Rod K —
Barbara H —
ORIGINAL HAS BEEN FILED
SP 5/8/95

2 copies

DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 27th FIGHTER WING (ACC)
CANNON AIR FORCE BASE, NEW MEXICO

Christopher S. Long, Colonel, USAF
Commander, 27th Support Group
100 S DL Ingram Blvd Suite 200
Cannon AFB NM 88103-5217

RECEIVED
MAY 4 1995

Ms. Barbara Hoditschek
RCRA Permits Program Manager
New Mexico Environment Department
1190 St Francis Drive
PO Box 26110
Santa Fe NM 87500

ENTERED

Dear Ms. Hoditschek

We are providing the attached groundwater analytical results for Solid Waste Management Unit 113 Landfill 5, 22-23 Feb 95, for your review. This report provides results for the first half of 1995 for the landfill which is currently on a semi-annual sampling schedule. Previous 3rd quarter results for this unit were provided in Nov 94.

If you have any questions, please contact Mr. Sanford Hutsell or John Constantine, of my environmental flight, at (505) 784-4348.

Sincerely

Christopher S. Long

CHRISTOPHER S. LONG, Colonel, USAF
Commander, 27th Support Group

Attachment:
Groundwater Analytical Results Landfill 5

cc:
Groundwater Bureau (D. Morgan)
EPA Region VI (W. Hurlbut)

02-23-95 (continued)

1135 Arrive @ well L. Measured inside well casing w/ Tip 0.0 ppm. Measured w.l. w/ Solinst (W-457118) 277.45 ft below top of pvc disk w/ Bennett pump fittings. T.D. 287 ft, ~10 ft of water standing in well, 1.5 gal/lin. ft (6 in i.d. casing), 1 well volume = 15 gal, 3 well volumes = 45 gal.

1153 Began purging well L.

time	vol.	temp.	turb.	pH	cond.
1153	1 gal	17°C	0.26 NTU	7.26	787 µS/cm
1200	11	18	10.3	7.22	840
1208	21	18	3.94	7.40	817 ← Well drying up. discharge greatly reduce

1220 Stopped purging after 28 gal. to let well recover.

1235 Resumed purging

1238	31	18	3.20	7.47	803

1243 Stopped purging after 37 gal. to let well recover.

1258 Resumed purging

1303	41	18.5	3.50	7.36	787

1315 Collected env. sample CAFB-L-0295-1. Rechecked conductivity meter calibration: 774 µS/cm standard reads 753 µS/cm. Rechecked pH meter calibration 7.00 standard reads 7.09, 10.00 standard reads 10.00.

↓

Cannon Air Force Base, New Mexico

Ground-Water Monitoring at Landfill 5, RCRA Monitoring Well Sampling

Data Report for February 22-23, 1995 Sampling

RECEIVED
MAY - 4 1995

Prepared for

United States Air Force Air Combat Command
Cannon Air Force Base, New Mexico 88103

April 1995

Prepared by

U.S. Geological Survey, Water Resources Division
4501 Indian School Road NE
Suite 200
Albuquerque, New Mexico 87110

CONTENTS

Executive Summary

Figure 1.--Location of Cannon Air Force Base, New Mexico

Figure 2.--Cannon Air Force Base and location of Landfill 5

Figure 3.--Location of monitoring wells around Landfill 5

Table 1.--Summary of concentrations of analytes in ground-water from five monitoring wells at Landfill 5, Cannon Air Force Base, New Mexico.

New Mexico Environment Department monitoring well data forms

APPENDIX I

Analytical Results from Quanterra Environmental Services Laboratory for Ground-Water Samples Collected February 22-23, 1995

APPENDIX II

Quality Control Report from Quanterra Environmental Services Laboratory for Ground-Water Samples Collected February 22-23, 1995

APPENDIX III

Field Notes for Ground-Water Sampling Conducted February 22-23, 1995 at Landfill 5, Cannon Air Force Base

EXECUTIVE SUMMARY

The U.S. Geological Survey (USGS), Water Resources Division and the U.S. Air Force Air Combat Command (ACC) have a memorandum of understanding to address the USGS assisting any ACC base in their hydrology or environmental programs. The USGS has agreed to assist Cannon Air Force Base (CAFB), an ACC base, in their ground-water monitoring program. Cannon AFB is located in east-central New Mexico about 7 miles west of Clovis as shown on Figure 1. The ground-water moritoring is at Landfill 5 on the southeast corner of the base as shown on Figure 2. The semi-annual detection monitoring is being performed as part of the July 13, 1990 Compliance Agreement between CAFB and the New Mexico Environment Department (NMED).

This report presents the data resulting from sampling five wells around landfill 5 on CAFB during February 22-23, 1995. The monitoring wells sampled at the landfill are well A (upgradient), and downgradient wells B, I, L, and M as shown on figure 3. All five wells were sampled for 40 CFR265 Appendix III, 40CFR264 Appendix - IX parameters, Volatile organic compounds (Method SW8240), Semivolatile organics (Method SW8270), Chlorinated pesticeds and PCB's (Method SW8080), Herbicides (Method SW8150), Polychlorinate dioxines / furans (Method SW8280), Total organic halogens (Method SW9020), Total organic carbon (Method E415.1), Total and dissolved metals (Method SW6010, SW7060, SW7421, SW7470, SW7740, SW7841), Phenols (Method SW9065), Cyanide (Method SW9012), Chloride and sulfate (Method E300.0), and Sulfide (Method E376.2). Concentrations of detected analytes in ground-water for five monitoring wells are summarized in table 1. The interim status detection monitoring semi-annual indicator parameter reports for five monitoring wells are presented in appropriate NMED data forms following table 1. The analytical results from Quanterra Environmental Services Laboratory are listed in Appendix I. The Quality Control Report for the analytical results from Quanterra is in Appendix II. Field activities, observations, and air and water-quality measurements for the February 22-23, 1995 semi-annual ground-water detection monitoring are in Appendix III.

As part of the quality assurance and quality control (QA/QC) procedures for this site a trip blank, matrix spike-matrix spike duplicate, duplicate, and equipment blank samples were collected. During this semi-annual ground-water detection monitoring event, no target parameters other than the parameters associated with the duplicate analysis were detected in the QA/QC samples mentioned above.

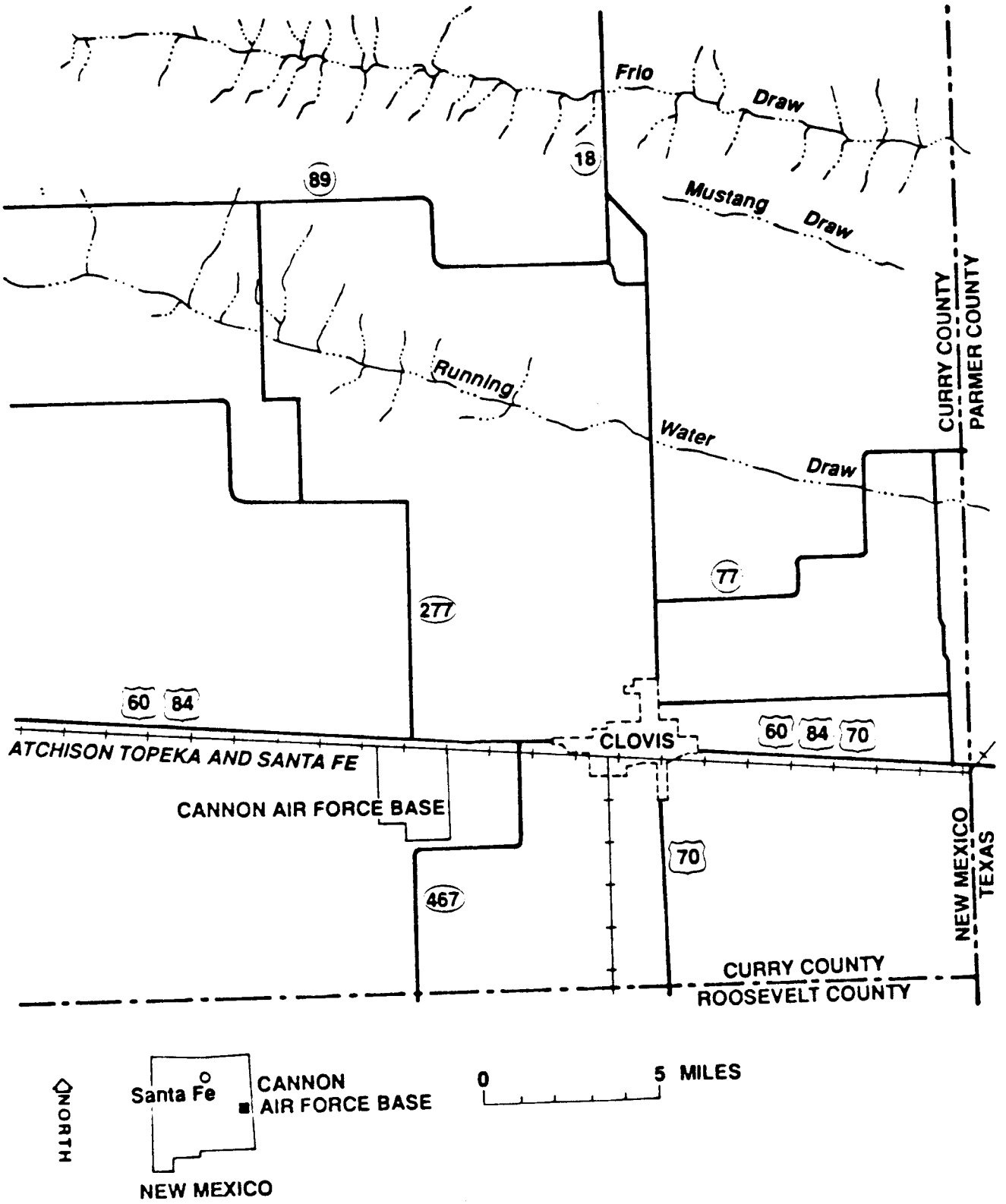

Figure 1.--Location of Cannon Air Force Base, New Mexico.

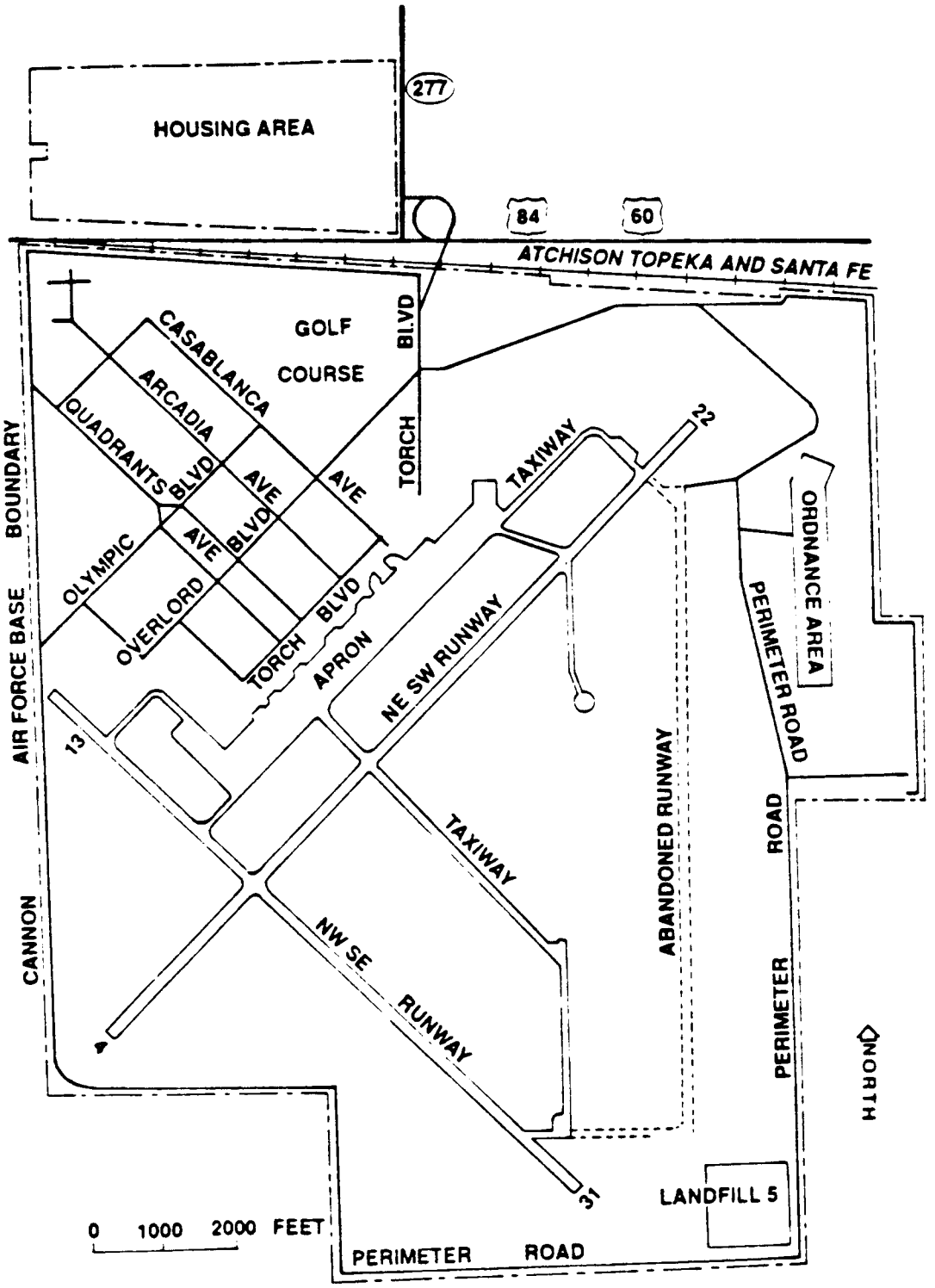

Figure 2.--Cannon Air Force Base and location of Landfill 5.

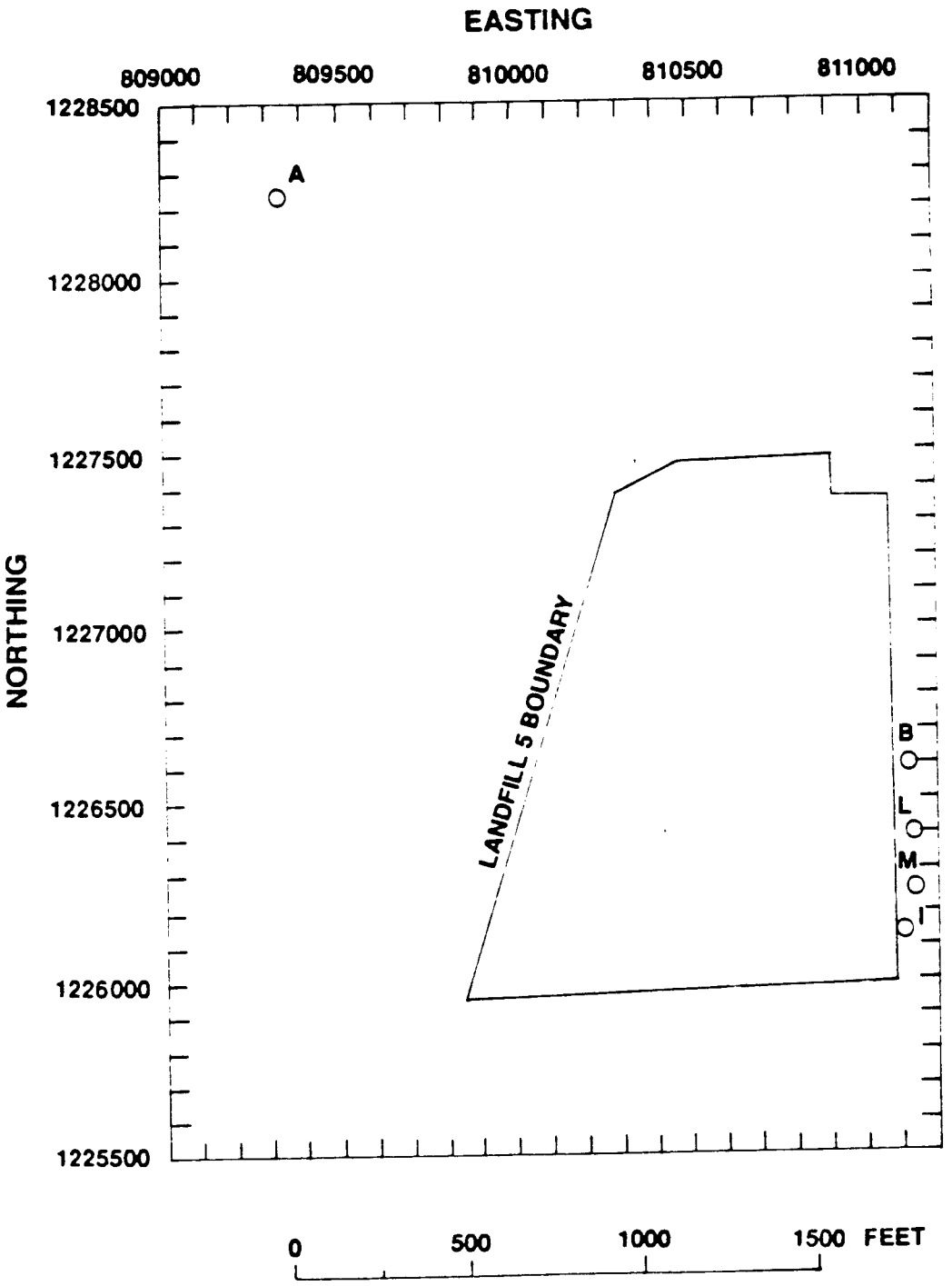

Figure 3.--Location of Monitoring wells around Landfill 5.

Table 1. Summary of concentrations of analytes in ground-water from monitoring wells A, B, I, L, and M for samples collected on February 22-23, 1995; Landfill 5, Cannon Air Force Base, New Mexico. [G, Reporting Limit raised due to matrix interference; ND, Not Detected; RL, Reporting Limit]

Well/sample ID: Date sampled:	A/CAFB-A-0295-2 2-22-95		A/CAFB-A-0295-3 2-22-95 Duplicate		B/CAFB-B-0295-1 2-22-95		I/CAFB-I-0295-1 2-23-95		L/CAFB-L-0295-1 2-23-95		M/CAFB-M-0295-1 2-23-95	
Analytes and Method	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Appendix-IX, Volatile Organic Compounds SW8240 (ug/L)												
Acetone	ND	10.0	ND	10.0	ND	10.0	37	10.0	ND	10.0	ND	10.0
Total organic halogens (TOX) SW9020 (ug/L)	ND	30.0	ND	30.0	ND	30.0	ND	30.0	ND	60.0G	35.6	30.0
Total organic carbon (TOC) E415.1 (mg/L)	ND	1.0	ND	1.0	ND	1.0	1.4	1.0	ND	1.0	1.1	1.0
Metals, Total (mg/L)												
Barium SW6010	0.034	0.010	0.034	0.010	0.029	0.010	0.034	0.010	0.039	0.010	0.040	0.010
Chromium SW6010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	0.55	0.010
Iron SW6010	ND	0.10	ND	0.10	ND	0.10	ND	0.10	0.13	0.10	4.1	0.10
Manganese SW6010	ND	0.010	ND	0.010	0.012	0.010	ND	0.010	ND	0.010	0.020	0.010
Nickel SW6010	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040	0.066	0.040
Sodium SW6010	54.9	5.0	54.8	5.0	60.8	5.0	41.2	0.010	49.1	0.010	47.4	0.010
Vanadium SW6010	0.035	0.010	0.035	0.010	0.027	0.010	0.026	0.010	0.020	0.010	0.027	0.010
Zinc SW6010	ND	0.020	ND	0.020	ND	0.020	ND	0.020	ND	0.020	0.061	0.020
Metals, Dissolved (mg/L)												
Barium SW6010	0.033	0.010	0.032	0.010	0.028	0.010	0.034	0.010	0.040	0.010	0.036	0.010
Selenium SW7740	0.0071	0.0050	0.0064	0.0050	0.0082	0.0050	0.0086	0.0050	0.0083	0.0050	0.0087	0.0050
Sodium SW6010	52.1	5.0	53.1	5.0	60.9	5.0	42.7	5.0	50.0	5.0	50.5	5.0
Vanadium SW6010	0.034	0.010	0.034	0.010	0.027	0.010	0.028	0.010	0.021	0.010	0.018	0.010
General Inorganics (mg/L)												
Chloride E300.0	46.3	3.0	46.1	3.0	55.4	3.0	79.2	3.0	76.9	3.0	104	3.0
Sulfate E300.0	91.0	5.0	90.9	5.0	150	5.0	125	5.0	124	5.0	106	5.0

INTERIM STATUS DETECTION MONITORING SEMI-ANNUAL INDICATOR PARAMETER REPORT

This set of data sheets should be completed by facilities in semi-annual detection monitoring, HWMR-6, Part VI, Section 265.92 (d) (2) and (e) and Section 265.94 (a). These data sheets should be completed semi-annually and submitted annually. The raw lab data sheets should be submitted in addition to the Semi-Annual Report. **In order to be acceptable** the raw lab data sheets must include 1) the date the sample was taken, 2) the sample extraction date, if any, and 3) the date of analysis.

FACILITY NAME Cannon Air Force Base EPA I.D. NUMBER NM7572124454

WELL NUMBER CAFB-A-0295-2

FIRST SAMPLING EVENT
SEMI-ANNUAL REPORT

LABORATORY NAME Quanterra Environmental Services DATE SAMPLED 02-22-95

SAMPLED BY F. Eileen Roybal LABORATORY SAMPLE I.D.# 040679-0002-SA

TIME SAMPLED 1150 DATE RECEIVED BY LAB 02-23-95

PARAMETERS	STORET CODE	UNITS	VALUE	DATE ANALYZED
Elevation of G. Water	71993	ft.	3995.32	02-22-95
Well Depth	-----	ft.	343.00	01-07-85
Well Casing Volume	-----	gal.	46.52	02-22-95
Pump Rate	-----	gal/min	1.50	02-22-95
Pump Period	72004	min.	80.00	02-22-95
Volume Excavated	73675	gal.	117.00	02-22-95

Sampler Material: TEFLN Well Sampling Method: PSPMP

FIRST SAMPLING EVENT
SEMI-ANNUAL REPORT
(continued)

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.86	N/A	02-22-95	
	00400	S.U.				(f)
	00400	S.U.				
	00400	S.U.				
Specific Conductivity	00095	umhos/cm	657	N/A	02-22-95	
	00095	umhos/cm				(f)
	00095	umhos/cm				
	00095	umhos/cm				
T.O.X.	70354	ug/l	ND	30.0	02-28-95	
	70354	ug/l				SW9020
	70354	ug/l				
	70354	ug/l				
T.O.C.	00680	mg/l	ND	1.0	02-25-95	
	00680	mg/l				E415.1
	00680	mg/l				
	00680	mg/l				

SIGNATURE: F. Eileen Roybal

NAME (PRINTED): F. Eileen Roybal

INTERIM STATUS DETECTION MONITORING SEMI-ANNUAL INDICATOR PARAMETER REPORT

This set of data sheets should be completed by facilities in semi-annual detection monitoring, HWMR-6, Part VI, Section 265.92 (d) (2) and (e) and Section 265.94 (a). These data sheets should be completed semi-annually and submitted annually. The raw lab data sheets should be submitted in addition to the Semi-Annual Report. **In order to be acceptable** the raw lab data sheets must include 1) the date the sample was taken, 2) the sample extraction date, if any, and 3) the date of analysis.

FACILITY NAME Cannon Air Force Base EPA I.D. NUMBER NM7572124454

WELL NUMBER CAFB-A-0295-3

FIRST SAMPLING EVENT
SEMI-ANNUAL REPORT

LABORATORY NAME Quanterra Environmental Services DATE SAMPLED 02-22-95

SAMPLED BY F. Eileen Roybal LABORATORY SAMPLE I.D.# 040679-0003-SA

TIME SAMPLED 1200 DATE RECEIVED BY LAB 02-23-95

PARAMETERS	STORET CODE	UNITS	VALUE	DATE ANALYZED
Elevation of G. Water	71993	ft.	3995.32	02-22-95
Well Depth	-----	ft.	343.00	01-07-85
Well Casing Volume	-----	gal.	46.52	02-22-95
Pump Rate	-----	gal/min	1.50	02-22-95
Pump Period	72004	min.	80.00	02-22-95
Volume Excavated	73675	gal.	117.00	02-22-95

Sampler Material: TEFLN Well Sampling Method: PSPMP

FIRST SAMPLING EVENT
SEMI-ANNUAL REPORT
(continued)

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.86	N/A	02-22-95	
	00400	S.U.				(f)
	00400	S.U.				
	00400	S.U.				
Specific Conductivity	00095	umhos/cm	657	N/A	02-22-95	
	00095	umhos/cm				(f)
	00095	umhos/cm				
	00095	umhos/cm				
T.O.X.	70354	ug/l	ND	30.0	02-28-95	
	70354	ug/l				SW9020
	70354	ug/l				
	70354	ug/l				
T.O.C.	00680	mg/l	ND	1.0	02-25-95	
	00680	mg/l				E415.1
	00680	mg/l				
	00680	mg/l				

SIGNATURE: F. Eileen Roybal

NAME (PRINTED): F. Eileen Roybal

INTERIM STATUS DETECTION MONITORING SEMI-ANNUAL INDICATOR PARAMETER REPORT

This set of data sheets should be completed by facilities in semi-annual detection monitoring, HWMR-6, Part VI, Section 265.92 (d) (2) and (e) and Section 265.94 (a). These data sheets should be completed semi-annually and submitted annually. The raw lab data sheets should be submitted in addition to the Semi-Annual Report. **In order to be acceptable** the raw lab data sheets must include 1) the date the sample was taken, 2) the sample extraction date, if any, and 3) the date of analysis.

FACILITY NAME Cannon Air Force Base EPA I.D. NUMBER NM7572124454

WELL NUMBER CAFB-B-0295-1

FIRST SAMPLING EVENT
SEMI-ANNUAL REPORT

LABORATORY NAME Quanterra Environmental Services DATE SAMPLED 02-22-95

SAMPLED BY F. Eileen Roybal LABORATORY SAMPLE I.D.# 040679-0001-SA

TIME SAMPLED 1600 DATE RECEIVED BY LAB 02-23-95

PARAMETERS	STORET CODE	UNITS	VALUE	DATE ANALYZED
Elevation of G. Water	71993	ft.	3989.15	02-22-95
Well Depth	-----	ft.	362.30	02-24-89
Well Casing Volume	-----	gal.	56.16	02-22-95
Pump Rate	-----	gal/min	1.22	02-22-95
Pump Period	72004	min.	98.00	02-22-95
Volume Excavated	73675	gal.	121.00	02-22-95

Sampler Material: TEFLN Well Sampling Method: PSPMP

FIRST SAMPLING EVENT
SEMI-ANNUAL REPORT
(continued)

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.80	N/A	02-22-95	
	00400	S.U.				(f)
	00400	S.U.				
	00400	S.U.				
Specific Conductivity	00095	umhos/cm	772	N/A	02-22-95	
	00095	umhos/cm				(f)
	00095	umhos/cm				
	00095	umhos/cm				
T.O.X.	70354	ug/l	ND	30.0	02-28-95	
	70354	ug/l				SW9020
	70354	ug/l				
	70354	ug/l				
T.O.C.	00680	mg/l	ND	1.0	02-25-95	
	00680	mg/l				E415.1
	00680	mg/l				
	00680	mg/l				

SIGNATURE: F. Eileen Roybal

NAME (PRINTED): F. Eileen Roybal

INTERIM STATUS DETECTION MONITORING SEMI-ANNUAL INDICATOR PARAMETER REPORT

This set of data sheets should be completed by facilities in semi-annual detection monitoring, HWMR-6, Part VI, Section 265.92 (d) (2) and (e) and Section 265.94 (a). These data sheets should be completed semi-annually and submitted annually. The raw lab data sheets should be submitted in addition to the Semi-Annual Report. **In order to be acceptable** the raw lab data sheets must include 1) the date the sample was taken, 2) the sample extraction date, if any, and 3) the date of analysis.

FACILITY NAME Cannon Air Force Base EPA I.D. NUMBER NM7572124454

WELL NUMBER CAFB-I-0295-1

FIRST SAMPLING EVENT
SEMI-ANNUAL REPORT

LABORATORY NAME Quanterra Environmental Services DATE SAMPLED 02-23-95

SAMPLED BY F. Eileen Roybal LABORATORY SAMPLE I.D.# 040706-0003-SA

TIME SAMPLED 1115 DATE RECEIVED BY LAB 02-24-95

PARAMETERS	STORET CODE	UNITS	VALUE	DATE ANALYZED
Elevation of G. Water	71993	ft.	3985.30	02-23-95
Well Depth	-----	ft.	293.00	02-24-89
Well Casing Volume	-----	gal.	23.40	02-23-95
Pump Rate	-----	gal/min	1.46	02-23-95
Pump Period	72004	min.	48.00	02-23-95
Volume Excavated	73675	gal.	71.00	02-23-95

Sampler Material: TEFLN Well Sampling Method: PSPMP

FIRST SAMPLING EVENT
SEMI-ANNUAL REPORT
(continued)

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.62	N/A	02-23-95	
	00400	S.U.				(f)
	00400	S.U.				
	00400	S.U.				
Specific Conductivity	00095	umhos/cm	818	N/A	02-23-95	
	00095	umhos/cm				(f)
	00095	umhos/cm				
	00095	umhos/cm				
T.O.X.	70354	ug/l	ND	30.0	02-28-95	
	70354	ug/l				SW9020
	70354	ug/l				
	70354	ug/l				
T.O.C.	00680	mg/l	1.4	1.0	02-25-95	
	00680	mg/l				E415.1
	00680	mg/l				
	00680	mg/l				

SIGNATURE: F. Eileen Roybal

NAME (PRINTED): F. Eileen Roybal

INTERIM STATUS DETECTION MONITORING SEMI-ANNUAL INDICATOR PARAMETER REPORT

This set of data sheets should be completed by facilities in semi-annual detection monitoring, HWMR-6, Part VI, Section 265.92 (d) (2) and (e) and Section 265.94 (a). These data sheets should be completed semi-annually and submitted annually. The raw lab data sheets should be submitted in addition to the Semi-Annual Report. **In order to be acceptable** the raw lab data sheets must include 1) the date the sample was taken, 2) the sample extraction date, if any, and 3) the date of analysis.

FACILITY NAME Cannon Air Force Base EPA I.D. NUMBER NM7572124454

WELL NUMBER CAFB-L-0295-1

FIRST SAMPLING EVENT
SEMI-ANNUAL REPORT

LABORATORY NAME Quanterra Environmental Services DATE SAMPLED 02-23-95

SAMPLED BY F. Eileen Roybal LABORATORY SAMPLE I.D.# 040706-0001-SA

TIME SAMPLED 1315 DATE RECEIVED BY LAB 02-24-95

PARAMETERS	STORET CODE	UNITS	VALUE	DATE ANALYZED
Elevation of G. Water	71993	ft.	3987.27	02-23-95
Well Depth	-----	ft.	287.00	10-21-92
Well Casing Volume	-----	gal.	6.23	03-30-95
Pump Rate	-----	gal/min	1.00	02-23-95
Pump Period	72004	min.	40.00	02-23-95
Volume Excavated	73675	gal.	41.00	02-23-95

Sampler Material: TEFLN Well Sampling Method: PSPMP

FIRST SAMPLING EVENT
SEMI-ANNUAL REPORT
(continued)

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.36	N/A	02-23-95	
	00400	S.U.				(f)
	00400	S.U.				
	00400	S.U.				
Specific Conductivity	00095	umhos/cm	787	N/A	02-23-95	
	00095	umhos/cm				(f)
	00095	umhos/cm				
	00095	umhos/cm				
T.O.X.	70354	ug/l	ND	60.0	03-07-95	
	70354	ug/l				SW9020
	70354	ug/l				
	70354	ug/l				
T.O.C.	00680	mg/l	ND	1.0	02-25-95	
	00680	mg/l				E415.1
	00680	mg/l				
	00680	mg/l				

SIGNATURE: F. Eileen Roybal

NAME (PRINTED): F. Eileen Roybal

INTERIM STATUS DETECTION MONITORING SEMI-ANNUAL INDICATOR PARAMETER REPORT

This set of data sheets should be completed by facilities in semi-annual detection monitoring, HWMR-6, Part VI, Section 265.92 (d) (2) and (e) and Section 265.94 (a). These data sheets should be completed semi-annually and submitted annually. The raw lab data sheets should be submitted in addition to the Semi-Annual Report. **In order to be acceptable** the raw lab data sheets must include 1) the date the sample was taken, 2) the sample extraction date, if any, and 3) the date of analysis.

FACILITY NAME Cannon Air Force Base EPA I.D. NUMBER NM7572124454

WELL NUMBER CAFB-M-0295-1

FIRST SAMPLING EVENT
SEMI-ANNUAL REPORT

LABORATORY NAME Quanterra Environmental Services DATE SAMPLED 02-23-95

SAMPLED BY F. Eileen Roybal LABORATORY SAMPLE I.D.# 040706-0002-SA

TIME SAMPLED 0930 DATE RECEIVED BY LAB 02-24-95

PARAMETERS	STORET CODE	UNITS	VALUE	DATE ANALYZED
Elevation of G. Water	71993	ft.	3987.74	02-23-95
Well Depth	-----	ft.	289.00	10-21-92
Well Casing Volume	-----	gal.	17.08	03-30-95
Pump Rate	-----	gal/min	1.42	02-23-95
Pump Period	72004	min.	19.00	02-23-95
Volume Excavated	73675	gal.	28.00	02-23-95

Sampler Material: TEFLN Well Sampling Method: PSPMP

FIRST SAMPLING EVENT
SEMI-ANNUAL REPORT
(continued)

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.11	N/A	02-23-95	
	00400	S.U.				(f)
	00400	S.U.				
	00400	S.U.				
Specific Conductivity	00095	umhos/cm	829	N/A	02-23-95	
	00095	umhos/cm				(f)
	00095	umhos/cm				
	00095	umhos/cm				
T.O.X.	70354	ug/l	35.6	30.0	02-28-95	
	70354	ug/l				SW9020
	70354	ug/l				
	70354	ug/l				
T.O.C.	00680	mg/l	1.1	1.0	02-25-95	
	00680	mg/l				E415.1
	00680	mg/l				
	00680	mg/l				

SIGNATURE: F. Eileen Roybal

NAME (PRINTED): F. Eileen Roybal

Quanterra
Environmental
Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

ANALYTICAL RESULTS

FOR

U.S. GEOLOGICAL SURVEY

QUANTERRA ENVIRONMENTAL SERVICES, DENVER

PROJECT NUMBER: 040679

MARCH 17, 1995

Reviewed by: Grant Wilton

Lindsay Breyer

Quanterra
Environmental Services

I. OVERVIEW

On February 23, 1995, Quanterra Environmental Services, Denver received five aqueous samples from the U.S. Geological Survey.

This report presents the analytical results as well as supporting information to aid in the evaluation and interpretation of the data and is arranged in the following order:

I. Overview
II. Sample Description Information/Analytical Test Requests
III. Analytical
IV. Quality Control Report

GC/MS SEMIVOLATILE ORGANIC ANALYSIS

Due to a spiking error, 4 of 6 surrogates were recovered outside control limits for the SCS for QC lot 27FEB95-N1. The DCS associated with this QC lot were in control as well as all sample surogate recoveries. There were no target compounds detected above the reporting limit and the data were accepted.

ORGANOCHLORINE HERBICIDE ANALYSIS

Quanterra Sample numbers 040679-0001-SA and -0002-SA were initially analyzed within prep and analytical holding times. Due to low surrogate recoveries the samples were re-prepped and analyzed after the holding time had expired. Both sets of data are in included in the report.

Except where indicated above, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory QC samples analyzed in conjunction with the samples in this project were within established control limits.

II. SAMPLE DESCRIPTION INFORMATION/ANALYTICAL TEST REQUESTS

Sample Description Information

The Sample Description Information lists all of the samples received in this project together with the internal laboratory identification number assigned for each sample. Each project received at Quanterra Environmental Services, Denver is assigned a unique six digit number. Samples within the project are numbered sequentially. The laboratory identification number is a combination of the six digit project code and the sample sequence number.

Also given in the Sample Description Information is the Sample Type (matrix), Date of Sampling (if known) and Date of Receipt at the laboratory.

Analytical Test Requests

The Analytical Test Requests lists the analyses that were performed on each sample. The Custom Test column indicates where tests have been modified to conform to the specific requirements of this project.

Quanterra
Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
U.S. Geological Survey

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
040679-0001-SA	CAFB-B-0295-1	AQUEOUS	22 FEB 95	16:00	23 FEB 95
040679-0002-SA	CAFB-A-0295-2	AQUEOUS	22 FEB 95	11:50	23 FEB 95
040679-0003-SA	CAFB-A-0295-3	AQUEOUS	22 FEB 95	12:00	23 FEB 95
040679-0004-EB	CAFB-B-0295-2	AQUEOUS	22 FEB 95	13:30	23 FEB 95
040679-0005-TB	CAFB-A-0295-1	AQUEOUS	22 FEB 95	09:45	23 FEB 95

Quanterra
Environmental Services

ANALYTICAL TEST REQUESTS
for
U.S. Geological Survey

Lab ID: 040679	Group Code	Analysis Description	Custom Test?
0001 - 0004	A	Volatile Organics	N
		Appendix IX List	N
		Screen - Volatile Organics	N
		Volatiles Library Search (10 Compound TID)	N
		Semivolatile Organics	N
		Appendix IX List	
		Prep - Semivolatile Organics by GC/MS	N
		Semivolatiles Library Search (20 Compound TID)	N
		Chlorinated Pesticides and PCB's	N
		Appendix IX List	
		Prep - Organochlorine Pesticides/PCBs by GC	N
		Chlorinated Pesticides and PCB's	N
		Appendix IX List	
		Appendix IX Herbicides	N
		Prep - Herbicides by GC	N
		Appendix IX Herbicides	N
		Phenolics (4-AAP)	N
		Total Organic Halogen (TOX)	N
		Cyanide, Total	N
		Prep - Cyanide, Total	N
		Sulfide, Total	N
		Chloride, Ion Chromatography	N
		Sulfate, Ion Chromatography	N
		Appendix IX Metals (Total) done by ICP	Y
		Prep - Total Metals, ICP	N
		Lead, Furnace AA (Total)	N
		Prep - Total Metals, Furnace AA	N
		Arsenic, Furnace AA (Total)	N
		Prep - Arsenic, Selenium - Total, Furnace AA	N
		Selenium, Furnace AA (Total)	N
		Thallium, Furnace AA (Total)	N
		Mercury, Cold Vapor AA (Total)	N
		Prep - Mercury, Cold Vapor AA (Total)	N
		Appendix IX Metals done by ICP	Y
		Lead, Furnace AA (Dissolved)	N
		Arsenic, Furnace AA (Dissolved)	N
		Selenium, Furnace AA (Dissolved)	N
		Thallium, Furnace AA (Dissolved)	N
		Mercury, Cold Vapor AA (Dissolved)	N
		Prep - Mercury, Cold Vapor AA, (Dissolved)	N
		STD-Total Organic Carbon (TOC)-415.1	N
0005	B	Volatile Organics	N

Quanterra
Environmental Services

ANALYTICAL TEST REQUESTS
for
U.S. Geological Survey

Lab ID: 040679	Group Code	Analysis Description	Custom Test?
		Appendix IX List	N
		Screen - Volatile Organics	N
		Volatiles Library Search (10 Compound TID)	N

III. ANALYTICAL RESULTS

The analytical results for this project are presented in the following data tables. Each data table includes sample identification information, and when available and appropriate, dates sampled, received, authorized, prepared and analyzed. The authorization data is the date when the project was defined by the client such that laboratory work could begin. The date prepared is typically the date an extraction or digestion was initiated. For volatile organic compounds in water, the date prepared is the date the screening of the sample was performed.

