5	2.5	2.5
Temperature °C	10.0°	9.9°	9.9°	9.9°	9.8°	9.8°
pH	7.48	7.34	7.31	7.30	7.31	7.31
Conductivity (mS/cm)	0.96	0.95	0.94	0.94	0.94	0.95
Vol. Purged (gal)	10.5	28	45.5	63	80.5	98
~~Remarks~~ Turb (NTU)	351*	343*	340*	340*	337*	339*

COLLECTED SAMPLES

	1	2	3	4	5	6
Sample Time	1436					
Analytical Param	VOCs (8260B)					
Volume Required	3, 40mL vials					
Preservation	HCL, 4°C					
Field Filtered	No					
Time						

0461.FIG Note: Turbidity values are elevated (300+ NTU), but water is very clear. All other readings are representative.

GROUNDWATER PURGING AND SAMPLING RECORD

Date: 05/20/02 Well ID: SW3 Sample Number: 595W3W61 Recorded By: BV, PL

Project Name: AFP 59 Well Location: Duplicate Number: Checked By:

Project Number:

EQUIPMENT

pH/Conductivity/Temperature Meter #: Purging Equipment:

PID #: Sampling Equipment:

Electric Sounder #:

WELL DATA

Elevation: Water Column in Well: Total Vol. Extr.:

Well Diameter: Borehole Diameter: Ambient PID:

Well Depth: Water Column in Borehole: Well Mouth PID:

Depth to Well Water: Standing Water Vol.:

Ground Condition of Well:

Remarks:

	PURGING				SAMPLING	
	← 7	✗ 8	9	→		2
Time	1417	1424				
Rate (gal/min)	2.5	2.5				
Temperature °C	9.90	9.90				
pH	7.31	7.31				
Conductivity (mS/cm)	0.94	0.94				
Vol. Purged (gal)	115.5	133				
~~DTW~~ TWL (ATW)	337*	335*				
Remarks						

COLLECTED SAMPLES

	1	2	3	4	5	6
Sample Time						
Analytical Param						
Volume Required						
Preservation						
Field Filtered						
Time						

GROUNDWATER PURGING AND SAMPLING RECORD

Date: 05/20/02 | Well ID: DW3 | Sample Number: 59DW3WG1 | Recorded By: BL, PG

Project Name: AFP 59 | Well Location: | Duplicate Number: | Checked By:

Project Number:

EQUIPMENT

pH/Conductivity/Temperature Meter #: | Purging Equipment:

PID #: | Sampling Equipment:

Electric Sounder #:

WELL DATA

Elevation:	Water Column in Well:	Total Vol. Extr.:
Well Diameter:	Borehole Diameter:	Ambient PID:
Well Depth:	Water Column in Borehole:	Well Mouth PID:
Depth to Well Water:	Standing Water Vol.:	

Ground Condition of Well:

Remarks:

	PURGING				SAMPLING	
	#7	#8	#9	← 1		2
Time	1540	1542	1544			
Rate (gal/min)	4.0	4.0	4.0			
Temperature °C	12.7	12.7	12.6			
pH	7.24	7.24	7.25			
Conductivity (mS/cm)	1.38	1.38	1.38			
Vol. Purged (gal)	230.2	238.2	246.2			
Turb (NTU) Remarks	*438	*433	*435			

COLLECTED SAMPLES

	1	2	3	4	5	6
Sample Time						
Analytical Param						
Volume Required						
Preservation						
Field Filtered						
Time						

0461.FIG

GROUNDWATER PURGING AND SAMPLING RECORD

Date: 05/20/02 Well ID: DW3 Sample Number: 59DW3W61 Recorded By: BW, PG
Project Name: AFP 59 Well Location: Duplicate Number: Checked By:
Project Number:

EQUIPMENT

pH/Conductivity/Temperature Meter #: Horiba U-10 Purging Equipment: Grundfos Ready Flo
PID #: NA Sampling Equipment: Disposable Bailer
Electric Sounder #:

WELL DATA

Elevation:
Well Diameter: 4"
Well Depth: 87.9'
Depth to Well Water: 11.60
Water Column in Well: 76.3'
Borehole Diameter: 6"
Water Column in Borehole: 76.3'
Standing Water Vol.: 112.3
Total Vol. Extr.: 337
Ambient PID: NA
Well Mouth PID: NA
Ground Condition of Well:
Remarks:

	PURGING				SAMPLING	
	1	2	3	4	x5	x6
Time 1442	1448	1458	1508	1518	1528	1538
Rate (gal/min)	3.7	4.0	4.0	4.0	4.0	4.0
Temperature °C	12.8°	12.8°	12.8°	12.6	12.7	12.7
pH	7.29	7.22	7.24	7.26	7.24	7.23
Conductivity (mS/cm)	1.36	1.39	1.38	1.38	1.38	1.38
Vol. Purged (gal)	22.2	62.2	102.2	142.2	182.2	222.2
Turb. (NTU) Remarks	999 *	720 *	*715	603 *	*440	*437

COLLECTED SAMPLES

	1	2	3	4	5	6
Sample Time	1558					
Analytical Param	VOCs (8260B)					
Volume Required	3 40mL vials					
Preservation	HCL, 4°C					
Field Filtered	No					
Time						

*- Turbidity readings are elevated, but water is clear. All other readings appear representative.

0461.FIG

GROUNDWATER PURGING AND SAMPLING RECORD

Date: 05/20/02 | Well ID: SW4 | Sample Number: 596LW61 | Recorded By: BW, PG
Project Name: AFP 59 | Well Location: | Duplicate Number: | Checked By:
Project Number:

EQUIPMENT

pH/Conductivity/Temperature Meter #: Horiba U-10 | Purging Equipment: Grundfos Ready Flo
PID #: NA | Sampling Equipment: Disposable Bailer
Electric Sounder #:

WELL DATA

Elevation:
Well Diameter: 2"
Well Depth: 27.72
Depth to Well Water: 10.6'
Water Column in Well: 17.12
Borehole Diameter: 8"
Water Column in Borehole: 17.12
Standing Water Vol.: 44.68
Total Vol. Extr.: 134
Ambient PID: NA
Well Mouth PID: NA
Ground Condition of Well:
Remarks:

	PURGING				SAMPLING	
	1	2	3	4	5	6
Time 1633	1639	1647	1659	1707	1715	1725
Rate (gal/min)	0.5	1.0	1.5	1.5	1.5	1.5
Temperature °C	14.2°	14.8°	14.9	14.9	15.0	15.0
pH	7.14	7.00	7.14	7.02	7.03	7.02
Conductivity (mS/cm)	1.38	~~4.3~~ 1.54	1.55	1.55	1.55	1.55
Vol. Purged (gal)	3	11	~~27~~ 29	41	53	65
Turb (NTU)	999	620	330	100	-10*	-10
~~Remarks~~						

COLLECTED SAMPLES

	1	2	3	4	5	6
Sample Time	1746					
Analytical Param	VOCs (8260B)					
Volume Required	3 40mL vials					
Preservation	HCl, 4°C					
Field Filtered	No					
Time						

*- Turbidity values are not representative.