Data sheets contain a listing of the parameters measured in each test, the analytical results and the Quanterra Environmental Services, Denver laboratory's reporting limit. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis, i.e. no correction is made for moisture content.

In addition, surrogate recovery data is presented for all GC/MS analyses. The surrogate recovery is an indication of the affect of the sample matrix on the performance of the method.

The analytical data reported are subject to the following limitati
analytical methodology:

Volatile Organics

a) Due to the chemical nature of ethanol, this component cannot be consistently recovered using EPA Method 624 or 8240. This component is reported with a NR (Not Recoverable) in place of a reporting limit.

b) Methylene chloride and acetone are common laboratory contaminants in GC/MS analysis. We have programs in place to minimize contamination, occasionally these compounds will be found at low levels in samples.

Semivolatile Organics

a) Benzo(b) and benzo(k) fluoranthene cannot be differentiated based on their mass spectra; retention times are almost identical. The isomer which is the closest in retention time to the sample is reported.

b) 1,2-diphenylhydrazine is measured as azobenzene.

c) Diphenylamine cannot be distinguished from N-nitrosodiphenylamine.

d) 3-Methyl phenol and 4-methyl phenol cannot be differentia[illegible] [illegible]r mass spectra and retention times are almost identical. Resu[illegible] reported as 3/4-methyl phenol (or m&p-cresols).

e) Several Appendix IX and Refinery List compounds are not consistently recovered using Method 8270, and reporting limits cannot be established. These compounds include: dimethoate, famphur, hexachlorophene, 4-nitroquinoline-1-oxide, 4-phenylenediamine, and benzenethiol.

f) Two Refinery List compounds, pyridine and quinoline, are not recovered after alumina column cleanup.

g) Bis-2-(ethylhexyl)phthalate is a common laboratory contaminant in GC/MS analysis. We have programs in place to minimize this contamination, occasionally these compounds will be found at low levels in samples.

Tentatively Identified Compounds

This report presents results for the "identification" of unknown compounds that were detected in the GC/MS analysis. The results from this work are presented as "tentatively identified compounds" (TIC). The approach used for reporting TICs was based on the protocol established for this purpose in the EPA Superfund methods and on guidelines established by the American Chemical Society (ACS).

In summary, the mass spectrum of chromatographic peaks in concentrations in excess of 10% of the internal standard were obtained. Normally, the number of unknown compounds identified is limited to 10 compounds in the volatile fraction and 20 compounds in the semivolatile fraction. Each mass spectrum was then compared to a library of over 30,000 reference spectra in a computerized "library search." The three "best" matches obtained by the computer were hardcopied along with the mass spectrum of the unknown peak. This information was then reviewed by an analyst who "identified" the compound based on the available information.

All identifications were based on the "Guidelines for GC/MS Identification" developed by the American Chemical Society (Environmental Science and Technology, 1982, 16 143A). As recommended in these guidelines, identifications of unknown substances were reported with a level of confidence. The three levels of confidence cited in the ACS guidelines and used in this report are as follows:

Level 3: Confirmed Identification

The identification is based on the analysis of an authentic standard.

Level 2: Confident Identification

Good agreement was observed between the unknown compound and a specific library spectrum.

Level 1: Tentative Identification

The unknown compound is only indicative of a specific library spectrum.

Class Identification

The unknown compound was not similar to a specific library spectrum, but it did contain ions characteristic of a class of compounds (saturated hydrocarbon, chlorinated hydrocarbon, etc.).

If there were no library spectra similar to the unknown, and it could not be assigned to a particular class of compounds, the compound is reported as "unknown."

Quantitation of TICs is based on the total ionization peak area relative to an internal standard, assuming a response factor of one. Accordingly, the concentration is an estimate.

In general, mass spectrometry cannot distinguish isomers (compounds with the same molecular formula). Therefore, an identified compound may be any one of several different isomers.

The tentatively identified compounds in this report include some compounds reported as "siloxanes". Siloxanes are common laboratory and field artifacts or contaminants. Potential sources include silicon-based grease in the field or laboratory plus the liquid phase coating on gas chromatography columns, as well as other equipment in the laboratory. However, siloxanes may be present in environmental samples from spills of silicone oils or lubricating oils with siloxane additives.

Metals

All nominal reporting limits for metals have been established from instrument detection limit (IDL) evaluations and represent the level above which reliable data can be routinely obtained. Low level standards are analyzed seven times on three non-consecutive days on each instrument. The standard deviations of the three runs are summed to yield the IDL. Nominal reporting limits are generally 2-5 times the IDL (consistent with the American Chemical Society definition for the Limit of Quantification). The ability to achieve these quoted reporting limits is verified each quarter. Reporting limits above the nominal levels are often submitted due to matrix interferences or elevated analyte levels.

Reporting limits for metals analyzed by Inductively Coupled Plasma (ICP) are typically raised only for dilution due to an analyte exceeding the instrument linear range. Background and interelement interferences are corrected automatically and do not require dilution.

Metals analyzed by Graphite Furnace Atomic Absorption (GFAA) are subject to matrix interferences. Consequently, Quanterra Environmental Services, Denver laboratory's protocol is to analyze a spiked aliquot with every sample. The severity of the interference, based upon analyte level and spike recovery, is assessed against specific criteria and the need for an elevated reporting limit or dilution is determined.

The analysis of mercury by Cold Vapor Atomic Absorption (CVAA) is generally free from matrix interferences. As with ICP, reporting limits are raised only for dilution due to a sample concentration exceeding the linear range of the instrument.

Footnotes and Data Qualifiers

The data sheets included in this report may contain a variety of footnotes and data qualifiers. Those used to indicate the confidence level for Tentatively Identified Compounds (GC/MS methods) are described above. Other footnotes are used with specific tests; for example, footnotes used with the GC/FID Petroleum Hydrocarbon methods to indicate (in the analysts judgement) the product that appears to be present. Finally, there are a number of general qualifiers that serve to identify problems and pertinent observations made during sample analysis that are not discussed in the Overview. These are described below:

B Compound is also detected in the blank.

The indicated compound was detected in the sample as well as in the method blank. Please note that the B flag is not used when the sample result is ND (Not Detected).

G Reporting limit raised due to matrix interference.

Indicates that reporting limits were raised due to the presence of non-target compounds or other matrix interferences. The sample may or may not have been diluted. For inorganic methods, the footnote applies only to the flagged analyte. For organic methods, the footnote pertains to all analytes determined by the method.

J Result is detected below the reporting limit or is an estimated concentration.

This footnote indicates that the analyte was detected in the sample, but the measured concentration was below the reporting limit. When supported by the current Method Detection Limit study, J values are generally reported to 1/5 of the reporting limit for GC/MS Volatile Organics, 1/10 of the reporting limit for GC/MS Semivolatile Organics, 1/2 the reporting limit for GC and HPLC or to the Instrument Detection Limit (IDL) for metals.

T Preferred value unless footnoted on the secondary column test.

This footnote is used with GC tests to indicate the primary column results. The footnote will be listed only for the first compound but pertains to all analytes determined by the method. It is used in conjunction with the footnote V.

V Secondary column result is the preferred value.

This footnote is used for GC in conjunction with the T footnote. It indicates that the value from the second column is preferred over the primary column result and pertains only to the indicated compound.

t Sample diluted due to the concentration of target compounds.

Indicates that reporting limts were raised due to the presence of target analytes outside the calibration range of the method. For multi-analyte methods, the footnote will appear only for the first analyte but pertains to all analytes determined by the method.

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040679-0001-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Roxanne Sullivan

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040679-0001-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

Surrogate	Recovery	
Toluene-d8	102	%
4-Bromofluorobenzene	102	%
1,2-Dichloroethane-d4	99	%

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Roxanne Sullivan

Quanterra Environmental Services

Volatiles Library Search (10 Compound TID)

Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040679-0001-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: NA Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
None Detected	ND	ug/L	
TID Compound 2	ND	ug/L	
TID Compound 3	ND	ug/L	
TID Compound 4	ND	ug/L	
TID Compound 5	ND	ug/L	
TID Compound 6	ND	ug/L	
TID Compound 7	ND	ug/L	
TID Compound 8	ND	ug/L	
TID Compound 9	ND	ug/L	
TID Compound 10	ND	ug/L	

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Roxanne Sullivan

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-2
Lab ID: 040679-0002-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Roxanne Sullivan

Quanterra
Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-2
Lab ID: 040679-0002-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

Surrogate	Recovery	
Toluene-d8	101	%
4-Bromofluorobenzene	100	%
1,2-Dichloroethane-d4	99	%

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Roxanne Sullivan

Quanterra Environmental Services

Volatiles Library Search (10 Compound TID)

Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-2
Lab ID: 040679-0002-SA
Matrix: AQUEOUS
Authorized: 23 FEB 95

Sampled: 22 FEB 95
Prepared: NA

Received: 23 FEB 95
Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
None Detected	ND	ug/L	
TID Compound 2	ND	ug/L	
TID Compound 3	ND	ug/L	
TID Compound 4	ND	ug/L	
TID Compound 5	ND	ug/L	
TID Compound 6	ND	ug/L	
TID Compound 7	ND	ug/L	
TID Compound 8	ND	ug/L	
TID Compound 9	ND	ug/L	
TID Compound 10	ND	ug/L	

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-3
Lab ID: 040679-0003-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Roxanne Sullivan

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-3
Lab ID: 040679-0003-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

Surrogate	Recovery	
Toluene-d8	102	%
4-Bromofluorobenzene	101	%
1,2-Dichloroethane-d4	98	%

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Roxanne Sullivan

Quanterra Environmental Services

Volatiles Library Search (10 Compound TID)

Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-3
Lab ID: 040679-0003-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: NA Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
None Detected	ND	ug/L	
TID Compound 2	ND	ug/L	
TID Compound 3	ND	ug/L	
TID Compound 4	ND	ug/L	
TID Compound 5	ND	ug/L	
TID Compound 6	ND	ug/L	
TID Compound 7	ND	ug/L	
TID Compound 8	ND	ug/L	
TID Compound 9	ND	ug/L	
TID Compound 10	ND	ug/L	

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Audrey Verniero

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-B0295-2
Lab ID: 040679-0004-EB
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Audrey Verniero

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-B0295-2
Lab ID: 040679-0004-EB
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

Surrogate	Recovery	
Toluene-d8	104	%
4-Bromofluorobenzene	103	%
1,2-Dichloroethane-d4	98	%

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Audrey Verniero

Quanterra Environmental Services

Volatiles Library Search (10 Compound TID)

Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-B0295-2
Lab ID: 040679-0004-EB
Matrix: AQUEOUS
Authorized: 23 FEB 95

Sampled: 22 FEB 95
Prepared: NA

Received: 23 FEB 95
Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
None Detected	ND	ug/L	
TID Compound 2	ND	ug/L	
TID Compound 3	ND	ug/L	
TID Compound 4	ND	ug/L	
TID Compound 5	ND	ug/L	
TID Compound 6	ND	ug/L	
TID Compound 7	ND	ug/L	
TID Compound 8	ND	ug/L	
TID Compound 9	ND	ug/L	
TID Compound 10	ND	ug/L	

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Audrey Verniero

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-1
Lab ID: 040679-0005-TB
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Roxanne Sullivan

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-1
Lab ID: 040679-0005-TB
Matrix: AQUEOUS
Authorized: 23 FEB 95

Sampled: 22 FEB 95
Prepared: 27 FEB 95

Received: 23 FEB 95
Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

Surrogate	Recovery	
Toluene-d8	102	%
4-Bromofluorobenzene	105	%
1,2-Dichloroethane-d4	103	%

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Quanterra Environmental Services

Volatiles Library Search (10 Compound TID)

Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-1
Lab ID: 040679-0005-TB
Matrix: AQUEOUS
Authorized: 23 FEB 95

Sampled: 22 FEB 95
Prepared: NA

Received: 23 FEB 95
Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
None Detected	ND	ug/L	
TID Compound 2	ND	ug/L	
TID Compound 3	ND	ug/L	
TID Compound 4	ND	ug/L	
TID Compound 5	ND	ug/L	
TID Compound 6	ND	ug/L	
TID Compound 7	ND	ug/L	
TID Compound 8	ND	ug/L	
TID Compound 9	ND	ug/L	
TID Compound 10	ND	ug/L	

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Audrey Verniero

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040679-0001-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
2-Acetylaminofluorene	ND	ug/L	100
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	ND	ug/L	10
Aramite	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzyl alcohol	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
2-sec-Butyl-4,6-dinitro-phenol	ND	ug/L	10
4-Chloroaniline	ND	ug/L	10
bis(2-Chloroethoxy) methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl) ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
1,2-Dichlorobenzene	ND	ug/L	10
1,3-Dichlorobenzene	ND	ug/L	10
1,4-Dichlorobenzene	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	20
2,4-Dichlorophenol	ND	ug/L	10
2,6-Dichlorophenol	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Roxanne Sullivan

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040679-0001-SA
Matrix: AQUEOUS
Authorized: 23 FEB 95

Sampled: 22 FEB 95
Prepared: 27 FEB 95

Received: 23 FEB 95
Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
Dimethoate	ND	ug/L	--
p-Dimethylaminoazobenzene	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
3,3'-Dimethylbenzidine	ND	ug/L	10
a,a-Dimethylphenethylamine	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
1,3-Dinitrobenzene	ND	ug/L	10
4,6-Dinitro-2-methylphenol	ND	ug/L	50
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Diphenylamine	ND	ug/L	10
Disulfoton	ND	ug/L	50
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
Ethyl methanesulfonate	ND	ug/L	10
Famphur	ND	ug/L	--
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
Hexachloroethane	ND	ug/L	10
Hexachlorophene	ND	ug/L	--
Hexachloropropene	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
Isosafrole	ND	ug/L	20
Methapyrilene	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	10
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Methyl parathion	ND	ug/L	50
2-Methylphenol	ND	ug/L	10
3/4-Methylphenol	ND	ug/L	10
Naphthalene	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen

Approved By: Roxanne Sullivan

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040679-0001-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
1,4-Naphthoquinone	ND	ug/L	10
1-Naphthylamine	ND	ug/L	10
2-Naphthylamine	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4-Nitroaniline	ND	ug/L	50
Nitrobenzene	ND	ug/L	10
2-Nitrophenol	ND	ug/L	10
4-Nitrophenol	ND	ug/L	50
4-Nitroquinoline-1-oxide	ND	ug/L	--
N-Nitroso-di-n-butylamine	ND	ug/L	10
N-Nitrosodiethylamine	ND	ug/L	10
N-Nitrosodimethylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosomethylethylamine	ND	ug/L	10
N-Nitrosomorpholine	ND	ug/L	10
N-Nitrosopiperidine	ND	ug/L	10
N-Nitrosopyrrolidine	ND	ug/L	10
5-Nitro-o-toluidine	ND	ug/L	10
Parathion	ND	ug/L	50
Pentachlorobenzene	ND	ug/L	10
Pentachloroethane	ND	ug/L	10
Pentachloronitrobenzene	ND	ug/L	50
Pentachlorophenol	ND	ug/L	50
Phenacetin	ND	ug/L	10
Phenanthrene	ND	ug/L	10
Phenol	ND	ug/L	10
4-Phenylenediamine	ND	ug/L	--
Phorate	ND	ug/L	100
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	10
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	20
Safrole	ND	ug/L	10
Sulfotepp	ND	ug/L	50
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	50
Thionazin	ND	ug/L	50

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Roxanne Sullivan

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040679-0001-SA
Matrix: AQUEOUS
Authorized: 23 FEB 95

Sampled: 22 FEB 95
Prepared: 27 FEB 95

Received: 23 FEB 95
Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
2-Toluidine	ND	ug/L	10
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
O,O,O-Triethylphosphorothioate	ND	ug/L	10
2,4,6-Trichlorophenol	ND	ug/L	10
1,3,5-Trinitrobenzene	ND	ug/L	10

Surrogate	Recovery	
Nitrobenzene-d5	70	%
2-Fluorobiphenyl	72	%
Terphenyl-d14	76	%
Phenol-d5	69	%
2-Fluorophenol	66	%
2,4,6-Tribromophenol	74	%

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen

Approved By: Roxanne Sullivan

Quanterra Environmental Services

Semivolatiles Library Search (20 Compound TID)

Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040679-0001-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: NA Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
None Detected	ND	ug/L	
TID Compound 2	ND	ug/L	
TID Compound 3	ND	ug/L	
TID Compound 4	ND	ug/L	
TID Compound 5	ND	ug/L	
TID Compound 6	ND	ug/L	
TID Compound 7	ND	ug/L	
TID Compound 8	ND	ug/L	
TID Compound 9	ND	ug/L	
TID Compound 10	ND	ug/L	
TID Compound 11	ND	ug/L	
TID Compound 12	ND	ug/L	
TID Compound 13	ND	ug/L	
TID Compound 14	ND	ug/L	
TID Compound 15	ND	ug/L	
TID Compound 16	ND	ug/L	
TID Compound 17	ND	ug/L	
TID Compound 18	ND	ug/L	
TID Compound 19	ND	ug/L	
TID Compound 20	ND	ug/L	

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Roxanne Sullivan

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-2
Lab ID: 040679-0002-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
2-Acetylaminofluorene	ND	ug/L	100
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	ND	ug/L	10
Aramite	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzyl alcohol	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
2-sec-Butyl-4,6-dinitro-phenol	ND	ug/L	10
4-Chloroaniline	ND	ug/L	10
bis(2-Chloroethoxy) methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl) ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
1,2-Dichlorobenzene	ND	ug/L	10
1,3-Dichlorobenzene	ND	ug/L	10
1,4-Dichlorobenzene	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	20
2,4-Dichlorophenol	ND	ug/L	10
2,6-Dichlorophenol	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Mark Pokorny

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-2
Lab ID: 040679-0002-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
Dimethoate	ND	ug/L	--
p-Dimethylaminoazobenzene	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
3,3'-Dimethylbenzidine	ND	ug/L	10
a,a-Dimethylphenethylamine	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
1,3-Dinitrobenzene	ND	ug/L	10
4,6-Dinitro-2-methylphenol	ND	ug/L	50
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Diphenylamine	ND	ug/L	10
Disulfoton	ND	ug/L	50
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
Ethyl methanesulfonate	ND	ug/L	10
Famphur	ND	ug/L	--
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
Hexachloroethane	ND	ug/L	10
Hexachlorophene	ND	ug/L	--
Hexachloropropene	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
Isosafrole	ND	ug/L	20
Methapyrilene	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	10
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Methyl parathion	ND	ug/L	50
2-Methylphenol	ND	ug/L	10
3/4-Methylphenol	ND	ug/L	10
Naphthalene	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Mark Pokorny

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-2
Lab ID: 040679-0002-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
1,4-Naphthoquinone	ND	ug/L	10
1-Naphthylamine	ND	ug/L	10
2-Naphthylamine	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4-Nitroaniline	ND	ug/L	50
Nitrobenzene	ND	ug/L	10
2-Nitrophenol	ND	ug/L	10
4-Nitrophenol	ND	ug/L	50
4-Nitroquinoline-1-oxide	ND	ug/L	--
N-Nitroso-di-n-butylamine	ND	ug/L	10
N-Nitrosodiethylamine	ND	ug/L	10
N-Nitrosodimethylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosomethylethylamine	ND	ug/L	10
N-Nitrosomorpholine	ND	ug/L	10
N-Nitrosopiperidine	ND	ug/L	10
N-Nitrosopyrrolidine	ND	ug/L	10
5-Nitro-o-toluidine	ND	ug/L	10
Parathion	ND	ug/L	50
Pentachlorobenzene	ND	ug/L	10
Pentachloroethane	ND	ug/L	10
Pentachloronitrobenzene	ND	ug/L	50
Pentachlorophenol	ND	ug/L	50
Phenacetin	ND	ug/L	10
Phenanthrene	ND	ug/L	10
Phenol	ND	ug/L	10
4-Phenylenediamine	ND	ug/L	--
Phorate	ND	ug/L	100
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	10
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	20
Safrole	ND	ug/L	10
Sulfotepp	ND	ug/L	50
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	50
Thionazin	ND	ug/L	50

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Mark Pokorny

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-2
Lab ID: 040679-0002-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
2-Toluidine	ND	ug/L	10
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
2,4,6-Trichlorophenol	ND	ug/L	10
O,O,O-Triethylphosphorothioate	ND	ug/L	10
1,3,5-Trinitrobenzene	ND	ug/L	10

Surrogate	Recovery	
Nitrobenzene-d5	71	%
2-Fluorobiphenyl	71	%
Terphenyl-d14	77	%
Phenol-d5	71	%
2-Fluorophenol	67	%
2,4,6-Tribromophenol	73	%

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Mark Pokorny

Quanterra Environmental Services

Semivolatiles Library Search (20 Compound TID)

Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-2
Lab ID: 040679-0002-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: NA Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
None Detected	ND	ug/L	
TID Compound 2	ND	ug/L	
TID Compound 3	ND	ug/L	
TID Compound 4	ND	ug/L	
TID Compound 5	ND	ug/L	
TID Compound 6	ND	ug/L	
TID Compound 7	ND	ug/L	
TID Compound 8	ND	ug/L	
TID Compound 9	ND	ug/L	
TID Compound 10	ND	ug/L	
TID Compound 11	ND	ug/L	
TID Compound 12	ND	ug/L	
TID Compound 13	ND	ug/L	
TID Compound 14	ND	ug/L	
TID Compound 15	ND	ug/L	
TID Compound 16	ND	ug/L	
TID Compound 17	ND	ug/L	
TID Compound 18	ND	ug/L	
TID Compound 19	ND	ug/L	
TID Compound 20	ND	ug/L	

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Roxanne Sullivan

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-3
Lab ID: 040679-0003-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
2-Acetylaminofluorene	ND	ug/L	100
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	ND	ug/L	10
Aramite	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzyl alcohol	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
2-sec-Butyl-4,6-dinitro-phenol	ND	ug/L	10
4-Chloroaniline	ND	ug/L	10
bis(2-Chloroethoxy) methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl) ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
1,2-Dichlorobenzene	ND	ug/L	10
1,3-Dichlorobenzene	ND	ug/L	10
1,4-Dichlorobenzene	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	20
2,4-Dichlorophenol	ND	ug/L	10
2,6-Dichlorophenol	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Roxanne Sullivan

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-3
Lab ID: 040679-0003-SA
Matrix: AQUEOUS
Authorized: 23 FEB 95

Sampled: 22 FEB 95
Prepared: 27 FEB 95

Received: 23 FEB 95
Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
Dimethoate	ND	ug/L	--
p-Dimethylaminoazobenzene	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
3,3'-Dimethylbenzidine	ND	ug/L	10
a,a-Dimethylphenethylamine	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
1,3-Dinitrobenzene	ND	ug/L	10
4,6-Dinitro-2-methylphenol	ND	ug/L	50
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Diphenylamine	ND	ug/L	10
Disulfoton	ND	ug/L	50
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
Ethyl methanesulfonate	ND	ug/L	10
Famphur	ND	ug/L	--
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
Hexachloroethane	ND	ug/L	10
Hexachlorophene	ND	ug/L	--
Hexachloropropene	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
Isosafrole	ND	ug/L	20
Methapyrilene	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	10
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Methyl parathion	ND	ug/L	50
2-Methylphenol	ND	ug/L	10
3/4-Methylphenol	ND	ug/L	10
Naphthalene	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen

Approved By: Roxanne Sullivan

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-3
Lab ID: 040679-0003-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
1,4-Naphthoquinone	ND	ug/L	10
1-Naphthylamine	ND	ug/L	10
2-Naphthylamine	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4-Nitroaniline	ND	ug/L	50
Nitrobenzene	ND	ug/L	10
2-Nitrophenol	ND	ug/L	10
4-Nitrophenol	ND	ug/L	50
4-Nitroquinoline-1-oxide	ND	ug/L	--
N-Nitroso-di-n-butylamine	ND	ug/L	10
N-Nitrosodiethylamine	ND	ug/L	10
N-Nitrosodimethylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosomethylethylamine	ND	ug/L	10
N-Nitrosomorpholine	ND	ug/L	10
N-Nitrosopiperidine	ND	ug/L	10
N-Nitrosopyrrolidine	ND	ug/L	10
5-Nitro-o-toluidine	ND	ug/L	10
Parathion	ND	ug/L	50
Pentachlorobenzene	ND	ug/L	10
Pentachloroethane	ND	ug/L	10
Pentachloronitrobenzene	ND	ug/L	50
Pentachlorophenol	ND	ug/L	50
Phenacetin	ND	ug/L	10
Phenanthrene	ND	ug/L	10
Phenol	ND	ug/L	10
4-Phenylenediamine	ND	ug/L	--
Phorate	ND	ug/L	100
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	10
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	20
Safrole	ND	ug/L	10
Sulfotepp	ND	ug/L	50
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	50
Thionazin	ND	ug/L	50

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Roxanne Sullivan

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-3
Lab ID: 040679-0003-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
2-Toluidine	ND	ug/L	10
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
O,O,O-Triethylphosphorothioate	ND	ug/L	10
2,4,6-Trichlorophenol	ND	ug/L	10
1,3,5-Trinitrobenzene	ND	ug/L	10

Surrogate	Recovery	
Nitrobenzene-d5	68	%
2-Fluorobiphenyl	73	%
Terphenyl-d14	77	%
Phenol-d5	69	%
2-Fluorophenol	66	%
2,4,6-Tribromophenol	72	%

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Roxanne Sullivan

Quanterra Environmental Services

Semivolatiles Library Search (20 Compound TID)

Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-3
Lab ID: 040679-0003-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: NA Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
None Detected	ND	ug/L	
TID Compound 2	ND	ug/L	
TID Compound 3	ND	ug/L	
TID Compound 4	ND	ug/L	
TID Compound 5	ND	ug/L	
TID Compound 6	ND	ug/L	
TID Compound 7	ND	ug/L	
TID Compound 8	ND	ug/L	
TID Compound 9	ND	ug/L	
TID Compound 10	ND	ug/L	
TID Compound 11	ND	ug/L	
TID Compound 12	ND	ug/L	
TID Compound 13	ND	ug/L	
TID Compound 14	ND	ug/L	
TID Compound 15	ND	ug/L	
TID Compound 16	ND	ug/L	
TID Compound 17	ND	ug/L	
TID Compound 18	ND	ug/L	
TID Compound 19	ND	ug/L	
TID Compound 20	ND	ug/L	

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Roxanne Sullivan

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-B0295-2
Lab ID: 040679-0004-EB
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
2-Acetylaminofluorene	ND	ug/L	100
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	ND	ug/L	10
Aramite	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzyl alcohol	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
2-sec-Butyl-4,6-dinitro-phenol	ND	ug/L	10
4-Chloroaniline	ND	ug/L	10
bis(2-Chloroethoxy) methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl) ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
1,2-Dichlorobenzene	ND	ug/L	10
1,3-Dichlorobenzene	ND	ug/L	10
1,4-Dichlorobenzene	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	20
2,4-Dichlorophenol	ND	ug/L	10
2,6-Dichlorophenol	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Roxanne Sullivan

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-B0295-2
Lab ID: 040679-0004-EB
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
Dimethoate	ND	ug/L	--
p-Dimethylaminoazobenzene	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
3,3'-Dimethylbenzidine	ND	ug/L	10
a,a-Dimethylphenethylamine	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
1,3-Dinitrobenzene	ND	ug/L	10
4,6-Dinitro-2-methylphenol	ND	ug/L	50
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Diphenylamine	ND	ug/L	10
Disulfoton	ND	ug/L	50
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
Ethyl methanesulfonate	ND	ug/L	10
Famphur	ND	ug/L	--
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
Hexachloroethane	ND	ug/L	10
Hexachlorophene	ND	ug/L	--
Hexachloropropene	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
Isosafrole	ND	ug/L	20
Methapyrilene	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	10
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Methyl parathion	ND	ug/L	50
2-Methylphenol	ND	ug/L	10
3/4-Methylphenol	ND	ug/L	10
Naphthalene	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Roxanne Sullivan

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-B0295-2
Lab ID: 040679-0004-EB
Matrix: AQUEOUS
Authorized: 23 FEB 95

Sampled: 22 FEB 95
Prepared: 27 FEB 95

Received: 23 FEB 95
Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
1,4-Naphthoquinone	ND	ug/L	10
1-Naphthylamine	ND	ug/L	10
2-Naphthylamine	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4-Nitroaniline	ND	ug/L	50
Nitrobenzene	ND	ug/L	10
2-Nitrophenol	ND	ug/L	10
4-Nitrophenol	ND	ug/L	50
4-Nitroquinoline-1-oxide	ND	ug/L	--
N-Nitroso-di-n-butylamine	ND	ug/L	10
N-Nitrosodiethylamine	ND	ug/L	10
N-Nitrosodimethylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosomethylethylamine	ND	ug/L	10
N-Nitrosomorpholine	ND	ug/L	10
N-Nitrosopiperidine	ND	ug/L	10
N-Nitrosopyrrolidine	ND	ug/L	10
5-Nitro-o-toluidine	ND	ug/L	10
Parathion	ND	ug/L	50
Pentachlorobenzene	ND	ug/L	10
Pentachloroethane	ND	ug/L	10
Pentachloronitrobenzene	ND	ug/L	50
Pentachlorophenol	ND	ug/L	50
Phenacetin	ND	ug/L	10
Phenanthrene	ND	ug/L	10
Phenol	ND	ug/L	10
4-Phenylenediamine	ND	ug/L	--
Phorate	ND	ug/L	100
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	10
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	20
Safrole	ND	ug/L	10
Sulfotepp	ND	ug/L	50
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	50
Thionazin	ND	ug/L	50

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen

Approved By: Roxanne Sullivan

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-B0295-2
Lab ID: 040679-0004-EB
Matrix: AQUEOUS
Authorized: 23 FEB 95

Sampled: 22 FEB 95
Prepared: 27 FEB 95

Received: 23 FEB 95
Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit
2-Toluidine	ND	ug/L	10
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
O,O,O-Triethylphosphorothioate	ND	ug/L	10
2,4,6-Trichlorophenol	ND	ug/L	10
1,3,5-Trinitrobenzene	ND	ug/L	10

Surrogate	Recovery	
Nitrobenzene-d5	64	%
2-Fluorobiphenyl	69	%
Terphenyl-d14	72	%
Phenol-d5	66	%
2-Fluorophenol	59	%
2,4,6-Tribromophenol	73	%

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen

Approved By: Roxanne Sullivan

Quanterra Environmental Services

Semivolatiles Library Search (20 Compound TID)

Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-B0295-2
Lab ID: 040679-0004-EB
Matrix: AQUEOUS
Authorized: 23 FEB 95

Sampled: 22 FEB 95
Prepared: NA

Received: 23 FEB 95
Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit	
1-Hexanol, 2-ethyl-	26	ug/L		2
TID Compound 2	ND	ug/L		
TID Compound 3	ND	ug/L		
TID Compound 4	ND	ug/L		
TID Compound 5	ND	ug/L		
TID Compound 6	ND	ug/L		
TID Compound 7	ND	ug/L		
TID Compound 8	ND	ug/L		
TID Compound 9	ND	ug/L		
TID Compound 10	ND	ug/L		
TID Compound 11	ND	ug/L		
TID Compound 12	ND	ug/L		
TID Compound 13	ND	ug/L		
TID Compound 14	ND	ug/L		
TID Compound 15	ND	ug/L		
TID Compound 16	ND	ug/L		
TID Compound 17	ND	ug/L		
TID Compound 18	ND	ug/L		
TID Compound 19	ND	ug/L		
TID Compound 20	ND	ug/L		

Note 2 : Confident Identification

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen

Approved By: Roxanne Sullivan

Quanterra Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8080

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040679-0001-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 01 MAR 95 Analyzed: 03 MAR 95

Parameter	Result	Units	Reporting Limit	
Aldrin	ND	ug/L	0.050	T
Aroclor 1016	ND	ug/L	1.0	
Aroclor 1221	ND	ug/L	1.0	
Aroclor 1232	ND	ug/L	1.0	
Aroclor 1242	ND	ug/L	1.0	
Aroclor 1248	ND	ug/L	1.0	
Aroclor 1254	ND	ug/L	1.0	
Aroclor 1260	ND	ug/L	1.0	
alpha-BHC	ND	ug/L	0.050	
beta-BHC	ND	ug/L	0.050	
delta-BHC	ND	ug/L	0.050	
gamma-BHC (Lindane)	ND	ug/L	0.050	
alpha-Chlordane	ND	ug/L	0.050	
gamma-Chlordane	ND	ug/L	0.050	
Chlorobenzilate	ND	ug/L	0.10	
4,4'-DDD	ND	ug/L	0.10	
4,4'-DDE	ND	ug/L	0.10	
4,4'-DDT	ND	ug/L	0.10	
Diallate	ND	ug/L	1.0	
Dieldrin	ND	ug/L	0.10	
Endosulfan I	ND	ug/L	0.050	
Endosulfan II	ND	ug/L	0.10	
Endosulfan sulfate	ND	ug/L	0.10	
Endrin	ND	ug/L	0.10	
Endrin aldehyde	ND	ug/L	0.10	
Heptachlor	ND	ug/L	0.050	
Heptachlor epoxide	ND	ug/L	0.050	
Isodrin	ND	ug/L	0.10	
Kepone	ND	ug/L	1.0	
Methoxychlor	ND	ug/L	0.50	
Toxaphene	ND	ug/L	5.0	

Surrogate	Recovery	
Dibutyl chlorendate	108	%

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected
NA = Not applicable

Reported By: Ronda Johnson Approved By: Mark Pokorny

Quanterra
Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8080

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-3
Lab ID: 040679-0003-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 01 MAR 95 Analyzed: 03 MAR 95

Parameter	Result	Units	Reporting Limit	
Aldrin	ND	ug/L	0.050	T
Aroclor 1016	ND	ug/L	1.0	
Aroclor 1221	ND	ug/L	1.0	
Aroclor 1232	ND	ug/L	1.0	
Aroclor 1242	ND	ug/L	1.0	
Aroclor 1248	ND	ug/L	1.0	
Aroclor 1254	ND	ug/L	1.0	
Aroclor 1260	ND	ug/L	1.0	
alpha-BHC	ND	ug/L	0.050	
beta-BHC	ND	ug/L	0.050	
delta-BHC	ND	ug/L	0.050	
gamma-BHC (Lindane)	ND	ug/L	0.050	
alpha-Chlordane	ND	ug/L	0.050	
gamma-Chlordane	ND	ug/L	0.050	
Chlorobenzilate	ND	ug/L	0.10	
4,4'-DDD	ND	ug/L	0.10	
4,4'-DDE	ND	ug/L	0.10	
4,4'-DDT	ND	ug/L	0.10	
Diallate	ND	ug/L	1.0	
Dieldrin	ND	ug/L	0.10	
Endosulfan I	ND	ug/L	0.050	
Endosulfan II	ND	ug/L	0.10	
Endosulfan sulfate	ND	ug/L	0.10	
Endrin	ND	ug/L	0.10	
Endrin aldehyde	ND	ug/L	0.10	
Heptachlor	ND	ug/L	0.050	
Heptachlor epoxide	ND	ug/L	0.050	
Isodrin	ND	ug/L	0.10	
Kepone	ND	ug/L	1.0	
Methoxychlor	ND	ug/L	0.50	
Toxaphene	ND	ug/L	5.0	

Surrogate	Recovery	
Dibutyl chlorendate	108	%

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected
NA = Not applicable

Reported By: Ronda Johnson Approved By: Mark Pokorny

Quanterra Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8080

Client Name: U.S. Geological Survey
Client ID: CAFB-B0295-2
Lab ID: 040679-0004-EB
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 01 MAR 95 Analyzed: 03 MAR 95

Parameter	Result	Units	Reporting Limit	
Aldrin	ND	ug/L	0.050	T
Aroclor 1016	ND	ug/L	1.0	
Aroclor 1221	ND	ug/L	1.0	
Aroclor 1232	ND	ug/L	1.0	
Aroclor 1242	ND	ug/L	1.0	
Aroclor 1248	ND	ug/L	1.0	
Aroclor 1254	ND	ug/L	1.0	
Aroclor 1260	ND	ug/L	1.0	
alpha-BHC	ND	ug/L	0.050	
beta-BHC	ND	ug/L	0.050	
delta-BHC	ND	ug/L	0.050	
gamma-BHC (Lindane)	ND	ug/L	0.050	
alpha-Chlordane	ND	ug/L	0.050	
gamma-Chlordane	ND	ug/L	0.050	
Chlorobenzilate	ND	ug/L	0.10	
4,4'-DDD	ND	ug/L	0.10	
4,4'-DDE	ND	ug/L	0.10	
4,4'-DDT	ND	ug/L	0.10	
Diallate	ND	ug/L	1.0	
Dieldrin	ND	ug/L	0.10	
Endosulfan I	ND	ug/L	0.050	
Endosulfan II	ND	ug/L	0.10	
Endosulfan sulfate	ND	ug/L	0.10	
Endrin	ND	ug/L	0.10	
Endrin aldehyde	ND	ug/L	0.10	
Heptachlor	ND	ug/L	0.050	
Heptachlor epoxide	ND	ug/L	0.050	
Isodrin	ND	ug/L	0.10	
Kepone	ND	ug/L	1.0	
Methoxychlor	ND	ug/L	0.50	
Toxaphene	ND	ug/L	5.0	

Surrogate	Recovery	
Dibutyl chlorendate	109	%

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected
NA = Not applicable

Reported By: Houa Vue Approved By: Mark Pokorny

Quanterra Environmental Services

Appendix IX Herbicides

Method 8150

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040679-0001-SA
Matrix: AQUEOUS
Authorized: 23 FEB 95

Sampled: 22 FEB 95
Prepared: 28 FEB 95

Received: 23 FEB 95
Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit	
2,4-D	ND	ug/L	1.2	T
2,4,5-TP (Silvex)	ND	ug/L	0.17	
2,4,5-T	ND	ug/L	0.20	

Surrogate	Recovery	
DCAA	22	%

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected
NA = Not applicable

Reported By: Houa Vue

Approved By: Roxanne Sullivan

Quanterra Environmental Services

Appendix IX Herbicides

Method 8150

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040679-0001-RA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 09 MAR 95 Analyzed: 13 MAR 95

Parameter	Result	Units	Reporting Limit	
2,4-D	ND	ug/L	1.2	T
2,4,5-T	ND	ug/L	0.20	
2,4,5-TP (Silvex)	ND	ug/L	0.17	

Surrogate	Recovery	
DCAA	91	%

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected
NA = Not applicable

Reported By: Ronda Johnson Approved By: Roxanne Sullivan

Quanterra Environmental Services

Appendix IX Herbicides

Method 8150

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-2
Lab ID: 040679-0002-SA
Matrix: AQUEOUS
Authorized: 23 FEB 95

Sampled: 22 FEB 95
Prepared: 28 FEB 95

Received: 23 FEB 95
Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit	
2,4-D	ND	ug/L	1.2	T
2,4,5-T	ND	ug/L	0.20	
2,4,5-TP (Silvex)	ND	ug/L	0.17	

Surrogate	Recovery	
DCAA	ND	%

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected
NA = Not applicable

Reported By: Houa Vue

Approved By: Roxanne Sullivan

Quanterra Environmental Services

Appendix IX Herbicides

Method 8150

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-2
Lab ID: 040679-0002-RA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 09 MAR 95 Analyzed: 13 MAR 95

Parameter	Result	Units	Reporting Limit	
2,4-D	ND	ug/L	1.2	T
2,4,5-T	ND	ug/L	0.20	
2,4,5-TP (Silvex)	ND	ug/L	0.17	

Surrogate	Recovery	
DCAA	90	%

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected
NA = Not applicable

Reported By: Ronda Johnson Approved By: Roxanne Sullivan

Quanterra Environmental Services

Appendix IX Herbicides

Method 8150

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-3
Lab ID: 040679-0003-SA
Matrix: AQUEOUS
Authorized: 23 FEB 95

Sampled: 22 FEB 95
Prepared: 28 FEB 95

Received: 23 FEB 95
Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit	
2,4-D	ND	ug/L	1.2	T
2,4,5-T	ND	ug/L	0.20	
2,4,5-TP (Silvex)	ND	ug/L	0.17	

Surrogate	Recovery	
DCAA	84	%

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected
NA = Not applicable

Reported By: Houa Vue

Approved By: Roxanne Sullivan

Quanterra Environmental Services

Appendix IX Herbicides

Method 8150

Client Name: U.S. Geological Survey
Client ID: CAFB-B0295-2
Lab ID: 040679-0004-EB
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 28 FEB 95 Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit	
2,4-D	ND	ug/L	1.2	T
2,4,5-TP (Silvex)	ND	ug/L	0.17	
2,4,5-T	ND	ug/L	0.20	

Surrogate	Recovery	
DCAA	84	%

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected
NA = Not applicable

Reported By: Houa Vue Approved By: Roxanne Sullivan

Quanterra Environmental Services

Metals

Total Metals

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040679-0001-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Antimony	ND	mg/L	0.060	6010	27 FEB 95	01 MAR 95	
Arsenic	ND	mg/L	0.0050	7060	28 FEB 95	28 FEB 95	
Barium	0.029	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Beryllium	ND	mg/L	0.0020	6010	27 FEB 95	01 MAR 95	
Cadmium	ND	mg/L	0.0050	6010	27 FEB 95	01 MAR 95	
Chromium	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Cobalt	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Copper	ND	mg/L	0.020	6010	27 FEB 95	01 MAR 95	
Iron	ND	mg/L	0.10	6010	27 FEB 95	01 MAR 95	
Lead	ND	mg/L	0.010	7421	28 FEB 95	28 FEB 95	G
Manganese	0.012	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Mercury	ND	mg/L	0.00020	7470	27 FEB 95	28 FEB 95	
Nickel	ND	mg/L	0.040	6010	27 FEB 95	01 MAR 95	
Silver	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Selenium	ND	mg/L	0.010	7740	28 FEB 95	01 MAR 95	G
Sodium	60.8	mg/L	5.0	6010	27 FEB 95	01 MAR 95	
Thallium	ND	mg/L	0.010	7841	28 FEB 95	28 FEB 95	G
Tin	ND	mg/L	0.10	6010	27 FEB 95	01 MAR 95	
Vanadium	0.027	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Zinc	ND	mg/L	0.020	6010	27 FEB 95	01 MAR 95	

Note G : Reporting limit raised due to matrix interference.

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra Environmental Services

Metals

Total Metals

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-2
Lab ID: 040679-0002-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Antimony	ND	mg/L	0.060	6010	27 FEB 95	01 MAR 95	
Arsenic	ND	mg/L	0.0050	7060	28 FEB 95	28 FEB 95	
Barium	0.034	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Beryllium	ND	mg/L	0.0020	6010	27 FEB 95	01 MAR 95	
Cadmium	ND	mg/L	0.0050	6010	27 FEB 95	01 MAR 95	
Chromium	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Cobalt	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Copper	ND	mg/L	0.020	6010	27 FEB 95	01 MAR 95	
Iron	ND	mg/L	0.10	6010	27 FEB 95	01 MAR 95	
Lead	ND	mg/L	0.010	7421	28 FEB 95	28 FEB 95	G
Manganese	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Mercury	ND	mg/L	0.00020	7470	27 FEB 95	28 FEB 95	
Nickel	ND	mg/L	0.040	6010	27 FEB 95	01 MAR 95	
Silver	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Selenium	ND	mg/L	0.0050	7740	28 FEB 95	01 MAR 95	
Sodium	54.9	mg/L	5.0	6010	27 FEB 95	01 MAR 95	
Thallium	ND	mg/L	0.010	7841	28 FEB 95	28 FEB 95	G
Tin	ND	mg/L	0.10	6010	27 FEB 95	01 MAR 95	
Vanadium	0.035	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Zinc	ND	mg/L	0.020	6010	27 FEB 95	01 MAR 95	

Note G : Reporting limit raised due to matrix interference.

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra Environmental Services

Metals

Total Metals

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-3
Lab ID: 040679-0003-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Antimony	ND	mg/L	0.060	6010	27 FEB 95	01 MAR 95	
Arsenic	ND	mg/L	0.0050	7060	28 FEB 95	28 FEB 95	
Barium	0.034	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Beryllium	ND	mg/L	0.0020	6010	27 FEB 95	01 MAR 95	
Cadmium	ND	mg/L	0.0050	6010	27 FEB 95	01 MAR 95	
Chromium	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Cobalt	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Copper	ND	mg/L	0.020	6010	27 FEB 95	01 MAR 95	
Iron	ND	mg/L	0.10	6010	27 FEB 95	01 MAR 95	
Lead	ND	mg/L	0.010	7421	28 FEB 95	28 FEB 95	G
Manganese	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Mercury	ND	mg/L	0.00020	7470	27 FEB 95	28 FEB 95	
Nickel	ND	mg/L	0.040	6010	27 FEB 95	01 MAR 95	
Silver	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Selenium	ND	mg/L	0.0050	7740	28 FEB 95	01 MAR 95	
Sodium	54.8	mg/L	5.0	6010	27 FEB 95	01 MAR 95	
Thallium	ND	mg/L	0.010	7841	28 FEB 95	28 FEB 95	G
Tin	ND	mg/L	0.10	6010	27 FEB 95	01 MAR 95	
Vanadium	0.035	mg/L	0.010	6010	27 FEB 95	01 MAR 95	
Zinc	ND	mg/L	0.020	6010	27 FEB 95	01 MAR 95	

Note G : Reporting limit raised due to matrix interference.

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra Environmental Services

Metals

Total Metals

Client Name: U.S. Geological Survey
Client ID: CAFB-B0295-2
Lab ID: 040679-0004-EB
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	27 FEB 95	01 MAR 95
Arsenic	ND	mg/L	0.0050	7060	28 FEB 95	28 FEB 95
Barium	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95
Beryllium	ND	mg/L	0.0020	6010	27 FEB 95	01 MAR 95
Cadmium	ND	mg/L	0.0050	6010	27 FEB 95	01 MAR 95
Chromium	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95
Cobalt	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95
Copper	ND	mg/L	0.020	6010	27 FEB 95	01 MAR 95
Iron	ND	mg/L	0.10	6010	27 FEB 95	01 MAR 95
Lead	ND	mg/L	0.0050	7421	28 FEB 95	28 FEB 95
Manganese	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95
Mercury	ND	mg/L	0.00020	7470	27 FEB 95	28 FEB 95
Nickel	ND	mg/L	0.040	6010	27 FEB 95	01 MAR 95
Silver	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95
Selenium	ND	mg/L	0.0050	7740	28 FEB 95	01 MAR 95
Sodium	ND	mg/L	5.0	6010	27 FEB 95	01 MAR 95
Thallium	ND	mg/L	0.0050	7841	28 FEB 95	28 FEB 95
Tin	ND	mg/L	0.10	6010	27 FEB 95	01 MAR 95
Vanadium	ND	mg/L	0.010	6010	27 FEB 95	01 MAR 95
Zinc	0.021	mg/L	0.020	6010	27 FEB 95	01 MAR 95

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra Environmental Services

Metals

Dissolved Metals

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040679-0001-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Antimony	ND	mg/L	0.060	6010	NA	27 FEB 95	
Arsenic	ND	mg/L	0.0050	7060	NA	27 FEB 95	
Barium	0.028	mg/L	0.010	6010	NA	27 FEB 95	
Beryllium	ND	mg/L	0.0020	6010	NA	27 FEB 95	
Cadmium	ND	mg/L	0.0050	6010	NA	27 FEB 95	
Chromium	ND	mg/L	0.010	6010	NA	27 FEB 95	
Cobalt	ND	mg/L	0.010	6010	NA	27 FEB 95	
Copper	ND	mg/L	0.020	6010	NA	27 FEB 95	
Iron	ND	mg/L	0.10	6010	NA	27 FEB 95	
Lead	ND	mg/L	0.20	7421	NA	27 FEB 95	G
Manganese	ND	mg/L	0.010	6010	NA	27 FEB 95	
Mercury	ND	mg/L	0.00020	7470	27 FEB 95	28 FEB 95	
Nickel	ND	mg/L	0.040	6010	NA	27 FEB 95	
Selenium	0.0082	mg/L	0.0050	7740	NA	27 FEB 95	
Sodium	60.9	mg/L	5.0	6010	NA	27 FEB 95	
Silver	ND	mg/L	0.010	6010	NA	27 FEB 95	
Thallium	ND	mg/L	0.010	7841	NA	27 FEB 95	G
Tin	ND	mg/L	0.10	6010	NA	27 FEB 95	
Vanadium	0.027	mg/L	0.010	6010	NA	27 FEB 95	
Zinc	ND	mg/L	0.020	6010	NA	27 FEB 95	

Note G : Reporting limit raised due to matrix interference.

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra Environmental Services

Metals

Dissolved Metals

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-2
Lab ID: 040679-0002-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Antimony	ND	mg/L	0.060	6010	NA	27 FEB 95	
Arsenic	ND	mg/L	0.0050	7060	NA	27 FEB 95	
Barium	0.033	mg/L	0.010	6010	NA	27 FEB 95	
Beryllium	ND	mg/L	0.0020	6010	NA	27 FEB 95	
Cadmium	ND	mg/L	0.0050	6010	NA	27 FEB 95	
Chromium	ND	mg/L	0.010	6010	NA	27 FEB 95	
Cobalt	ND	mg/L	0.010	6010	NA	27 FEB 95	
Copper	ND	mg/L	0.020	6010	NA	27 FEB 95	
Iron	ND	mg/L	0.10	6010	NA	27 FEB 95	
Lead	ND	mg/L	0.050	7421	NA	27 FEB 95	G
Manganese	ND	mg/L	0.010	6010	NA	27 FEB 95	
Mercury	ND	mg/L	0.00020	7470	27 FEB 95	28 FEB 95	
Nickel	ND	mg/L	0.040	6010	NA	27 FEB 95	
Selenium	0.0071	mg/L	0.0050	7740	NA	27 FEB 95	
Silver	ND	mg/L	0.010	6010	NA	27 FEB 95	
Sodium	52.1	mg/L	5.0	6010	NA	27 FEB 95	
Thallium	ND	mg/L	0.010	7841	NA	27 FEB 95	G
Tin	ND	mg/L	0.10	6010	NA	27 FEB 95	
Vanadium	0.034	mg/L	0.010	6010	NA	27 FEB 95	
Zinc	ND	mg/L	0.020	6010	NA	27 FEB 95	

Note G : Reporting limit raised due to matrix interference.

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra Environmental Services

Metals

Dissolved Metals

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-3
Lab ID: 040679-0003-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	NA	27 FEB 95
Arsenic	ND	mg/L	0.0050	7060	NA	27 FEB 95
Barium	0.032	mg/L	0.010	6010	NA	27 FEB 95
Beryllium	ND	mg/L	0.0020	6010	NA	27 FEB 95
Cadmium	ND	mg/L	0.0050	6010	NA	27 FEB 95
Chromium	ND	mg/L	0.010	6010	NA	27 FEB 95
Cobalt	ND	mg/L	0.010	6010	NA	27 FEB 95
Copper	ND	mg/L	0.020	6010	NA	27 FEB 95
Iron	ND	mg/L	0.10	6010	NA	27 FEB 95
Lead	ND	mg/L	0.020	7421	NA	27 FEB 95 G
Manganese	ND	mg/L	0.010	6010	NA	27 FEB 95
Mercury	ND	mg/L	0.00020	7470	27 FEB 95	28 FEB 95
Nickel	ND	mg/L	0.040	6010	NA	27 FEB 95
Selenium	0.0064	mg/L	0.0050	7740	NA	27 FEB 95
Sodium	53.1	mg/L	5.0	6010	NA	27 FEB 95
Silver	ND	mg/L	0.010	6010	NA	27 FEB 95
Thallium	ND	mg/L	0.010	7841	NA	27 FEB 95 G
Tin	ND	mg/L	0.10	6010	NA	27 FEB 95
Vanadium	0.034	mg/L	0.010	6010	NA	27 FEB 95
Zinc	ND	mg/L	0.020	6010	NA	27 FEB 95

Note G : Reporting limit raised due to matrix interference.

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra Environmental Services

Metals

Dissolved Metals

Client Name: U.S. Geological Survey
Client ID: CAFB-B0295-2
Lab ID: 040679-0004-EB
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	NA	27 FEB 95
Arsenic	ND	mg/L	0.0050	7060	NA	27 FEB 95
Barium	ND	mg/L	0.010	6010	NA	27 FEB 95
Beryllium	ND	mg/L	0.0020	6010	NA	27 FEB 95
Cadmium	ND	mg/L	0.0050	6010	NA	27 FEB 95
Chromium	ND	mg/L	0.010	6010	NA	27 FEB 95
Cobalt	ND	mg/L	0.010	6010	NA	27 FEB 95
Copper	ND	mg/L	0.020	6010	NA	27 FEB 95
Iron	ND	mg/L	0.10	6010	NA	27 FEB 95
Lead	ND	mg/L	0.0050	7421	NA	27 FEB 95
Manganese	ND	mg/L	0.010	6010	NA	27 FEB 95
Mercury	ND	mg/L	0.00020	7470	27 FEB 95	28 FEB 95
Nickel	ND	mg/L	0.040	6010	NA	27 FEB 95
Selenium	ND	mg/L	0.0050	7740	NA	27 FEB 95
Sodium	ND	mg/L	5.0	6010	NA	27 FEB 95
Silver	ND	mg/L	0.010	6010	NA	27 FEB 95
Thallium	ND	mg/L	0.0050	7841	NA	27 FEB 95
Tin	ND	mg/L	0.10	6010	NA	27 FEB 95
Vanadium	ND	mg/L	0.010	6010	NA	27 FEB 95
Zinc	0.021	mg/L	0.020	6010	NA	27 FEB 95

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

General Inorganics

Quanterra Environmental Services

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040679-0001-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Chloride	55.4	mg/L	3.0	300.0	NA	27 FEB 95
Cyanide	ND	mg/L	0.010	9012	25 FEB 95	25 FEB 95
Phenolics	ND	mg/L	0.010	9065	NA	01 MAR 95
Sulfide, Total	ND	mg/L	0.050	376.2	NA	28 FEB 95
Sulfate	150	mg/L	5.0	300.0	NA	27 FEB 95
Total Organic Carbon	ND	mg/L	1.0	415.1	NA	25 FEB 95
Total Organic Halogen as Cl	ND	ug/L	30.0	9020	NA	28 FEB 95

ND = Not detected
NA = Not applicable

Reported By: Judy Lange Approved By: Jody Tolle

Quanterra Environmental Services

General Inorganics

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-2
Lab ID: 040679-0002-SA
Matrix: AQUEOUS
Authorized: 23 FEB 95

Sampled: 22 FEB 95
Prepared: See Below

Received: 23 FEB 95
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Chloride	46.3	mg/L	3.0	300.0	NA	27 FEB 95
Cyanide	ND	mg/L	0.010	9012	25 FEB 95	25 FEB 95
Phenolics	ND	mg/L	0.010	9065	NA	01 MAR 95
Sulfide, Total	ND	mg/L	0.050	376.2	NA	28 FEB 95
Sulfate	91.0	mg/L	5.0	300.0	NA	27 FEB 95
Total Organic Carbon	ND	mg/L	1.0	415.1	NA	25 FEB 95
Total Organic Halogen as Cl	ND	ug/L	30.0	9020	NA	28 FEB 95

ND = Not detected
NA = Not applicable

Reported By: Judy Lange

Approved By: Jody Tolle

General Inorganics

Quanterra Environmental Services

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-3
Lab ID: 040679-0003-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Chloride	46.1	mg/L	3.0	300.0	NA	27 FEB 95
Cyanide	ND	mg/L	0.010	9012	25 FEB 95	25 FEB 95
Phenolics	ND	mg/L	0.010	9065	NA	01 MAR 95
Sulfide, Total	ND	mg/L	0.050	376.2	NA	28 FEB 95
Sulfate	90.9	mg/L	5.0	300.0	NA	27 FEB 95
Total Organic Carbon	ND	mg/L	1.0	415.1	NA	25 FEB 95
Total Organic Halogen as Cl	ND	ug/L	30.0	9020	NA	28 FEB 95

ND = Not detected
NA = Not applicable

Reported By: Judy Lange Approved By: Jody Tolle

Quanterra Environmental Services

General Inorganics

Client Name: U.S. Geological Survey
Client ID: CAFB-B0295-2
Lab ID: 040679-0004-EB
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Chloride	ND	mg/L	3.0	300.0	NA	27 FEB 95
Cyanide	ND	mg/L	0.010	9012	25 FEB 95	25 FEB 95
Phenolics	ND	mg/L	0.010	9065	NA	01 MAR 95
Sulfide, Total	ND	mg/L	0.050	376.2	NA	28 FEB 95
Sulfate	ND	mg/L	5.0	300.0	NA	27 FEB 95
Total Organic Carbon	ND	mg/L	1.0	415.1	NA	25 FEB 95
Total Organic Halogen as Cl	ND	ug/L	30.0	9020	NA	28 FEB 95

ND = Not detected
NA = Not applicable

Reported By: Judy Lange Approved By: Jody Tolle

Quanterra Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

ANALYTICAL RESULTS

FOR

U.S. GEOLOGICAL SURVEY

QUANTERRA ENVIRONMENTAL SERVICES, DENVER

PROJECT NUMBER: 040689

MARCH 16, 1995

Reviewed by:

Grant Wilton

Lindsay Breyer

Quanterra
Environmental Services

I. OVERVIEW

On February 23, 1995, Quanterra Environmental Services, Denver received four aqueous samples from the U.S. Geological Survey.

This report presents the analytical results as well as supporting information to aid in the evaluation and interpretation of the data and is arranged in the following order:

I. Overview
II. Sample Description Information/Analytical Test Requests
III. Analytical
IV. Quality Control Report

The samples contained in this project were received as part of Quanterra project number 040679.

Standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory QC samples analyzed in conjunction with the samples in this project were within established control limits.

II. SAMPLE DESCRIPTION INFORMATION/ANALYTICAL TEST REQUESTS

Sample Description Information

The Sample Description Information lists all of the samples received in this project together with the internal laboratory identification number assigned for each sample. Each project received at Quanterra Environmental Services, Denver is assigned a unique six digit number. Samples within the project are numbered sequentially. The laboratory identification number is a combination of the six digit project code and the sample sequence number.

Also given in the Sample Description Information is the Sample Type (matrix), Date of Sampling (if known) and Date of Receipt at the laboratory.

Analytical Test Requests

The Analytical Test Requests lists the analyses that were performed on each sample. The Custom Test column indicates where tests have been modified to conform to the specific requirements of this project.

Quanterra
Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
U.S. Geological Survey

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
040689-0001-SA	CAFB-B-0295-1	AQUEOUS	22 FEB 95	16:00	23 FEB 95
040689-0001-MB	METHOD BLANK	AQUEOUS	22 FEB 95		23 FEB 95
040689-0002-SA	CAFB-A-0295-2	AQUEOUS	22 FEB 95	11:50	23 FEB 95
040689-0003-SA	CAFB-A-0295-3	AQUEOUS	22 FEB 95	12:00	23 FEB 95
040689-0004-EB	CAFB-B-0295-2	AQUEOUS	22 FEB 95	13:30	23 FEB 95

Quanterra
Environmental Services

ANALYTICAL TEST REQUESTS
for
U.S. Geological Survey

Lab ID: 040689	Group Code	Analysis Description	Custom Test?
0001 - 0004	A	Dioxins and Furans	N
		Appendix IX List	N
		Prep- Low Res. Method 8280 Extraction for Dioxins/Furans	N

III. ANALYTICAL RESULTS

The analytical results for this project are presented in the following data tables. Each data table includes sample identification information, and when available and appropriate, dates sampled, received, authorized, prepared and analyzed. The authorization data is the date when the project was defined by the client such that laboratory work could begin. The date prepared is typically the date an extraction or digestion was initiated. For volatile organic compounds in water, the date prepared is the date the screening of the sample was performed.

Data sheets contain a listing of the parameters measured in each test, the analytical results and the Quanterra Environmental Services, Denver laboratory's reporting limit. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis, i.e. no correction is made for moisture content.

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040689-0001-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 01 MAR 95

Sample Amount 0.495 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.58	
PeCDFs (total)	ND	ng/L	0.27	
HxCDFs (total)	ND	ng/L	0.39	
Dioxins				
TCDDs (total)	ND	ng/L	0.43	
2,3,7,8-TCDD	ND	ng/L	0.43	
PeCDDs (total)	ND	ng/L	0.56	
HxCDDs (total)	ND	ng/L	0.69	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: RHRABAK

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-1
Lab ID: 040689-0001-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 01 MAR 95

Sample Amount 0.495 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	79.2
13C-2,3,7,8-TCDD	77.4
13C-1,2,3,7,8-PeCDD	80.8
13C-1,2,3,6,7,8-HxCDD	82.8
13C-1,2,3,4,6,7,8-HpCDD	79.6
13C-OCDD	71.2

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: RHRABAK

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-2
Lab ID: 040689-0002-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 01 MAR 95

Sample Amount 1.05 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.61	
PeCDFs (total)	ND	ng/L	0.49	
HxCDFs (total)	ND	ng/L	0.60	
Dioxins				
TCDDs (total)	ND	ng/L	0.35	
2,3,7,8-TCDD	ND	ng/L	0.35	
PeCDDs (total)	ND	ng/L	0.99	
HxCDDs (total)	ND	ng/L	1.2	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: RHRABAK

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-2
Lab ID: 040689-0002-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 01 MAR 95

Sample Amount 1.05 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	75.2
13C-2,3,7,8-TCDD	75.6
13C-1,2,3,7,8-PeCDD	88.4
13C-1,2,3,6,7,8-HxCDD	79.4
13C-1,2,3,4,6,7,8-HpCDD	83.2
13C-OCDD	74.5

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: RHRABAK

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-3
Lab ID: 040689-0003-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 01 MAR 95

Sample Amount 1.04 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.35	
PeCDFs (total)	ND	ng/L	0.14	
HxCDFs (total)	ND	ng/L	0.20	
Dioxins				
TCDDs (total)	ND	ng/L	0.20	
2,3,7,8-TCDD	ND	ng/L	0.20	
PeCDDs (total)	ND	ng/L	0.34	
HxCDDs (total)	ND	ng/L	0.35	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: RHRABAK

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-A-0295-3
Lab ID: 040689-0003-SA
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 01 MAR 95

Sample Amount 1.04 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	75.5
13C-2,3,7,8-TCDD	77.4
13C-1,2,3,7,8-PeCDD	78.6
13C-1,2,3,6,7,8-HxCDD	77.0
13C-1,2,3,4,6,7,8-HpCDD	81.4
13C-OCDD	76.3

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: RHRABAK

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-2
Lab ID: 040689-0004-EB
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 01 MAR 95

Sample Amount 0.974 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.69	
PeCDFs (total)	ND	ng/L	0.46	
HxCDFs (total)	ND	ng/L	0.71	
Dioxins				
TCDDs (total)	ND	ng/L	0.80	
2,3,7,8-TCDD	ND	ng/L	0.80	
PeCDDs (total)	ND	ng/L	1.5	
HxCDDs (total)	ND	ng/L	1.1	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: RHRABAK

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-B-0295-2
Lab ID: 040689-0004-EB
Matrix: AQUEOUS Sampled: 22 FEB 95 Received: 23 FEB 95
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 01 MAR 95

Sample Amount 0.974 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	60.2
13C-2,3,7,8-TCDD	56.4
13C-1,2,3,7,8-PeCDD	63.4
13C-1,2,3,6,7,8-HxCDD	66.5
13C-1,2,3,4,6,7,8-HpCDD	69.8
13C-OCDD	69.4

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: RHRABAK

Quanterra
Environmental Services

ANALYTICAL RESULTS

FOR

U.S. GEOLOGICAL SURVEY

QUANTERRA ENVIRONMENTAL SERVICES, DENVER

PROJECT NUMBER: 040706

MARCH 19, 1995

Reviewed by:

Grant Wilton

Lindsay Breyer

Quanterra
Environmental Services

I. OVERVIEW

On February 24, 1995, Quanterra Environmental Services, Denver received four aqueous samples from the U.S. Geological Survey.

This report presents the analytical results as well as supporting information to aid in the evaluation and interpretation of the data and is arranged in the following order:

I. Overview
II. Sample Description Information/Analytical Test Requests
III. Analytical
IV. Quality Control Report

GC/MS SEMIVOLATILE ORGANIC ANALYSIS

The RPD's for 1,4-dichlorobenzene and 1,2,4-trichlorobenzene were outside control limits for DCS lot 02MAR95-N1. All percent recoveries for the DCS were in control and the data were accepted.

Except where indicated above, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory QC samples analyzed in conjunction with the samples in this project were within established control limits.

II. SAMPLE DESCRIPTION INFORMATION/ANALYTICAL TEST REQUESTS

Sample Description Information

The Sample Description Information lists all of the samples received in this project together with the internal laboratory identification number assigned for each sample. Each project received at Quanterra Environmental Services, Denver is assigned a unique six digit number. Samples within the project are numbered sequentially. The laboratory identification number is a combination of the six digit project code and the sample sequence number.

Also given in the Sample Description Information is the Sample Type (matrix), Date of Sampling (if known) and Date of Receipt at the laboratory.

Analytical Test Requests

The Analytical Test Requests lists the analyses that were performed on each sample. The Custom Test column indicates where tests have been modified to conform to the specific requirements of this project.

Quanterra
Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
U.S. Geological Survey

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
040706-0001-SA	CAFB-L-0295-1	AQUEOUS	23 FEB 95	13:15	24 FEB 95
040706-0002-SA	CAFB-M-0295-1	AQUEOUS	23 FEB 95	09:30	24 FEB 95
040706-0003-SA	CAFB-I-0295-1	AQUEOUS	23 FEB 95	11:15	24 FEB 95
040706-0003-MS	CAFB-I-0295-2	AQUEOUS	23 FEB 95	11:15	24 FEB 95
040706-0003-SD	CAFB-I-0295-3	AQUEOUS	23 FEB 95	11:15	24 FEB 95
040706-0004-TB	CAFB-M-0295-2	AQUEOUS	23 FEB 95	08:00	24 FEB 95

Quanterra
Environmental Services

ANALYTICAL TEST REQUESTS
for
U.S. Geological Survey

Lab ID: 040706	Group Code	Analysis Description	Custom Test?
0001 - 0003	A	Volatile Organics	N
		Appendix IX List	N
		Screen - Volatile Organics	N
		Volatiles Library Search (10 Compound TID)	N
		Semivolatile Organics	N
		Appendix IX List	
		Prep - Semivolatile Organics by GC/MS	N
		Semivolatiles Library Search (20 Compound TID)	N
		Chlorinated Pesticides and PCB's	N
		Appendix IX List	
		Prep - Organochlorine Pesticides/PCBs by GC	N
		Chlorinated Pesticides and PCB's	N
		Appendix IX List	
		Appendix IX Herbicides	N
		Prep - Herbicides by GC	N
		Appendix IX Herbicides	N
		Phenolics (4-AAP)	N
		Total Organic Halogen (TOX)	N
		Cyanide, Total	N
		Prep - Cyanide, Total	N
		Sulfide, Total	N
		Chloride, Ion Chromatography	N
		Sulfate, Ion Chromatography	N
		Appendix IX Metals (Total) done by ICP	Y
		Prep - Total Metals, ICP	N
		Lead, Furnace AA (Total)	N
		Prep - Total Metals, Furnace AA	N
		Arsenic, Furnace AA (Total)	N
		Prep - Arsenic, Selenium - Total, Furnace AA	N
		Selenium, Furnace AA (Total)	N
		Thallium, Furnace AA (Total)	N
		Mercury, Cold Vapor AA (Total)	N
		Prep - Mercury, Cold Vapor AA (Total)	N
		Appendix IX Metals done by ICP	Y
		Lead, Furnace AA (Dissolved)	N
		Arsenic, Furnace AA (Dissolved)	N
		Selenium, Furnace AA (Dissolved)	N
		Thallium, Furnace AA (Dissolved)	N
		Mercury, Cold Vapor AA (Dissolved)	N
		Prep - Mercury, Cold Vapor AA, (Dissolved)	N
		STD-Total Organic Carbon (TOC)-415.1	N
0004	B	Volatile Organics	N

Quanterra
Environmental Services

ANALYTICAL TEST REQUESTS
for
U.S. Geological Survey

Lab ID: 040706	Group Code	Analysis Description	Custom Test?
		Appendix IX List	N
		Screen - Volatile Organics	N
		Volatiles Library Search (10 Compound TID)	N

III. ANALYTICAL RESULTS

The analytical results for this project are presented in the following data tables. Each data table includes sample identification information, and when available and appropriate, dates sampled, received, authorized, prepared and analyzed. The authorization data is the date when the project was defined by the client such that laboratory work could begin. The date prepared is typically the date an extraction or digestion was initiated. For volatile organic compounds in water, the date prepared is the date the screening of the sample was performed.

Data sheets contain a listing of the parameters measured in each test, the analytical results and the Quanterra Environmental Services, Denver laboratory's reporting limit. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis, i.e. no correction is made for moisture content.

In addition, surrogate recovery data is presented for all GC/MS analyses. The surrogate recovery is an indication of the affect of the sample matrix on the performance of the method.

The analytical data reported are subject to the following limitations of the analytical methodology:

Volatile Organics

a) Due to the chemical nature of ethanol, this component cannot be consistently recovered using EPA Method 624 or 8240. This component is reported with a NR (Not Recoverable) in place of a reporting limit.

b) Methylene chloride and acetone are common laboratory contaminants in GC/MS analysis. We have programs in place to minimize contamination, occasionally these compounds will be found at low levels in samples.

Semivolatile Organics

a) Benzo(b) and benzo(k) fluoranthene cannot be differentiated based on their mass spectra; retention times are almost identical. The isomer which is the closest in retention time to the sample is reported.

b) 1,2-diphenylhydrazine is measured as azobenzene.

c) Diphenylamine cannot be distinguished from N-nitrosodiphenylamine.

d) 3-Methyl phenol and 4-methyl phenol cannot be differentiated because their mass spectra and retention times are almost identical. Results are reported as 3/4-methyl phenol (or m&p-cresols).

e) Several Appendix IX and Refinery List compounds are not consistently recovered using Method 8270, and reporting limits cannot be established. These compounds include: dimethoate, famphur, hexachlorophene, 4-nitroquinoline-1-oxide, 4-phenylenediamine, and benzenethiol.

f) Two Refinery List compounds, pyridine and quinoline, are not recovered after alumina column cleanup.

g) Bis-2-(ethylhexyl)phthalate is a common laboratory contaminant in GC/MS analysis. We have programs in place to minimize this contamination, occasionally these compounds will be found at low levels in samples.

Tentatively Identified Compounds

This report presents results for the "identification" of unknown compounds that were detected in the GC/MS analysis. The results from this work are presented as "tentatively identified compounds" (TIC). The approach used for reporting TICs was based on the protocol established for this purpose in the EPA Superfund methods and on guidelines established by the American Chemical Society (ACS).

In summary, the mass spectrum of chromatographic peaks in concentrations in excess of 10% of the internal standard were obtained. Normally, the number of unknown compounds identified is limited to 10 compounds in the volatile fraction and 20 compounds in the semivolatile fraction. Each mass spectrum was then compared to a library of over 30,000 reference spectra in a computerized "library search." The three "best" matches obtained by the computer were hardcopied along with the mass spectrum of the unknown peak. This information was then reviewed by an analyst who "identified" the compound based on the available information.

All identifications were based on the "Guidelines for GC/MS Identification" developed by the American Chemical Society (Environmental Science and Technology, 1982, 16 143A). As recommended in these guidelines, identifications of unknown substances were reported with a level of confidence. The three levels of confidence cited in the ACS guidelines and used in this report are as follows:

Level 3: Confirmed Identification

The identification is based on the analysis of an authentic standard.

Level 2: Confident Identification

Good agreement was observed between the unknown compound and a specific library spectrum.

Level 1: Tentative Identification

The unknown compound is only indicative of a specific library spectrum.

Class Identification

The unknown compound was not similar to a specific library spectrum, but it did contain ions characteristic of a class of compounds (saturated hydrocarbon, chlorinated hydrocarbon, etc.).

If there were no library spectra similar to the unknown, and it could not be assigned to a particular class of compounds, the compound is reported as "unknown."

Quantitation of TICs is based on the total ionization peak area relative to an internal standard, assuming a response factor of one. Accordingly, the reported concentration is an estimate.

In general, mass spectrometry cannot distinguish isomers (compounds with the same molecular formula). Therefore, an identified compound may be any one of several different isomers.

The tentatively identified compounds in this report include some compounds reported as "siloxanes". Siloxanes are common laboratory and field artifacts or contaminants. Potential sources include silicon-based grease in the field or laboratory plus the liquid phase coating on gas chromatography columns, as well as other equipment in the laboratory. However, siloxanes may be present in environmental samples from spills of silicone oils or lubricating oils with siloxane additives.

Metals

All nominal reporting limits for metals have been established from instrument detection limit (IDL) evaluations and represent the level above which reliable data can be routinely obtained. Low level standards are analyzed seven times on three non-consecutive days on each instrument. The standard deviations of the three runs are summed to yield the IDL. Nominal reporting limits are generally 2-5 times the IDL (consistent with the American Chemical Society definition for the Limit of Quantification). The ability to achieve these quoted reporting limits is verified each quarter. Reporting limits above the nominal levels are often submitted due to matrix interferences or elevated analyte levels.

Reporting limits for metals analyzed by Inductively Coupled Plasma (ICP) are typically raised only for dilution due to an analyte exceeding the instrument linear range. Background and interelement interferences are corrected automatically and do not require dilution.

Metals analyzed by Graphite Furnace Atomic Absorption (GFAA) are subject to matrix interferences. Consequently, Quanterra Environmental Services, Denver laboratory's protocol is to analyze a spiked aliquot with every sample. The severity of the interference, based upon analyte level and spike recovery, is assessed against specific criteria and the need for an elevated reporting limit or dilution is determined.

The analysis of mercury by Cold Vapor Atomic Absorption (CVAA) is generally free from matrix interferences. As with ICP, reporting limits are raised only for dilution due to a sample concentration exceeding the linear range of the instrument.

Footnotes and Data Qualifiers

The data sheets included in this report may contain a variety of footnotes and data qualifiers. Those used to indicate the confidence level for Tentatively Identified Compounds (GC/MS methods) are described above. Other footnotes are used with specific tests; for example, footnotes used with the GC/FID Petroleum Hydrocarbon methods to indicate (in the analysts judgement) the product that appears to be present. Finally, there are a number of general qualifiers that serve to identify problems and pertinent observations made during sample analysis that are not discussed in the Overview. These are described below:

B Compound is also detected in the blank.

The indicated compound was detected in the sample as well as in the method blank. Please note that the B flag is not used when the sample result is ND (Not Detected).

G Reporting limit raised due to matrix interference.

Indicates that reporting limits were raised due to the presence of non-target compounds or other matrix interferences. The sample may or may not have been diluted. For inorganic methods, the footnote applies only to the flagged analyte. For organic methods, the footnote pertains to all analytes determined by the method.