0461.FIG

GROUNDWATER PURGING AND SAMPLING RECORD

Date: 05/20/02 Well ID: SW4 Sample Number: 595W4WG1 Recorded By: BV, PG

Project Name: AFP 59 Well Location: Duplicate Number: Checked By:

Project Number:

EQUIPMENT

pH/Conductivity/Temperature Meter #: Horiba U-10 Purging Equipment: Grundfos Ready Flo

PID #: NA Sampling Equipment: Disposable Bailer

Electric Sounder #:

WELL DATA

Elevation:	Water Column in Well:	Total Vol. Extr.:
Well Diameter:	Borehole Diameter:	Ambient PID:
Well Depth:	Water Column in Borehole:	Well Mouth PID:
Depth to Well Water:	Standing Water Vol.:	

Ground Condition of Well:
Remarks:

	PURGING				SAMPLING	
	x7	x8	x9	x10 →	1	2
Time	1726	1728	1730	1732		
Rate (gal/min)	1.5	1.5	1.5	1.5		
Temperature °C	15.0	15.1	15.1	15.2		
pH	7.02	7.02	7.02	7.02		
Conductivity (mS/cm)	1.55	1.55	1.56	1.55		
Vol. Purged (gal)	77	80	83	86		
Turb (NTU) Remarks	-10*	-10*	-10*	-10*		

COLLECTED SAMPLES

	1	2	3	4	5	6
Sample Time						
Analytical Param						
Volume Required						
Preservation						
Field Filtered						
Time						

0461.FIG

GROUNDWATER PURGING AND SAMPLING RECORD

Date: 05/20/02 Well ID: SW7 Sample Number: 595W7W61 Recorded By: BW, PG
Project Name: AFP59 Well Location: Duplicate Number: 595W7W69 Checked By:
Project Number: 595W7W61MS, 595W7W61MSD

EQUIPMENT

pH/Conductivity/Temperature Meter #: Horiba U-10 Purging Equipment: Grundfos Ready Flo
PID #: NA Sampling Equipment: Disposable Bailer
Electric Sounder #: WDC311

WELL DATA

Elevation: Water Column in Well: 13.63 Total Vol. Extr.: 106 gal
Well Diameter: 2" Borehole Diameter: 8" Ambient PID: NA
Well Depth: 27.88' Water Column in Borehole: 13.63 Well Mouth PID: NA
Depth to Well Water: 14.25' Standing Water Vol.: ~~106~~ 35.57 gal

Ground Condition of Well:
Remarks:

	PURGING				SAMPLING	
	1	2	3	4	1	2
Time 1815	1819	1826	1833	1840	1847	1854
Rate (gal/min)	2.5	2.5	2.5	2.5	2.5	2.5
Temperature °C	13.8°	14.1°	14.2°	14.2°	14.1°	14.2
pH	7.49	7.26	7.18	7.18	7.30	7.28
Conductivity (mS/cm)	1.50	1.50	1.50	1.50	1.50	1.49
Vol. Purged (gal)	10	27.5	45	62.5	80	97.5
Turb. (NTU) Remarks	470	155	15 *	~10*	~10*	~10*

COLLECTED SAMPLES

	1	2	3	4	5	6
Sample Time	1912					
Analytical Param	VOCs (8260B)	→				
Volume Required	3, 40ml vials					
Preservation	HCl, 4°C					
Field Filtered	No					
Time						

* - Value not representative

0461.FIG

GROUNDWATER PURGING AND SAMPLING RECORD

Date: 05/20/02	Well ID: SW7	Sample Number: S95W7W61	Recorded By: BW/DC
Project Name: AFP59	Well Location:	Duplicate Number:	Checked By:
Project Number:			

EQUIPMENT

pH/Conductivity/Temperature Meter #:	Purging Equipment:
PID #:	Sampling Equipment:
Electric Sounder #:	

WELL DATA

Elevation:	Water Column in Well:	Total Vol. Extr.:
Well Diameter:	Borehole Diameter:	Ambient PID:
Well Depth:	Water Column in Borehole:	Well Mouth PID:
Depth to Well Water:	Standing Water Vol.:	

Ground Condition of Well:
Remarks:

	PURGING				SAMPLING	
	1	2	3	4	1	2
Time	BGW 1402/1458					
Rate (gal/min)	2.5					
Temperature °C	14.10					
pH	7.29					
Conductivity (mS/cm)	1.50					
Vol. Purged (gal)	107.5					
Remarks: TWB.QMW	~10*					

COLLECTED SAMPLES

	1	2	3	4	5	6
Sample Time						
Analytical Param						
Volume Required						
Preservation						
Field Filtered						
Time						

0461.FIG

APPENDIX C. CHAIN-OF-CUSTODY FORMS

2177

Earth Tech
1420 King Street, Suite 600
Alexandria, Virginia 22314
Phone No. (703) 549-8728; Fax No. (703) 549-9134

EARTH TECH
A TETRA TECH INTERNATIONAL LTD. COMPANY

PAGE __ OF __

Laboratory: O'Brien & Gere Laboratories
Address: 5000 Brittonfield Parkway
City: East Syracuse | State: NY | Zip Code: 13057
Project Name: AFP 59
Point of Contact / Phone No.: Dave Pase 703-706-0508
Site Contact / Phone No: Brandon Watts 703-706-9401
Chain of Custody No.: № 0084

ERPIMS Information					Other Sample Information						Analysis	Comments
LOCID	SBD	SED	SACODE	SAMPNO	Sample I.D.	Date	Time	Matrix	No. of Con.	Cooler No.	VOCs (SW8260B)	
SW1	0	0	N	1	59SW1WG1	05/20/02	1048	WG	3	1	X	Vials A, B, & C
DW1	0	0	N	1	59DW1WG1	05/20/02	1221	WG	3	1	X	
SW3	0	0	N	1	59SW3WG1	05/20/02	1436	WG	3	1	X	
DW3	0	0	N	1	59DW3WG1	05/20/02	1558	WG	3	1	X	
SW4	0	0	N	1	59SW4WG1	05/20/02	1746	WG	3	1	X	
SW7	0	0	N	1	59SW7WG1	05/20/02	1912	WG	3	1	X	
SW7	0	0	FD	1	59SW7WG9	05/20/02	1912	WG	3	1	X	
SW7	0	0	MS	1	59SW7WG1MS	05/20/02	1914	WG	3	1	X	
SW7	0	0	MD	1	59SW7WG1MSD	05/20/02	1914	WG	3	1	X	
Field QC	0	0	TB	1	TB052002	05/20/02	1137	WG	3	1	X	2 trip blank vials, 1 Temp. blank
Field QC	0	0	AB	1	AB052002	05/20/02	1137	WG	3	1	X	Vials A, B, & C
					DCW 05/20/02							

	Date	Time		Date	Time
1. Relinquished By / Company: Brandon Watts / Earth Tech	05/21/02	0950	1. Received By / Company		
2. Relinquished By / Company			2. Received By / Company		
3. Relinquished By / Company			3. Received By / Company		
4. Relinquished By / Company			4. Received By / Company		
5. Relinquished By / Company			5. Received By / Company: Merle F. Jackson / OBrien & Gere Labs	5/22/02	09:20

Comments:

Shipment Method/Airbill No.:

3°C

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

APPENDIX D. DATA QUALITY REVIEW SUMMARY AND GROUNDWATER ANALYTICAL DATA

Data Quality Review

Air Force Plant 59 #41012-06.05, Johnson City, NY
F41624-97-D-8023/0047

Volatile Organic Analysis by Method SW8260B - Aqueous Samples
Data Package

This data quality review pertains to groundwater samples collected on May 20, 2002 at Air Force Plant 59 (AFP 59). The samples were analyzed following EPA Test Methods for Evaluating Solid Waste (SW-846) Method 8260B for volatile organic compounds at O'Brien & Gere Laboratories, Inc. (O'Brien & Gere) in Syracuse, New York. All samples were analyzed for the full list of volatile constituents included in the method.