J Result is detected below the reporting limit or is an estimated concentration.

This footnote indicates that the analyte was detected in the sample, but the measured concentration was below the reporting limit. When supported by the current Method Detection Limit study, J values are generally reported to 1/5 of the reporting limit for GC/MS Volatile Organics, 1/10 of the reporting limit for GC/MS Semivolatile Organics, 1/2 the reporting limit for GC and HPLC or to the Instrument Detection Limit (IDL) for metals.

T Preferred value unless footnoted on the secondary column test.

This footnote is used with GC tests to indicate the primary column results. The footnote will be listed only for the first compound but pertains to all analytes determined by the method. It is used in conjunction with the footnote V.

V Secondary column result is the preferred value.

This footnote is used for GC in conjunction with the T footnote. It indicates that the value from the second column is preferred over the primary column result and pertains only to the indicated compound.

t Sample diluted due to the concentration of target compounds.

Indicates that reporting limts were raised due to the presence of target analytes outside the calibration range of the method. For multi-analyte methods, the footnote will appear only for the first analyte but pertains to all analytes determined by the method.

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-L-0295-1
Lab ID: 040706-0001-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-L-0295-1
Lab ID: 040706-0001-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

Surrogate	Recovery	
Toluene-d8	104	%
4-Bromofluorobenzene	109	%
1,2-Dichloroethane-d4	105	%

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Audrey Verniero

Quanterra Environmental Services

Volatiles Library Search (10 Compound TID)

Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-L-0295-1
Lab ID: 040706-0001-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: NA Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
None Detected	ND	ug/L	
TID Compound 2	ND	ug/L	
TID Compound 3	ND	ug/L	
TID Compound 4	ND	ug/L	
TID Compound 5	ND	ug/L	
TID Compound 6	ND	ug/L	
TID Compound 7	ND	ug/L	
TID Compound 8	ND	ug/L	
TID Compound 9	ND	ug/L	
TID Compound 10	ND	ug/L	

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-1
Lab ID: 040706-0002-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

(continued on following page)

ND = Not detected
NA = Not applicable

eported By: Sandra Jones Approved By: Audrey Verniero

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-1
Lab ID: 040706-0002-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

Surrogate	Recovery	
Toluene-d8	102	%
4-Bromofluorobenzene	106	%
1,2-Dichloroethane-d4	107	%

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Audrey Verniero

Quanterra Environmental Services

Volatiles Library Search (10 Compound TID)

Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-1
Lab ID: 040706-0002-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: NA Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
None Detected	ND	ug/L	
TID Compound 2	ND	ug/L	
TID Compound 3	ND	ug/L	
TID Compound 4	ND	ug/L	
TID Compound 5	ND	ug/L	
TID Compound 6	ND	ug/L	
TID Compound 7	ND	ug/L	
TID Compound 8	ND	ug/L	
TID Compound 9	ND	ug/L	
TID Compound 10	ND	ug/L	

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Audrey Verniero

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-I-0295-1
Lab ID: 040706-0003-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Acetone	37	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-I-0295-1
Lab ID: 040706-0003-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

Surrogate	Recovery	
Toluene-d8	102	%
4-Bromofluorobenzene	108	%
1,2-Dichloroethane-d4	109	%

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Audrey Verniero

Quanterra Environmental Services

Volatiles Library Search (10 Compound TID)

Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-I-0295-1
Lab ID: 040706-0003-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: NA Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
None Detected	ND	ug/L	
TID Compound 2	ND	ug/L	
TID Compound 3	ND	ug/L	
TID Compound 4	ND	ug/L	
TID Compound 5	ND	ug/L	
TID Compound 6	ND	ug/L	
TID Compound 7	ND	ug/L	
TID Compound 8	ND	ug/L	
TID Compound 9	ND	ug/L	
TID Compound 10	ND	ug/L	

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-2
Lab ID: 040706-0004-TB
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics
Appendix IX List
Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-2
Lab ID: 040706-0004-TB
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 27 FEB 95 Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

Surrogate	Recovery	
Toluene-d8	103	%
4-Bromofluorobenzene	110	%
1,2-Dichloroethane-d4	110	%

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Audrey Verniero

Quanterra Environmental Services

Volatiles Library Search (10 Compound TID)

Method 8240

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-2
Lab ID: 040706-0004-TB
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: NA Analyzed: 27 FEB 95

Parameter	Result	Units	Reporting Limit
None Detected	ND	ug/L	
TID Compound 2	ND	ug/L	
TID Compound 3	ND	ug/L	
TID Compound 4	ND	ug/L	
TID Compound 5	ND	ug/L	
TID Compound 6	ND	ug/L	
TID Compound 7	ND	ug/L	
TID Compound 8	ND	ug/L	
TID Compound 9	ND	ug/L	
TID Compound 10	ND	ug/L	

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Audrey Verniero

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-L-0295-1
Lab ID: 040706-0001-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 02 MAR 95 Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
2-Acetylaminofluorene	ND	ug/L	100
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	ND	ug/L	10
Aramite	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzyl alcohol	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
2-sec-Butyl-4,6-dinitrophenol	ND	ug/L	10
4-Chloroaniline	ND	ug/L	10
bis(2-Chloroethoxy) methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl) ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
1,2-Dichlorobenzene	ND	ug/L	10
1,3-Dichlorobenzene	ND	ug/L	10
1,4-Dichlorobenzene	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	20
2,4-Dichlorophenol	ND	ug/L	10
2,6-Dichlorophenol	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Audrey Verniero

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-L-0295-1
Lab ID: 040706-0001-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 02 MAR 95 Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit
Dimethoate	ND	ug/L	--
p-Dimethylaminoazobenzene	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
3,3'-Dimethylbenzidine	ND	ug/L	10
a,a-Dimethylphenethylamine	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
1,3-Dinitrobenzene	ND	ug/L	10
4,6-Dinitro-2-methylphenol	ND	ug/L	50
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Diphenylamine	ND	ug/L	10
Disulfoton	ND	ug/L	50
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
Ethyl methanesulfonate	ND	ug/L	10
Famphur	ND	ug/L	--
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
Hexachloroethane	ND	ug/L	10
Hexachlorophene	ND	ug/L	--
Hexachloropropene	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
Isosafrole	ND	ug/L	20
Methapyrilene	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	10
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Methyl parathion	ND	ug/L	50
2-Methylphenol	ND	ug/L	10
3/4-Methylphenol	ND	ug/L	10
Naphthalene	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Audrey Verniero

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-L-0295-1
Lab ID: 040706-0001-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 02 MAR 95 Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit
1,4-Naphthoquinone	ND	ug/L	10
1-Naphthylamine	ND	ug/L	10
2-Naphthylamine	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4-Nitroaniline	ND	ug/L	50
Nitrobenzene	ND	ug/L	10
2-Nitrophenol	ND	ug/L	10
4-Nitrophenol	ND	ug/L	50
4-Nitroquinoline-1-oxide	ND	ug/L	--
N-Nitroso-di-n-butylamine	ND	ug/L	10
N-Nitrosodiethylamine	ND	ug/L	10
N-Nitrosodimethylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosomethylethylamine	ND	ug/L	10
N-Nitrosomorpholine	ND	ug/L	10
N-Nitrosopiperidine	ND	ug/L	10
N-Nitrosopyrrolidine	ND	ug/L	10
5-Nitro-o-toluidine	ND	ug/L	10
Parathion	ND	ug/L	50
Pentachlorobenzene	ND	ug/L	10
Pentachloroethane	ND	ug/L	10
Pentachloronitrobenzene	ND	ug/L	50
Pentachlorophenol	ND	ug/L	50
Phenacetin	ND	ug/L	10
Phenanthrene	ND	ug/L	10
Phenol	ND	ug/L	10
4-Phenylenediamine	ND	ug/L	--
Phorate	ND	ug/L	100
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	10
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	20
Safrole	ND	ug/L	10
Sulfotepp	ND	ug/L	50
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	50
Thionazin	ND	ug/L	50

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Audrey Verniero

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-L-0295-1
Lab ID: 040706-0001-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 02 MAR 95 Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit
2-Toluidine	ND	ug/L	10
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
2,4,6-Trichlorophenol	ND	ug/L	10
O,O,O-Triethylphosphorothioate	ND	ug/L	10
1,3,5-Trinitrobenzene	ND	ug/L	10

Surrogate	Recovery	
Nitrobenzene-d5	69	%
2-Fluorobiphenyl	73	%
Terphenyl-d14	76	%
Phenol-d5	68	%
2-Fluorophenol	64	%
2,4,6-Tribromophenol	72	%

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Audrey Verniero

Quanterra Environmental Services

Semivolatiles Library Search (20 Compound TID)

Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-L-0295-1
Lab ID: 040706-0001-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: NA Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit
None Detected	ND	ug/L	
TID Compound 2	ND	ug/L	
TID Compound 3	ND	ug/L	
TID Compound 4	ND	ug/L	
TID Compound 5	ND	ug/L	
TID Compound 6	ND	ug/L	
TID Compound 7	ND	ug/L	
TID Compound 8	ND	ug/L	
TID Compound 9	ND	ug/L	
TID Compound 10	ND	ug/L	
TID Compound 11	ND	ug/L	
TID Compound 12	ND	ug/L	
TID Compound 13	ND	ug/L	
TID Compound 14	ND	ug/L	
TID Compound 15	ND	ug/L	
TID Compound 16	ND	ug/L	
TID Compound 17	ND	ug/L	
TID Compound 18	ND	ug/L	
TID Compound 19	ND	ug/L	
TID Compound 20	ND	ug/L	

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Audrey Verniero

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-1
Lab ID: 040706-0002-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 02 MAR 95 Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
2-Acetylaminofluorene	ND	ug/L	100
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	ND	ug/L	10
Aramite	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzyl alcohol	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
2-sec-Butyl-4,6-dinitrophenol	ND	ug/L	10
4-Chloroaniline	ND	ug/L	10
bis(2-Chloroethoxy) methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl) ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
1,2-Dichlorobenzene	ND	ug/L	10
1,3-Dichlorobenzene	ND	ug/L	10
1,4-Dichlorobenzene	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	20
2,4-Dichlorophenol	ND	ug/L	10
2,6-Dichlorophenol	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Audrey Verniero

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-1
Lab ID: 040706-0002-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 02 MAR 95 Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit
Dimethoate	ND	ug/L	--
p-Dimethylaminoazobenzene	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
3,3'-Dimethylbenzidine	ND	ug/L	10
a,a-Dimethylphenethylamine	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
1,3-Dinitrobenzene	ND	ug/L	10
4,6-Dinitro-2-methylphenol	ND	ug/L	50
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Diphenylamine	ND	ug/L	10
Disulfoton	ND	ug/L	50
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
Ethyl methanesulfonate	ND	ug/L	10
Famphur	ND	ug/L	--
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
Hexachloroethane	ND	ug/L	10
Hexachlorophene	ND	ug/L	--
Hexachloropropene	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
Isosafrole	ND	ug/L	20
Methapyrilene	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	10
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Methyl parathion	ND	ug/L	50
2-Methylphenol	ND	ug/L	10
3/4-Methylphenol	ND	ug/L	10
Naphthalene	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Audrey Verniero

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-1
Lab ID: 040706-0002-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 02 MAR 95 Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit
1,4-Naphthoquinone	ND	ug/L	10
1-Naphthylamine	ND	ug/L	10
2-Naphthylamine	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4-Nitroaniline	ND	ug/L	50
Nitrobenzene	ND	ug/L	10
2-Nitrophenol	ND	ug/L	10
4-Nitrophenol	ND	ug/L	50
4-Nitroquinoline-1-oxide	ND	ug/L	--
N-Nitroso-di-n-butylamine	ND	ug/L	10
N-Nitrosodiethylamine	ND	ug/L	10
N-Nitrosodimethylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosomethylethylamine	ND	ug/L	10
N-Nitrosomorpholine	ND	ug/L	10
N-Nitrosopiperidine	ND	ug/L	10
N-Nitrosopyrrolidine	ND	ug/L	10
5-Nitro-o-toluidine	ND	ug/L	10
Parathion	ND	ug/L	50
Pentachlorobenzene	ND	ug/L	10
Pentachloroethane	ND	ug/L	10
Pentachloronitrobenzene	ND	ug/L	50
Pentachlorophenol	ND	ug/L	50
Phenacetin	ND	ug/L	10
Phenanthrene	ND	ug/L	10
Phenol	ND	ug/L	10
4-Phenylenediamine	ND	ug/L	--
Phorate	ND	ug/L	100
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	10
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	20
Safrole	ND	ug/L	10
Sulfotepp	ND	ug/L	50
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	50
Thionazin	ND	ug/L	50

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Audrey Verniero

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-1
Lab ID: 040706-0002-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 02 MAR 95 Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit
2-Toluidine	ND	ug/L	10
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
2,4,6-Trichlorophenol	ND	ug/L	10
O,O,O-Triethylphosphorothioate	ND	ug/L	10
1,3,5-Trinitrobenzene	ND	ug/L	10

Surrogate	Recovery	
Nitrobenzene-d5	61	%
2-Fluorobiphenyl	66	%
Terphenyl-d14	73	%
Phenol-d5	60	%
2-Fluorophenol	56	%
2,4,6-Tribromophenol	71	%

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Audrey Verniero

Quanterra Environmental Services

Semivolatiles Library Search (20 Compound TID)

Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-1
Lab ID: 040706-0002-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: NA Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit
None Detected	ND	ug/L	
TID Compound 2	ND	ug/L	
TID Compound 3	ND	ug/L	
TID Compound 4	ND	ug/L	
TID Compound 5	ND	ug/L	
TID Compound 6	ND	ug/L	
TID Compound 7	ND	ug/L	
TID Compound 8	ND	ug/L	
TID Compound 9	ND	ug/L	
TID Compound 10	ND	ug/L	
TID Compound 11	ND	ug/L	
TID Compound 12	ND	ug/L	
TID Compound 13	ND	ug/L	
TID Compound 14	ND	ug/L	
TID Compound 15	ND	ug/L	
TID Compound 16	ND	ug/L	
TID Compound 17	ND	ug/L	
TID Compound 18	ND	ug/L	
TID Compound 19	ND	ug/L	
TID Compound 20	ND	ug/L	

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Audrey Verniero

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-I-0295-1
Lab ID: 040706-0003-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 02 MAR 95 Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
2-Acetylaminofluorene	ND	ug/L	100
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	ND	ug/L	10
Aramite	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzyl alcohol	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
2-sec-Butyl-4,6-dinitro-phenol	ND	ug/L	10
4-Chloroaniline	ND	ug/L	10
bis(2-Chloroethoxy) methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl) ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
1,2-Dichlorobenzene	ND	ug/L	10
1,3-Dichlorobenzene	ND	ug/L	10
1,4-Dichlorobenzene	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	20
2,4-Dichlorophenol	ND	ug/L	10
2,6-Dichlorophenol	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Audrey Verniero

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-I-0295-1
Lab ID: 040706-0003-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 02 MAR 95 Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit
Dimethoate	ND	ug/L	--
p-Dimethylaminoazobenzene	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
3,3'-Dimethylbenzidine	ND	ug/L	10
a,a-Dimethylphenethylamine	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
1,3-Dinitrobenzene	ND	ug/L	10
4,6-Dinitro-2-methylphenol	ND	ug/L	50
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Diphenylamine	ND	ug/L	10
Disulfoton	ND	ug/L	50
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
Ethyl methanesulfonate	ND	ug/L	10
Famphur	ND	ug/L	--
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
Hexachloroethane	ND	ug/L	10
Hexachlorophene	ND	ug/L	--
Hexachloropropene	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
Isosafrole	ND	ug/L	20
Methapyrilene	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	10
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Methyl parathion	ND	ug/L	50
2-Methylphenol	ND	ug/L	10
3/4-Methylphenol	ND	ug/L	10
Naphthalene	ND	ug/L	10

(continued on following page)

ND = Not detected
-- = Not applicable

Reported By: Ann Biegelsen Approved By: Audrey Verniero

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-I-0295-1
Lab ID: 040706-0003-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 02 MAR 95 Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit
1,4-Naphthoquinone	ND	ug/L	10
1-Naphthylamine	ND	ug/L	10
2-Naphthylamine	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4-Nitroaniline	ND	ug/L	50
Nitrobenzene	ND	ug/L	10
2-Nitrophenol	ND	ug/L	10
4-Nitrophenol	ND	ug/L	50
4-Nitroquinoline-1-oxide	ND	ug/L	--
N-Nitroso-di-n-butylamine	ND	ug/L	10
N-Nitrosodiethylamine	ND	ug/L	10
N-Nitrosodimethylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosomethylethylamine	ND	ug/L	10
N-Nitrosomorpholine	ND	ug/L	10
N-Nitrosopiperidine	ND	ug/L	10
N-Nitrosopyrrolidine	ND	ug/L	10
5-Nitro-o-toluidine	ND	ug/L	10
Parathion	ND	ug/L	50
Pentachlorobenzene	ND	ug/L	10
Pentachloroethane	ND	ug/L	10
Pentachloronitrobenzene	ND	ug/L	50
Pentachlorophenol	ND	ug/L	50
Phenacetin	ND	ug/L	10
Phenanthrene	ND	ug/L	10
Phenol	ND	ug/L	10
4-Phenylenediamine	ND	ug/L	--
Phorate	ND	ug/L	100
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	10
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	20
Safrole	ND	ug/L	10
Sulfotepp	ND	ug/L	50
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	50
Thionazin	ND	ug/L	50

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Audrey Verniero

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-I-0295-1
Lab ID: 040706-0003-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 02 MAR 95 Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit
2-Toluidine	ND	ug/L	10
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
O,O,O-Triethylphosphorothioate	ND	ug/L	10
2,4,6-Trichlorophenol	ND	ug/L	10
1,3,5-Trinitrobenzene	ND	ug/L	10

Surrogate	Recovery	
Nitrobenzene-d5	62	%
2-Fluorobiphenyl	69	%
Terphenyl-d14	70	%
Phenol-d5	63	%
2-Fluorophenol	57	%
2,4,6-Tribromophenol	68	%

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Audrey Verniero

Quanterra Environmental Services

Semivolatiles Library Search (20 Compound TID)

Method 8270

Client Name: U.S. Geological Survey
Client ID: CAFB-I-0295-1
Lab ID: 040706-0003-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: NA Analyzed: 08 MAR 95

Parameter	Result	Units	Reporting Limit
None Detected	ND	ug/L	
TID Compound 2	ND	ug/L	
TID Compound 3	ND	ug/L	
TID Compound 4	ND	ug/L	
TID Compound 5	ND	ug/L	
TID Compound 6	ND	ug/L	
TID Compound 7	ND	ug/L	
TID Compound 8	ND	ug/L	
TID Compound 9	ND	ug/L	
TID Compound 10	ND	ug/L	
TID Compound 11	ND	ug/L	
TID Compound 12	ND	ug/L	
TID Compound 13	ND	ug/L	
TID Compound 14	ND	ug/L	
TID Compound 15	ND	ug/L	
TID Compound 16	ND	ug/L	
TID Compound 17	ND	ug/L	
TID Compound 18	ND	ug/L	
TID Compound 19	ND	ug/L	
TID Compound 20	ND	ug/L	

ND = Not detected
NA = Not applicable

Reported By: Ann Biegelsen Approved By: Audrey Verniero

Quanterra
Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8080

Client Name: U.S. Geological Survey
Client ID: CAFB-L-0295-1
Lab ID: 040706-0001-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 01 MAR 95 Analyzed: 03 MAR 95

Parameter	Result	Units	Reporting Limit	
Aldrin	ND	ug/L	0.050	T
Aroclor 1016	ND	ug/L	1.0	
Aroclor 1221	ND	ug/L	1.0	
Aroclor 1232	ND	ug/L	1.0	
Aroclor 1242	ND	ug/L	1.0	
Aroclor 1248	ND	ug/L	1.0	
Aroclor 1254	ND	ug/L	1.0	
Aroclor 1260	ND	ug/L	1.0	
alpha-BHC	ND	ug/L	0.050	
beta-BHC	ND	ug/L	0.050	
delta-BHC	ND	ug/L	0.050	
gamma-BHC (Lindane)	ND	ug/L	0.050	
alpha-Chlordane	ND	ug/L	0.050	
gamma-Chlordane	ND	ug/L	0.050	
Chlorobenzilate	ND	ug/L	0.10	
4,4'-DDD	ND	ug/L	0.10	
4,4'-DDE	ND	ug/L	0.10	
4,4'-DDT	ND	ug/L	0.10	
Diallate	ND	ug/L	1.0	
Dieldrin	ND	ug/L	0.10	
Endosulfan I	ND	ug/L	0.050	
Endosulfan II	ND	ug/L	0.10	
Endosulfan sulfate	ND	ug/L	0.10	
Endrin	ND	ug/L	0.10	
Endrin aldehyde	ND	ug/L	0.10	
Heptachlor	ND	ug/L	0.050	
Heptachlor epoxide	ND	ug/L	0.050	
Isodrin	ND	ug/L	0.10	
Kepone	ND	ug/L	1.0	
Methoxychlor	ND	ug/L	0.50	
Toxaphene	ND	ug/L	5.0	

Surrogate	Recovery	
Dibutyl chlorendate	108	%

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected
NA = Not applicable

Reported By: Ronda Johnson Approved By: Audrey Verniero

Quanterra
Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8080

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-1
Lab ID: 040706-0002-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 01 MAR 95 Analyzed: 03 MAR 95

Parameter	Result	Units	Reporting Limit	
Aldrin	ND	ug/L	0.050	T
Aroclor 1016	ND	ug/L	1.0	
Aroclor 1221	ND	ug/L	1.0	
Aroclor 1232	ND	ug/L	1.0	
Aroclor 1242	ND	ug/L	1.0	
Aroclor 1248	ND	ug/L	1.0	
Aroclor 1254	ND	ug/L	1.0	
Aroclor 1260	ND	ug/L	1.0	
alpha-BHC	ND	ug/L	0.050	
beta-BHC	ND	ug/L	0.050	
delta-BHC	ND	ug/L	0.050	
gamma-BHC (Lindane)	ND	ug/L	0.050	
alpha-Chlordane	ND	ug/L	0.050	
gamma-Chlordane	ND	ug/L	0.050	
Chlorobenzilate	ND	ug/L	0.10	
4,4'-DDD	ND	ug/L	0.10	
4,4'-DDE	ND	ug/L	0.10	
4,4'-DDT	ND	ug/L	0.10	
iallate	ND	ug/L	1.0	
ieldrin	ND	ug/L	0.10	
Endosulfan I	ND	ug/L	0.050	
Endosulfan II	ND	ug/L	0.10	
Endosulfan sulfate	ND	ug/L	0.10	
Endrin	ND	ug/L	0.10	
Endrin aldehyde	ND	ug/L	0.10	
Heptachlor	ND	ug/L	0.050	
Heptachlor epoxide	ND	ug/L	0.050	
Isodrin	ND	ug/L	0.10	
Kepone	ND	ug/L	1.0	
Methoxychlor	ND	ug/L	0.50	
Toxaphene	ND	ug/L	5.0	

Surrogate	Recovery	
Dibutyl chlorendate	112	%

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected
NA = Not applicable

Reported By: Ronda Johnson Approved By: Audrey Verniero

Quanterra Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8080

Client Name: U.S. Geological Survey
Client ID: CAFB-I-0295-1
Lab ID: 040706-0003-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 01 MAR 95 Analyzed: 03 MAR 95

Parameter	Result	Units	Reporting Limit	
Aldrin	ND	ug/L	0.050	T
Aroclor 1016	ND	ug/L	1.0	
Aroclor 1221	ND	ug/L	1.0	
Aroclor 1232	ND	ug/L	1.0	
Aroclor 1242	ND	ug/L	1.0	
Aroclor 1248	ND	ug/L	1.0	
Aroclor 1254	ND	ug/L	1.0	
Aroclor 1260	ND	ug/L	1.0	
alpha-BHC	ND	ug/L	0.050	
beta-BHC	ND	ug/L	0.050	
delta-BHC	ND	ug/L	0.050	
gamma-BHC (Lindane)	ND	ug/L	0.050	
alpha-Chlordane	ND	ug/L	0.050	
gamma-Chlordane	ND	ug/L	0.050	
Chlorobenzilate	ND	ug/L	0.10	
4,4'-DDD	ND	ug/L	0.10	
4,4'-DDE	ND	ug/L	0.10	
4,4'-DDT	ND	ug/L	0.10	
Diallate	ND	ug/L	1.0	
Dieldrin	ND	ug/L	0.10	
Endosulfan I	ND	ug/L	0.050	
Endosulfan II	ND	ug/L	0.10	
Endosulfan sulfate	ND	ug/L	0.10	
Endrin	ND	ug/L	0.10	
Endrin aldehyde	ND	ug/L	0.10	
Heptachlor	ND	ug/L	0.050	
Heptachlor epoxide	ND	ug/L	0.050	
Isodrin	ND	ug/L	0.10	
Kepone	ND	ug/L	1.0	
Methoxychlor	ND	ug/L	0.50	
Toxaphene	ND	ug/L	5.0	

Surrogate	Recovery	
Dibutyl chlorendate	111	%

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected
NA = Not applicable

Reported By: Ronda Johnson Approved By: Audrey Verniero

Quanterra Environmental Services

Appendix IX Herbicides

Method 8150

Client Name: U.S. Geological Survey
Client ID: CAFB-L-0295-1
Lab ID: 040706-0001-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 28 FEB 95 Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit	
2,4-D	ND	ug/L	1.2	T
2,4,5-T	ND	ug/L	0.20	
2,4,5-TP (Silvex)	ND	ug/L	0.17	

Surrogate	Recovery	
DCAA	92	%

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected
NA = Not applicable

Reported By: Ronda Johnson Approved By: Mark Pokorny

Quanterra Environmental Services

Appendix IX Herbicides

Method 8150

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-1
Lab ID: 040706-0002-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 28 FEB 95 Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit	
2,4-D	ND	ug/L	1.2	T
2,4,5-T	ND	ug/L	0.20	
2,4,5-TP (Silvex)	ND	ug/L	0.17	

Surrogate	Recovery	
DCAA	96	%

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected
NA = Not applicable

Reported By: Ronda Johnson Approved By: Mark Pokorny

Quanterra Environmental Services

Appendix IX Herbicides

Method 8150

Client Name: U.S. Geological Survey
Client ID: CAFB-I-0295-1
Lab ID: 040706-0003-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: 28 FEB 95 Analyzed: 10 MAR 95

Parameter	Result	Units	Reporting Limit	
2,4-D	ND	ug/L	1.2	T
2,4,5-T	ND	ug/L	0.20	
2,4,5-TP (Silvex)	ND	ug/L	0.17	

Surrogate	Recovery	
DCAA	90	%

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected
NA = Not applicable

Reported By: Ronda Johnson Approved By: Mark Pokorny

Quanterra Environmental Services

Metals

Total Metals

Client Name: U.S. Geological Survey
Client ID: CAFB-L-0295-1
Lab ID: 040706-0001-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Antimony	ND	mg/L	0.060	6010	28 FEB 95	01 MAR 95	
Arsenic	ND	mg/L	0.0050	7060	28 FEB 95	28 FEB 95	
Barium	0.039	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Beryllium	ND	mg/L	0.0020	6010	28 FEB 95	01 MAR 95	
Cadmium	ND	mg/L	0.0050	6010	28 FEB 95	01 MAR 95	
Chromium	ND	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Cobalt	ND	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Copper	ND	mg/L	0.020	6010	28 FEB 95	01 MAR 95	
Iron	0.13	mg/L	0.10	6010	28 FEB 95	01 MAR 95	
Lead	ND	mg/L	0.010	7421	28 FEB 95	28 FEB 95	G
Manganese	ND	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Mercury	ND	mg/L	0.00020	7470	27 FEB 95	28 FEB 95	
Nickel	ND	mg/L	0.040	6010	28 FEB 95	01 MAR 95	
Silver	ND	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Selenium	ND	mg/L	0.010	7740	28 FEB 95	01 MAR 95	G
Sodium	49.1	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Thallium	ND	mg/L	0.0050	7841	28 FEB 95	28 FEB 95	
Tin	ND	mg/L	0.10	6010	28 FEB 95	01 MAR 95	
Vanadium	0.020	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Zinc	ND	mg/L	0.020	6010	28 FEB 95	01 MAR 95	

Note G : Reporting limit raised due to matrix interference.

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra Environmental Services

Metals

Total Metals

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-1
Lab ID: 040706-0002-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Antimony	ND	mg/L	0.060	6010	28 FEB 95	01 MAR 95	
Arsenic	ND	mg/L	0.0050	7060	28 FEB 95	28 FEB 95	
Barium	0.040	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Beryllium	ND	mg/L	0.0020	6010	28 FEB 95	01 MAR 95	
Cadmium	ND	mg/L	0.0050	6010	28 FEB 95	01 MAR 95	
Chromium	0.55	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Cobalt	ND	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Copper	ND	mg/L	0.020	6010	28 FEB 95	01 MAR 95	
Iron	4.1	mg/L	0.10	6010	28 FEB 95	01 MAR 95	
Lead	ND	mg/L	0.010	7421	28 FEB 95	28 FEB 95	G
Manganese	0.020	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Mercury	ND	mg/L	0.00020	7470	27 FEB 95	28 FEB 95	
Nickel	0.066	mg/L	0.040	6010	28 FEB 95	01 MAR 95	
Silver	ND	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Selenium	ND	mg/L	0.010	7740	28 FEB 95	01 MAR 95	G
Sodium	47.4	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Thallium	ND	mg/L	0.010	7841	28 FEB 95	28 FEB 95	G
Tin	ND	mg/L	0.10	6010	28 FEB 95	01 MAR 95	
Vanadium	0.027	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Zinc	0.061	mg/L	0.020	6010	28 FEB 95	01 MAR 95	

Note G : Reporting limit raised due to matrix interference.

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra Environmental Services

Metals

Total Metals

Client Name: U.S. Geological Survey
Client ID: CAFB-I-0295-1
Lab ID: 040706-0003-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Antimony	ND	mg/L	0.060	6010	28 FEB 95	01 MAR 95	
Arsenic	ND	mg/L	0.0050	7060	28 FEB 95	28 FEB 95	
Barium	0.034	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Beryllium	ND	mg/L	0.0020	6010	28 FEB 95	01 MAR 95	
Cadmium	ND	mg/L	0.0050	6010	28 FEB 95	01 MAR 95	
Chromium	ND	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Cobalt	ND	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Copper	ND	mg/L	0.020	6010	28 FEB 95	01 MAR 95	
Iron	ND	mg/L	0.10	6010	28 FEB 95	01 MAR 95	
Lead	ND	mg/L	0.010	7421	28 FEB 95	28 FEB 95	G
Manganese	ND	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Mercury	ND	mg/L	0.00020	7470	27 FEB 95	28 FEB 95	
Nickel	ND	mg/L	0.040	6010	28 FEB 95	01 MAR 95	
Silver	ND	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Selenium	ND	mg/L	0.010	7740	28 FEB 95	01 MAR 95	G
Sodium	41.2	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Thallium	ND	mg/L	0.0050	7841	28 FEB 95	01 MAR 95	
Tin	ND	mg/L	0.10	6010	28 FEB 95	01 MAR 95	
Vanadium	0.026	mg/L	0.010	6010	28 FEB 95	01 MAR 95	
Zinc	ND	mg/L	0.020	6010	28 FEB 95	01 MAR 95	

Note G : Reporting limit raised due to matrix interference.

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra Environmental Services

Metals

Dissolved Metals

Client Name: U.S. Geological Survey
Client ID: CAFB-L-0295-1
Lab ID: 040706-0001-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Antimony	ND	mg/L	0.060	6010	NA	02 MAR 95	
Arsenic	ND	mg/L	0.0050	7060	NA	27 FEB 95	
Barium	0.040	mg/L	0.010	6010	NA	02 MAR 95	
Beryllium	ND	mg/L	0.0020	6010	NA	02 MAR 95	
Cadmium	ND	mg/L	0.0050	6010	NA	02 MAR 95	
Chromium	ND	mg/L	0.010	6010	NA	02 MAR 95	
Cobalt	ND	mg/L	0.010	6010	NA	02 MAR 95	
Copper	ND	mg/L	0.020	6010	NA	02 MAR 95	
Iron	ND	mg/L	0.10	6010	NA	02 MAR 95	
Lead	ND	mg/L	0.025	7421	NA	27 FEB 95	G
Manganese	ND	mg/L	0.010	6010	NA	02 MAR 95	
Mercury	ND	mg/L	0.00020	7470	27 FEB 95	28 FEB 95	
Nickel	ND	mg/L	0.040	6010	NA	02 MAR 95	
Selenium	0.0083	mg/L	0.0050	7740	NA	27 FEB 95	
Silver	ND	mg/L	0.010	6010	NA	02 MAR 95	
Sodium	50.0	mg/L	5.0	6010	NA	02 MAR 95	
Thallium	ND	mg/L	0.025	7841	NA	27 FEB 95	G
Tin	ND	mg/L	0.10	6010	NA	02 MAR 95	
Vanadium	0.021	mg/L	0.010	6010	NA	02 MAR 95	
Zinc	ND	mg/L	0.020	6010	NA	02 MAR 95	

Note G : Reporting limit raised due to matrix interference.

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra Environmental Services

Metals

Dissolved Metals

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-1
Lab ID: 040706-0002-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Antimony	ND	mg/L	0.060	6010	NA	02 MAR 95	
Arsenic	ND	mg/L	0.0050	7060	NA	27 FEB 95	
Barium	0.036	mg/L	0.010	6010	NA	02 MAR 95	
Beryllium	ND	mg/L	0.0020	6010	NA	02 MAR 95	
Cadmium	ND	mg/L	0.0050	6010	NA	02 MAR 95	
Chromium	ND	mg/L	0.010	6010	NA	02 MAR 95	
Cobalt	ND	mg/L	0.010	6010	NA	02 MAR 95	
Copper	ND	mg/L	0.020	6010	NA	02 MAR 95	
Iron	ND	mg/L	0.10	6010	NA	02 MAR 95	
Lead	ND	mg/L	0.050	7421	NA	27 FEB 95	G
Manganese	ND	mg/L	0.010	6010	NA	02 MAR 95	
Mercury	ND	mg/L	0.00020	7470	27 FEB 95	28 FEB 95	
Nickel	ND	mg/L	0.040	6010	NA	02 MAR 95	
Selenium	0.0087	mg/L	0.0050	7740	NA	27 FEB 95	
Silver	ND	mg/L	0.010	6010	NA	02 MAR 95	
Sodium	50.5	mg/L	5.0	6010	NA	02 MAR 95	
Thallium	ND	mg/L	0.010	7841	NA	27 FEB 95	G
Tin	ND	mg/L	0.10	6010	NA	02 MAR 95	
anadium	0.018	mg/L	0.010	6010	NA	02 MAR 95	
inc	ND	mg/L	0.020	6010	NA	02 MAR 95	

Note G : Reporting limit raised due to matrix interference.

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra Environmental Services

Metals

Dissolved Metals

Client Name: U.S. Geological Survey
Client ID: CAFB-I-0295-1
Lab ID: 040706-0003-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Antimony	ND	mg/L	0.060	6010	NA	02 MAR 95	
Arsenic	ND	mg/L	0.0050	7060	NA	27 FEB 95	
Barium	0.034	mg/L	0.010	6010	NA	02 MAR 95	
Beryllium	ND	mg/L	0.0020	6010	NA	02 MAR 95	
Cadmium	ND	mg/L	0.0050	6010	NA	02 MAR 95	
Chromium	ND	mg/L	0.010	6010	NA	02 MAR 95	
Cobalt	ND	mg/L	0.010	6010	NA	02 MAR 95	
Copper	ND	mg/L	0.020	6010	NA	02 MAR 95	
Iron	ND	mg/L	0.10	6010	NA	02 MAR 95	
Lead	ND	mg/L	0.010	7421	NA	27 FEB 95	G
Manganese	ND	mg/L	0.010	6010	NA	02 MAR 95	
Mercury	ND	mg/L	0.00020	7470	27 FEB 95	28 FEB 95	
Nickel	ND	mg/L	0.040	6010	NA	02 MAR 95	
Selenium	0.0086	mg/L	0.0050	7740	NA	27 FEB 95	
Silver	ND	mg/L	0.010	6010	NA	02 MAR 95	
Sodium	42.7	mg/L	5.0	6010	NA	02 MAR 95	
Thallium	ND	mg/L	0.010	7841	NA	27 FEB 95	G
Tin	ND	mg/L	0.10	6010	NA	02 MAR 95	
Vanadium	0.028	mg/L	0.010	6010	NA	02 MAR 95	
Zinc	ND	mg/L	0.020	6010	NA	02 MAR 95	

Note G : Reporting limit raised due to matrix interference.

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra Environmental Services

General Inorganics

Client Name: U.S. Geological Survey
Client ID: CAFB-L-0295-1
Lab ID: 040706-0001-SA
Matrix: AQUEOUS
Authorized: 24 FEB 95

Sampled: 23 FEB 95
Prepared: See Below

Received: 24 FEB 95
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Chloride	76.9	mg/L	3.0	300.0	NA	27 FEB 95
Cyanide	ND	mg/L	0.010	9012	25 FEB 95	25 FEB 95
Phenolics	ND	mg/L	0.010	9065	NA	01 MAR 95
Sulfide, Total	ND	mg/L	0.050	376.2	NA	28 FEB 95
Sulfate	124	mg/L	5.0	300.0	NA	27 FEB 95
Total Organic Carbon	ND	mg/L	1.0	415.1	NA	25 FEB 95
Total Organic Halogen as Cl	ND	ug/L	60.0	9020	NA	07 MAR 95 G

Note G : Reporting limit raised due to matrix interference.