Recommendations from the AFCEE *Quality Assurance Project Plan, Version 3.0* (USAF, 1998) were utilized by O'Brien and Gere for quality control limits and data flagging criteria.

Table DQR-1 provides a cross-reference list for field sample IDs and lab sample IDs from O'Brien & Gere.

Table DQR-1
Field Sample ID/Lab Sample ID Cross Reference

Field Sample ID	Lab Sample ID	Field Sample ID	Lab Sample ID
SW1-WG1	U9036	SW7-WG9	U9042
DW1-WG1	U9037	TRIP BLANK	U9043
SW3-WG1	U9038	AMBIENT BLANK	U9044
DW3-WG1	U9039		
SW4-WG1	U9040		
SW7-WG1	U9041		

During the data quality review process, laboratory qualified and unqualified data are verified against all available supporting documentation. Based on this review, qualifier codes may be added, deleted, or modified by the validator. Final results are therefore either qualified or unqualified. A summary of the data quality review flags is presented in Table DQR-2, listed in order of most severe to least severe. The data quality review process includes a review of sample holding times, calibrations, blanks (preparation, ambient, and trip blanks), matrix spike/matrix spike duplicates, surrogate recoveries, and field duplicates. Changes to the data are reflected on the Form I's in Appendix A.

Table DQR-2
Data Qualifiers

Qualifier	Description
R	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
B	Not detected substantially above the level reported in laboratory or field blanks.
J	This is an estimated value.
UJ	Not detected, quantitation limit may be inaccurate or imprecise.
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.

Holding Times

All of the groundwater samples were analyzed for volatile organic compounds within the recommended holding time of 14 days. No qualification is necessary.

Calibration Criteria

Initial calibration criteria were met for all standards. Standards were run at 0.30, 0.50, 4, 10, 20, and 40 µg/L.

The %D values associated with the Second Source Calibration were within 25%, with the exception of acetone, which exhibited a %D of 25.5%. Thus, the validator qualifies **J** all positive acetone results in environmental samples. The validator removes the R flag assigned by the laboratory to acetone results.

Continuing calibration verifications were performed at the required frequency. For the CC standard analyzed on 6/3/02 at 10:48, the %D value was outside the control limits for 2-butanone (26.6%) and carbon tetrachloride (-20.9%). Since there were no positive values for acetone, no qualification is needed. The validator qualifies **UJ** and **J** the non-detect and positive results, respectively, for carbon tetrachloride in the two reanalysis samples (SW-7-WG1 and the Trip Blank) run on 6/3/02.

As is standard practice, and unless otherwise noted herein, the validator qualifies **J** those positive results which fall between the method detection limit (MDL) and the reporting limit (RL), removing the F flag assigned by the laboratory.

Laboratory Control Samples

In laboratory control sample (LCS) L053102W2, all constituent recoveries were within the corresponding control ranges, with the exception of bromodichloromethane, which

exhibited a recovery above the upper control limit. Since this constituent was not detected in any of the environmental samples, no qualification is necessary.

In laboratory control sample (LCS) L060302W2, all constituent recoveries were within the corresponding control ranges, with the exception of 1,2-dibromoethane bromodichloromethane and tetrachloroethene, all of which exhibited a recovery above the corresponding upper control limit. The validator qualifies **J** all positive results for these three constituents in the reanalysis sample SW7-WG1 and the reanalysis of the Trip Blank only.

Blanks

No constituents were detected in the single Preparation Blank (PB) 110901W1 associated with these samples.

One trip blank and one ambient blank were collected and analyzed for volatile organic compounds. No constituents were detected above the method detection limit (MDL) in either the trip blank or the ambient blank sample.

Matrix Spike/Matrix Spike Duplicate

Sample SW7-WG1 served as the MS/MSD sample for this sample delivery group. Constituent recoveries were within quality control limits, with the exception of 1,2-dibromoethane, cis-1,2-dichloroethene and bromodichloromethane, each of which exhibited recoveries from the MS and MSD above the corresponding upper control limits. In addition, recovery of dichlorodifluoromethane was above the upper control limit in the MS. RPD values all were less than 20%. The validator qualifies **J** any positive results for these four constituents in sample SW7-WG1 only.

Surrogate Recovery

Four surrogates were used for the monitoring of volatiles in all samples. With two exceptions, all surrogate recoveries met the corresponding QC criteria. Dibromofluoromethane was recovered above the lower control limit in samples SW7-WG1 and the trip blank. Reanalyses of these samples also exhibited a dibromofluoromethane recovery above the upper control limit. The validator qualifies **J** the positive results in sample SW7-WG1 and the trip blank (both initial and reanalysis results). *With the data quality of the initial and reanalysis run being equivalent, the* validator recommends that the initial sample results be utilized.

Field Duplicates

Field duplicate results (in ug/L units) are summarized below.

	(SW7-WG1)	(SW7-WG9)	RPD (%)
1,1,1-Trichloroethane	0.8	0.74	18
1,1-Dichloroethane	3.02	0.47	23
1,1-Dichloroethene	0.19	0.16	17
Chloroform	0.11	0.12	8
cis-1,2-Dichloroethene	25.89	21.02	21
Tetrachloroethene	0.45	0.41	9
trans-1,2-Dichloroethene	0.13	Not detected	Not calculated
Trichloroethene	4.7	4.2	11
Vinyl Chloride	0.85	0.66	25

When considering that several of the results were between the corresponding MDL and RL, agreement was excellent, and no qualification is necessary

Summary

The data completeness is 100%. All of the data points for the volatile analysis of groundwater samples are useable with the appropriate qualifiers. A summary of all detected compounds appears in Table DQR-3.

Table DQR-3
Summary of Detected Chemicals at Former Air Force Plant 59
Ground Water Sampling - May 2002 Event

Location ID Date Sampled	DW1 5/20/2002	DW3 5/20/2002	SW1 5/20/2002	SW3 5/20/2002	SW4 5/20/2002	SW7 5/20/2002	SW7 (DUP) 5/20/2002
Analyte	**Volatiles by EPA SW-846 Method 8260 (ug/L)**						
1,1,1-Trichloroethane	1 U	1 U	1 U	**0.42 J**	**2.54**	**0.87 J**	**0.74 J**
1,1-Dichloroethane	1 U	**0.1 J**	1 U	1 U	**0.79 J**	**0.46 J**	**0.47 J**
1,1-Dichloroethene	1 U	1 U	1 U	1 U	**0.34 J**	1 U	1 U
cis-1,2-Dichloroethene	1 U	**21.08**	1 U	**0.46 J**	**2.07**	**2.69 J**	**2.79**
Tetrachloroethene	1 U	1 U	1 U	1 U	**0.53 J**	**0.23 J**	**0.22 J**
Trichloroethene	1 U	1 U	1 U	**0.8 J**	**21.63**	**1.77 J**	**1.65**
Trichlorofluoromethane	1 U	1 U	1 U	1 U	**0.58 J**	1 U	1 U

Key: J = The analyte was positively identified, but the quantitation is an estimation.
U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection limit (MDL).
(DUP) = Duplicate sample taken in the field.

Notes: Bolded values indicate the analyte was detected above the associated MDL.

APPENDIX A
FORM I's

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: DW1 [WG1] Lab Sample ID: U9037 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
(m+p)-Xylene	.065	2.	.065	1		U
1,1,1,2-Tetrachloroethane	.027	.5	.027	1		U
1,1,1-Trichloroethane	.014	1.	.014	1		U
1,1,2,2-Tetrachloroethane	.013	.5	.013	1		U
1,1,2-Trichloroethane	.044	1.	.044	1		U
1,1-Dichloroethane	.013	1.	.013	1		U
1,1-Dichloroethene	.022	1.	.022	1		U
1,1-Dichloropropene	.033	1.	.033	1		U
1,2,3-Trichlorobenzene	.074	1.	.074	1		U
1,2,3-Trichloropropane	.076	1.	.076	1		U
1,2,4-Trichlorobenzene	.057	1.	.057	1		U
1,2,4-Trimethylbenzene	.039	1.	.039	1		U
1,2-Dibromo-3-chloropropane	.41	2.	.41	1		U
1,2-Dibromoethane	.023	1.	.023	1		U
1,2-Dichlorobenzene	.019	1.	.019	1		U
1,2-Dichloroethane	.012	.5	.012	1		U
1,2-Dichloropropane	.038	1.	.038	1		U
1,3,5-Trimethylbenzene	.037	1.	.037	1		U
1,3-Dichlorobenzene	.034	1.	.034	1		U
1,3-Dichloropropane	.018	.5	.018	1		U
1,4-Dichlorobenzene	.042	.5	.042	1		U
1-Chlorohexane	.027	1.	.027	1		U
2,2-Dichloropropane	.043	1.	.043	1		U
2-Butanone	2.5	10.	2.5	1		U
2-Chlorotoluene	.026	1.	.026	1		U
4-Chlorotoluene	.036	1.	.036	1		U
4-Methyl-2-pentanone	.08	10.	.08	1		U
Acetone	1.6	10.	1.6	1		R
Benzene	.015	.5	.015	1		U
Bromobenzene	.021	1.	.021	1		U
Bromochloromethane	.034	1.	.034	1		U

7.22.02

Comments:

AFCEE FORM O-2

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: DW1 [WG1] Lab Sample ID: U9037 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Bromodichloromethane	.022	.5	.022	1		U
Bromoform	.027	1.	.027	1		U
Bromomethane	.17	3.	.17	1		U
Carbon tetrachloride	.019	1.	.019	1		U
Chlorobenzene	.019	.5	.019	1		U
Chloroethane	.3	1.	.3	1		U
Chloroform	.1	.5	.1	1		U
Chloromethane	.11	1.	.11	1		U
cis-1,2-Dichloroethene	.02	1.	.02	1		U
cis-1,3-Dichloropropene	.025	.5	.025	1		U
Dibromochloromethane	.021	.5	.021	1		U
Dibromomethane	.033	1.	.033	1		U
Dichlorodifluoromethane	.031	1.	.031	1		U
Ethylbenzene	.024	1.	.024	1		U
Hexachlorobutadiene	.085	.6	.085	1		U
Isopropylbenzene	.019	1.	.019	1		U
Methyl tert-butyl ether	.035	5.	.035	1		U
Methylene chloride	.02	2.	.02	1		U
n-Butylbenzene	.072	1.	.072	1		U
n-Propylbenzene	.024	1.	.024	1		U
Naphthalene	.056	1.	.056	1		U
o-Xylene	.028	1.	.028	1		U
p-Isopropyltoluene	.032	1.	.032	1		U
sec-Butylbenzene	.028	1.	.028	1		U
Styrene	.014	1.	.014	1		U
tert-Butylbenzene	.026	1.	.026	1		U
Tetrachloroethene	.04	1.	.04	1		U
Toluene	.015	1.	.015	1		U
trans-1,2-Dichloroethene	.018	1.	.018	1		U
trans-1,3-Dichloropropene	.018	1.	.018	1		U
Trichloroethene	.025	1.	.025	1		U

7.22.02

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: DW1 [WG1] Lab Sample ID: U9037 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Trichlorofluoromethane	.01	1.	.01	1		U
Vinyl chloride	.043	1.	.043	1		U
Xylene (total)	.065	2.	.065	1		U

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-d4 (surrogate)	109	72-119	
Bromofluorobenzene (surrogate)	106	76-119	
Dibromofluoromethane (surrogate)	112	85-115	
Toluene-d8 (surrogate)	104	81-120	

Internal Std.	Qualifier
1,4-Dichlorobenzene-d4	
Chlorobenzene-d5	
Fluorobenzene	

7.22.02

Comments:

AFCEE FORM O-2

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: DW3 [WG1] Lab Sample ID: U9039 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
(m+p)-Xylene	.065	2.	.065	1		U
1,1,1,2-Tetrachloroethane	.027	.5	.027	1		U
1,1,1-Trichloroethane	.014	1.	.014	1		U
1,1,2,2-Tetrachloroethane	.013	.5	.013	1		U
1,1,2-Trichloroethane	.044	1.	.044	1		U
1,1-Dichloroethane	.013	1.	.1	1		F J
1,1-Dichloroethene	.022	1.	.022	1		U
1,1-Dichloropropene	.033	1.	.033	1		U
1,2,3-Trichlorobenzene	.074	1.	.074	1		U
1,2,3-Trichloropropane	.076	1.	.076	1		U
1,2,4-Trichlorobenzene	.057	1.	.057	1		U
1,2,4-Trimethylbenzene	.039	1.	.039	1		U
1,2-Dibromo-3-chloropropane	.41	2.	.41	1		U
1,2-Dibromoethane	.023	1.	.023	1		U
1,2-Dichlorobenzene	.019	1.	.019	1		U
1,2-Dichloroethane	.012	.5	.012	1		U
1,2-Dichloropropane	.038	1.	.038	1		U
1,3,5-Trimethylbenzene	.037	1.	.037	1		U
1,3-Dichlorobenzene	.034	1.	.034	1		U
1,3-Dichloropropane	.018	.5	.018	1		U
1,4-Dichlorobenzene	.042	.5	.042	1		U
1-Chlorohexane	.027	1.	.027	1		U
2,2-Dichloropropane	.043	1.	.043	1		U
2-Butanone	2.5	10.	2.5	1		U
2-Chlorotoluene	.026	1.	.026	1		U
4-Chlorotoluene	.036	1.	.036	1		U
4-Methyl-2-pentanone	.08	10.	.08	1		U
Acetone	1.6	10.	1.6	1		B
Benzene	.015	.5	.015	1		U
Bromobenzene	.021	1.	.021	1		U
Bromochloromethane	.034	1.	.034	1		U

7.22.02

Comments:

AFCEE FORM O-2

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: DW3 [WG1] Lab Sample ID: U9039 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Bromodichloromethane	.022	.5	.022	1		U
Bromoform	.027	1.	.027	1		U
Bromomethane	.17	3.	.17	1		U
Carbon tetrachloride	.019	1.	.019	1		U
Chlorobenzene	.019	.5	.019	1		U
Chloroethane	.3	1.	.3	1		U
Chloroform	.1	.5	.1	1		U
Chloromethane	.11	1.	.11	1		U
cis-1,2-Dichloroethene	.02	1.	21.08	1		
cis-1,3-Dichloropropene	.025	.5	.025	1		U
Dibromochloromethane	.021	.5	.021	1		U
Dibromomethane	.033	1.	.033	1		U
Dichlorodifluoromethane	.031	1.	.031	1		U
Ethylbenzene	.024	1.	.024	1		U
Hexachlorobutadiene	.085	.6	.085	1		U
Isopropylbenzene	.019	1.	.019	1		U
Methyl tert-butyl ether	.035	5.	.035	1		U
Methylene chloride	.02	2.	.02	1		U
n-Butylbenzene	.072	1.	.072	1		U
n-Propylbenzene	.024	1.	.024	1		U
Naphthalene	.056	1.	.056	1		U
o-Xylene	.028	1.	.028	1		U
p-Isopropyltoluene	.032	1.	.032	1		U
sec-Butylbenzene	.028	1.	.028	1		U
Styrene	.014	1.	.014	1		U
tert-Butylbenzene	.026	1.	.026	1		U
Tetrachloroethene	.04	1.	.04	1		U
Toluene	.015	1.	.015	1		U
trans-1,2-Dichloroethene	.018	1.	.018	1		U
trans-1,3-Dichloropropene	.018	1.	.018	1		U
Trichloroethene	.025	1.	.025	1		U