ND = Not detected
NA = Not applicable

Reported By: Judy Lange

Approved By: Roxanne Sullivan

Quanterra Environmental Services

General Inorganics

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-1
Lab ID: 040706-0002-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 24 FEB 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Chloride	104	mg/L	3.0	300.0	NA	27 FEB 95
Cyanide	ND	mg/L	0.010	9012	25 FEB 95	25 FEB 95
Phenolics	ND	mg/L	0.010	9065	NA	01 MAR 95
Sulfide, Total	ND	mg/L	0.050	376.2	NA	28 FEB 95
Sulfate	106	mg/L	5.0	300.0	NA	27 FEB 95
Total Organic Carbon	1.1	mg/L	1.0	415.1	NA	25 FEB 95
Total Organic Halogen as Cl	35.6	ug/L	30.0	9020	NA	28 FEB 95

ND = Not detected
NA = Not applicable

Reported By: Judy Lange Approved By: Roxanne Sullivan

General Inorganics

Quanterra Environmental Services

Client Name: U.S. Geological Survey
Client ID: CAFB-I-0295-1
Lab ID: 040706-0003-SA
Matrix: AQUEOUS
Authorized: 24 FEB 95

Sampled: 23 FEB 95
Prepared: See Below

Received: 24 FEB 95
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Chloride	79.2	mg/L	3.0	300.0	NA	27 FEB 95
Cyanide	ND	mg/L	0.010	9012	25 FEB 95	25 FEB 95
Phenolics	ND	mg/L	0.010	9065	NA	01 MAR 95
Sulfide, Total	ND	mg/L	0.050	376.2	NA	28 FEB 95
Sulfate	125	mg/L	5.0	300.0	NA	27 FEB 95
Total Organic Carbon	1.4	mg/L	1.0	415.1	NA	25 FEB 95
Total Organic Halogen as Cl	ND	ug/L	30.0	9020	NA	28 FEB 95

ND = Not detected
NA = Not applicable

Reported By: Judy Lange

Approved By: Roxanne Sullivan

Quanterra
Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

ANALYTICAL RESULTS

FOR

U.S. GEOLOGICAL SURVEY

QUANTERRA ENVIRONMENTAL SERVICES, DENVER

PROJECT NUMBER: 040758

MARCH 16, 1995

Reviewed by:

Grant Wilton

Lindsay Breyer

Quanterra
Environmental Services

I. OVERVIEW

On February 24, 1995, Quanterra Environmental Services, Denver received three aqueous samples from the U.S. Geological Survey.

This report presents the analytical results as well as supporting information to aid in the evaluation and interpretation of the data and is arranged in the following order:

I. Overview
II. Sample Description Information/Analytical Test Requests
III. Analytical
IV. Quality Control Report

The samples contained in this project were received as part of Quanterra project number 040708.

Standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory QC samples analyzed in conjunction with the samples in this project were within established control limits.

II. SAMPLE DESCRIPTION INFORMATION/ANALYTICAL TEST REQUESTS

Sample Description Information

The Sample Description Information lists all of the samples received in this project together with the internal laboratory identification number assigned for each sample. Each project received at Quanterra Environmental Services, Denver is assigned a unique six digit number. Samples within the project are numbered sequentially. The laboratory identification number is a combination of the six digit project code and the sample sequence number.

Also given in the Sample Description Information is the Sample Type (matrix), Date of Sampling (if known) and Date of Receipt at the laboratory.

Analytical Test Requests

The Analytical Test Requests lists the analyses that were performed on each sample. The Custom Test column indicates where tests have been modified to conform to the specific requirements of this project.

Quanterra
Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
U.S. Geological Survey

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
040758-0001-SA	CAFB-L-0295-1	AQUEOUS	23 FEB 95	13:15	24 FEB 95
040758-0001-MB	METHOD BLANK	AQUEOUS	23 FEB 95		24 FEB 95
040758-0002-SA	CAFB-M-0295-1	AQUEOUS	23 FEB 95	09:30	24 FEB 95
040758-0003-SA	CAFB-I-0295-1	AQUEOUS	23 FEB 95	11:15	24 FEB 95
040758-0003-MS	CAFB-I-0295-2	AQUEOUS	23 FEB 95	11:15	24 FEB 95
040758-0003-SD	CAFB-I-0295-3	AQUEOUS	23 FEB 95	11:15	24 FEB 95

Quanterra
Environmental Services

ANALYTICAL TEST REQUESTS
for
U.S. Geological Survey

Lab ID: 040758	Group Code	Analysis Description	Custom Test?
0001 - 0003	A	2,3,7,8 -Subs. Isomer-Specific C14 -C18 Dioxins and Furans by/LRMS	Y
		Prep - Low Res. Method 613 L-L Extraction for Dioxins/Furans	N

III. ANALYTICAL RESULTS

The analytical results for this project are presented in the following data tables. Each data table includes sample identification information, and when available and appropriate, dates sampled, received, authorized, prepared and analyzed. The authorization data is the date when the project was defined by the client such that laboratory work could begin. The date prepared is typically the date an extraction or digestion was initiated. For volatile organic compounds in water, the date prepared is the date the screening of the sample was performed.

Data sheets contain a listing of the parameters measured in each test, the analytical results and the Quanterra Environmental Services, Denver laboratory's reporting limit. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis, i.e. no correction is made for moisture content.

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-L-0295-1
Lab ID: 040758-0001-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 27 FEB 95 Prepared: 03 MAR 95 Analyzed: 09 MAR 95

Sample Amount 1.06 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.52	
PeCDFs (total)	ND	ng/L	0.39	
HxCDFs (total)	ND	ng/L	0.75	
Dioxins				
TCDDs (total)	ND	ng/L	0.32	
2,3,7,8-TCDD	ND	ng/L	0.32	
PeCDDs (total)	ND	ng/L	1.0	
HxCDDs (total)	ND	ng/L	0.80	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: EUEBELHOER

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-L-0295-1
Lab ID: 040758-0001-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 27 FEB 95 Prepared: 03 MAR 95 Analyzed: 09 MAR 95

Sample Amount 1.06 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	67.6
13C-2,3,7,8-TCDD	68.9
13C-1,2,3,7,8-PeCDD	73.8
13C-1,2,3,6,7,8-HxCDD	68.2
13C-1,2,3,4,6,7,8-HpCDD	66.9
13C-OCDD	63.7

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: EUEBELHOER

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-1
Lab ID: 040758-0002-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 27 FEB 95 Prepared: 03 MAR 95 Analyzed: 09 MAR 95

Sample Amount 1.04 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.58	
PeCDFs (total)	ND	ng/L	0.61	
HxCDFs (total)	ND	ng/L	1.5	
Dioxins				
TCDDs (total)	ND	ng/L	0.63	
2,3,7,8-TCDD	ND	ng/L	0.63	
PeCDDs (total)	ND	ng/L	1.9	
HxCDDs (total)	ND	ng/L	1.4	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: EUEBELHOER

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-M-0295-1
Lab ID: 040758-0002-SA
Matrix: AQUEOUS
Authorized: 27 FEB 95

Sampled: 23 FEB 95
Prepared: 03 MAR 95

Received: 24 FEB 95
Analyzed: 09 MAR 95

Sample Amount 1.04 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	64.2
13C-2,3,7,8-TCDD	62.2
13C-1,2,3,7,8-PeCDD	65.8
13C-1,2,3,6,7,8-HxCDD	61.9
13C-1,2,3,4,6,7,8-HpCDD	59.7
13C-OCDD	52.0

ND = Not detected
NA = Not applicable

Reported By: TVERGARA

Approved By: EUEBELHOER

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-I-0295-1
Lab ID: 040758-0003-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 27 FEB 95 Prepared: 03 MAR 95 Analyzed: 09 MAR 95

Sample Amount 1.04 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.64	
PeCDFs (total)	ND	ng/L	0.48	
HxCDFs (total)	ND	ng/L	1.1	
Dioxins				
TCDDs (total)	ND	ng/L	0.46	
2,3,7,8-TCDD	ND	ng/L	0.46	
PeCDDs (total)	ND	ng/L	1.6	
HxCDDs (total)	ND	ng/L	1.2	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: EUEBELHOER

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-I-0295-1
Lab ID: 040758-0003-SA
Matrix: AQUEOUS Sampled: 23 FEB 95 Received: 24 FEB 95
Authorized: 27 FEB 95 Prepared: 03 MAR 95 Analyzed: 09 MAR 95

Sample Amount 1.04 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	63.3
13C-2,3,7,8-TCDD	64.4
13C-1,2,3,7,8-PeCDD	71.7
13C-1,2,3,6,7,8-HxCDD	63.3
13C-1,2,3,4,6,7,8-HpCDD	60.6
13C-OCDD	52.9

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: EUEBELHOER

DODEC LABORATORY DATA REVIEW WORKSHEET

1.0 GENERAL INFORMATION

Data reviewer: BOB BROCK
Date of review: 3/22/95
Sample project number: 46679
Project name: CANNON AFB
Sample collection date: 2/22/95
Sample matrix and number: 5 AQUEOUS

Type and number of samples in project:

Type	Number
Environmental	3
Trip blank	1
Equipment blank	1
Ambient blank	
MS/MSD	
Other	

2.0 DATA REPORT

Date of Analytical Results Report: 3/17/95
Number of volumes in Raw Data Report: 2
Raw Data Report reviewed? Yes____ No X

Were all analyses requested on the COC form performed by the laboratory?
Yes X No____

If no, list cancelled analyses and reason for non-performance:

Were the samples properly preserved upon receipt by the laboratory?
Yes X No____

If no, list laboratory ID for samples that were not properly preserved.

3.0 ANALYTICAL METHODS

Analytical methods used in this project

X	VOC by GC/MS (SW 8240, SW 8260, E524, E624)
	Halogenated VOC by GC (SW 8010)
	Aromatic VOC by GC (SW 8020)
X	SVOC by GC/MS (SW 8270)
	PAH by HPLC (SW 8310)
X	Organochlorine pesticides and PCB (SW 8080)
	Organophosphorous pesticides (SW 8140)
X	Chlorinated herbicides (SW 8150)
	Dioxins and Furans (SW 8280)
	Explosives (8330)
X	TOC (E415.1 or SW 9060)
	TPH (E418.1)
	Oil and Grease (E413.2)
X	TOX (SW9020)
X	ICP screen for metals (SW 6010) TOT & DIS
	ICP/MS screen for metals (SW 6020)
	Trace ICP screen for metals (SW 6010 modified)
	Antimony by GFAA (SW 7041)
X	Arsenic by GFAA (SW 7060)
	Chromium (SW 7191 or 7196)
X	Lead by GFAA (SW 7421)
X	Mercury by CVAA (SW 7470 or 7471)
X	Selenium by GFAA (SW 7740)
X	Thallium by GFAA (SW 7841)
X	Inorganic anions (E300.0)
	Alkalinity (310.1)
X	Cyanide, total and amenable (SW 9010/9012)
	Nitrogen, ammonia (E350.1)
	Nitrogen, TKN (E351.2)
	Nitrogen, nitrate (E353.2)
	Nitrogen, nitrate plus nitrite (E353.2)
	Nitrogen, nitrite (E354.1)
	Phosphorous, total or ortho (E365.3)
	Sulfate (E375.4)
X	Sulfide (E376.2)
	TDS (E160.1)
	pH (SW 9040 or 9045)
	Percent moisture (D2216)
	Gross alpha and gross beta radioactivity (SW 9310)
	Alpha-emitting radium isotopes (SW 9315)
	Radium-228 (SW 9320)
	Uranium (908.1)
X	Other analyses : PHENOLICS 9065

Were analytical holding times met? Yes_____ No X

If no, list analytical method and laboratory ID for samples that exceeded holding time:

9150 SAMPLES -001 AND -002 WERE RE-PREPPED AND ANALYZED OUTSIDE OF HOLDING TIME DUE TO LOW SURROGATE RECOVERIES IN THE ORIGINAL ANALYSIS. BOTH SETS OF DATA ARE REPORTED

Did surrogate recoveries meet QC acceptance criteria?
Yes_____ No X

If no, list analytical method, laboratory ID, and surrogates that did not meet acceptance criteria:

THE ORIGINAL ANALYSES OF 9150 SAMPLES -001 AND -002 DID NOT MEET LIMITS

Did actual reporting limits meet project detection limits?
Organic analyses : Yes X No_____

If no, list analytical method, laboratory ID, and reason for non-conformance:

Inorganic analyses: Yes_____ No X

Reporting limits for GFAA metals and inorganic anions may be raised when: (1) sample concentrations exceed the instrument linear range and (2) target analytes are subject to matrix interferences. Reporting limits for ICP metals and mercury by CVAA are typically only raised when the sample concentration exceeds the instrument linear range.

Did DCS meet QC acceptance criteria? Yes X No_____

If no, list analytical method, laboratory ID, and reason for non-conformance:

Did SCS meet QC acceptance criteria? Yes_____ No X

If no, list analytical method, laboratory ID, and reason for non-conformance:

6270 SCS 27FEB95-M1 DID NOT MEET QC LIMITS DUE TO LABORATORY ERROR.
THE ASSOCIATED BCS AS WELL AS ALL SAMPLE SURROGATE RECOVERIES
WERE WITHIN QC LIMITS

Were any target compounds found in the method, trip, equipment, or ambient blanks above the RL? Yes X No _____

If yes, list the analytical method, laboratory ID, type of blank and compound:

METALS SAMPLE - 6004 08 HAS ZINC ABOVE THE RL (BOTH TOTAL & DISSOLVED

Did the MS/MSD meet QC acceptance criteria? Yes___ No___ NA

MS/MSD data are used to evaluate the effect of the sample matrix on the analytical process and should only be used in conjunction with other available laboratory QC information to evaluate precision and accuracy.

If no, list the analytical method, laboratory ID, and reason for non-comformance :

Additional comments:

IV. QUALITY CONTROL REPORT

Quanterra Environmental Services, Denver operates under a rigorous QA/QC program designed to ensure the generation of scientifically valid, legally defensible data by monitoring every aspect of laboratory operations. Routine QA/QC procedures include the use of approved methodologies, independent verification of analytical standards, use of duplicate Laboratory Control Samples to assess the precision and accuracy of the methodology on a routine basis, and a rigorous system of data review.

The standard laboratory QC package is designed to:

1) establish a strong, cost-effective QC program that ensures the generation of scientifically valid, legally defensible data

2) assess the laboratory's performance of the analytical method using control limits generated with a well-defined matrix

3) establish clear-cut guidelines for acceptability of analytical data so that QC decisions can be made immediately at the bench, and

4) provide a standard set of reportables which assures the client of the quality of his data.

Quanterra Environmental Services, Denver laboratory's QC program is based upon monitoring the precision and accuracy of an analytical method by analyzing a set of Duplicate Control Samples (DCS) at frequent, well-defined intervals. Each DCS is a well-characterized matrix which is spiked with target compounds at 5-100 times the reporting limit, depending upon the methodology being monitored. The purpose of the DCS is not to duplicate the sample matrix, but rather to provide an interference-free, homogeneous matrix from which to gather data to establish control limits. These limits are used to determine whether data generated by the laboratory on any given day is in control.

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery +/- 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results)

to the average, historical relative percent difference + 3 standard deviation units. These control limits are fairly narrow based on the consistency of the matrix being monitored and are updated on a quarterly basis. For each batch of samples analyzed, an additional control measure is taken in the form of a Single Control Sample (SCS). The SCS consists of a control matrix that is spiked with surrogate compounds appropriate to the method being used. In cases where no surrogate is available, (e.g., metals or conventional analyses) a single DCS serves as the control sample. An SCS is prepared for each sample lot for which the DCS pair are not analyzed. The recovery of the SCS is charted in exactly the same manner as described for the DCS, and provides a daily check on the performance of the method.

Accuracy for DCS and SCS is measured by Percent Recovery:

$$\% \text{ Recovery} = \frac{\text{Measured Concentration}}{\text{Actual Concentration}} \times 100$$

Precision for DCS is measured by Relative Percent Difference (RPD):

$$\text{RPD} = \frac{\left| \text{Measured Concentration DCS1} - \text{Measured Concentration DCS2} \right|}{(\text{Measured Concentration DCS1} + \text{Measured Concentration DCS2})/2} \times 100$$

All samples analyzed concurrently by the same test are assigned the same QC lot number. Projects which contain numerous samples, analyzed over several days, may have multiple QC lot numbers associated with each test. The QC information which follows includes a listing of the QC lot numbers associated with each of the samples reported, DCS and SCS (where applicable) recoveries from the QC lots associated with the samples, and control limits for these lots. The QC data is reported by test code, in the order that the tests are reported in the analytical results section of this report.

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
Volatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040679-0001-SA	AQUEOUS	624-A	27 FEB 95-J	27 FEB 95-J
040679-0002-SA	AQUEOUS	624-A	27 FEB 95-J	27 FEB 95-J
040679-0003-SA	AQUEOUS	624-A	27 FEB 95-J	27 FEB 95-J
040679-0004-EB	AQUEOUS	624-A	27 FEB 95-J	27 FEB 95-J
040679-0005-TB	AQUEOUS	624-A	27 FEB 95-J	27 FEB 95-J

Quanterra
Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 624-A								
Matrix: AQUEOUS								
QC Lot: 27 FEB 95-J								
Concentration Units: ug/L								
1,1-Dichloroethene	50.0	49.7	50.9	50.3	101	74-124	2.4	17
Trichloroethene	50.0	46.4	48.2	47.3	95	77-119	3.8	13
Benzene	50.0	47.0	48.7	47.8	96	80-117	3.6	12
Toluene	50.0	48.6	49.8	49.2	98	80-119	2.4	11
Chlorobenzene	50.0	51.4	53.9	52.6	105	81-120	4.7	14

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

Quanterra
Environmental Services

SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 624-A				
Matrix: AQUEOUS				
QC Lot: 27 FEB 95-J QC Run: 27 FEB 95-J				
Concentration Units: ug/L				
1,2-Dichloroethane-d4	50.0	48.9	98	85-111
4-Bromofluorobenzene	50.0	48.8	98	86-110
Toluene-d8	50.0	51.7	103	91-110

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

Quanterra
Environmental Services

METHOD BLANK REPORT
Volatile Organics by GC/MS

Test: 8240CP-AP9-AP
Matrix: AQUEOUS
QC Lot: 27 FEB 95-J QC Run: 27 FEB 95-J

Analyte	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

Quanterra Environmental Services

METHOD BLANK REPORT
Volatile Organics by GC/MS (cont.)

Analyte	Result	Units	Reporting Limit
Test: 8240CP-AP9-AP			
Matrix: AQUEOUS			
QC Lot: 27 FEB 95-J QC Run: 27 FEB 95-J			
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0
Test: 8240CP-AP9-AP			
Matrix: AQUEOUS			
QC Lot: 27 FEB 95-J QC Run: 27 FEB 95-J			
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0

Quanterra
Environmental Services

METHOD BLANK REPORT
Volatile Organics by GC/MS (cont.)

Test: 8240CP-AP9-AP
Matrix: AQUEOUS
QC Lot: 27 FEB 95-J QC Run: 27 FEB 95-J

Analyte	Result	Units	Reporting Limit
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
odomethane	ND	ug/L	5.0
sobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
emivolatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040679-0001-SA	AQUEOUS	625-A	27 FEB 95-N1	27 FEB 95-N1
040679-0002-SA	AQUEOUS	625-A	27 FEB 95-N1	27 FEB 95-N1
040679-0003-SA	AQUEOUS	625-A	27 FEB 95-N1	27 FEB 95-N1
040679-0004-EB	AQUEOUS	625-A	27 FEB 95-N1	27 FEB 95-N1

Quanterra
Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 625-A								
Matrix: AQUEOUS								
QC Lot: 27 FEB 95-N1								
Concentration Units: ug/L								
Phenol	100	71.4	69.1	70.2	70	45-109	3.3	29
2-Chlorophenol	100	80.0	74.2	77.1	77	47-111	7.5	29
1,4-Dichlorobenzene	50	32.2	26.3	29.2	59	32-103	20	28
N-Nitroso-di-n-propylamine	50	39.4	37.9	38.6	77	49-107	3.9	24
1,2,4-Trichlorobenzene	50	33.1	28.3	30.7	61	44-102	16	27
4-Chloro-3-methylphenol	100	74.6	75.1	74.8	75	50-115	0.7	27
Acenaphthene	50	43.6	41.1	42.4	85	47-109	5.9	24
4-Nitrophenol	100	76.4	83.4	79.9	80	40-127	8.8	51
2,4-Dinitrotoluene	50	47.3	47.0	47.2	94	46-118	0.6	22
Pentachlorophenol	100	80.5	84.5	82.5	83	30-136	4.8	34
Pyrene	50	45.2	49.0	47.1	94	52-115	8.1	23

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

Quanterra
Environmental Services

SINGLE CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS

Category: 625-A
Matrix: AQUEOUS
QC Lot: 27 FEB 95-N1 QC Run: 27 FEB 95-N1
Concentration Units: ug/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Nitrobenzene-d5	100	35.4	35#	49-113
2-Fluorobiphenyl	100	40.8	41#	43-104
Terphenyl-d14	100	42.3	42	33-139
2-Fluorophenol	200	62.7	31#	42-100
Phenol-d5	200	70.9	35#	50- 94
2,4,6-Tribromophenol	200	65.9	33	33-123

= Recovery outside QC Limits

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

Quanterra
Environmental Services

METHOD BLANK REPORT
Semivolatile Organics by GC/MS

Test: 8270CP-AP9-A
Matrix: AQUEOUS
QC Lot: 27 FEB 95-N1 QC Run: 27 FEB 95-N1

Analyte	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
2-Acetylaminofluorene	ND	ug/L	100
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	ND	ug/L	10
Aramite	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzyl alcohol	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
2-sec-Butyl-4,6-dinitrophenol	ND	ug/L	10
-Chloroaniline	ND	ug/L	10
bis(2-Chloroethoxy) methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl) ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
1,2-Dichlorobenzene	ND	ug/L	10
1,3-Dichlorobenzene	ND	ug/L	10
1,4-Dichlorobenzene	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	20
2,4-Dichlorophenol	ND	ug/L	10
2,6-Dichlorophenol	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10

Quanterra
Environmental Services

METHOD BLANK REPORT
Semivolatile Organics by GC/MS (cont.)

Test: 8270CP-AP9-A
Matrix: AQUEOUS
QC Lot: 27 FEB 95-N1 QC Run: 27 FEB 95-N1

Analyte	Result	Units	Reporting Limit
Dimethoate	ND	ug/L	--
p-Dimethylaminoazobenzene	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
3,3'-Dimethylbenzidine	ND	ug/L	10
a,a-Dimethylphenethylamine	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
1,3-Dinitrobenzene	ND	ug/L	10
4,6-Dinitro-2-methylphenol	ND	ug/L	50
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Diphenylamine	ND	ug/L	10
Disulfoton	ND	ug/L	50
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
Ethyl methanesulfonate	ND	ug/L	10
Famphur	ND	ug/L	--
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
Hexachloroethane	ND	ug/L	10
Hexachlorophene	ND	ug/L	--
Hexachloropropene	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
Isosafrole	ND	ug/L	20
Methapyrilene	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	10
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Methyl parathion	ND	ug/L	50
2-Methylphenol	ND	ug/L	10
3/4-Methylphenol	ND	ug/L	10
Naphthalene	ND	ug/L	10

Quanterra
Environmental Services

METHOD BLANK REPORT
Semivolatile Organics by GC/MS (cont.)

Test: 8270CP-AP9-A
Matrix: AQUEOUS
QC Lot: 27 FEB 95-N1 QC Run: 27 FEB 95-N1

Analyte	Result	Units	Reporting Limit
1,4-Naphthoquinone	ND	ug/L	10
1-Naphthylamine	ND	ug/L	10
2-Naphthylamine	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4-Nitroaniline	ND	ug/L	50
Nitrobenzene	ND	ug/L	10
2-Nitrophenol	ND	ug/L	10
4-Nitrophenol	ND	ug/L	50
4-Nitroquinoline-1-oxide	ND	ug/L	--
N-Nitroso-di-n-butylamine	ND	ug/L	10
N-Nitrosodiethylamine	ND	ug/L	10
N-Nitrosodimethylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosomethylethylamine	ND	ug/L	10
N-Nitrosomorpholine	ND	ug/L	10
N-Nitrosopiperidine	ND	ug/L	10
Nitrosopyrrolidine	ND	ug/L	10
5-Nitro-o-toluidine	ND	ug/L	10
Parathion	ND	ug/L	50
Pentachlorobenzene	ND	ug/L	10
Pentachloroethane	ND	ug/L	10
Pentachloronitrobenzene	ND	ug/L	50
Pentachlorophenol	ND	ug/L	50
Phenacetin	ND	ug/L	10
Phenanthrene	ND	ug/L	10
Phenol	ND	ug/L	10
4-Phenylenediamine	ND	ug/L	--
Phorate	ND	ug/L	100
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	10
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	20
Safrole	ND	ug/L	10
Sulfotepp	ND	ug/L	50
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	50
Thionazin	ND	ug/L	50

Quanterra
Environmental Services

METHOD BLANK REPORT
Semivolatile Organics by GC/MS (cont.)

Analyte	Result	Units	Reporting Limit
Test: 8270CP-AP9-A			
Matrix: AQUEOUS			
QC Lot: 27 FEB 95-N1 QC Run: 27 FEB 95-N1			
2-Toluidine	ND	ug/L	10
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
O,O,O-Triethylphosphorothioate	ND	ug/L	10
2,4,6-Trichlorophenol	ND	ug/L	10
1,3,5-Trinitrobenzene	ND	ug/L	10

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
emivolatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040679-0001-SA	AQUEOUS	608-A	01 MAR 95-N1	01 MAR 95-N1
040679-0001-SA	AQUEOUS	615-A	28 FEB 95-N1	28 FEB 95-N1
040679-0001-RA	AQUEOUS	615-A	09 MAR 95-N1	09 MAR 95-N1
040679-0002-SA	AQUEOUS	608-A	01 MAR 95-N1	01 MAR 95-N1
040679-0002-SA	AQUEOUS	615-A	28 FEB 95-N1	28 FEB 95-N1
040679-0002-RA	AQUEOUS	615-A	09 MAR 95-N1	09 MAR 95-N1
040679-0003-SA	AQUEOUS	608-A	01 MAR 95-N1	01 MAR 95-N1
040679-0003-SA	AQUEOUS	615-A	28 FEB 95-N1	28 FEB 95-N1
040679-0004-EB	AQUEOUS	608-A	01 MAR 95-N1	01 MAR 95-N1
040679-0004-EB	AQUEOUS	615-A	28 FEB 95-N1	28 FEB 95-N1

Quanterra Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 608-A Matrix: AQUEOUS QC Lot: 01 MAR 95-N1 Concentration Units: ug/L								
gamma-BHC (Lindane)	0.200	0.216	0.236	0.226	113	81-117	8.8	13
Heptachlor	0.200	0.208	0.208	0.208	104	72-125	0.0	11
Aldrin	0.200	0.188	0.182	0.185	93	69-112	3.2	16
Dieldrin	0.500	0.485	0.526	0.506	101	77-111	8.1	13
Endrin	0.500	0.502	0.549	0.526	105	83-122	8.9	14
4,4'-DDT	0.500	0.524	0.564	0.544	109	76-125	7.4	14
Category: 615-A Matrix: AQUEOUS QC Lot: 28 FEB 95-N1 Concentration Units: ug/L								
2,4-D	5.00	3.27	3.36	3.32	66	44- 97	2.7	34
2,4,5-TP (Silvex)	1.00	0.777	0.734	0.756	76	49-102	5.7	32
2,4,5-T	1.00	0.731	0.707	0.719	72	47-110	3.3	32
Category: 615-A Matrix: AQUEOUS QC Lot: 09 MAR 95-N1 Concentration Units: ug/L								
2,4-D	5.00	2.54	2.60	2.57	51	44- 97	2.3	34
2,4,5-TP (Silvex)	1.00	0.594	0.621	0.608	61	49-102	4.4	32
2,4,5-T	1.00	0.606	0.638	0.622	62	47-110	5.1	32

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

Quanterra
Environmental Services

SINGLE CONTROL SAMPLE REPORT
Semivolatile Organics by GC

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 608-A Matrix: AQUEOUS QC Lot: 01 MAR 95-N1 QC Run: 01 MAR 95-N1 Concentration Units: ug/L				
Dibutyl chlorendate	1.00	1.05	105	56-138
Category: 615-A Matrix: AQUEOUS QC Lot: 28 FEB 95-N1 QC Run: 28 FEB 95-N1 Concentration Units: ug/L				
DCAA	5.00	4.16	83	45-123
Category: 615-A Matrix: AQUEOUS QC Lot: 09 MAR 95-N1 QC Run: 09 MAR 95-N1 Concentration Units: ug/L				
DCAA	5.00	4.21	84	45-123

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

Quanterra
Environmental Services

METHOD BLANK REPORT
Semivolatile Organics by GC

Analyte	Result	Units	Reporting Limit
Test: 8080CP-AP9-A			
Matrix: AQUEOUS			
QC Lot: 01 MAR 95-N1 QC Run: 01 MAR 95-N1			
Aldrin	ND	ug/L	0.050
Aroclor 1016	ND	ug/L	1.0
Aroclor 1221	ND	ug/L	1.0
Aroclor 1232	ND	ug/L	1.0
Aroclor 1242	ND	ug/L	1.0
Aroclor 1248	ND	ug/L	1.0
Aroclor 1254	ND	ug/L	1.0
Aroclor 1260	ND	ug/L	1.0
alpha-BHC	ND	ug/L	0.050
beta-BHC	ND	ug/L	0.050
delta-BHC	ND	ug/L	0.050
gamma-BHC (Lindane)	ND	ug/L	0.050
alpha-Chlordane	ND	ug/L	0.050
gamma-Chlordane	ND	ug/L	0.050
Chlorobenzilate	ND	ug/L	0.10
4,4'-DDD	ND	ug/L	0.10
4,4'-DDE	ND	ug/L	0.10
4,4'-DDT	ND	ug/L	0.10
Diallate	ND	ug/L	1.0
Dieldrin	ND	ug/L	0.10
Endosulfan I	ND	ug/L	0.050
Endosulfan II	ND	ug/L	0.10
Endosulfan sulfate	ND	ug/L	0.10
Endrin	ND	ug/L	0.10
Endrin aldehyde	ND	ug/L	0.10
Heptachlor	ND	ug/L	0.050
Heptachlor epoxide	ND	ug/L	0.050
Isodrin	ND	ug/L	0.10
Kepone	ND	ug/L	1.0
Methoxychlor	ND	ug/L	0.50
Toxaphene	ND	ug/L	5.0
Test: 8150-AP9-A			
Matrix: AQUEOUS			
QC Lot: 28 FEB 95-N1 QC Run: 28 FEB 95-N1			
2,4-D	ND	ug/L	1.2
2,4,5-TP (Silvex)	ND	ug/L	0.17
2,4,5-T	ND	ug/L	0.20

Quanterra
Environmental Services

METHOD BLANK REPORT
Semivolatile Organics by GC (cont.)

Analyte	Result	Units	Reporting Limit
Test: 8150-AP9-A			
Matrix:			
QC Lot: 09 MAR 95-N1 QC Run: 09 MAR 95-N1			
2,4-D	ND	ug/L	1.2
2,4,5-TP (Silvex)	ND	ug/L	0.17
2,4,5-T	ND	ug/L	0.20

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
etals Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040679-0001-SA	AQUEOUS	ICP-AT	27 FEB 95-9K	27 FEB 95-9K
040679-0001-SA	AQUEOUS	PB-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040679-0001-SA	AQUEOUS	AS-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040679-0001-SA	AQUEOUS	SE-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040679-0001-SA	AQUEOUS	TL-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040679-0001-SA	AQUEOUS	HG-CVAA-AT	27 FEB 95-9M	27 FEB 95-9M
040679-0001-SA	AQUEOUS	ICP-AD	27 FEB 95-9N	-
040679-0001-SA	AQUEOUS	PB-FAA-AD	27 FEB 95-9D	-
040679-0001-SA	AQUEOUS	AS-FAA-AD	27 FEB 95-9D	-
040679-0001-SA	AQUEOUS	SE-FAA-AD	27 FEB 95-9D	-
040679-0001-SA	AQUEOUS	TL-FAA-AD	27 FEB 95-9D	-
040679-0001-SA	AQUEOUS	HG-CVAA-AT	27 FEB 95-9M	27 FEB 95-9M
040679-0002-SA	AQUEOUS	ICP-AT	27 FEB 95-9K	27 FEB 95-9K
040679-0002-SA	AQUEOUS	PB-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040679-0002-SA	AQUEOUS	AS-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040679-0002-SA	AQUEOUS	SE-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040679-0002-SA	AQUEOUS	TL-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040679-0002-SA	AQUEOUS	HG-CVAA-AT	27 FEB 95-9M	27 FEB 95-9M
040679-0002-SA	AQUEOUS	ICP-AD	27 FEB 95-9N	-
040679-0002-SA	AQUEOUS	PB-FAA-AD	27 FEB 95-9D	-
040679-0002-SA	AQUEOUS	AS-FAA-AD	27 FEB 95-9D	-
040679-0002-SA	AQUEOUS	SE-FAA-AD	27 FEB 95-9D	-
040679-0002-SA	AQUEOUS	TL-FAA-AD	27 FEB 95-9D	-
0679-0002-SA	AQUEOUS	HG-CVAA-AT	27 FEB 95-9M	27 FEB 95-9M
040679-0003-SA	AQUEOUS	ICP-AT	27 FEB 95-9K	27 FEB 95-9K
040679-0003-SA	AQUEOUS	PB-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040679-0003-SA	AQUEOUS	AS-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040679-0003-SA	AQUEOUS	SE-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040679-0003-SA	AQUEOUS	TL-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040679-0003-SA	AQUEOUS	HG-CVAA-AT	27 FEB 95-9M	27 FEB 95-9M
040679-0003-SA	AQUEOUS	ICP-AD	27 FEB 95-9N	-
040679-0003-SA	AQUEOUS	PB-FAA-AD	27 FEB 95-9D	-
040679-0003-SA	AQUEOUS	AS-FAA-AD	27 FEB 95-9D	-
040679-0003-SA	AQUEOUS	SE-FAA-AD	27 FEB 95-9D	-
040679-0003-SA	AQUEOUS	TL-FAA-AD	27 FEB 95-9D	-
040679-0003-SA	AQUEOUS	HG-CVAA-AT	27 FEB 95-9M	27 FEB 95-9M
040679-0004-EB	AQUEOUS	ICP-AT	27 FEB 95-9K	27 FEB 95-9K
040679-0004-EB	AQUEOUS	PB-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040679-0004-EB	AQUEOUS	AS-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040679-0004-EB	AQUEOUS	SE-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040679-0004-EB	AQUEOUS	TL-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040679-0004-EB	AQUEOUS	HG-CVAA-AT	27 FEB 95-9M	27 FEB 95-9M
040679-0004-EB	AQUEOUS	ICP-AD	27 FEB 95-9N	-
040679-0004-EB	AQUEOUS	PB-FAA-AD	27 FEB 95-9D	-
040679-0004-EB	AQUEOUS	AS-FAA-AD	27 FEB 95-9D	-
040679-0004-EB	AQUEOUS	SE-FAA-AD	27 FEB 95-9D	-
040679-0004-EB	AQUEOUS	TL-FAA-AD	27 FEB 95-9D	-

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
Metals Analysis and Preparation (cont.)

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040679-0004-EB	AQUEOUS	HG-CVAA-AT	27 FEB 95-9M	27 FEB 95-9M

Quanterra Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: ICP-AT Matrix: AQUEOUS QC Lot: 27 FEB 95-9K Concentration Units: mg/L								
Aluminum	2.00	2.13	2.09	2.11	105	80-116	1.5	10
Antimony	0.500	0.508	0.530	0.519	104	80-115	4.1	14
Arsenic	0.500	0.482	0.480	0.481	96	80-115	0.4	17
Barium	2.00	1.88	1.88	1.88	94	80-114	0.2	10
Beryllium	0.0500	0.0493	0.0486	0.0490	98	80-120	1.4	10
Boron	10	9.81	9.77	9.79	98	80-120	0.4	10
Cadmium	0.0500	0.0436	0.0468	0.0452	90	80-119	7.0	16
Calcium	100	102	102	102	102	80-114	0.1	10
Chromium	0.200	0.190	0.191	0.191	95	80-116	0.7	11
Cobalt	0.500	0.518	0.516	0.517	103	80-114	0.4	10
Copper	0.250	0.254	0.251	0.253	101	80-120	1.0	10
Iron	1.00	1.02	1.01	1.01	101	80-120	0.8	11
Lead	0.500	0.520	0.512	0.516	103	80-119	1.5	10
Magnesium	50.0	52.7	52.7	52.7	105	81-120	0.0	10
Manganese	0.500	0.521	0.518	0.519	104	80-116	0.7	10
Nickel	0.500	0.505	0.501	0.503	101	80-114	0.7	10
Potassium	50.0	51.8	51.5	51.6	103	80-120	0.6	13
Selenium	0.500	0.541	0.549	0.545	109	80-120	1.5	20
Silver	0.050	0.0529	0.0524	0.0527	105	80-119	0.9	15
Sodium	100	105	104	104	104	80-120	0.7	10
Tin	0.5	0.527	0.528	0.528	106	80-120	0.1	20
Vanadium	0.500	0.508	0.508	0.508	102	80-116	0.1	10
Zinc	0.500	0.507	0.504	0.506	101	80-120	0.7	13
Category: PB-FAA-AT Matrix: AQUEOUS QC Lot: 28 FEB 95-9A Concentration Units: mg/L								
Lead	0.030	0.0342	0.0338	0.0340	113	71-136	1.2	17
Category: AS-FAA-AT Matrix: AQUEOUS QC Lot: 28 FEB 95-9B Concentration Units: mg/L								
Arsenic	0.030	0.0288	0.0293	0.0290	97	81-116	1.7	13

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

Quanterra
Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: SE-FAA-AT Matrix: AQUEOUS QC Lot: 28 FEB 95-9B Concentration Units: mg/L								
Selenium	0.030	0.0293	0.0288	0.0290	97	73-125	1.7	15
Category: TL-FAA-AT Matrix: AQUEOUS QC Lot: 28 FEB 95-9A Concentration Units: mg/L								
Thallium	0.0300	0.0292	0.0305	0.0298	100	75-125	4.4	20
Category: HG-CVAA-AT Matrix: AQUEOUS QC Lot: 27 FEB 95-9M Concentration Units: mg/L								
Mercury	0.001	0.000994	0.000994	0.000994	99	83-112	0.0	12
Category: ICP-AD Matrix: AQUEOUS QC Lot: 27 FEB 95-9N Concentration Units: mg/L								
Aluminum	5.00	5.16	5.06	5.11	102	90-110	1.8	20
Antimony	0.500	0.533	0.499	0.516	103	90-110	6.5	20
Arsenic	0.500	0.520	0.501	0.511	102	90-110	3.8	20
Barium	0.500	0.528	0.508	0.518	104	90-110	3.9	20
Beryllium	0.500	0.536	0.508	0.522	104	90-110	5.5	20
Cadmium	0.500	0.505	0.501	0.503	101	90-110	0.8	20
Calcium	20.0	20.8	20.2	20.5	102	90-110	3.1	20
Chromium	0.500	0.521	0.501	0.511	102	90-110	4.0	20
Cobalt	0.500	0.524	0.507	0.515	103	90-110	3.2	20
Copper	0.500	0.525	0.502	0.513	103	90-110	4.5	20
Iron	5.00	5.17	4.99	5.08	102	90-110	3.6	20
Lead	0.500	0.502	0.501	0.501	100	90-110	0.3	20
Magnesium	20.0	20.6	19.9	20.2	101	90-110	3.5	20
Manganese	0.500	0.527	0.506	0.516	103	90-110	4.1	20
Nickel	0.500	0.526	0.507	0.516	103	90-110	3.5	20
Potassium	50.0	50.5	48.1	49.3	99	90-110	4.8	20

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

Quanterra Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: ICP-AD Matrix: AQUEOUS QC Lot: 27 FEB 95-9N Concentration Units: mg/L								
Silver	0.500	0.516	0.502	0.509	102	90-110	2.8	20
Sodium	200	207	198	202	101	90-110	4.3	20
Vanadium	0.500	0.524	0.504	0.514	103	90-110	3.7	20
Zinc	0.500	0.515	0.503	0.509	102	90-110	2.4	20
Category: PB-FAA-AD Matrix: AQUEOUS QC Lot: 27 FEB 95-9D Concentration Units: mg/L								
Lead	0.0500	0.0497	0.0489	0.0493	99	90-110	1.6	20
Category: AS-FAA-AD Matrix: AQUEOUS QC Lot: 27 FEB 95-9D Concentration Units: mg/L								
Arsenic	0.0500	0.0499	0.0496	0.0498	100	90-110	0.6	20
Category: SE-FAA-AD Matrix: AQUEOUS QC Lot: 27 FEB 95-9D Concentration Units: mg/L								
Selenium	0.0500	0.0516	0.0507	0.0512	102	90-110	1.8	20
Category: TL-FAA-AD Matrix: AQUEOUS QC Lot: 27 FEB 95-9D Concentration Units: mg/L								
Thallium	0.0500	0.0469	0.0480	0.0474	95	90-110	2.3	20

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

Quanterra Environmental Services

METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICP-AP9-AT			
Matrix: AQUEOUS			
QC Lot: 27 FEB 95-9K QC Run: 27 FEB 95-9K			
Antimony	ND	mg/L	0.060
Barium	ND	mg/L	0.010
Beryllium	ND	mg/L	0.0020
Cadmium	ND	mg/L	0.0050
Chromium	ND	mg/L	0.010
Cobalt	ND	mg/L	0.010
Copper	ND	mg/L	0.020
Iron	ND	mg/L	0.10
Manganese	ND	mg/L	0.010
Nickel	ND	mg/L	0.040
Silver	ND	mg/L	0.010
Sodium	ND	mg/L	5.0
Tin	ND	mg/L	0.10
Vanadium	ND	mg/L	0.010
Zinc	ND	mg/L	0.020
Test: PB-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 28 FEB 95-9A QC Run: 28 FEB 95-9A			
Lead	ND	mg/L	0.0050
Test: AS-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 28 FEB 95-9B QC Run: 28 FEB 95-9B			
Arsenic	ND	mg/L	0.0050
Test: SE-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 28 FEB 95-9B QC Run: 28 FEB 95-9B			
Selenium	ND	mg/L	0.0050

Quanterra Environmental Services

METHOD BLANK REPORT
Metals Analysis and Preparation (cont.)

Analyte	Result	Units	Reporting Limit
Test: TL-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 28 FEB 95-9A QC Run: 28 FEB 95-9A			
Thallium	ND	mg/L	0.0050
Test: HG-CVAA-POLY-AT			
Matrix: AQUEOUS			
QC Lot: 27 FEB 95-9M QC Run: 27 FEB 95-9M			
Mercury	ND	mg/L	0.00020
Test: HG-CVAA-POLY-AD			
Matrix: AQUEOUS			
QC Lot: 27 FEB 95-9M QC Run: 27 FEB 95-9M			
Mercury	ND	mg/L	0.00020

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
et Chemistry Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040679-0001-SA	AQUEOUS	PHEN-A	28 FEB 95-9D	28 FEB 95-9D
040679-0001-SA	AQUEOUS	TOX-A	28 FEB 95-9L	-
040679-0001-SA	AQUEOUS	CN-A	25 FEB 95-9L	25 FEB 95-9L
040679-0001-SA	AQUEOUS	S-A	28 FEB 95-1A	28 FEB 95-1A
040679-0001-SA	AQUEOUS	CL-IC-A	27 FEB 95-6A	-
040679-0001-SA	AQUEOUS	SO4-IC-A	27 FEB 95-6A	-
040679-0001-SA	AQUEOUS	TOC-A	25 FEB 95-9L	-
040679-0002-SA	AQUEOUS	PHEN-A	28 FEB 95-9D	28 FEB 95-9D
040679-0002-SA	AQUEOUS	TOX-A	28 FEB 95-9L	-
040679-0002-SA	AQUEOUS	CN-A	25 FEB 95-9L	25 FEB 95-9L
040679-0002-SA	AQUEOUS	S-A	28 FEB 95-1A	28 FEB 95-1A
040679-0002-SA	AQUEOUS	CL-IC-A	27 FEB 95-6A	-
040679-0002-SA	AQUEOUS	SO4-IC-A	27 FEB 95-6A	-
040679-0002-SA	AQUEOUS	TOC-A	25 FEB 95-9L	-
040679-0003-SA	AQUEOUS	PHEN-A	28 FEB 95-9D	28 FEB 95-9D
040679-0003-SA	AQUEOUS	TOX-A	28 FEB 95-9L	-
040679-0003-SA	AQUEOUS	CN-A	25 FEB 95-9L	25 FEB 95-9L
040679-0003-SA	AQUEOUS	S-A	28 FEB 95-1A	28 FEB 95-1A
040679-0003-SA	AQUEOUS	CL-IC-A	27 FEB 95-6A	-
040679-0003-SA	AQUEOUS	SO4-IC-A	27 FEB 95-6A	-
040679-0003-SA	AQUEOUS	TOC-A	25 FEB 95-9L	-
040679-0004-EB	AQUEOUS	PHEN-A	28 FEB 95-9D	28 FEB 95-9D
040679-0004-EB	AQUEOUS	TOX-A	28 FEB 95-9L	-
040679-0004-EB	AQUEOUS	CN-A	25 FEB 95-9L	25 FEB 95-9L
040679-0004-EB	AQUEOUS	S-A	28 FEB 95-1A	28 FEB 95-1A
040679-0004-EB	AQUEOUS	CL-IC-A	27 FEB 95-6A	-
040679-0004-EB	AQUEOUS	SO4-IC-A	27 FEB 95-6A	-
040679-0004-EB	AQUEOUS	TOC-A	25 FEB 95-9L	-

Quanterra
Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Wet Chemistry Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: PHEN-A Matrix: AQUEOUS QC Lot: 28 FEB 95-9D Concentration Units: mg/L								
Phenolics	0.200	0.178	0.169	0.174	87	78-122	5.2	20
Category: TOX-A Matrix: AQUEOUS QC Lot: 28 FEB 95-9L Concentration Units: ug Cl/L								
Total Organic Halogen as Cl	100	97.4	95.7	96.6	97	80-120	1.8	20
Category: CN-A Matrix: AQUEOUS QC Lot: 25 FEB 95-9L Concentration Units: mg/L								
yanide	0.194	0.186	0.177	0.182	94	70-115	5.0	21
Category: S-A Matrix: AQUEOUS QC Lot: 28 FEB 95-1A Concentration Units: mg/L								
Sulfide, Total	0.294	0.336	0.309	0.322	110	80-120	8.4	20
Category: CL-IC-A Matrix: AQUEOUS QC Lot: 27 FEB 95-6A Concentration Units: mg/L								
Chloride	200	208	209	208	104	90-110	0.5	10

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

Quanterra Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Wet Chemistry Analysis and Preparation (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: SO4-IC-A Matrix: AQUEOUS QC Lot: 27 FEB 95-6A Concentration Units: mg/L								
Sulfate	200	205	206	205	103	90-110	0.4	10
Category: TOC-A Matrix: AQUEOUS QC Lot: 25 FEB 95-9L Concentration Units: mg/L								
Total Organic Carbon	25.0	25.0	24.5	24.7	99	90-111	1.9	10

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

Quanterra
Environmental Services

METHOD BLANK REPORT
Wet Chemistry Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: PHEN-SPEC-A Matrix: AQUEOUS QC Lot: 28 FEB 95-9D QC Run: 28 FEB 95-9D			
Phenolics	ND	mg/L	0.010
Test: CNTOT-TEC-A Matrix: AQUEOUS QC Lot: 25 FEB 95-9L QC Run: 25 FEB 95-9L			
Cyanide	ND	mg/L	0.010
Test: S-SPEC-AT Matrix: AQUEOUS QC Lot: 28 FEB 95-1A QC Run: 28 FEB 95-1A			
Sulfide, Total	ND	mg/L	0.050

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQUEST/CHAIN OF CUSTODY

Project Name & Number Cannon Air Force Base, Ground Water Sampling (463536004)	PACKING AND SHIPPING DETAILS Packed and Sealed for Shipping by: F. E. Roybal Seal Number: 4
Sampling Location Landfill 5	Delivered to Shipper by: F. E. Roybal Airbill Number: 3436570944
Team Leader Ralph Wilcox	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
4/22/95	1600	CAFB-B-0295-1	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080,SW8150,SW9010,SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss.SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni,Ag,Na,Sn,V,Zn),SW7060, SW7421,SW7470,SW7740, SW7841	Environmental Sample -01

Additional Comments: VOC's are in cooler w/ Air bill # 3636570922

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt: ☒ Yes ☐ No
F. E. Roybal		4/22/95	1700	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents
	[illegible]	4/23/95	0900		Contents Temperature: 1.8
					Laboratory Project Number: 40674

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQUEST/CHAIN OF CUSTODY

Project Name & Number	PACKING AND SHIPPING DETAILS	
Cannon Air Force Base, Ground Water Sampling (463536004)	Packed and Sealed for Shipping by: R. E. Raybel	Seal Number: 2
Sampling Location: Landfill 5	Delivered to Shipper by: R. E. Raybel	Airbill Number: 3436570933
Team Leader: Ralph Wilcox	Sampling Status: ☐ Done ☒ Continuing	

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
2/22/95	1200	CAFB-A0295-3	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080,SW8150,SW9010,SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss.SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni,Ag,Na,Sn,V,Zn),SW7060, SW7421,SW7470,SW7740, SW784	Environmental Sample — 03

Additional Comments: VOC is in with Airbill # 3436570922

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt: ☒ Yes ☐ No
R. E. Raybel		2/22/95	1700	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents
	[illegible]	2/23/95	0900		Contents Temperature: 3.6
					Laboratory Project Number: 90674

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQUEST/CHAIN OF CUSTODY

Project Name & Number Cannon Air Force Base, Ground Water Sampling (463536004)	PACKING AND SHIPPING DETAILS Packed and Sealed for Shipping by: R. E. Roybal Seal Number: 3
Sampling Location Landfill 5	Delivered to Shipper by: R. E. Roybal Airbill Number: 3436570955
Team Leader Ralph Wilcox	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
2/22/95	1600	CAFB-B-0295-1	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080,SW8150,SW9010,SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss.SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni,Ag,Na,Sn,V,Zn),SW7060, SW7421,SW7470,SW7740, SW7841	Environmental Sample 01
2/22/95	1330	CAFB-B0295-2	ASTM-TYPE-II WATER	18	SAME AS ABOVE METHODS	Equipment Blank 04

Additional Comments: CAFB-B-0295-1 is in cooler with Air Bill # 3436570944, VOC's are in with 3436570922

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt: ☒ Yes ☐ No
R. E. Roybal		2/22/95	1700	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents
	[illegible]	2/23/95	0900		Contents Temperature: 1.8/0.4
					Laboratory Project Number: 40679

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQUEST/CHAIN OF CUSTODY

Project Name & Number: Cannon Air Force Base, Ground Water Sampling (463536004)	PACKING AND SHIPPING DETAILS
	Packed and Sealed for Shipping by: H. E. Rayfield
	Seal Number: /
Sampling Location: Landfill 5	Delivered to Shipper by: H. E. Rayfield
	Airbill Number: 3436570922
Team Leader: Ralph Wilcox	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
2/22/95	1150	CAFB-A-0295-2	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080,SW8150,SW9010,SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss.SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni,Ag,Na,Sn,V,Zn),SW7060, SW7421,SW7470,SW7740, SW7841	Environmental Sample -02
2/22/95	1200	CAFB-A-0295-3	Ground water	18	Same as above methods	Environmental Sample -03
2/22/95	0945	CAFB-A-0295-1	ASTM-TYPE-II WATER	3	Apx-IX-VOC, SW8240	Trip Blank -05

Additional Comments: CAFB-A0295-3 - VOC is in this cooler, but rest of the samples are in with Airbill 3436570933

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt: ☒ Yes ☐ No
H. E. Rayfield		2/22/95	1700	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents:
	[illegible]	2/23/95	0900		Contents Temperature: 4.1 / 3.6
					Laboratory Project Number: 40679

DODEC LABORATORY DATA REVIEW WORKSHEET

1.0 GENERAL INFORMATION

Data reviewer: BOB BRECK
Date of review: 3/23/95
Sample project number: 40689
Project name: CANNON AFB
Sample collection date: 3/22/95
Sample matrix and number: 5 AQUEOUS

Type and number of samples in project:

Type	Number
Environmental	5
Trip blank	
Equipment blank	
Ambient blank	
MS/MSD	
Other	1

2.0 DATA REPORT

Date of Analytical Results Report: 3/16/95
Number of volumes in Raw Data Report: 1
Raw Data Report reviewed? Yes____ No X

Were all analyses requested on the COC form performed by the laboratory?
Yes X No____

If no, list cancelled analyses and reason for non-performance:

_____

Were the samples properly preserved upon receipt by the laboratory?
Yes X No____

If no, list laboratory ID for samples that were not properly preserved.

_____

3.0 ANALYTICAL METHODS

Analytical methods used in this project

	VOC by GC/MS (SW 8240, SW 8260, E524, E624)
	Halogenated VOC by GC (SW 8010)
	Aromatic VOC by GC (SW 8020)
	SVOC by GC/MS (SW 8270)
	PAH by HPLC (SW 8310)
	Organochlorine pesticides and PCB (SW 8080)
	Organophosphorous pesticides (SW 8140)
	Chlorinated herbicides (SW 8150)
X	Dioxins and Furans (SW 8280)
	Explosives (8330)
	TOC (E415.1 or SW 9060)
	TPH (E418.1)
	Oil and Grease (E413.2)
	TOX (SW9020)
	ICP screen for metals (SW 6010)
	ICP/MS screen for metals (SW 6020)
	Trace ICP screen for metals (SW 6010 modified)
	Antimony by GFAA (SW 7041)
	Arsenic by GFAA (SW 7060)
	Chromium (SW 7191 or 7196)
	Lead by GFAA (SW 7421)
	Mercury by CVAA (SW 7470 or 7471)
	Selenium by GFAA (SW 7740)
	Thallium by GFAA (SW 7841)
	Inorganic anions (E300.0)
	Alkalinity (310.1)
	Cyanide, total and amenable (SW 9010/9012)
	Nitrogen, ammonia (E350.1)
	Nitrogen, TKN (E351.2)
	Nitrogen, nitrate (E353.2)
	Nitrogen, nitrate plus nitrite (E353.2)
	Nitrogen, nitrite (E354.1)
	Phosphorous, total or ortho (E365.3)
	Sulfate (E375.4)
	Sulfide (E376.2)
	TDS (E160.1)
	pH (SW 9040 or 9045)
	Percent moisture (D2216)
	Gross alpha and gross beta radioactivity (SW 9310)
	Alpha-emitting radium isotopes (SW 9315)
	Radium-228 (SW 9320)
	Uranium (908.1)
	Other analyses :

Were analytical holding times met? Yes X No _____

If no, list analytical method and laboratory ID for samples that exceeded holding time:

_____
_____
_____
_____
_____
_____

Did surrogate recoveries meet QC acceptance criteria? NA
Yes_____ No _____

If no, list analytical method, laboratory ID, and surrogates that did not meet acceptance criteria:

_____
_____
_____
_____
_____

Did actual reporting limits meet project detection limits? NA
Organic analyses : Yes_____ No_____

If no, list analytical method, laboratory ID, and reason for non-conformance:

_____
_____
_____
_____
_____
_____

Inorganic analyses: Yes_____ No_____ NA

Reporting limits for GFAA metals and inorganic anions may be raised when: (1) sample concentrations exceed the instrument linear range and (2) target analytes are subject to matrix interferences. Reporting limits for ICP metals and mercury by CVAA are typically only raised when the sample concentration exceeds the instrument linear range.

Did DCS meet QC acceptance criteria? Yes X No_____

If no, list analytical method, laboratory ID, and reason for non-conformance:

_____
_____
_____
_____
_____
_____

Did SCS meet QC acceptance criteria? Yes_____ No____ NA

If no, list analytical method, laboratory ID, and reason for non-conformance:

Were any target compounds found in the method, trip, equipment, or ambient blanks above the RL? Yes _____ No X

If yes, list the analytical method, laboratory ID, type of blank and compound:

Did the MS/MSD meet QC acceptance criteria? Yes___ No____ NA

MS/MSD data are used to evaluate the effect of the sample matrix on the analytical process and should only be used in conjunction with other available laboratory QC information to evaluate precision and accuracy.

If no, list the analytical method, laboratory ID, and reason for non-comformance :

Additional comments:

ASSOCIATED SAMPLES ARE IN PROJECT 46679

IV. QUALITY CONTROL REPORT

Quanterra Environmental Services, Denver operates under a vigorous QA/QC program designed to ensure the generation of scientifically valid, legally defensible data by monitoring every aspect of laboratory operations. Routine QA/QC procedures include the use of approved methodologies, independent verification of analytical standards, use of duplicate Laboratory Control Samples to assess the precision and accuracy of the methodology on a routine basis, and a rigorous system of data review.

The standard laboratory QC package is designed to:

1) establish a strong, cost-effective QC program that ensures the generation of scientifically valid, legally defensible data

2) assess the laboratory's performance of the analytical method using control limits generated with a well-defined matrix

3) establish clear-cut guidelines for acceptability of analytical data so that QC decisions can be made immediately at the bench, and

4) provide a standard set of reportables which assures the client of the quality of his data.

Quanterra Environmental Services, Denver laboratory's QC program is based upon monitoring the precision and accuracy of an analytical method by analyzing a set of Duplicate Control Samples (DCS) at frequent, well-defined intervals. Each DCS is a well-characterized matrix which is spiked with target compounds at 5-100 times the reporting limit, depending upon the methodology being monitored. The purpose of the DCS is not to duplicate the sample matrix, but rather to provide an interference-free, homogeneous matrix from which to gather data to establish control limits. These limits are used to determine whether data generated by the laboratory on any given day is in control.

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery +/- 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results)

to the average, historical relative percent difference + 3 standard deviation units. These control limits are fairly narrow based on the consistency of the matrix being monitored and are updated on a quarterly basis. For each batch of samples analyzed, an additional control measure is taken in the form of a Single Control Sample (SCS). The SCS consists of a control matrix that is spiked with surrogate compounds appropriate to the method being used. In cases where no surrogate is available, (e.g., metals or conventional analyses) a single DCS serves as the control sample. An SCS is prepared for each sample lot for which the DCS pair are not analyzed. The recovery of the SCS is charted in exactly the same manner as described for the DCS, and provides a daily check on the performance of the method.

Accuracy for DCS and SCS is measured by Percent Recovery:

$$\% \text{ Recovery} = \frac{\text{Measured Concentration}}{\text{Actual Concentration}} \times 100$$

Precision for DCS is measured by Relative Percent Difference (RPD):

$$\text{RPD} = \frac{\left| \text{Measured Concentration DCS1} - \text{Measured Concentration DCS2} \right|}{(\text{Measured Concentration DCS1} + \text{Measured Concentration DCS2})/2} \times 100$$

All samples analyzed concurrently by the same test are assigned the same QC lot number. Projects which contain numerous samples, analyzed over several days, may have multiple QC lot numbers associated with each test. The QC information which follows includes a listing of the QC lot numbers associated with each of the samples reported, DCS and SCS (where applicable) recoveries from the QC lots associated with the samples, and control limits for these lots. The QC data is reported by test code, in the order that the tests are reported in the analytical results section of this report.

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
ıbcontracted to Enseco Lab

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040689-0001-SA	AQUEOUS	DXNFUR-A	17 FEB 95-A	-
040689-0001-MB	AQUEOUS	DXNFUR-A	17 FEB 95-A	-
040689-0002-SA	AQUEOUS	DXNFUR-A	17 FEB 95-A	-
040689-0003-SA	AQUEOUS	DXNFUR-A	17 FEB 95-A	-
040689-0004-EB	AQUEOUS	DXNFUR-A	17 FEB 95-A	-

Quanterra Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Subcontracted to Enseco Lab

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 17 FEB 95-A								
Concentration Units: ng/sample								
2,3,7,8-TCDF	10	9.97	10.3	10.1	101	62-129	3.3	18
2,3,4,7,8-PeCDF	10	8.32	8.45	8.38	84	51-132	1.6	24
1,2,3,4,7,8-HxCDF	10	9.82	10.5	10.2	102	50-146	6.7	41
1,2,3,4,6,7,8-HpCDF	10	10.1	10.4	10.2	103	50-150	2.9	50
OCDF	50	53.7	53.4	53.6	107	50-150	0.6	28
2,3,7,8-TCDD	10	8.55	9.15	8.85	89	57-128	6.8	20
1,2,3,7,8-PeCDD	10	8.83	8.93	8.88	89	80-125	1.1	25
1,2,3,4,7,8-HxCDD	10	9.09	9.51	9.30	93	64-127	4.5	23
1,2,3,4,6,7,8-HpCDD	10	9.26	9.73	9.50	95	60-131	5.0	23
OCDD	50	44.4	46.3	45.4	91	50-147	4.2	20

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

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
Method 8280

Client Name: U.S. Geological Survey
Client ID: METHOD BLANK
Lab ID: 040689-0001-MB
Matrix: AQUEOUS Sampled: NA Received: NA
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 01 MAR 95

Sample Amount 1.0 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.35	
PeCDFs (total)	ND	ng/L	0.14	
HxCDFs (total)	ND	ng/L	0.24	
Dioxins				
TCDDs (total)	ND	ng/L	0.21	
2,3,7,8-TCDD	ND	ng/L	0.21	
PeCDDs (total)	ND	ng/L	0.53	
HxCDDs (total)	ND	ng/L	0.42	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: RHRABAK

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
Method 8280

Client Name: U.S. Geological Survey
Client ID: METHOD BLANK
Lab ID: 040689-0001-MB
Matrix: AQUEOUS Sampled: NA Received: NA
Authorized: 23 FEB 95 Prepared: 27 FEB 95 Analyzed: 01 MAR 95

Sample Amount 1.0 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	75.1
13C-2,3,7,8-TCDD	74.6
13C-1,2,3,7,8-PeCDD	81.5
13C-1,2,3,6,7,8-HxCDD	81.5
13C-1,2,3,4,6,7,8-HpCDD	84.4
13C-OCDD	79.8

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: RHRABAK

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQUEST/CHAIN OF CUSTODY

Project Name & Number: Cannon Air Force Base, Ground Water Sampling (463536004)	PACKING AND SHIPPING DETAILS
	Packed and Sealed for Shipping by: R. E. Roybal
	Seal Number: 3
Sampling Location: Landfill 5	Delivered to Shipper by: R. E. Roybal
	Airbill Number: 3436570955
Team Leader: Ralph Wilcox	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
2/22/95	1600	CAFB-B-0295-1	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080, SW8150, SW9010, SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss.SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni, Ag, Na, Sn, V, Zn), SW7060, SW7421, SW7470, SW7740, SW7841	Environmental Sample -01
2/22/95	1330	CAFB-B0295-2	ASTM-TYPE-II WATER	18	SAME AS ABOVE METHODS	Equipment Blank -01

Additional Comments: CAFB-B-0295-1 is in cooler with Air Bill # 3436570944, VOC's are in with 3436570922

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt: ☒ Yes ☐ No
R. E. Roybal		2/22/95	1700	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents
	[illegible]	2/23/95	0900		Contents Temperature: 1.8/0.4
					Laboratory Project Number: 40679

U.S. GEOLOGICAL SURVEY, WATER RI JRCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQU T/CHAIN OF CUSTODY

Project Name & Number Cannon Air Force Base, Ground Water Sampling (463536004)	PACKING AND SHIPPING DETAILS Packed and Sealed for Shipping by: H. E. Roybal Seal Number: 1
Sampling Location Landfill 5	Delivered to Shipper by: H. E. Roybal Airbill Number: 3436570922
Team Leader Ralph Wilcox	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
2/22/95	1150	CAFB-A-0295-2	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080,SW8150,SW9010,SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss.SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni,Ag,Na,Sn,V,Zn),SW7060, SW7421,SW7470,SW7740, SW7841	Environmental Sample -02
2/22/95	1200	CAFB-A-0295-3	Ground water	18	Same as above methods	Environmental Sample -03
2/22/95	0945	CAFB-A-0295-1	ASTM-TYPE-II WATER	3	Apx-IX-VOC, SW8240	Trip Blank -05

Additional Comments
CAFB-A0295-3 - VOC is in this cooler, but rest of the samples are in with Airbill 3436570922

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt ☒ Yes ☐ No
H. E. Roybal		2/22/95	1700	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents
	[illegible]	2/23/95	0900		Contents Temperature 4.1 / 3.6
					Laboratory Project Number 40679

INTERLA[illegible]TORY CHAIN OF [illegible]STODY

ENSECO A [illegible] Company

OF 1 1

SHIP TO: [illegible]

ATTENTION: Chris Hudak

SEND RESULTS TO: [illegible]

ATTENTION: [illegible]

ANALYTICAL REQUESTS

EXPORT ID							SAMPLE CONDITION UPON RECEIPT	COMMENTS
40689-01*								
-02								
-03								
-04								

TEST PRICE	[illegible]
SUBTOTAL	[illegible]
DISCOUNT / SURCHARGE	[illegible]
TOTAL	[illegible]

WRITTEN RESULTS REQUIRED BY (DATE) | VERBAL/FAC RESULTS REQUIRED BY (DATE) | P.O. No

Q.C. ☐ STANDARD ENSECO ☐ CLP PROTOCOL ☐ PROJECT SPECIFIC

SAMPLE DISPOSAL ☐ ENSECO ☐ RETURN TO CLIENT ☐ PHONE

DETECTION LIMITS ☐ COMMON PRODUCTS ☐ OTHER*

HOLDING TIMES ☐ ENSECO ☐ EPA-CLP ☐ TIER ☐ OTHER*

RAW DATA COPIES NEEDED ☐ YES ☐ NO

CUSTODY SEALS INTACT ☐ YES ☐ NO | ☐ WET WEIGHT ☐ DRY WEIGHT

*SPECIAL INSTRUCTIONS

[illegible]

RELINQUISHED [signature] DATE / TIME [illegible]

RECEIVED RJ Bonaly DATE / TIME 022495 12:50

Receipt condition: good* t: 0°C

*One container broke in transit.

RJB 022495

ENS—1109

CLIENT COPY

DODEC LABORATORY DATA REVIEW WORKSHEET

1.0 GENERAL INFORMATION

Data reviewer: BOB BRUCE
Date of review: 3/23/95
Sample project number: 40706
Project name: CANNON AFB
Sample collection date: 2/23/95
Sample matrix and number: 6 AQUEOUS

Type and number of samples in project:

Type	Number
Environmental	3
Trip blank	1
Equipment blank	
Ambient blank	
MS/MSD	2
Other	

2.0 DATA REPORT

Date of Analytical Results Report: 3/19/95
Number of volumes in Raw Data Report: 2
Raw Data Report reviewed? Yes____ No X

Were all analyses requested on the COC form performed by the laboratory?
Yes X No____

If no, list cancelled analyses and reason for non-performance:

_____

Were the samples properly preserved upon receipt by the laboratory?
Yes X No____

If no, list laboratory ID for samples that were not properly preserved.

_____

3.0 ANALYTICAL METHODS

Analytical methods used in this project

X	VOC by GC/MS (SW 8240, SW 8260, E524, E624)
	Halogenated VOC by GC (SW 8010)
	Aromatic VOC by GC (SW 8020)
X	SVOC by GC/MS (SW 8270)
	PAH by HPLC (SW 8310)
X	Organochlorine pesticides and PCB (SW 8080)
	Organophosphorous pesticides (SW 8140)
X	Chlorinated herbicides (SW 8150)
	Dioxins and Furans (SW 8280)
	Explosives (8330)
X	TOC (E415.1 or SW 9060)
	TPH (E418.1)
	Oil and Grease (E413.2)
X	TOX (SW9020)
X	ICP screen for metals (SW 6010)
	ICP/MS screen for metals (SW 6020)
	Trace ICP screen for metals (SW 6010 modified)
	Antimony by GFAA (SW 7041)
X	Arsenic by GFAA (SW 7060)
	Chromium (SW 7191 or 7196)
X	Lead by GFAA (SW 7421)
X	Mercury by CVAA (SW 7470 or 7471)
X	Selenium by GFAA (SW 7740)
X	Thallium by GFAA (SW 7841)
X	Inorganic anions (E300.0)
	Alkalinity (310.1)
X	Cyanide, total and amenable (SW 9010/9012)
	Nitrogen, ammonia (E350.1)
	Nitrogen, TKN (E351.2)
	Nitrogen, nitrate (E353.2)
	Nitrogen, nitrate plus nitrite (E353.2)
	Nitrogen, nitrite (E354.1)
	Phosphorous, total or ortho (E365.3)
	Sulfate (E375.4)
X	Sulfide (E376.2)
	TDS (E160.1)
	pH (SW 9040 or 9045)
	Percent moisture (D2216)
	Gross alpha and gross beta radioactivity (SW 9310)
	Alpha-emitting radium isotopes (SW 9315)
	Radium-228 (SW 9320)
	Uranium (908.1)
X	Other analyses : PHENOLICS 9065

Were analytical holding times met? Yes X No _____

If no, list analytical method and laboratory ID for samples that exceeded holding time:

_____

Did surrogate recoveries meet QC acceptance criteria?
Yes X No _____

If no, list analytical method, laboratory ID, and surrogates that did not meet acceptance criteria:

_____

Did actual reporting limits meet project detection limits?
Organic analyses : Yes X No _____

If no, list analytical method, laboratory ID, and reason for non-conformance:

_____

Inorganic analyses: Yes _____ No X

Reporting limits for GFAA metals and inorganic anions may be raised when: (1) sample concentrations exceed the instrument linear range and (2) target analytes are subject to matrix interferences. Reporting limits for ICP metals and mercury by CVAA are typically only raised when the sample concentration exceeds the instrument linear range.

Did DCS meet QC acceptance criteria? Yes X No _____

If no, list analytical method, laboratory ID, and reason for non-conformance:

8270 DCS 02MAR95-N1 HAD TWO COMPOUNDS THAT DID NOT MEET %R CONTROL LIMITS. ALL OTHER DCS COMPOUNDS MET QC LIMITS. SURROGATE RECOVERIES WERE ALSO WITHIN QC LIMITS FOR THE ASSOCIATED SAMPLES AND NO TARGET COMPOUNDS WERE DETECTED

Did SCS meet QC acceptance criteria? Yes X No____

If no, list analytical method, laboratory ID, and reason for non-conformance:

Were any target compounds found in the method, trip, equipment, or ambient blanks above the RL? Yes ____ No X

If yes, list the analytical method, laboratory ID, type of blank and compound:

Did the MS/MSD meet QC acceptance criteria? Yes___ No____

MS/MSD data are used to evaluate the effect of the sample matrix on the analytical process and should only be used in conjunction with other available laboratory QC information to evaluate precision and accuracy.

If no, list the analytical method, laboratory ID, and reason for non-comformance :

LEAD MS/MSD DID NOT MEET % R LIMITS (LCW)
THALLIUM MS/MSD DID NOT MEET % R LIMITS (LCW)

Additional comments:

IV. QUALITY CONTROL REPORT

Quanterra Environmental Services, Denver operates under a rigorous QA/QC program designed to ensure the generation of scientifically valid, legally defensible data by monitoring every aspect of laboratory operations. Routine QA/QC procedures include the use of approved methodologies, independent verification of analytical standards, use of duplicate Laboratory Control Samples to assess the precision and accuracy of the methodology on a routine basis, and a rigorous system of data review.

The standard laboratory QC package is designed to:

1) establish a strong, cost-effective QC program that ensures the generation of scientifically valid, legally defensible data

2) assess the laboratory's performance of the analytical method using control limits generated with a well-defined matrix

3) establish clear-cut guidelines for acceptability of analytical data so that QC decisions can be made immediately at the bench, and

4) provide a standard set of reportables which assures the client of the quality of his data.

Quanterra Environmental Services, Denver laboratory's QC program is based upon monitoring the precision and accuracy of an analytical method by analyzing a set of Duplicate Control Samples (DCS) at frequent, well-defined intervals. Each DCS is a well-characterized matrix which is spiked with target compounds at 5-100 times the reporting limit, depending upon the methodology being monitored. The purpose of the DCS is not to duplicate the sample matrix, but rather to provide an interference-free, homogeneous matrix from which to gather data to establish control limits. These limits are used to determine whether data generated by the laboratory on any given day is in control.

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery +/- 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results)

to the average, historical relative percent difference + 3 standard deviation units. These control limits are fairly narrow based on the consistency of the matrix being monitored and are updated on a quarterly basis. For each batch of samples analyzed, an additional control measure is taken in the form of a Single Control Sample (SCS). The SCS consists of a control matrix that is spiked with surrogate compounds appropriate to the method being used. In cases where no surrogate is available, (e.g., metals or conventional analyses) a single DCS serves as the control sample. An SCS is prepared for each sample lot for which the DCS pair are not analyzed. The recovery of the SCS is charted in exactly the same manner as described for the DCS, and provides a daily check on the performance of the method.

Accuracy for DCS and SCS is measured by Percent Recovery:

$$\% \text{ Recovery} = \frac{\text{Measured Concentration}}{\text{Actual Concentration}} \times 100$$

Precision for DCS is measured by Relative Percent Difference (RPD):

$$\text{RPD} = \frac{\left| \text{Measured Concentration DCS1} - \text{Measured Concentration DCS2} \right|}{(\text{Measured Concentration DCS1} + \text{Measured Concentration DCS2})/2} \times 100$$

All samples analyzed concurrently by the same test are assigned the same QC lot number. Projects which contain numerous samples, analyzed over several days, may have multiple QC lot numbers associated with each test. The QC information which follows includes a listing of the QC lot numbers associated with each of the samples reported, DCS and SCS (where applicable) recoveries from the QC lots associated with the samples, and control limits for these lots. The QC data is reported by test code, in the order that the tests are reported in the analytical results section of this report.

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
Volatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040706-0001-SA	AQUEOUS	624-A	27 FEB 95-J	27 FEB 95-J
040706-0002-SA	AQUEOUS	624-A	27 FEB 95-J	27 FEB 95-J
040706-0003-SA	AQUEOUS	624-A	27 FEB 95-J	27 FEB 95-J
040706-0003-MS	AQUEOUS	624-A	27 FEB 95-J	27 FEB 95-J
040706-0003-SD	AQUEOUS	624-A	27 FEB 95-J	27 FEB 95-J
040706-0004-TB	AQUEOUS	624-A	27 FEB 95-J	27 FEB 95-J

Quanterra
Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Limits	Precision (RPD) DCS	Limit
Category: 624-A								
Matrix: AQUEOUS								
QC Lot: 27 FEB 95-J								
Concentration Units: ug/L								
1,1-Dichloroethene	50.0	49.7	50.9	50.3	101	74-124	2.4	17
Trichloroethene	50.0	46.4	48.2	47.3	95	77-119	3.8	13
Benzene	50.0	47.0	48.7	47.8	96	80-117	3.6	12
Toluene	50.0	48.6	49.8	49.2	98	80-119	2.4	11
Chlorobenzene	50.0	51.4	53.9	52.6	105	81-120	4.7	14

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

Quanterra
Environmental Services

SINGLE CONTROL SAMPLE REPORT
latile Organics by GC/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 624-A				
Matrix: AQUEOUS				
QC Lot: 27 FEB 95-J QC Run: 27 FEB 95-J				
Concentration Units: ug/L				
1,2-Dichloroethane-d4	50.0	48.9	98	85-111
4-Bromofluorobenzene	50.0	48.8	98	86-110
Toluene-d8	50.0	51.7	103	91-110

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

Quanterra
Environmental Services

METHOD BLANK REPORT
Volatile Organics by GC/MS

Test: 8240CP-AP9-AP
Matrix: AQUEOUS
QC Lot: 27 FEB 95-J QC Run: 27 FEB 95-J

Analyte	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

Quanterra
Environmental Services

METHOD BLANK REPORT
Volatile Organics by GC/MS (cont.)

Analyte	Result	Units	Reporting Limit
Test: 8240CP-AP9-AP			
Matrix: AQUEOUS			
QC Lot: 27 FEB 95-J QC Run: 27 FEB 95-J			
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

Test: 8240CP-AP9-AP
Matrix: AQUEOUS
QC Lot: 27 FEB 95-J QC Run: 27 FEB 95-J

Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0

Quanterra Environmental Services

METHOD BLANK REPORT
Volatile Organics by GC/MS (cont.)

Test: 8240CP-AP9-AP
Matrix: AQUEOUS
QC Lot: 27 FEB 95-J QC Run: 27 FEB 95-J

Analyte	Result	Units	Reporting Limit
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

Quanterra
Environmental Services

METHOD BLANK REPORT
latile Organics by GC/MS (cont.)

Test: 8240CP-AP9-AP
Matrix: AQUEOUS
QC Lot: 27 FEB 95-J QC Run: 27 FEB 95-J

Analyte	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

Quanterra
Environmental Services

METHOD BLANK REPORT
'atile Organics by GC/MS (cont.)