7.22.02

Comments:

AFCEE FORM O-2

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: DW3 [WG1] Lab Sample ID: U9039 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Trichlorofluoromethane	.01	1.	.01	1		U
Vinyl chloride	.043	1.	.043	1		U
Xylene (total)	.065	2.	.065	1		U

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-d4 (surrogate)	111	72-119	
Bromofluorobenzene (surrogate)	109	76-119	
Dibromofluoromethane (surrogate)	110	85-115	
Toluene-d8 (surrogate)	104	81-120	

Internal Std.	Qualifier
1,4-Dichlorobenzene-d4	
Chlorobenzene-d5	
Fluorobenzene	

7.22.02

Comments:

AFCEE

ORGANIC ANALYSES DATA SHEET 2

RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW1 [WG11] Lab Sample ID: U9036 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
(m+p)-Xylene	.065	2.	.065	1		U
1,1,1,2-Tetrachloroethane	.027	.5	.027	1		U
1,1,1-Trichloroethane	.014	1.	.014	1		U
1,1,2,2-Tetrachloroethane	.013	.5	.013	1		U
1,1,2-Trichloroethane	.044	1.	.044	1		U
1,1-Dichloroethane	.013	1.	.013	1		U
1,1-Dichloroethene	.022	1.	.022	1		U
1,1-Dichloropropene	.033	1.	.033	1		U
1,2,3-Trichlorobenzene	.074	1.	.074	1		U
1,2,3-Trichloropropane	.076	1.	.076	1		U
1,2,4-Trichlorobenzene	.057	1.	.057	1		U
1,2,4-Trimethylbenzene	.039	1.	.039	1		U
1,2-Dibromo-3-chloropropane	.41	2.	.41	1		U
1,2-Dibromoethane	.023	1.	.023	1		U
1,2-Dichlorobenzene	.019	1.	.019	1		U
1,2-Dichloroethane	.012	.5	.012	1		U
1,2-Dichloropropane	.038	1.	.038	1		U
1,3,5-Trimethylbenzene	.037	1.	.037	1		U
1,3-Dichlorobenzene	.034	1.	.034	1		U
1,3-Dichloropropane	.018	.5	.018	1		U
1,4-Dichlorobenzene	.042	.5	.042	1		U
1-Chlorohexane	.027	1.	.027	1		U
2,2-Dichloropropane	.043	1.	.043	1		U
2-Butanone	2.5	10.	2.5	1		U
2-Chlorotoluene	.026	1.	.026	1		U
4-Chlorotoluene	.036	1.	.036	1		U
4-Methyl-2-pentanone	.08	10.	.08	1		U
Acetone	1.6	10.	1.6	1		R
Benzene	.015	.5	.015	1		U
Bromobenzene	.021	1.	.021	1		U
Bromochloromethane	.034	1.	.034	1		U

JLL 7-22-02

Comments:

AFCEE FORM O-2

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW1 [WG1] Lab Sample ID: U9036 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Bromodichloromethane	.022	.5	.022	1		U
Bromoform	.027	1.	.027	1		U
Bromomethane	.17	3.	.17	1		U
Carbon tetrachloride	.019	1.	.019	1		U
Chlorobenzene	.019	.5	.019	1		U
Chloroethane	.3	1.	.3	1		U
Chloroform	.1	.5	.1	1		U
Chloromethane	.11	1.	.11	1		U
cis-1,2-Dichloroethene	.02	1.	.02	1		U
cis-1,3-Dichloropropene	.025	.5	.025	1		U
Dibromochloromethane	.021	.5	.021	1		U
Dibromomethane	.033	1.	.033	1		U
Dichlorodifluoromethane	.031	1.	.031	1		U
Ethylbenzene	.024	1.	.024	1		U
Hexachlorobutadiene	.085	.6	.085	1		U
Isopropylbenzene	.019	1.	.019	1		U
Methyl tert-butyl ether	.035	5.	.035	1		U
Methylene chloride	.02	2.	.02	1		U
n-Butylbenzene	.072	1.	.072	1		U
n-Propylbenzene	.024	1.	.024	1		U
Naphthalene	.056	1.	.056	1		U
o-Xylene	.028	1.	.028	1		U
p-Isopropyltoluene	.032	1.	.032	1		U
sec-Butylbenzene	.028	1.	.028	1		U
Styrene	.014	1.	.014	1		U
tert-Butylbenzene	.026	1.	.026	1		U
Tetrachloroethene	.04	1.	.04	1		U
Toluene	.015	1.	.015	1		U
trans-1,2-Dichloroethene	.018	1.	.018	1		U
trans-1,3-Dichloropropene	.018	1.	.018	1		U
Trichloroethene	.025	1.	.025	1		U

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Comments:

AFCEE FORM O-2

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW1 [WG1] Lab Sample ID: U9036 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Trichlorofluoromethane	.01	1.	.01	1	U	UJ
Vinyl chloride	.043	1.	.043	1	U	↓
Xylene (total)	.065	2.	.065	1	U	↓

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-d4 (surrogate)	111	72-119	
Bromofluorobenzene (surrogate)	110	76-119	
Dibromofluoromethane (surrogate)	113	85-115	
Toluene-d8 (surrogate)	105	81-120	

Internal Std.	Qualifier
1,4-Dichlorobenzene-d4	
Chlorobenzene-d5	
Fluorobenzene	

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Comments:

AFCEE FORM O-2

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW3 [WG1] Lab Sample ID: U9038 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
(m+p)-Xylene	.065	2.	.065	1	U	U
1,1,1,2-Tetrachloroethane	.027	.5	.027	1	U	U
1,1,1-Trichloroethane	.014	1.	.42	1	F	J
1,1,2,2-Tetrachloroethane	.013	.5	.013	1	U	U
1,1,2-Trichloroethane	.044	1.	.044	1	U	
1,1-Dichloroethane	.013	1.	.013	1	U	
1,1-Dichloroethene	.022	1.	.022	1	U	
1,1-Dichloropropene	.033	1.	.033	1	U	
1,2,3-Trichlorobenzene	.074	1.	.074	1	U	
1,2,3-Trichloropropane	.076	1.	.076	1	U	
1,2,4-Trichlorobenzene	.057	1.	.057	1	U	
1,2,4-Trimethylbenzene	.039	1.	.039	1	U	
1,2-Dibromo-3-chloropropane	.41	2.	.41	1	U	
1,2-Dibromoethane	.023	1.	.023	1	U	
1,2-Dichlorobenzene	.019	1.	.019	1	U	
1,2-Dichloroethane	.012	.5	.012	1	U	
1,2-Dichloropropane	.038	1.	.038	1	U	
1,3,5-Trimethylbenzene	.037	1.	.037	1	U	
1,3-Dichlorobenzene	.034	1.	.034	1	U	
1,3-Dichloropropane	.018	.5	.018	1	U	
1,4-Dichlorobenzene	.042	.5	.042	1	U	
1-Chlorohexane	.027	1.	.027	1	U	
2,2-Dichloropropane	.043	1.	.043	1	U	
2-Butanone	2.5	10.	2.5	1	U	
2-Chlorotoluene	.026	1.	.026	1	U	
4-Chlorotoluene	.036	1.	.036	1	U	
4-Methyl-2-pentanone	.08	10.	.08	1	U	
Acetone	1.6	10.	1.6	1	R	
Benzene	.015	.5	.015	1	U	
Bromobenzene	.021	1.	.021	1	U	
Bromochloromethane	.034	1.	.034	1	U	