Test: 8240CP-AP9-AP
Matrix: AQUEOUS
QC Lot: 27 FEB 95-J QC Run: 27 FEB 95-J

Analyte	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

Quanterra
Environmental Services

MATRIX SPECIFIC QC
ASSIGNMENT REPORT
Volatile Organics by GC/MS

QC SAMPLE TYPE	TEST	LABORATORY SAMPLE NUMBER	QC LOT
MATRIX SPIKE DUPLICATE	8240CP-AP9-AP	040706-0003-SD	27 FEB 95-J
MATRIX SPIKE	8240CP-AP9-AP	040706-0003-MS	27 FEB 95-J

Quanterra
Environmental Services

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Volatile Organics by GC/MS
Project: 040706

Category: 624-A Volatile Organics
Matrix: AQUEOUS
Sample: 040706-0003
Run: 27 FEB 95-J
Units: ug/L

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS	MSD	% Recovery MS	MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
1,1-Dichloroethene	ND	48	45	50	50	96	90	1-234	6.4	17
Trichloroethene	ND	46	44	50	50	93	87	71-157	6.2	13
Benzene	ND	49	47	50	50	99	94	37-151	5.0	12
Toluene	ND	47	45	50	50	95	91	47-150	4.5	11
Chlorobenzene	ND	52	50	50	50	105	100	37-160	4.7	14

ND = Not Detected

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

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
nivolatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040706-0001-SA	AQUEOUS	625-A	02 MAR 95-N1	02 MAR 95-N1
040706-0002-SA	AQUEOUS	625-A	02 MAR 95-N1	02 MAR 95-N1
040706-0003-SA	AQUEOUS	625-A	02 MAR 95-N1	02 MAR 95-N1
040706-0003-MS	AQUEOUS	625-A	02 MAR 95-N1	02 MAR 95-N1
040706-0003-SD	AQUEOUS	625-A	02 MAR 95-N1	02 MAR 95-N1

Quanterra
Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
nivolatile Organics by GC/MS

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: 625-A								
Matrix: AQUEOUS								
QC Lot: 02 MAR 95-N1								
Concentration Units: ug/L								
Phenol	100	70.8	63.0	66.9	67	45-109	12	29
2-Chlorophenol	100	78.7	70.6	74.6	75	47-111	11	29
1,4-Dichlorobenzene	50	35.1	25.1	30.1	60	32-103	33*	28
N-Nitroso-di-n-propylamine	50	36.0	31.8	33.9	68	49-107	12	24
1,2,4-Trichlorobenzene	50	37.8	27.0	32.4	65	44-102	33*	27
4-Chloro-3-methylphenol	100	69.9	61.9	65.9	66	50-115	12	27
Acenaphthene	50	42.7	38.5	40.6	81	47-109	10	24
4-Nitrophenol	100	77.0	65.6	71.3	71	40-127	16	51
2,4-Dinitrotoluene	50	42.9	37.5	40.2	80	46-118	13	22
Pentachlorophenol	100	74.6	63.0	68.8	69	30-136	17	34
Pyrene	50	47.6	39.7	43.6	87	52-115	18	23

* = RPD outside QC Limits

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

Quanterra
Environmental Services

SINGLE CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS

Category: 625-A
Matrix: AQUEOUS
QC Lot: 02 MAR 95-N1 QC Run: 02 MAR 95-N1
Concentration Units: ug/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Nitrobenzene-d5	100	74.6	75	49-113
2-Fluorobiphenyl	100	82.8	83	43-104
Terphenyl-d14	100	84.8	85	33-139
2-Fluorophenol	200	148	74	42-100
Phenol-d5	200	156	78	50- 94
2,4,6-Tribromophenol	200	144	72	33-123

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

Quanterra
Environmental Services

METHOD BLANK REPORT
ɔivolatile Organics by GC/MS

Test: 8270CP-AP9-A
Matrix: AQUEOUS
QC Lot: 02 MAR 95-N1 QC Run: 02 MAR 95-N1

Analyte	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
2-Acetylaminofluorene	ND	ug/L	100
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	ND	ug/L	10
Aramite	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzyl alcohol	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
ᐣ-sec-Butyl-4,6-dinitro-henol	ND	ug/L	10
ɔhloroaniline	ND	ug/L	10
bis(2-Chloroethoxy) methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl) ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
1,2-Dichlorobenzene	ND	ug/L	10
1,3-Dichlorobenzene	ND	ug/L	10
1,4-Dichlorobenzene	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	20
2,4-Dichlorophenol	ND	ug/L	10
2,6-Dichlorophenol	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10

Quanterra
Environmental Services

METHOD BLANK REPORT
mivolatile Organics by GC/MS (cont.)

Analyte	Result	Units	Reporting Limit
Test: 8270CP-AP9-A			
Matrix: AQUEOUS			
QC Lot: 02 MAR 95-N1 QC Run: 02 MAR 95-N1			
Dimethoate	ND	ug/L	--
p-Dimethylaminoazobenzene	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
3,3'-Dimethylbenzidine	ND	ug/L	10
a,a-Dimethylphenethylamine	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
1,3-Dinitrobenzene	ND	ug/L	10
4,6-Dinitro-2-methylphenol	ND	ug/L	50
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Diphenylamine	ND	ug/L	10
[illegible]sulfoton	ND	ug/L	50
s(2-Ethylhexyl) phthalate	ND	ug/L	10
Ethyl methanesulfonate	ND	ug/L	10
Famphur	ND	ug/L	--
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
Hexachloroethane	ND	ug/L	10
Hexachlorophene	ND	ug/L	--
Hexachloropropene	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
Isosafrole	ND	ug/L	20
Methapyrilene	ND	ug/L	10
[illegible]cholanthrene	ND	ug/L	10
[illegible] methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Methyl parathion	ND	ug/L	50
2-Methylphenol	ND	ug/L	10
3/4-Methylphenol	ND	ug/L	10
Naphthalene	ND	ug/L	10

Quanterra
Environmental Services

METHOD BLANK REPORT
'ivolatile Organics by GC/MS (cont.)

Test: 8270CP-AP9-A
Matrix: AQUEOUS
QC Lot: 02 MAR 95-N1 QC Run: 02 MAR 95-N1

Analyte	Result	Units	Reporting Limit
1,4-Naphthoquinone	ND	ug/L	10
1-Naphthylamine	ND	ug/L	10
2-Naphthylamine	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4-Nitroaniline	ND	ug/L	50
Nitrobenzene	ND	ug/L	10
2-Nitrophenol	ND	ug/L	10
4-Nitrophenol	ND	ug/L	50
4-Nitroquinoline-1-oxide	ND	ug/L	--
N-Nitroso-di-n-butylamine	ND	ug/L	10
N-Nitrosodiethylamine	ND	ug/L	10
N-Nitrosodimethylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosomethylethylamine	ND	ug/L	10
N Nitrosomorpholine	ND	ug/L	10
itrosopiperidine	ND	ug/L	10
itrosopyrrolidine	ND	ug/L	10
5-Nitro-o-toluidine	ND	ug/L	10
Parathion	ND	ug/L	50
Pentachlorobenzene	ND	ug/L	10
Pentachloroethane	ND	ug/L	10
Pentachloronitrobenzene	ND	ug/L	50
Pentachlorophenol	ND	ug/L	50
Phenacetin	ND	ug/L	10
Phenanthrene	ND	ug/L	10
Phenol	ND	ug/L	10
4-Phenylenediamine	ND	ug/L	--
Phorate	ND	ug/L	100
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	10
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	20
Safrole	ND	ug/L	10
Sulfotepp	ND	ug/L	50
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	50
Thionazin	ND	ug/L	50

Quanterra Environmental Services

METHOD BLANK REPORT
nivolatile Organics by GC/MS (cont.)

Analyte	Result	Units	Reporting Limit
Test: 8270CP-AP9-A			
Matrix: AQUEOUS			
QC Lot: 02 MAR 95-N1 QC Run: 02 MAR 95-N1			
2-Toluidine	ND	ug/L	10
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
O,O,O-Triethylphosphorothioate	ND	ug/L	10
2,4,6-Trichlorophenol	ND	ug/L	10
1,3,5-Trinitrobenzene	ND	ug/L	10

Test: 8270CP-AP9-A			
Matrix: AQUEOUS			
QC Lot: 02 MAR 95-N1 QC Run: 02 MAR 95-N1			
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
2-Acetylaminofluorene	ND	ug/L	100
^-Aminobiphenyl	ND	ug/L	10
iline	ND	ug/L	10
.thracene	ND	ug/L	10
Aramite	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzyl alcohol	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
2-sec-Butyl-4,6-dinitrophenol	ND	ug/L	10
4-Chloroaniline	ND	ug/L	10
bis(2-Chloroethoxy) methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl) ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10

Quanterra
Environmental Services

METHOD BLANK REPORT
ıivolatile Organics by GC/MS (cont.)

Analyte	Result	Units	Reporting Limit
Test: 8270CP-AP9-A			
Matrix: AQUEOUS			
QC Lot: 02 MAR 95-N1 QC Run: 02 MAR 95-N1			
4-Chlorophenyl phenyl ether	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
1,2-Dichlorobenzene	ND	ug/L	10
1,3-Dichlorobenzene	ND	ug/L	10
1,4-Dichlorobenzene	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	20
2,4-Dichlorophenol	ND	ug/L	10
2,6-Dichlorophenol	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10
Dimethoate	ND	ug/L	--
p-Dimethylaminoazobenzene	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
ɔ 3'-Dimethylbenzidine	ND	ug/L	10
-Dimethylphenethyl-amine	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
1,3-Dinitrobenzene	ND	ug/L	10
4,6-Dinitro-2-methylphenol	ND	ug/L	50
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Diphenylamine	ND	ug/L	10
Disulfoton	ND	ug/L	50
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
Ethyl methanesulfonate	ND	ug/L	10
Famphur	ND	ug/L	--
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
..exachloroethane	ND	ug/L	10

Quanterra Environmental Services

METHOD BLANK REPORT
mivolatile Organics by GC/MS (cont.)

Test: 8270CP-AP9-A
Matrix: AQUEOUS
QC Lot: 02 MAR 95-N1 QC Run: 02 MAR 95-N1

Analyte	Result	Units	Reporting Limit
Hexachlorophene	ND	ug/L	--
Hexachloropropene	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
Isosafrole	ND	ug/L	20
Methapyrilene	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	10
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Methyl parathion	ND	ug/L	50
2-Methylphenol	ND	ug/L	10
3/4-Methylphenol	ND	ug/L	10
Naphthalene	ND	ug/L	10
1,4-Naphthoquinone	ND	ug/L	10
1-Naphthylamine	ND	ug/L	10
2-Naphthylamine	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4-Nitroaniline	ND	ug/L	50
Nitrobenzene	ND	ug/L	10
2-Nitrophenol	ND	ug/L	10
4-Nitrophenol	ND	ug/L	50
4-Nitroquinoline-1-oxide	ND	ug/L	--
N-Nitroso-di-n-butylamine	ND	ug/L	10
N-Nitrosodiethylamine	ND	ug/L	10
N-Nitrosodimethylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosomethylethylamine	ND	ug/L	10
N-Nitrosomorpholine	ND	ug/L	10
N-Nitrosopiperidine	ND	ug/L	10
N-Nitrosopyrrolidine	ND	ug/L	10
5-Nitro-o-toluidine	ND	ug/L	10
Parathion	ND	ug/L	50
Pentachlorobenzene	ND	ug/L	10
Pentachloroethane	ND	ug/L	10
Pentachloronitrobenzene	ND	ug/L	50
Pentachlorophenol	ND	ug/L	50
Phenacetin	ND	ug/L	10
Phenanthrene	ND	ug/L	10

Quanterra Environmental Services

METHOD BLANK REPORT
Semivolatile Organics by GC/MS (cont.)

Test: 8270CP-AP9-A
Matrix: AQUEOUS
QC Lot: 02 MAR 95-N1 QC Run: 02 MAR 95-N1

Analyte	Result	Units	Reporting Limit
Phenol	ND	ug/L	10
4-Phenylenediamine	ND	ug/L	--
Phorate	ND	ug/L	100
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	10
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	20
Safrole	ND	ug/L	10
Sulfotepp	ND	ug/L	50
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	50
Thionazin	ND	ug/L	50
2-Toluidine	ND	ug/L	10
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
O,O,O-Triethylphosphorothioate	ND	ug/L	10
[illegible],6-Trichlorophenol	ND	ug/L	10
[illegible]3,5-Trinitrobenzene	ND	ug/L	10

Quanterra
Environmental Services

MATRIX SPECIFIC QC
ASSIGNMENT REPORT
Semivolatile Organics by GC/MS

QC SAMPLE TYPE	TEST	LABORATORY SAMPLE NUMBER	QC LOT
MATRIX SPIKE DUPLICATE	8270CP-AP9-A	040706-0003-SD	02 MAR 95-N1
MATRIX SPIKE	8270CP-AP9-A	040706-0003-MS	02 MAR 95-N1

Quanterra
Environmental Services

SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
latile Organics by GC/MS
040706

Category: 625-A Acid, Base and Neutrals by GC/MS.
Matrix: AQUEOUS
mple: 040706-0003
Run: 02 MAR 95-N1
Units: ug/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
enol	ND	56	58	96	97	58	60	5-112	4.0	29
2-Chlorophenol	ND	60	68	96	97	63	70	23-134	11	29
4-Dichlorobenzene	ND	24	27	48	48	51	56	20-124	11	28
Nitroso-di-n-propylamine	ND	30	31	48	48	62	63	1-230	2.5	24
1,2,4-Trichlorobenzene	ND	28	31	48	48	58	64	44-142	8.7	27
Chloro-3-methylphenol	ND	61	64	96	97	64	66	22-147	3.4	27
enaphthene	ND	38	41	48	48	80	84	47-145	5.7	24
4-Nitrophenol	ND	67	68	96	97	70	71	1-132	0.9	51
4-Dinitrotoluene	ND	39	42	48	48	82	86	39-139	4.6	22
ntachlorophenol	ND	73	77	96	97	76	80	14-176	4.3	34
rene	ND	41	45	48	48	86	93	52-115	7.7	23

ND = Not Detected

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

Quanterra
Environmental Services

LOT ASSIGNMENT REPORT
ivolatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040706-0001-SA	AQUEOUS	608-A	01 MAR 95-N1	01 MAR 95-N1
040706-0001-SA	AQUEOUS	615-A	28 FEB 95-N1	28 FEB 95-N1
040706-0002-SA	AQUEOUS	608-A	01 MAR 95-N1	01 MAR 95-N1
040706-0002-SA	AQUEOUS	615-A	28 FEB 95-N1	28 FEB 95-N1
040706-0003-SA	AQUEOUS	608-A	01 MAR 95-N1	01 MAR 95-N1
040706-0003-SA	AQUEOUS	615-A	28 FEB 95-N1	28 FEB 95-N1
040706-0003-MS	AQUEOUS	608-A	01 MAR 95-N1	01 MAR 95-N1
040706-0003-MS	AQUEOUS	615-A	28 FEB 95-N1	28 FEB 95-N1
040706-0003-SD	AQUEOUS	608-A	01 MAR 95-N1	01 MAR 95-N1
040706-0003-SD	AQUEOUS	615-A	28 FEB 95-N1	28 FEB 95-N1

Quanterra
Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: 608-A Matrix: AQUEOUS QC Lot: 01 MAR 95-N1 Concentration Units: ug/L								
gamma-BHC (Lindane)	0.200	0.216	0.236	0.226	113	81-117	8.8	13
Heptachlor	0.200	0.208	0.208	0.208	104	72-125	0.0	11
Aldrin	0.200	0.188	0.182	0.185	93	69-112	3.2	16
Dieldrin	0.500	0.485	0.526	0.506	101	77-111	8.1	13
Endrin	0.500	0.502	0.549	0.526	105	83-122	8.9	14
4,4'-DDT	0.500	0.524	0.564	0.544	109	76-125	7.4	14
Category: 615-A Matrix: AQUEOUS QC Lot: 28 FEB 95-N1 Concentration Units: ug/L								
2,4-D	5.00	3.27	3.36	3.32	66	44- 97	2.7	34
2,4,5-TP (Silvex)	1.00	0.777	0.734	0.756	76	49-102	5.7	32
2,4,5-T	1.00	0.731	0.707	0.719	72	47-110	3.3	32

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

Quanterra Environmental Services

SINGLE CONTROL SAMPLE REPORT
nivolatile Organics by GC

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 608-A				
Matrix: AQUEOUS				
QC Lot: 01 MAR 95-N1 QC Run: 01 MAR 95-N1				
Concentration Units: ug/L				
Dibutyl chlorendate	1.00	1.05	105	56-138
Category: 615-A				
Matrix: AQUEOUS				
QC Lot: 28 FEB 95-N1 QC Run: 28 FEB 95-N1				
Concentration Units: ug/L				
DCAA	5.00	4.16	83	45-123

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

Quanterra
Environmental Services

METHOD BLANK REPORT
Semivolatile Organics by GC

Analyte	Result	Units	Reporting Limit
Test: 8080CP-AP9-A			
Matrix: AQUEOUS			
QC Lot: 01 MAR 95-N1 QC Run: 01 MAR 95-N1			
Aldrin	ND	ug/L	0.050
Aroclor 1016	ND	ug/L	1.0
Aroclor 1221	ND	ug/L	1.0
Aroclor 1232	ND	ug/L	1.0
Aroclor 1242	ND	ug/L	1.0
Aroclor 1248	ND	ug/L	1.0
Aroclor 1254	ND	ug/L	1.0
Aroclor 1260	ND	ug/L	1.0
alpha-BHC	ND	ug/L	0.050
beta-BHC	ND	ug/L	0.050
delta-BHC	ND	ug/L	0.050
gamma-BHC (Lindane)	ND	ug/L	0.050
alpha-Chlordane	ND	ug/L	0.050
gamma-Chlordane	ND	ug/L	0.050
Chlorobenzilate	ND	ug/L	0.10
4,4'-DDD	ND	ug/L	0.10
4,4'-DDE	ND	ug/L	0.10
4,4'-DDT	ND	ug/L	0.10
[illegible]llate	ND	ug/L	1.0
[illegible]ldrin	ND	ug/L	0.10
Endosulfan I	ND	ug/L	0.050
Endosulfan II	ND	ug/L	0.10
Endosulfan sulfate	ND	ug/L	0.10
Endrin	ND	ug/L	0.10
Endrin aldehyde	ND	ug/L	0.10
Heptachlor	ND	ug/L	0.050
Heptachlor epoxide	ND	ug/L	0.050
Isodrin	ND	ug/L	0.10
Kepone	ND	ug/L	1.0
Methoxychlor	ND	ug/L	0.50
Toxaphene	ND	ug/L	5.0
Test: 8150-AP9-A			
Matrix: AQUEOUS			
QC Lot: 28 FEB 95-N1 QC Run: 28 FEB 95-N1			
2,4-D	ND	ug/L	1.2
2,4,5-TP (Silvex)	ND	ug/L	0.17
2,4,5-T	ND	ug/L	0.20

Quanterra
Environmental Services

METHOD BLANK REPORT
nivolatile Organics by GC (cont.)

Analyte	Result	Units	Reporting Limit
Test: 8080CP-AP9-A			
Matrix: AQUEOUS			
QC Lot: 01 MAR 95-N1 QC Run: 01 MAR 95-N1			
Aldrin	ND	ug/L	0.050
Aroclor 1016	ND	ug/L	1.0
Aroclor 1221	ND	ug/L	1.0
Aroclor 1232	ND	ug/L	1.0
Aroclor 1242	ND	ug/L	1.0
Aroclor 1248	ND	ug/L	1.0
Aroclor 1254	ND	ug/L	1.0
Aroclor 1260	ND	ug/L	1.0
alpha-BHC	ND	ug/L	0.050
beta-BHC	ND	ug/L	0.050
delta-BHC	ND	ug/L	0.050
gamma-BHC (Lindane)	ND	ug/L	0.050
alpha-Chlordane	ND	ug/L	0.050
gamma-Chlordane	ND	ug/L	0.050
Chlorobenzilate	ND	ug/L	0.10
4,4'-DDD	ND	ug/L	0.10
4,4'-DDE	ND	ug/L	0.10
4,4'-DDT	ND	ug/L	0.10
llate	ND	ug/L	1.0
eldrin	ND	ug/L	0.10
Endosulfan I	ND	ug/L	0.050
Endosulfan II	ND	ug/L	0.10
Endosulfan sulfate	ND	ug/L	0.10
Endrin	ND	ug/L	0.10
Endrin aldehyde	ND	ug/L	0.10
Heptachlor	ND	ug/L	0.050
Heptachlor epoxide	ND	ug/L	0.050
Isodrin	ND	ug/L	0.10
Kepone	ND	ug/L	1.0
Methoxychlor	ND	ug/L	0.50
Toxaphene	ND	ug/L	5.0
Test: 8150-AP9-A			
Matrix: AQUEOUS			
QC Lot: 28 FEB 95-N1 QC Run: 28 FEB 95-N1			
2,4-D	ND	ug/L	1.2
2,4,5-TP (Silvex)	ND	ug/L	0.17
2,4,5-T	ND	ug/L	0.20

Quanterra
Environmental Services

MATRIX SPECIFIC QC
ASSIGNMENT REPORT
Semivolatile Organics by GC

QC SAMPLE TYPE	TEST	LABORATORY SAMPLE NUMBER	QC LOT
MATRIX SPIKE DUPLICATE	8080CP-AP9-A	040706-0003-SD	01 MAR 95-N1
MATRIX SPIKE	8080CP-AP9-A	040706-0003-MS	01 MAR 95-N1
MATRIX SPIKE DUPLICATE	8150-AP9-A	040706-0003-SD	28 FEB 95-N1
MATRIX SPIKE	8150-AP9-A	040706-0003-MS	28 FEB 95-N1

Quanterra
Environmental Services

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Semi-Volatile Organics by GC
Project: 040706

Category: 608-A Organochlorine Pesticides
Matrix: AQUEOUS
Sample: 040706-0003
Run: 01 MAR 95-N1
Units: ug/L

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS	MSD	% Recovery MS	MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Gamma-BHC (Lindane)	ND	0.22	0.22	0.19	0.19	117	115	32-127	2.4	20
Heptachlor	ND	0.20	0.20	0.19	0.19	104	104	34-111	0.0	20
Aldrin	ND T	0.18	0.18	0.19	0.19	96	95	42-122	0.5	20
Dieldrin	ND	0.50	0.50	0.48	0.48	106	104	36-146	2.0	20
Endrin	ND	0.52	0.51	0.48	0.48	110	107	30-147	2.8	20
4,4'-DDT	ND	0.55	0.53	0.48	0.48	115	111	25-160	3.6	20

Category: 615-A Herbicides
Matrix: AQUEOUS
Sample: 040706-0003
Run: 28 FEB 95-N1
Units: ug/L

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS	MSD	% Recovery MS	MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
2,4-D	ND T	2.9	3.2	4.8	4.8	59	67	44-97	12	34
2,4,5-TP (Silvex)	ND	0.76	0.79	0.97	0.96	78	82	49-102	5.3	32
2,4,5-T	ND	0.73	0.79	0.97	0.96	75	82	47-110	9.1	32

T = Preferred values unless footnoted on secondary column test.
ND = Not Detected

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

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
als Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040706-0001-SA	AQUEOUS	ICP-AT	28 FEB 95-9C	28 FEB 95-9C
040706-0001-SA	AQUEOUS	PB-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040706-0001-SA	AQUEOUS	AS-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040706-0001-SA	AQUEOUS	SE-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040706-0001-SA	AQUEOUS	TL-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040706-0001-SA	AQUEOUS	HG-CVAA-AT	27 FEB 95-9N	27 FEB 95-9N
040706-0001-SA	AQUEOUS	ICP-AD	02 MAR 95-9N	-
040706-0001-SA	AQUEOUS	PB-FAA-AD	27 FEB 95-9D	-
040706-0001-SA	AQUEOUS	AS-FAA-AD	27 FEB 95-9D	-
040706-0001-SA	AQUEOUS	SE-FAA-AD	27 FEB 95-9D	-
040706-0001-SA	AQUEOUS	TL-FAA-AD	27 FEB 95-9D	-
040706-0001-SA	AQUEOUS	HG-CVAA-AT	27 FEB 95-9M	27 FEB 95-9M
040706-0002-SA	AQUEOUS	ICP-AT	28 FEB 95-9C	28 FEB 95-9C
040706-0002-SA	AQUEOUS	PB-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040706-0002-SA	AQUEOUS	AS-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040706-0002-SA	AQUEOUS	SE-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040706-0002-SA	AQUEOUS	TL-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040706-0002-SA	AQUEOUS	HG-CVAA-AT	27 FEB 95-9N	27 FEB 95-9N
040706-0002-SA	AQUEOUS	ICP-AD	02 MAR 95-9N	-
040706-0002-SA	AQUEOUS	PB-FAA-AD	27 FEB 95-9D	-
040706-0002-SA	AQUEOUS	AS-FAA-AD	27 FEB 95-9D	-
040706-0002-SA	AQUEOUS	SE-FAA-AD	27 FEB 95-9D	-
040706-0002-SA	AQUEOUS	TL-FAA-AD	27 FEB 95-9D	-
040706-0002-SA	AQUEOUS	HG-CVAA-AT	27 FEB 95-9M	27 FEB 95-9M
040706-0003-SA	AQUEOUS	ICP-AT	28 FEB 95-9C	28 FEB 95-9C
040706-0003-SA	AQUEOUS	PB-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040706-0003-SA	AQUEOUS	AS-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040706-0003-SA	AQUEOUS	SE-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040706-0003-SA	AQUEOUS	TL-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040706-0003-SA	AQUEOUS	HG-CVAA-AT	27 FEB 95-9N	27 FEB 95-9N
040706-0003-SA	AQUEOUS	ICP-AD	02 MAR 95-9N	-
040706-0003-SA	AQUEOUS	PB-FAA-AD	27 FEB 95-9D	-
040706-0003-SA	AQUEOUS	AS-FAA-AD	27 FEB 95-9D	-
040706-0003-SA	AQUEOUS	SE-FAA-AD	27 FEB 95-9D	-
040706-0003-SA	AQUEOUS	TL-FAA-AD	27 FEB 95-9D	-
040706-0003-SA	AQUEOUS	HG-CVAA-AT	27 FEB 95-9M	27 FEB 95-9M
040706-0003-MS	AQUEOUS	ICP-AT	28 FEB 95-9C	28 FEB 95-9C
040706-0003-MS	AQUEOUS	PB-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040706-0003-MS	AQUEOUS	AS-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040706-0003-MS	AQUEOUS	SE-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040706-0003-MS	AQUEOUS	TL-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040706-0003-MS	AQUEOUS	HG-CVAA-AT	27 FEB 95-9N	27 FEB 95-9N
040706-0003-MS	AQUEOUS	ICP-AD	02 MAR 95-9N	-
040706-0003-MS	AQUEOUS	PB-FAA-AD	27 FEB 95-9D	-
040706-0003-MS	AQUEOUS	AS-FAA-AD	27 FEB 95-9D	-
040706-0003-MS	AQUEOUS	SE-FAA-AD	27 FEB 95-9D	-
040706-0003-MS	AQUEOUS	TL-FAA-AD	27 FEB 95-9D	-

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
tals Analysis and Preparation (cont.)

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040706-0003-MS	AQUEOUS	HG-CVAA-AT	27 FEB 95-9M	27 FEB 95-9M
040706-0003-SD	AQUEOUS	ICP-AT	28 FEB 95-9C	28 FEB 95-9C
040706-0003-SD	AQUEOUS	PB-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040706-0003-SD	AQUEOUS	AS-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040706-0003-SD	AQUEOUS	SE-FAA-AT	28 FEB 95-9B	28 FEB 95-9B
040706-0003-SD	AQUEOUS	TL-FAA-AT	28 FEB 95-9A	28 FEB 95-9A
040706-0003-SD	AQUEOUS	HG-CVAA-AT	27 FEB 95-9N	27 FEB 95-9N
040706-0003-SD	AQUEOUS	ICP-AD	02 MAR 95-9N	-
040706-0003-SD	AQUEOUS	PB-FAA-AD	27 FEB 95-9D	-
040706-0003-SD	AQUEOUS	AS-FAA-AD	27 FEB 95-9D	-
040706-0003-SD	AQUEOUS	SE-FAA-AD	27 FEB 95-9D	-
040706-0003-SD	AQUEOUS	TL-FAA-AD	27 FEB 95-9D	-
040706-0003-SD	AQUEOUS	HG-CVAA-AT	27 FEB 95-9M	27 FEB 95-9M

Quanterra
Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
›tals Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: ICP-AT								
Matrix: AQUEOUS								
QC Lot: 28 FEB 95-9C								
Concentration Units: mg/L								
Aluminum	2.00	2.15	2.18	2.16	108	80-116	1.6	10
Antimony	0.500	0.542	0.536	0.539	108	80-115	1.2	14
Arsenic	0.500	0.488	0.514	0.501	100	80-115	5.2	17
Barium	2.00	1.95	1.97	1.96	98	80-114	1.3	10
Beryllium	0.0500	0.0504	0.0524	0.0514	103	80-120	3.9	10
Boron	10	9.80	10.1	9.97	100	80-120	3.3	10
Cadmium	0.0500	0.0476	0.0475	0.0475	95	80-119	0.0	16
Calcium	100	104	106	105	105	80-114	1.8	10
Chromium	0.200	0.198	0.200	0.199	100	80-116	0.9	11
Cobalt	0.500	0.525	0.531	0.528	106	80-114	1.2	10
Copper	0.250	0.260	0.267	0.263	105	80-120	2.7	10
Iron	1.00	1.06	1.04	1.05	105	80-120	2.5	11
Lead	0.500	0.516	0.513	0.515	103	80-119	0.5	10
Magnesium	50.0	54.4	55.6	55.0	110	81-120	2.2	10
Manganese	0.500	0.531	0.542	0.536	107	80-116	2.0	10
ᴺickel	0.500	0.514	0.520	0.517	103	80-114	1.2	10
tassium	50.0	53.0	54.2	53.6	107	80-120	2.3	13
ᵉlenium	0.500	0.528	0.550	0.539	108	80-120	4.0	20
Silver	0.050	0.0558	0.0542	0.0550	110	80-119	3.0	15
Sodium	100	106	110	108	108	80-120	3.3	10
Tin	0.5	0.532	0.533	0.533	107	80-120	0.1	20
Vanadium	0.500	0.528	0.537	0.532	106	80-116	1.7	10
Zinc	0.500	0.538	0.527	0.532	106	80-120	1.9	13
Category: PB-FAA-AT								
Matrix: AQUEOUS								
QC Lot: 28 FEB 95-9A								
Concentration Units: mg/L								
Lead	0.030	0.0342	0.0338	0.0340	113	71-136	1.2	17
Category: AS-FAA-AT								
Matrix: AQUEOUS								
QC Lot: 28 FEB 95-9B								
Concentration Units: mg/L								
Arsenic	0.030	0.0288	0.0293	0.0290	97	81-116	1.7	13

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

Quanterra Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
tals Analysis and Preparation (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: SE-FAA-AT Matrix: AQUEOUS QC Lot: 28 FEB 95-9B Concentration Units: mg/L								
Selenium	0.030	0.0293	0.0288	0.0290	97	73-125	1.7	15
Category: TL-FAA-AT Matrix: AQUEOUS QC Lot: 28 FEB 95-9A Concentration Units: mg/L								
Thallium	0.0300	0.0292	0.0305	0.0298	100	75-125	4.4	20
Category: HG-CVAA-AT Matrix: AQUEOUS QC Lot: 27 FEB 95-9N Concentration Units: mg/L								
cury	0.001	0.00100	0.000983	0.000993	99	83-112	2.1	12
Category: ICP-AD Matrix: AQUEOUS QC Lot: 02 MAR 95-9N Concentration Units: mg/L								
Aluminum	5.00	5.24	5.10	5.17	103	90-110	2.8	20
Antimony	0.500	0.534	0.526	0.530	106	90-110	1.6	20
Arsenic	0.500	0.519	0.519	0.519	104	90-110	0.2	20
Barium	0.500	0.533	0.508	0.521	104	90-110	4.8	20
Beryllium	0.500	0.520	0.494	0.507	101	90-110	5.2	20
Cadmium	0.500	0.492	0.490	0.491	98	90-110	0.4	20
Calcium	20.0	21.0	20.1	20.5	103	90-110	4.5	20
Chromium	0.500	0.509	0.487	0.498	100	90-110	4.4	20
Cobalt	0.500	0.527	0.509	0.518	104	90-110	3.5	20
Copper	0.500	0.534	0.515	0.524	105	90-110	3.6	20
Iron	5.00	5.25	5.03	5.14	103	90-110	4.2	20
[illegible]	0.500	0.499	0.495	0.497	99	90-110	0.7	20
agnesium	20.0	21.2	20.6	20.9	104	90-110	2.9	20
Manganese	0.500	0.534	0.509	0.521	104	90-110	4.7	20
Nickel	0.500	0.526	0.511	0.519	104	90-110	2.9	20
Potassium	50.0	53.8	51.7	52.7	105	90-110	3.9	20

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

Quanterra
Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: ICP-AD Matrix: AQUEOUS QC Lot: 02 MAR 95-9N Concentration Units: mg/L								
Silver	0.500	0.515	0.506	0.511	102	90-110	1.9	20
Sodium	200	213	208	211	105	90-110	2.7	20
Vanadium	0.500	0.532	0.513	0.522	104	90-110	3.7	20
Zinc	0.500	0.520	0.506	0.513	103	90-110	2.8	20
Category: PB-FAA-AD Matrix: AQUEOUS QC Lot: 27 FEB 95-9D Concentration Units: mg/L								
Lead	0.0500	0.0497	0.0489	0.0493	99	90-110	1.6	20
Category: AS-FAA-AD Matrix: AQUEOUS Lot: 27 FEB 95-9D Concentration Units: mg/L								
Arsenic	0.0500	0.0499	0.0496	0.0498	100	90-110	0.6	20
Category: SE-FAA-AD Matrix: AQUEOUS QC Lot: 27 FEB 95-9D Concentration Units: mg/L								
Selenium	0.0500	0.0516	0.0507	0.0512	102	90-110	1.8	20
Category: TL-FAA-AD Matrix: AQUEOUS QC Lot: 27 FEB 95-9D Concentration Units: mg/L								
Thallium	0.0500	0.0469	0.0480	0.0474	95	90-110	2.3	20

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

Quanterra Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: HG-CVAA-AT								
Matrix: AQUEOUS								
QC Lot: 27 FEB 95-9M								
Concentration Units: mg/L								
Mercury	0.001	0.000994	0.000994	0.000994	99	83-112	0.0	12

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

Quanterra
Environmental Services

METHOD BLANK REPORT
+als Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICP-AP9-AT			
Matrix: AQUEOUS			
QC Lot: 28 FEB 95-9C QC Run: 28 FEB 95-9C			
Antimony	ND	mg/L	0.060
Barium	ND	mg/L	0.010
Beryllium	ND	mg/L	0.0020
Cadmium	ND	mg/L	0.0050
Chromium	ND	mg/L	0.010
Cobalt	ND	mg/L	0.010
Copper	ND	mg/L	0.020
Iron	ND	mg/L	0.10
Manganese	ND	mg/L	0.010
Nickel	ND	mg/L	0.040
Silver	ND	mg/L	0.010
Sodium	ND	mg/L	5.0
Tin	ND	mg/L	0.10
Vanadium	ND	mg/L	0.010
Zinc	ND	mg/L	0.020
Test: PB-FAA-AT			
rix: AQUEOUS			
Lot: 28 FEB 95-9A QC Run: 28 FEB 95-9A			
Lead	ND	mg/L	0.0050
Test: AS-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 28 FEB 95-9B QC Run: 28 FEB 95-9B			
Arsenic	ND	mg/L	0.0050
Test: SE-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 28 FEB 95-9B QC Run: 28 FEB 95-9B			
Selenium	ND	mg/L	0.0050

Quanterra
Environmental Services

METHOD BLANK REPORT
Metals Analysis and Preparation (cont.)

Analyte	Result	Units	Reporting Limit
Test: TL-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 28 FEB 95-9A QC Run: 28 FEB 95-9A			
Thallium	ND	mg/L	0.0050
Test: HG-CVAA-POLY-AT			
Matrix: AQUEOUS			
QC Lot: 27 FEB 95-9N QC Run: 27 FEB 95-9N			
Mercury	ND	mg/L	0.00020
Test: HG-CVAA-POLY-AD			
Matrix: AQUEOUS			
QC Lot: 27 FEB 95-9M QC Run: 27 FEB 95-9M			
Mercury	ND	mg/L	0.00020
Test: ICP-AP9-AT			
Matrix: AQUEOUS			
QC Lot: 28 FEB 95-9C QC Run: 28 FEB 95-9C			
Antimony	ND	mg/L	0.060
Barium	ND	mg/L	0.010
Beryllium	ND	mg/L	0.0020
Cadmium	ND	mg/L	0.0050
Chromium	ND	mg/L	0.010
Cobalt	ND	mg/L	0.010
Copper	ND	mg/L	0.020
Iron	ND	mg/L	0.10
Manganese	ND	mg/L	0.010
Nickel	ND	mg/L	0.040
Silver	ND	mg/L	0.010
Sodium	ND	mg/L	5.0
Tin	ND	mg/L	0.10
[illegible]	ND	mg/L	0.010
[illegible]	ND	mg/L	0.020

Quanterra
Environmental Services

METHOD BLANK REPORT
Metals Analysis and Preparation (cont.)