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Comments:

AFCEE FORM O-2

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW3 [WG1] Lab Sample ID: U9038 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Bromodichloromethane	.022	.5	.022	1	U	U
Bromoform	.027	1.	.027	1	U	
Bromomethane	.17	3.	.17	1	U	
Carbon tetrachloride	.019	1.	.019	1	U	
Chlorobenzene	.019	.5	.019	1	U	
Chloroethane	.3	1.	.3	1	U	
Chloroform	.1	.5	.1	1	U	
Chloromethane	.11	1.	.11	1	U	
cis-1,2-Dichloroethene	.02	1.	.46	1	F	J
cis-1,3-Dichloropropene	.025	.5	.025	1	U	U
Dibromochloromethane	.021	.5	.021	1	U	
Dibromomethane	.033	1.	.033	1	U	
Dichlorodifluoromethane	.031	1.	.031	1	U	
Ethylbenzene	.024	1.	.024	1	U	
Hexachlorobutadiene	.085	.6	.085	1	U	
Isopropylbenzene	.019	1.	.019	1	U	
Methyl tert-butyl ether	.035	5.	.035	1	U	
Methylene chloride	.02	2.	.02	1	U	
n-Butylbenzene	.072	1.	.072	1	U	
n-Propylbenzene	.024	1.	.024	1	U	
Naphthalene	.056	1.	.056	1	U	
o-Xylene	.028	1.	.028	1	U	
p-Isopropyltoluene	.032	1.	.032	1	U	
sec-Butylbenzene	.028	1.	.028	1	U	
Styrene	.014	1.	.014	1	U	
tert-Butylbenzene	.026	1.	.026	1	U	
Tetrachloroethene	.04	1.	.04	1	U	
Toluene	.015	1.	.015	1	U	
trans-1,2-Dichloroethene	.018	1.	.018	1	U	
trans-1,3-Dichloropropene	.018	1.	.018	1	U	
Trichloroethene	.025	1.	.8	1	F	J

Comments:

7.22.02

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW3 [WG1] Lab Sample ID: U9038 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Trichlorofluoromethane	.01	1.	.01	1		U
Vinyl chloride	.043	1.	.043	1		U
Xylene (total)	.065	2.	.065	1		U

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-d4 (surrogate)	113	72-119	
Bromofluorobenzene (surrogate)	108	76-119	
Dibromofluoromethane (surrogate)	113	85-115	
Toluene-d8 (surrogate)	104	81-120	

Internal Std.	Qualifier
1,4-Dichlorobenzene-d4	
Chlorobenzene-d5	
Fluorobenzene	

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Comments:

AFCEE FORM O-2

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ORGANIC ANALYSES DATA SHEET 2

RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW4 [MG1] Lab Sample ID: U9040 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier	
(m+p)-Xylene	.065	2.	.065	1		U	U
1,1,1,2-Tetrachloroethane	.027	.5	.027	1		U	U
1,1,1-Trichloroethane	.014	1.	2.54	1			
1,1,2,2-Tetrachloroethane	.013	.5	.013	1		U	U
1,1,2-Trichloroethane	.044	1.	.044	1		U	U
1,1-Dichloroethane	.013	1.	.79	1		F	J
1,1-Dichloroethene	.022	1.	.34	1		F	J
1,1-Dichloropropene	.033	1.	.033	1		U	U
1,2,3-Trichlorobenzene	.074	1.	.074	1		U	
1,2,3-Trichloropropane	.076	1.	.076	1		U	
1,2,4-Trichlorobenzene	.057	1.	.057	1		U	
1,2,4-Trimethylbenzene	.039	1.	.039	1		U	
1,2-Dibromo-3-chloropropane	.41	2.	.41	1		U	
1,2-Dibromoethane	.023	1.	.023	1		U	
1,2-Dichlorobenzene	.019	1.	.019	1		U	
1,2-Dichloroethane	.012	.5	.012	1		U	
1,2-Dichloropropane	.038	1.	.038	1		U	
1,3,5-Trimethylbenzene	.037	1.	.037	1		U	
1,3-Dichlorobenzene	.034	1.	.034	1		U	
1,3-Dichloropropane	.018	.5	.018	1		U	
1,4-Dichlorobenzene	.042	.5	.042	1		U	
1-Chlorohexane	.027	1.	.027	1		U	
2,2-Dichloropropane	.043	1.	.043	1		U	
2-Butanone	2.5	10.	2.5	1		U	
2-Chlorotoluene	.026	1.	.026	1		U	
4-Chlorotoluene	.036	1.	.036	1		U	
4-Methyl-2-pentanone	.08	10.	.08	1		U	
Acetone	1.6	10.	1.6	1		R	
Benzene	.015	.5	.015	1		U	
Bromobenzene	.021	1.	.021	1		U	
Bromochloromethane	.034	1.	.034	1		U	

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Comments:

AFCEE FORM O-2

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW4 [WG1] Lab Sample ID: U9040 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Bromodichloromethane	.022	.5	.022	1	U	U
Bromoform	.027	1.	.027	1	U	
Bromomethane	.17	3.	.17	1	U	
Carbon tetrachloride	.019	1.	.019	1	U	
Chlorobenzene	.019	.5	.019	1	U	
Chloroethane	.3	1.	.3	1	U	
Chloroform	.1	.5	.1	1	U	
Chloromethane	.11	1.	.11	1	U	
cis-1,2-Dichloroethene	.02	1.	2.07	1		
cis-1,3-Dichloropropene	.025	.5	.025	1	U	U
Dibromochloromethane	.021	.5	.021	1	U	
Dibromomethane	.033	1.	.033	1	U	
Dichlorodifluoromethane	.031	1.	.031	1	U	
Ethylbenzene	.024	1.	.024	1	U	
Hexachlorobutadiene	.085	.6	.085	1	U	
Isopropylbenzene	.019	1.	.019	1	U	
Methyl tert-butyl ether	.035	5.	.035	1	U	
Methylene chloride	.02	2.	.02	1	U	
n-Butylbenzene	.072	1.	.072	1	U	
n-Propylbenzene	.024	1.	.024	1	U	
Naphthalene	.056	1.	.056	1	U	
o-Xylene	.028	1.	.028	1	U	
p-Isopropyltoluene	.032	1.	.032	1	U	
sec-Butylbenzene	.028	1.	.028	1	U	
Styrene	.014	1.	.014	1	U	
tert-Butylbenzene	.026	1.	.026	1	U	
Tetrachloroethene	.04	1.	.53	1	P	J
Toluene	.015	1.	.015	1	U	U
trans-1,2-Dichloroethene	.018	1.	.018	1	U	
trans-1,3-Dichloropropene	.018	1.	.018	1	U	
Trichloroethene	.025	1.	21.63	1		

7.22.02

Comments:

AFCEE FORM O-2

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW4 [WG1] Lab Sample ID: U9040 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Trichlorofluoromethane	.01	1.	.58	1	F	J
Vinyl chloride	.043	1.	.043	1	U	UJ
Xylene (total)	.065	2.	.065	1	U	UJ

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-d4 (surrogate)	109	72-119	
Bromofluorobenzene (surrogate)	109	76-119	
Dibromofluoromethane (surrogate)	112	85-115	
Toluene-d8 (surrogate)	105	81-120	

Internal Std.	Qualifier
1,4-Dichlorobenzene-d4	
Chlorobenzene-d5	
Fluorobenzene	

7-22-02

Comments:

AFCEE FORM O-2

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW7 [WG1] Lab Sample ID: U9041 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
(m+p)-Xylene	.065	2.	.065	1		U
1,1,1,2-Tetrachloroethane	.027	.5	.027	1		U
1,1,1-Trichloroethane	.014	1.	.87	1		F
1,1,2,2-Tetrachloroethane	.013	.5	.013	1		U
1,1,2-Trichloroethane	.044	1.	.044	1		U
1,1-Dichloroethane	.013	1.	.46	1		F
1,1-Dichloroethene	.022	1.	.022	1		U
1,1-Dichloropropene	.033	1.	.033	1		U
1,2,3-Trichlorobenzene	.074	1.	.074	1		U
1,2,3-Trichloropropane	.076	1.	.076	1		U
1,2,4-Trichlorobenzene	.057	1.	.057	1		U
1,2,4-Trimethylbenzene	.039	1.	.039	1		U
1,2-Dibromo-3-chloropropane	.41	2.	.41	1		U
1,2-Dibromoethane	.023	1.	.023	1		U
1,2-Dichlorobenzene	.019	1.	.019	1		U
1,2-Dichloroethane	.012	.5	.012	1		U
1,2-Dichloropropane	.038	1.	.038	1		U
1,3,5-Trimethylbenzene	.037	1.	.037	1		U
1,3-Dichlorobenzene	.034	1.	.034	1		U
1,3-Dichloropropane	.018	.5	.018	1		U
1,4-Dichlorobenzene	.042	.5	.042	1		U
1-Chlorohexane	.027	1.	.027	1		U
2,2-Dichloropropane	.043	1.	.043	1		U
2-Butanone	2.5	10.	2.5	1		U
2-Chlorotoluene	.026	1.	.026	1		U
4-Chlorotoluene	.036	1.	.036	1		U
4-Methyl-2-pentanone	.08	10.	.08	1		U
Acetone	1.6	10.	1.6	1		R
Benzene	.015	.5	.015	1		U
Bromobenzene	.021	1.	.021	1		U
Bromochloromethane	.034	1.	.034	1		U

7-22-02

Comments:

AFCEE FORM O-2

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW7 [WG1] Lab Sample ID: U9041 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Bromodichloromethane	.022	.5	.022	1	U	U
Bromoform	.027	1.	.027	1	U	
Bromomethane	.17	3.	.17	1	U	
Carbon tetrachloride	.019	1.	.019	1	U	
Chlorobenzene	.019	.5	.019	1	U	
Chloroethane	.3	1.	.3	1	U	
Chloroform	.1	.5	.1	1	U	
Chloromethane	.11	1.	.11	1	U	
cis-1,2-Dichloroethene	.02	1.	2.69	1	J	J
cis-1,3-Dichloropropene	.025	.5	.025	1	U	U
Dibromochloromethane	.021	.5	.021	1	U	
Dibromomethane	.033	1.	.033	1	U	
Dichlorodifluoromethane	.031	1.	.031	1	U	
Ethylbenzene	.024	1.	.024	1	U	
Hexachlorobutadiene	.085	.6	.085	1	U	
Isopropylbenzene	.019	1.	.019	1	U	
Methyl tert-butyl ether	.035	5.	.035	1	U	
Methylene chloride	.02	2.	.02	1	U	
n-Butylbenzene	.072	1.	.072	1	U	
n-Propylbenzene	.024	1.	.024	1	U	
Naphthalene	.056	1.	.056	1	U	
o-Xylene	.028	1.	.028	1	U	
p-Isopropyltoluene	.032	1.	.032	1	U	
sec-Butylbenzene	.028	1.	.028	1	U	
Styrene	.014	1.	.014	1	U	
tert-Butylbenzene	.026	1.	.026	1	U	
Tetrachloroethene	.04	1.	.23	1	F	J
Toluene	.015	1.	.015	1	U	U
trans-1,2-Dichloroethene	.018	1.	.018	1	U	U
trans-1,3-Dichloropropene	.018	1.	.018	1	U	U
Trichloroethene	.025	1.	1.77	1	J	J

JW 7.22.02

Comments:

AFCEE FORM O-2

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW7 [WG1] Lab Sample ID: U9041 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Trichlorofluoromethane	.01	1.	.01	1		U
Vinyl chloride	.043	1.	.043	1		U
Xylene (total)	.065	2.	.065	1		U

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-d4 (surrogate)	114	72-119	
Bromofluorobenzene (surrogate)	107	76-119	
Dibromofluoromethane (surrogate)	119	85-115	*
Toluene-d8 (surrogate)	109	81-120	

Internal Std.	Qualifier
1,4-Dichlorobenzene-d4	
Chlorobenzene-d5	
Fluorobenzene	

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 060302W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW7 [WG1] Lab Sample ID: U9041RE Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:06/03/02 Date Analyzed:06/03/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
(m+p)-Xylene	.065	2.	.065	1		U U
1,1,1,2-Tetrachloroethane	.027	.5	.027	1		U U
1,1,1-Trichloroethane	.014	1.	.99	1		F J
1,1,2,2-Tetrachloroethane	.013	.5	.013	1		U U
1,1,2-Trichloroethane	.044	1.	.044	1		U U
1,1-Dichloroethane	.013	1.	.41	1		F J
1,1-Dichloroethene	.022	1.	.022	1		U U
1,1-Dichloropropene	.033	1.	.033	1		U
1,2,3-Trichlorobenzene	.074	1.	.074	1		U
1,2,3-Trichloropropane	.076	1.	.076	1		U
1,2,4-Trichlorobenzene	.057	1.	.057	1		U
1,2,4-Trimethylbenzene	.039	1.	.039	1		U
1,2-Dibromo-3-chloropropane	.41	2.	.41	1		U
1,2-Dibromoethane	.023	1.	.023	1		U
1,2-Dichlorobenzene	.019	1.	.019	1		U
1,2-Dichloroethane	.012	.5	.012	1		U
1,2-Dichloropropane	.038	1.	.038	1		U
1,3,5-Trimethylbenzene	.037	1.	.037	1		U
1,3-Dichlorobenzene	.034	1.	.034	1		U
1,3-Dichloropropane	.018	.5	.018	1		U
1,4-Dichlorobenzene	.042	.5	.042	1		U
1-Chlorohexane	.027	1.	.027	1		U
2,2-Dichloropropane	.043	1.	.043	1		U
2-Butanone	2.5	10.	2.5	1		U
2-Chlorotoluene	.026	1.	.026	1		U
4-Chlorotoluene	.036	1.	.036	1		U
4-Methyl-2-pentanone	.08	10.	.08	1		U
Acetone	1.6	10.	1.6	1		~~U~~ R
Benzene	.015	.5	.015	1		U
Bromobenzene	.021	1.	.021	1		U
Bromochloromethane	.034	1.	.034	1		U

ap 6/7/02

Comments:

DO not use
AAL 7.22.02

AFCEE FORM O-2

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 060302W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW7 [WG1] Lab Sample ID: U9041RE Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:06/03/02 Date Analyzed:06/03/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Bromodichloromethane	.022	.5	.022	1	U	UJ
Bromoform	.027	1.	.027	1	U	
Bromomethane	.17	3.	.17	1	U	
Carbon tetrachloride	.019	1.	.019	1	U	UJ
Chlorobenzene	.019	.5	.019	1	U	UJ
Chloroethane	.3	1.	.3	1	U	
Chloroform	.1	.5	.1	1	U	
Chloromethane	.11	1.	.11	1	U	
cis-1,2-Dichloroethene	.02	1.	2.39	1	J	J
cis-1,3-Dichloropropene	.025	.5	.025	1	U	UJ
Dibromochloromethane	.021	.5	.021	1	U	
Dibromomethane	.033	1.	.033	1	U	
Dichlorodifluoromethane	.031	1.	.031	1	U	
Ethylbenzene	.024	1.	.024	1	U	
Hexachlorobutadiene	.085	.6	.085	1	U	
Isopropylbenzene	.019	1.	.019	1	U	
Methyl tert-butyl ether	.035	5.	.035	1	U	
Methylene chloride	.02	2.	.02	1	U	
n-Butylbenzene	.072	1.	.072	1	U	
n-Propylbenzene	.024	1.	.024	1	U	
Naphthalene	.056	1.	.056	1	U	
o-Xylene	.028	1.	.028	1	U	
p-Isopropyltoluene	.032	1.	.032	1	U	
sec-Butylbenzene	.028	1.	.028	1	U	
Styrene	.014	1.	.014	1	U	
tert-Butylbenzene	.026	1.	.026	1	U	
Tetrachloroethene	.04	1.	.32	1	F	J
Toluene	.015	1.	.015	1	U	UJ
trans-1,2-Dichloroethene	.018	1.	.018	1	U	UJ
trans-1,3-Dichloropropene	.018	1.	.018	1	U	UJ
Trichloroethene	.025	1.	1.83	1	J	J

Comments:

Do not use AAL 7.22.02

AFCEE FORM O-2

AFCEE

ORGANIC ANALYSES DATA SHEET 2

RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 060302W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW7 [WG1] Lab Sample ID: U9041RE Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:06/03/02 Date Analyzed:06/03/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Trichlorofluoromethane	.01	1.	.01	1		U
Vinyl chloride	.043	1.	.043	1		U
Xylene (total)	.065	2.	.065	1		U

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-d4 (surrogate)	111	72-119	
Bromofluorobenzene (surrogate)	106	76-119	
Dibromofluoromethane (surrogate)	116	85-115	*
Toluene-d8 (surrogate)	103	81-120	

Internal Std.	Qualifier
1,4-Dichlorobenzene-d4	
Chlorobenzene-d5	
Fluorobenzene	

Do not use
JLL
6 22.0

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW7 [WG9] Lab Sample ID: U9042 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
(m+p)-Xylene	.065	2.	.065	1		U
1,1,1,2-Tetrachloroethane	.027	.5	.027	1		U
1,1,1-Trichloroethane	.014	1.	.74	1		F
1,1,2,2-Tetrachloroethane	.013	.5	.013	1		U
1,1,2-Trichloroethane	.044	1.	.044	1		U
1,1-Dichloroethane	.013	1.	.47	1		F
1,1-Dichloroethene	.022	1.	.022	1		U
1,1-Dichloropropene	.033	1.	.033	1		U
1,2,3-Trichlorobenzene	.074	1.	.074	1		U
1,2,3-Trichloropropane	.076	1.	.076	1		U
1,2,4-Trichlorobenzene	.057	1.	.057	1		U
1,2,4-Trimethylbenzene	.039	1.	.039	1		U
1,2-Dibromo-3-chloropropane	.41	2.	.41	1		U
1,2-Dibromoethane	.023	1.	.023	1		U
1,2-Dichlorobenzene	.019	1.	.019	1		U
1,2-Dichloroethane	.012	.5	.012	1		U
1,2-Dichloropropane	.038	1.	.038	1		U
1,3,5-Trimethylbenzene	.037	1.	.037	1		U
1,3-Dichlorobenzene	.034	1.	.034	1		U
1,3-Dichloropropane	.018	.5	.018	1		U
1,4-Dichlorobenzene	.042	.5	.042	1		U
1-Chlorohexane	.027	1.	.027	1		U
2,2-Dichloropropane	.043	1.	.043	1		U
2-Butanone	2.5	10.	2.5	1		U
2-Chlorotoluene	.026	1.	.026	1		U
4-Chlorotoluene	.036	1.	.036	1		U
4-Methyl-2-pentanone	.08	10.	.08	1		U
Acetone	1.6	10.	1.6	1		U
Benzene	.015	.5	.015	1		U
Bromobenzene	.021	1.	.021	1		U
Bromochloromethane	.034	1.	.034	1		U

Comments:

AFCEE FORM O-2

AFCEE

ORGANIC ANALYSES DATA SHEET 2

RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW7 [WG91] Lab Sample ID: U9042 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Bromodichloromethane	.022	.5	.022	1		U
Bromoform	.027	1.	.027	1		U
Bromomethane	.17	3.	.17	1		U
Carbon tetrachloride	.019	1.	.019	1		U
Chlorobenzene	.019	.5	.019	1		U
Chloroethane	.3	1.	.3	1		U
Chloroform	.1	.5	.1	1		U
Chloromethane	.11	1.	.11	1		U
cis-1,2-Dichloroethene	.02	1.	2.79	1		
cis-1,3-Dichloropropene	.025	.5	.025	1		U
Dibromochloromethane	.021	.5	.021	1		U
Dibromomethane	.033	1.	.033	1		U
Dichlorodifluoromethane	.031	1.	.031	1		U
Ethylbenzene	.024	1.	.024	1		U
Hexachlorobutadiene	.085	.6	.085	1		U
Isopropylbenzene	.019	1.	.019	1		U
Methyl tert-butyl ether	.035	5.	.035	1		U
Methylene chloride	.02	2.	.02	1		U
n-Butylbenzene	.072	1.	.072	1		U
n-Propylbenzene	.024	1.	.024	1		U
Naphthalene	.056	1.	.056	1		U
o-Xylene	.028	1.	.028	1		U
p-Isopropyltoluene	.032	1.	.032	1		U
sec-Butylbenzene	.028	1.	.028	1		U
Styrene	.014	1.	.014	1		U
tert-Butylbenzene	.026	1.	.026	1		U
Tetrachloroethene	.04	1.	.22	1		F
Toluene	.015	1.	.015	1		U
trans-1,2-Dichloroethene	.018	1.	.018	1		U
trans-1,3-Dichloropropene	.018	1.	.018	1		U
Trichloroethene	.025	1.	1.65	1		

Comments:

AFCEE FORM O-2

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260 Preparatory Method: 5030 AAB#: 053102W2

Lab Name: O'Brien & Gere Laboratories, Inc Contract #: F41624-00-D-8023/0047

Field Sample ID: SW7 [WG9] Lab Sample ID: U9042 Matrix:Water

%Solids: Initial Calibration ID: M531AF31.M

Date Received: 05/22/02 Date Prepared:05/31/02 Date Analyzed:05/31/02

Concentration Units(mg/L or mg/Kg dry weight): ug/L Sample size: 25 mL

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
Trichlorofluoromethane	.01	1.	.01	1	U	U
Vinyl chloride	.043	1.	.043	1	U	↓
Xylene (total)	.065	2.	.065	1	U	↓

Surrogate	Recovery	Control Limits	Qualifier
1,2-Dichloroethane-d4 (surrogate)	111	72-119	
Bromofluorobenzene (surrogate)	108	76-119	
Dibromofluoromethane (surrogate)	114	85-115	
Toluene-d8 (surrogate)	106	81-120	

Internal Std.	Qualifier
1,4-Dichlorobenzene-d4	
Chlorobenzene-d5	
Fluorobenzene	

6/22/02

Comments:

AFCEE FORM O-2