Analyte	Result	Units	Reporting Limit
Test: PB-FAA-AT Matrix: AQUEOUS QC Lot: 28 FEB 95-9A QC Run: 28 FEB 95-9A			
Lead	ND	mg/L	0.0050
Test: AS-FAA-AT Matrix: AQUEOUS QC Lot: 28 FEB 95-9B QC Run: 28 FEB 95-9B			
Arsenic	ND	mg/L	0.0050
Test: SE-FAA-AT Matrix: AQUEOUS QC Lot: 28 FEB 95-9B QC Run: 28 FEB 95-9B			
Selenium	ND	mg/L	0.0050
Test: TL-FAA-AT Matrix: AQUEOUS QC Lot: 28 FEB 95-9A QC Run: 28 FEB 95-9A			
Thallium	ND	mg/L	0.0050
Test: HG-CVAA-POLY-AT Matrix: AQUEOUS QC Lot: 27 FEB 95-9N QC Run: 27 FEB 95-9N			
Mercury	ND	mg/L	0.00020
Test: HG-CVAA-POLY-AD Matrix: AQUEOUS QC Lot: 27 FEB 95-9M QC Run: 27 FEB 95-9M			
Mercury	ND	mg/L	0.00020

Quanterra
Environmental Services

MATRIX SPECIFIC QC
ASSIGNMENT REPORT
Metals Analysis and Preparation

QC SAMPLE TYPE	TEST	LABORATORY SAMPLE NUMBER	QC LOT
MATRIX SPIKE DUPLICATE	ICP-AP9-AT	040706-0003-SD	28 FEB 95-9C
MATRIX SPIKE	ICP-AP9-AT	040706-0003-MS	28 FEB 95-9C
MATRIX SPIKE DUPLICATE	PB-FAA-AT	040706-0003-SD	28 FEB 95-9A
MATRIX SPIKE	PB-FAA-AT	040706-0003-MS	28 FEB 95-9A
MATRIX SPIKE DUPLICATE	AS-FAA-AT	040706-0003-SD	28 FEB 95-9B
MATRIX SPIKE	AS-FAA-AT	040706-0003-MS	28 FEB 95-9B
MATRIX SPIKE DUPLICATE	SE-FAA-AT	040706-0003-SD	28 FEB 95-9B
MATRIX SPIKE	SE-FAA-AT	040706-0003-MS	28 FEB 95-9B
MATRIX SPIKE DUPLICATE	TL-FAA-AT	040706-0003-SD	28 FEB 95-9A
MATRIX SPIKE	TL-FAA-AT	040706-0003-MS	28 FEB 95-9A
MATRIX SPIKE DUPLICATE	HG-CVAA-POLY-AT	040706-0003-SD	27 FEB 95-9N
MATRIX SPIKE	HG-CVAA-POLY-AT	040706-0003-MS	27 FEB 95-9N
MATRIX SPIKE DUPLICATE	ICP-AP9-AD	040706-0003-SD	02 MAR 95-9N
MATRIX SPIKE	ICP-AP9-AD	040706-0003-MS	02 MAR 95-9N
MATRIX SPIKE DUPLICATE	PB-FAA-AD	040706-0003-SD	27 FEB 95-9D
MATRIX SPIKE	PB-FAA-AD	040706-0003-MS	27 FEB 95-9D
MATRIX SPIKE DUPLICATE	AS-FAA-AD	040706-0003-SD	27 FEB 95-9D
MATRIX SPIKE	AS-FAA-AD	040706-0003-MS	27 FEB 95-9D
MATRIX SPIKE DUPLICATE	SE-FAA-AD	040706-0003-SD	27 FEB 95-9D
MATRIX SPIKE	SE-FAA-AD	040706-0003-MS	27 FEB 95-9D
MATRIX SPIKE DUPLICATE	TL-FAA-AD	040706-0003-SD	27 FEB 95-9D
MATRIX SPIKE	TL-FAA-AD	040706-0003-MS	27 FEB 95-9D
MATRIX SPIKE DUPLICATE	HG-CVAA-POLY-AD	040706-0003-SD	27 FEB 95-9M
MATRIX SPIKE	HG-CVAA-POLY-AD	040706-0003-MS	27 FEB 95-9M

Quanterra
Environmental Services

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
M Analysis and Preparation
Project: 040706

Category: ICP-AT ICP Metals / Total
Matrix: AQUEOUS
Sample: 040706-0003
Run: 28 FEB 95-9C
Units: mg/L

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS	MSD	% Recovery MS	MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Aluminum	NA	NA	NA	2.0	2.0	NC	NC	80-120	NC	20
Antimony	ND	0.53	0.54	0.50	0.50	107	107	80-120	0.5	20
Arsenic	NA	NA	NA	0.50	0.50	NC	NC	80-120	NC	20
Barium	0.034	1.9	1.9	2.0	2.0	95	95	80-120	0.4	20
Beryllium	ND	0.051	0.050	0.050	0.050	102	100	80-120	1.3	20
Boron	NA	NA	NA	10	10	NC	NC	80-120	NC	20
Cadmium	ND	0.046	0.043	0.050	0.050	92	86	80-120	6.8	20
Calcium	NA	NA	NA	100	100	NC	NC	80-120	NC	20
Chromium	ND	0.20	0.20	0.20	0.20	100	100	80-120	0.2	20
Cobalt	ND	0.51	0.51	0.50	0.50	103	102	80-120	0.6	20
Copper	ND	0.26	0.26	0.25	0.25	105	103	80-120	2.2	20
Iron	ND	NA	NA	1.0	1.0	NC	NC	80-120	NC	20
Lead	NA	NA	NA	0.50	0.50	NC	NC	80-120	NC	20
Magnesium	NA	NA	NA	50	50	NC	NC	80-120	NC	20
Manganese	ND	NA	NA	0.50	0.50	NC	NC	80-120	NC	20
Nickel	ND	0.51	0.51	0.50	0.50	102	102	80-120	0.5	20
Potassium	NA	NA	NA	50	50	NC	NC	80-120	NC	20
Selenium	NA	NA	NA	0.50	0.50	NC	NC	80-120	NC	20
Silver	ND	0.055	0.056	0.050	0.050	110	111	80-120	1.1	20
Sodium	41	NA	NA	100	100	NC	NC	80-120	NC	20
Thallium	NA	NA	NA	5.0	5.0	NC	NC	80-120	NC	20
Tin	ND	NA	NA	NA	NA	NC	NC	0-0	NC	0
Vanadium	0.026	0.54	0.54	0.50	0.50	103	102	80-120	0.8	20
Zinc	ND	0.52	0.51	0.50	0.50	104	102	80-120	1.5	20

NA = Not Applicable
NC = Not Calculated, calculation not applicable.
ND = Not Detected

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

Quanterra
Environmental Services

SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Me Analysis and Preparation
Project: 040706 (cont.)

Category: PB-FAA-AT Lead, Furnace AA / Total Metals
Matrix: AQUEOUS
Sample: 040706-0003
MS Run: 28 FEB 95-9A
Units: mg/L

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Lead	ND G	0.011	0.012	0.030	0.030	37	41	71-136	9.4	17

Category: AS-FAA-AT Arsenic, Furnace AA / Total Metals
Matrix: AQUEOUS
Sample: 040706-0003
MS Run: 28 FEB 95-9B
Units: mg/L

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Arsenic	ND	0.026	0.026	0.030	0.030	88	87	81-116	1.1	13

Category: SE-FAA-AT Selenium, Furnace AA / Total Metals
Matrix: AQUEOUS
Sample: 040706-0003
MS Run: 28 FEB 95-9B
Units: mg/L

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Selenium	ND G	0.031	0.031	0.030	0.030	103	105	73-125	1.9	15

= Reporting limit raised due to matrix interference.
ND = Not Detected

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

Quanterra
Environmental Services

ATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Metals Analysis and Preparation
Report: 040706 (cont.)

Category: TL-FAA-AT Thallium, Furnace AA / Total Metals
Matrix: AQUEOUS
Sample: 040706-0003
MS Run: 28 FEB 95-9A
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Thallium	ND	0.022	0.021	0.030	0.030	74	70	75-125	4.6	20

Category: HG-CVAA-AT Mercury by CVAA / Total Mercury
Matrix: AQUEOUS
Sample: 040706-0003
MS Run: 27 FEB 95-9N
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Mercury	ND	0.001	0.001	0.001	0.001	105	109	83-112	3.8	12

Category: HG-CVAA-AT Mercury by CVAA / Total Mercury
Matrix: AQUEOUS
Sample: 040706-0003
MSD Run: 27 FEB 95-9M
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Mercury	ND	0.001	0.001	0.001	0.001	105	104	83-112	1.1	12

ND = Not Detected

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

Quanterra
Environmental Services

..ATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
M Analysis and Preparation
Project: 040706 (cont.)

Category: ICP-AD ICP Metals / Dissolved
Matrix: AQUEOUS
ample: 040706-0003
S Run: 02 MAR 95-9N
Units: mg/L

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS	MSD	% Recovery MS	MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
..luminum	NA	NA	NA	2.0	2.0	NC	NC	85-115	NC	10
Antimony	ND	0.50	0.53	0.50	0.50	100	106	85-115	5.1	10
rsenic	NA	NA	NA	0.50	0.50	NC	NC	85-115	NC	10
arium	0.034	2.0	2.0	2.0	2.0	97	98	85-115	1.1	10
eryllium	ND	0.051	0.051	0.050	0.050	102	103	85-115	0.8	10
Cadmium	ND	0.050	0.050	0.050	0.050	101	101	85-115	0.0	10
alcium	NA	NA	NA	100	100	NC	NC	85-115	NC	10
hromium	ND	0.20	0.20	0.20	0.20	101	101	85-115	0.2	10
Cobalt	ND	0.54	0.54	0.50	0.50	108	108	85-115	0.5	10
Copper	ND	0.28	0.28	0.25	0.25	110	110	85-115	0.1	10
ron	ND	NA	NA	1.0	1.0	NC	NC	85-115	NC	10
ead	NA	NA	NA	0.50	0.50	NC	NC	85-115	NC	10
Magnesium	NA	NA	NA	50	50	NC	NC	85-115	NC	10
Manganese	ND	NA	NA	0.50	0.50	NC	NC	85-115	NC	10
[illegible]	ND	0.54	0.56	0.50	0.50	108	112	85-115	3.0	10
[illegible]sium	NA	NA	NA	50	50	NC	NC	85-115	NC	10
Silver	ND	0.052	0.055	0.050	0.050	103	110	85-115	6.0	10
odium	43	NA	NA	100	100	NC	NC	85-115	NC	10
hallium	ND	NA	NA	5.0	5.0	NC	NC	80-120	NC	20
Vanadium	0.028	0.54	0.55	0.50	0.50	103	104	85-115	0.7	10
Zinc	ND	0.54	0.54	0.50	0.50	108	109	85-115	0.7	10

Category: PB-FAA-AD Lead, Furnace AA / Dissolved Metals
Matrix: AQUEOUS
ample: 040706-0003
..S Run: 27 FEB 95-9D
Units: mg/L

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS	MSD	% Recovery MS	MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Lead	ND G	0.011	0.013	0.020	0.020	56	64	75-125	12	20

G = Reporting limit raised due to matrix interference.
A = Not Applicable
..C = Not Calculated, calculation not applicable.
ND = Not Detected

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

Quanterra
Environmental Services

Y SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
M s Analysis and Preparation
Project: 040706 (cont.)

ategory: AS-FAA-AD Arsenic, Furnace AA / Dissolved Metals
Matrix: AQUEOUS
ample: 040706-0003
S Run: 27 FEB 95-9D
nits: mg/L

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS	MSD	% Recovery MS	MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
rsenic	ND	0.020	0.020	0.020	0.020	100	100	75-125	0.5	20

ategory: SE-FAA-AD Selenium, Furnace AA / Dissolved Metals
atrix: AQUEOUS
Sample: 040706-0003
MS Run: 27 FEB 95-9D
nits: mg/L

analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS	MSD	% Recovery MS	MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
ium	0.008	0.027	0.027	0.020	0.020	91	93	75-125	2.2	20

Category: TL-FAA-AD Thallium, Furnace AA / Dissolved Metals
atrix: AQUEOUS
ample: 040706-0003
MS Run: 27 FEB 95-9D
nits: mg/L

alyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS	MSD	% Recovery MS	MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Thallium	ND G	0.013	0.014	0.020	0.020	66	69	75-125	5.2	20

= Reporting limit raised due to matrix interference.
ND = Not Detected

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

Quanterra Environmental Services

QC LOT ASSIGNMENT REPORT
Chemistry Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040706-0001-SA	AQUEOUS	PHEN-A	28 FEB 95-9D	28 FEB 95-9D
040706-0001-SA	AQUEOUS	TOX-A	07 MAR 95-9L	-
040706-0001-SA	AQUEOUS	CN-A	25 FEB 95-9L	25 FEB 95-9L
040706-0001-SA	AQUEOUS	S-A	28 FEB 95-1A	28 FEB 95-1A
040706-0001-SA	AQUEOUS	CL-IC-A	27 FEB 95-6A	-
040706-0001-SA	AQUEOUS	SO4-IC-A	27 FEB 95-6A	-
040706-0001-SA	AQUEOUS	TOC-A	25 FEB 95-9L	-
040706-0002-SA	AQUEOUS	PHEN-A	28 FEB 95-9D	28 FEB 95-9D
040706-0002-SA	AQUEOUS	TOX-A	28 FEB 95-9L	-
040706-0002-SA	AQUEOUS	CN-A	25 FEB 95-9L	25 FEB 95-9L
040706-0002-SA	AQUEOUS	S-A	28 FEB 95-1A	28 FEB 95-1A
040706-0002-SA	AQUEOUS	CL-IC-A	27 FEB 95-6A	-
040706-0002-SA	AQUEOUS	SO4-IC-A	27 FEB 95-6A	-
040706-0002-SA	AQUEOUS	TOC-A	25 FEB 95-9L	-
040706-0003-SA	AQUEOUS	PHEN-A	28 FEB 95-9D	28 FEB 95-9D
040706-0003-SA	AQUEOUS	TOX-A	28 FEB 95-9L	-
040706-0003-SA	AQUEOUS	CN-A	25 FEB 95-9L	25 FEB 95-9L
040706-0003-SA	AQUEOUS	S-A	28 FEB 95-1A	28 FEB 95-1A
040706-0003-SA	AQUEOUS	CL-IC-A	27 FEB 95-6A	-
040706-0003-SA	AQUEOUS	SO4-IC-A	27 FEB 95-6A	-
040706-0003-SA	AQUEOUS	TOC-A	25 FEB 95-9L	-
040706-0003-MS	AQUEOUS	PHEN-A	28 FEB 95-9D	28 FEB 95-9D
040706-0003-MS	AQUEOUS	TOX-A	28 FEB 95-9L	-
040706-0003-MS	AQUEOUS	CN-A	25 FEB 95-9L	25 FEB 95-9L
040706-0003-MS	AQUEOUS	S-A	28 FEB 95-1A	28 FEB 95-1A
040706-0003-MS	AQUEOUS	CL-IC-A	27 FEB 95-6A	-
040706-0003-MS	AQUEOUS	SO4-IC-A	27 FEB 95-6A	-
040706-0003-MS	AQUEOUS	TOC-A	25 FEB 95-9L	-
040706-0003-SD	AQUEOUS	PHEN-A	28 FEB 95-9D	28 FEB 95-9D
040706-0003-SD	AQUEOUS	TOX-A	28 FEB 95-9L	-
040706-0003-SD	AQUEOUS	CN-A	25 FEB 95-9L	25 FEB 95-9L
040706-0003-SD	AQUEOUS	S-A	28 FEB 95-1A	28 FEB 95-1A
040706-0003-SD	AQUEOUS	CL-IC-A	27 FEB 95-6A	-
040706-0003-SD	AQUEOUS	SO4-IC-A	27 FEB 95-6A	-
040706-0003-SD	AQUEOUS	TOC-A	25 FEB 95-9L	-

Quanterra Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
'nt Chemistry Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Limits	Precision (RPD) DCS	Limit
Category: PHEN-A Matrix: AQUEOUS QC Lot: 28 FEB 95-9D Concentration Units: mg/L								
Phenolics	0.200	0.178	0.169	0.174	87	78-122	5.2	20
Category: TOX-A Matrix: AQUEOUS QC Lot: 07 MAR 95-9L Concentration Units: ug Cl/L								
Total Organic Halogen as Cl	100	94.1	90.0	92.1	92	80-120	4.4	20
Category: CN-A Matrix: AQUEOUS QC Lot: 25 FEB 95-9L Concentration Units: mg/L								
Cyanide	0.194	0.186	0.177	0.182	94	70-115	5.0	21
Category: S-A Matrix: AQUEOUS QC Lot: 28 FEB 95-1A Concentration Units: mg/L								
Sulfide, Total	0.294	0.336	0.309	0.322	110	80-120	8.4	20
Category: CL-IC-A Matrix: AQUEOUS QC Lot: 27 FEB 95-6A Concentration Units: mg/L								
Chloride	200	208	209	208	104	90-110	0.5	10

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

Quanterra Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Wet Chemistry Analysis and Preparation (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: SO4-IC-A Matrix: AQUEOUS QC Lot: 27 FEB 95-6A Concentration Units: mg/L								
Sulfate	200	205	206	205	103	90-110	0.4	10
Category: TOC-A Matrix: AQUEOUS QC Lot: 25 FEB 95-9L Concentration Units: mg/L								
Total Organic Carbon	25.0	25.0	24.5	24.7	99	90-111	1.9	10
Category: TOX-A Matrix: AQUEOUS QC Lot: 28 FEB 95-9L Concentration Units: ug Cl/L								
Total Organic Halogen as Cl	100	97.4	95.7	96.6	97	80-120	1.8	20

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

Quanterra
Environmental Services

METHOD BLANK REPORT
''-t Chemistry Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: PHEN-SPEC-A Matrix: AQUEOUS QC Lot: 28 FEB 95-9D QC Run: 28 FEB 95-9D			
Phenolics	ND	mg/L	0.010
Test: CNTOT-TEC-A Matrix: AQUEOUS QC Lot: 25 FEB 95-9L QC Run: 25 FEB 95-9L			
Cyanide	ND	mg/L	0.010
Test: S-SPEC-AT Matrix: AQUEOUS QC Lot: 28 FEB 95-1A QC Run: 28 FEB 95-1A			
Sulfide, Total	ND	mg/L	0.050
Test: PHEN-SPEC-A trix: AQUEOUS Lot: 28 FEB 95-9D QC Run: 28 FEB 95-9D			
Phenolics	ND	mg/L	0.010
Test: CNTOT-TEC-A Matrix: AQUEOUS QC Lot: 25 FEB 95-9L QC Run: 25 FEB 95-9L			
Cyanide	ND	mg/L	0.010
Test: S-SPEC-AT Matrix: AQUEOUS QC Lot: 28 FEB 95-1A QC Run: 28 FEB 95-1A			
Sulfide, Total	ND	mg/L	0.050

Quanterra
Environmental Services

MATRIX SPECIFIC QC
ASSIGNMENT REPORT
Wet Chemistry Analysis and Preparation

QC SAMPLE TYPE	TEST	LABORATORY SAMPLE NUMBER	QC LOT
MATRIX SPIKE DUPLICATE	PHEN-SPEC-A	040706-0003-SD	28 FEB 95-9D
MATRIX SPIKE	PHEN-SPEC-A	040706-0003-MS	28 FEB 95-9D
MATRIX SPIKE DUPLICATE	TOX-TOX-A	040706-0003-SD	28 FEB 95-9L
MATRIX SPIKE	TOX-TOX-A	040706-0003-MS	28 FEB 95-9L
MATRIX SPIKE DUPLICATE	CNTOT-TEC-A	040706-0003-SD	25 FEB 95-9L
MATRIX SPIKE	CNTOT-TEC-A	040706-0003-MS	25 FEB 95-9L
MATRIX SPIKE DUPLICATE	S-SPEC-AT	040706-0003-SD	28 FEB 95-1A
MATRIX SPIKE	S-SPEC-AT	040706-0003-MS	28 FEB 95-1A
MATRIX SPIKE DUPLICATE	CL-IC-A	040706-0003-SD	27 FEB 95-6A
MATRIX SPIKE	CL-IC-A	040706-0003-MS	27 FEB 95-6A
MATRIX SPIKE DUPLICATE	SO4-IC-A	040706-0003-SD	27 FEB 95-6A
MATRIX SPIKE	SO4-IC-A	040706-0003-MS	27 FEB 95-6A
MATRIX SPIKE DUPLICATE	TOC-A	040706-0003-SD	25 FEB 95-9L
MATRIX SPIKE	TOC-A	040706-0003-MS	25 FEB 95-9L

Quanterra
Environmental Services

SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
We emistry Analysis and Preparation
Project: 040706

ategory: PHEN-A Phenolics
Matrix: AQUEOUS
ample: 040706-0003
Run: 28 FEB 95-9D
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
enolics	ND	0.15	0.17	0.20	0.20	75	84	78-122	11	20

ategory: TOX-A Total Organic Halogen
atrix: AQUEOUS
Sample: 040805-0005
Run: 07 MAR 95-9L
its: ug/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Organic Halogen as Cl	71	260	240	200	200	93	86	80-120	8.4	20

tegory: TOX-A Total Organic Halogen
atrix: AQUEOUS
Sample: 040706-0003
Run: 28 FEB 95-9L
its: ug/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
tal Organic Halogen as Cl	ND	120	130	100	100	125	132	80-120	5.4	20

ND = Not Detected

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

Quanterra
Environmental Services

' SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
W emistry Analysis and Preparation
Project: 040706 (cont.)

.ategory: CN-A Cyanide
Matrix: AQUEOUS
'ample: 040667-0003
S Run: 25 FEB 95-9L
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
yanide	ND	0.19	0.20	0.19	0.19	98	104	70-115	5.1	21

'ategory: S-A Sulfide
atrix: AQUEOUS
ample: 040706-0003
MS Run: 28 FEB 95-1A
'nits: mg/L

ıalyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
S de, Total	ND	0.30	0.29	0.29	0.29	101	98	80-120	3.1	20

Category: CL-IC-A Chloride by Ion Chromatography
Matrix: AQUEOUS
ample: 040706-0003
S Run: 27 FEB 95-6A
Units: mg/L

ıalyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Chloride	79	170	170	100	100	94	94	90-110	0.2	10

ND = Not Detected

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

Quanterra
Environmental Services

M[illegible]X SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
W[illegible]emistry Analysis and Preparation
P[illegible]ject: 040706 (cont.)

Category: SO4-IC-A Sulfate by Ion Chromatography
Matrix: AQUEOUS
S mple: 040706-0003
M Run: 27 FEB 95-6A
Units: mg/L

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS	MSD	% Recovery MS	MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Sulfate	120	220	220	100	100	94	96	90-110	1.1	10

(tegory: TOC-A Total Organic Carbon
Matrix: AQUEOUS
Sample: 040706-0003
M Run: 25 FEB 95-9L
U its: mg/L

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS	MSD	% Recovery MS	MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
[illegible] Organic Carbon	1.4	25	26	25	25	94	100	91-109	6.1	20

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

U.S. GEOLOGICAL SURVEY, WATER RE[illegible]URCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQU[illegible]/CHAIN OF CUSTODY

Project Name & Number Cannon Air Force Base, Ground Water Sampling (463536004)	PACKING AND SHIPPING DETAILS Packed and Sealed for Shipping by: H. E. Rogers Seal Number: 5
Sampling Location Landfill 5	Delivered to Shipper by: H. E. Rogers Airbill Number:
Team Leader Ralph Wilcox	Sampling Status: [X] Done [ ] Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
2/23/95	1315	CAFB-L-0295-1	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080,SW8150,SW9010,SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss.SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni,Ag,Na,Sn,V,Zn),SW7060, SW7421,SW7470,SW7740, SW7841	Environmental Sample 40706-6001

Additional Comments: VOC's are in cooler with AirBill #3436570966 seal #1 cooler #5/5

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt: [✓] Yes [ ] No
H. E. Rogers		2/23/95	1400	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents:
	[illegible]	2/24/95	0900		Contents Temperature: 2.1°, 1.9°, 1.8°, 1.7°, 2.1°
					Laboratory Project Number: 40706

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQUEST, CHAIN OF CUSTODY

Project Name & Number Cannon Air Force Base, Ground Water Sampling (463536004)	PACKING AND SHIPPING DETAILS Packed and Sealed for Shipping by: F. E. Proctor Seal Number: 1
Sampling Location Landfill 5	Delivered to Shipper by: F. E. Proctor Airbill Number: 3436570966
Team Leader Ralph Wilcox	Sampling Status: [X] Done [ ] Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
2/23/95	0930	CAFB-M-0295-1	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080, SW8150, SW9010, SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss, SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni, Ag, Na, Sn, V, Zn), SW7060, SW7421, SW7470, SW7740, SW7841	Environmental Sample 40706-0002
2/23/95	0800	CAFB-M-0295-2	ASTM-TYPE-II WATER	3	APX-IX-VOC, SW8240	TRIP BLANK 40706 0004

Additional Comments: All VOC's are in this cooler - Total of 5 coolers - This is 1/5

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt: [✓] Yes [ ] No
F. E. Proctor		2/23/95	1400	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents
	Anthony Turner	2/24/95	0900		Contents Temperature: 2.1°, 1.9°, 1.8°, 1.7°, 2.1°
					Laboratory Project Number: 40706

U.S. GEOLOGICAL SURVEY, WATER RE IRCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQU /CHAIN OF CUSTODY

Project Name & Number Cannon Air Force Base, Ground Water Sampling (463536004)	PACKING AND SHIPPING DETAILS Packed and Sealed for Shipping by: R. E. Reybal Seal Number: 2
Sampling Location Landfill 5	Delivered to Shipper by: R. E. Reybal Airbill Number:
Team Leader Ralph Wilcox	Sampling Status: [X] Done [ ] Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
2/23/93	1115	CAFB-I-0295-1	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080,SW8150,SW9010,SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss.SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni,Ag,Na,Sn,V,Zn),SW7060, SW7421,SW7470,SW7740, SW7841	Environmental Sample 40706-0003

Additional Comments: VOC's are in Air Bill # 3436570966 Seal # 1 cooler # 3/5

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt: [✓] Yes [ ] No
R. E. Reybal		2/23/93	1400	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents
	[illegible]	2/24/93	0900		Contents Temperature: 2.1°, 1.9°, 1.8°, 1.7°, 2.1°
					Laboratory Project Number: 40706

U.S. GEOLOGICAL SURVEY, WATER RE 'RCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQUE /CHAIN OF CUSTODY

Project Name & Number	PACKING AND SHIPPING DETAILS	
Cannon Air Force Base, Ground Water Sampling (463536004)	Packed and Sealed for Shipping by: F. E. Reybal	Seal Number: ~~Fo~~ 3
Sampling Location: Landfill 5	Delivered to Shipper by: F. E. Reybal	Airbill Number:
Team Leader: Ralph Wilcox	Sampling Status: [X] Done [ ] Continuing	

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
2/23/95	1115	CAFB-I-0295- 2	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080,SW8150,SW9010,SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss.SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni,Ag,Na,Sn,V,Zn),SW7060, SW7421,SW7470,SW7740, SW784	~~Environmental Sample~~ Matrix Spike 40706 - 6003-MS
		~~CAFB- -0295~~	~~ASTM-II-WATER~~			

Additional Comments: VOC's are in Air Bill # 3436570966 Seal #1 cooler # 3/5

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt: [✓] Yes [ ] No
F. E. Reybal		2/23/95	1400	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents:
	[illegible]	2/24/95	0900		Contents Temperature: 2.1°, 1.9°, 1.8°, 1.7°, 2.1°
					Laboratory Project Number: 4076

U.S. GEOLOGICAL SURVEY, WATER RF IRCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQU. ./CHAIN OF CUSTODY

Project Name & Number Cannon Air Force Base, Ground Water Sampling (463536004)	PACKING AND SHIPPING DETAILS Packed and Sealed for Shipping by: F. E. Boyd Seal Number: 4
Sampling Location Landfill 5	Delivered to Shipper by: F. E. Boyd Airbill Number:
Team Leader Ralph Wilcox	Sampling Status: [X] Done [ ] Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
2/23/95	1115	CAFB-I0295-3	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080,SW8150,SW9010,SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss.SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni,Ag,Na,Sn,V,Zn),SW7060, SW7421,SW7470,SW7740, SW7841	~~Environmental Sample~~ Matrix Spike Dup 40706-6003-SD

Additional Comments: VOCs are in Air Bill # 3436570966 Seal # 1 Cooler # 4/5

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt: [✓] Yes [ ] No
F. E. Boyd		2/23/95	1400	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents
	[illegible]	2/24/95	0900		Contents Temperature: 2.1°, 1.9°, 1.8°, 1.7°, 2.1°
					Laboratory Project Number: 40706

DODEC LABORATORY DATA REVIEW WORKSHEET

1.0 GENERAL INFORMATION

Data reviewer: BOB BROCK
Date of review: 3/23/95
Sample project number: 46758
Project name: CANNON AFB
Sample collection date: 2/23/95
Sample matrix and number: 6 AQUEOUS

Type and number of samples in project:

Type	Number
Environmental	3
Trip blank	
Equipment blank	
Ambient blank	
MS/MSD	2
Other	1

2.0 DATA REPORT

Date of Analytical Results Report: 3/16/95
Number of volumes in Raw Data Report: 1
Raw Data Report reviewed? Yes____ No X

Were all analyses requested on the COC form performed by the laboratory?
Yes X No____

If no, list cancelled analyses and reason for non-performance:

Were the samples properly preserved upon receipt by the laboratory?
Yes X No____

If no, list laboratory ID for samples that were not properly preserved.

3.0 ANALYTICAL METHODS

Analytical methods used in this project

_____	VOC by GC/MS (SW 8240, SW 8260, E524, E624)
_____	Halogenated VOC by GC (SW 8010)
_____	Aromatic VOC by GC (SW 8020)
_____	SVOC by GC/MS (SW 8270)
_____	PAH by HPLC (SW 8310)
_____	Organochlorine pesticides and PCB (SW 8080)
_____	Organophosphorous pesticides (SW 8140)
_____	Chlorinated herbicides (SW 8150)
X	Dioxins and Furans (SW 8280)
_____	Explosives (8330)
_____	TOC (E415.1 or SW 9060)
_____	TPH (E418.1)
_____	Oil and Grease (E413.2)
_____	TOX (SW9020)
_____	ICP screen for metals (SW 6010)
_____	ICP/MS screen for metals (SW 6020)
_____	Trace ICP screen for metals (SW 6010 modified)
_____	Antimony by GFAA (SW 7041)
_____	Arsenic by GFAA (SW 7060)
_____	Chromium (SW 7191 or 7196)
_____	Lead by GFAA (SW 7421)
_____	Mercury by CVAA (SW 7470 or 7471)
_____	Selenium by GFAA (SW 7740)
_____	Thallium by GFAA (SW 7841)
_____	Inorganic anions (E300.0)
_____	Alkalinity (310.1)
_____	Cyanide, total and amenable (SW 9010/9012)
_____	Nitrogen, ammonia (E350.1)
_____	Nitrogen, TKN (E351.2)
_____	Nitrogen, nitrate (E353.2)
_____	Nitrogen, nitrate plus nitrite (E353.2)
_____	Nitrogen, nitrite (E354.1)
_____	Phosphorous, total or ortho (E365.3)
_____	Sulfate (E375.4)
_____	Sulfide (E376.2)
_____	TDS (E160.1)
_____	pH (SW 9040 or 9045)
_____	Percent moisture (D2216)
_____	Gross alpha and gross beta radioactivity (SW 9310)
_____	Alpha-emitting radium isotopes (SW 9315)
_____	Radium-228 (SW 9320)
_____	Uranium (908.1)
_____	Other analyses : _____

Were analytical holding times met? Yes X No _____

If no, list analytical method and laboratory ID for samples that exceeded holding time:

_____
_____
_____
_____
_____
_____

Did surrogate recoveries meet QC acceptance criteria? NA
Yes_____ No _____

If no, list analytical method, laboratory ID, and surrogates that did not meet acceptance criteria:

_____
_____
_____
_____
_____

Did actual reporting limits meet project detection limits? NA
Organic analyses : Yes_____ No_____

If no, list analytical method, laboratory ID, and reason for non-conformance:

_____
_____
_____
_____
_____
_____

Inorganic analyses: Yes_____ No_____ NA

Reporting limits for GFAA metals and inorganic anions may be raised when: (1) sample concentrations exceed the instrument linear range and (2) target analytes are subject to matrix interferences. Reporting limits for ICP metals and mercury by CVAA are typically only raised when the sample concentration exceeds the instrument linear range.

Did DCS meet QC acceptance criteria? Yes X No_____

If no, list analytical method, laboratory ID, and reason for non-conformance:

_____
_____
_____
_____
_____
_____

Did SCS meet QC acceptance criteria? Yes_____ No_____ NA

If no, list analytical method, laboratory ID, and reason for non-conformance:

Were any target compounds found in the method, trip, equipment, or ambient blanks above the RL? Yes _____ No X

If yes, list the analytical method, laboratory ID, type of blank and compound:

Did the MS/MSD meet QC acceptance criteria? Yes X No____

MS/MSD data are used to evaluate the effect of the sample matrix on the analytical process and should only be used in conjunction with other available laboratory QC information to evaluate precision and accuracy.

If no, list the analytical method, laboratory ID, and reason for non-comformance :

Additional comments:

ASSOCIATED SAMPLES ARE IN PROJECT 46708

IV. QUALITY CONTROL REPORT

Quanterra Environmental Services, Denver operates under a vigorous QA/QC program designed to ensure the generation of scientifically valid, legally defensible data by monitoring every aspect of laboratory operations. Routine QA/QC procedures include the use of approved methodologies, independent verification of analytical standards, use of duplicate Laboratory Control Samples to assess the precision and accuracy of the methodology on a routine basis, and a rigorous system of data review.

The standard laboratory QC package is designed to:

1) establish a strong, cost-effective QC program that ensures the generation of scientifically valid, legally defensible data

2) assess the laboratory's performance of the analytical method using control limits generated with a well-defined matrix

3) establish clear-cut guidelines for acceptability of analytical data so that QC decisions can be made immediately at the bench, and

4) provide a standard set of reportables which assures the client of the quality of his data.

Quanterra Environmental Services, Denver laboratory's QC program is based upon monitoring the precision and accuracy of an analytical method by analyzing a set of Duplicate Control Samples (DCS) at frequent, well-defined intervals. Each DCS is a well-characterized matrix which is spiked with target compounds at 5-100 times the reporting limit, depending upon the methodology being monitored. The purpose of the DCS is not to duplicate the sample matrix, but rather to provide an interference-free, homogeneous matrix from which to gather data to establish control limits. These limits are used to determine whether data generated by the laboratory on any given day is in control.

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery +/- 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results)

to the average, historical relative percent difference + 3 standard deviation units. These control limits are fairly narrow based on the consistency of the matrix being monitored and are updated on a quarterly basis. For each batch of samples analyzed, an additional control measure is taken in the form of a Single Control Sample (SCS). The SCS consists of a control matrix that is spiked with surrogate compounds appropriate to the method being used. In cases where no surrogate is available, (e.g., metals or conventional analyses) a single DCS serves as the control sample. An SCS is prepared for each sample lot for which the DCS pair are not analyzed. The recovery of the SCS is charted in exactly the same manner as described for the DCS, and provides a daily check on the performance of the method.

Accuracy for DCS and SCS is measured by Percent Recovery:

$$\% \text{ Recovery} = \frac{\text{Measured Concentration}}{\text{Actual Concentration}} \times 100$$

Precision for DCS is measured by Relative Percent Difference (RPD):

$$\text{RPD} = \frac{\left| \text{Measured Concentration DCS1} - \text{Measured Concentration DCS2} \right|}{(\text{Measured Concentration DCS1} + \text{Measured Concentration DCS2})/2} \times 100$$

All samples analyzed concurrently by the same test are assigned the same QC lot number. Projects which contain numerous samples, analyzed over several days, may have multiple QC lot numbers associated with each test. The QC information which follows includes a listing of the QC lot numbers associated with each of the samples reported, DCS and SCS (where applicable) recoveries from the QC lots associated with the samples, and control limits for these lots. The QC data is reported by test code, in the order that the tests are reported in the analytical results section of this report.

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040758-0001-SA	AQUEOUS	DXNFUR-A	02 MAR 95-A	-
040758-0001-MB	AQUEOUS	DXNFUR-A	02 MAR 95-A	-
040758-0002-SA	AQUEOUS	DXNFUR-A	02 MAR 95-A	-
040758-0003-SA	AQUEOUS	DXNFUR-A	02 MAR 95-A	-
040758-0003-MS	AQUEOUS	DXNFUR-A	02 MAR 95-A	-
040758-0003-SD	AQUEOUS	DXNFUR-A	02 MAR 95-A	-

Quanterra Environmental Services

DUPLICATE CONTROL SAMPLE REPORT

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 02 MAR 95-A								
Concentration Units: ng/sample								
2,3,7,8-TCDF	10	9.87	10.4	10.1	101	62-129	5.2	18
2,3,4,7,8-PeCDF	10	8.71	10.5	9.60	96	51-132	19	24
1,2,3,4,7,8-HxCDF	10	10.0	10.5	10.2	103	50-146	4.9	41
1,2,3,4,6,7,8-HpCDF	10	10.7	11.7	11.2	112	50-150	8.9	50
OCDF	50	53.6	57.1	55.4	111	50-150	6.3	28
2,3,7,8-TCDD	10	8.54	9.42	8.98	90	57-128	9.8	20
1,2,3,7,8-PeCDD	10	8.73	11.0	9.86	99	80-125	23	25
1,2,3,4,7,8-HxCDD	10	10.0	10.4	10.2	102	64-127	3.9	23
1,2,3,4,6,7,8-HpCDD	10	9.66	10.5	10.1	101	60-131	8.3	23
OCDD	50	44.2	48.9	46.6	93	50-147	10	20

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

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
Method 8280

Client Name: U.S. Geological Survey
Client ID: METHOD BLANK
Lab ID: 040758-0001-MB
Matrix: AQUEOUS Sampled: NA Received: NA
Authorized: 27 FEB 95 Prepared: 03 MAR 95 Analyzed: 09 MAR 95

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.38	
PeCDFs (total)	ND	ng/L	0.26	
HxCDFs (total)	ND	ng/L	0.55	
Dioxins				
TCDDs (total)	ND	ng/L	0.33	
2,3,7,8-TCDD	ND	ng/L	0.33	
PeCDDs (total)	ND	ng/L	0.66	
HxCDDs (total)	ND	ng/L	0.61	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: EUEBELHOER

Quanterra
Environmental Services

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
Method 8280

Client Name: U.S. Geological Survey
Client ID: METHOD BLANK
Lab ID: 040758-0001-MB
Matrix: AQUEOUS Sampled: NA Received: NA
Authorized: 27 FEB 95 Prepared: 03 MAR 95 Analyzed: 09 MAR 95

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	62.9
13C-2,3,7,8-TCDD	63.7
13C-1,2,3,7,8-PeCDD	70.5
13C-1,2,3,6,7,8-HxCDD	66.7
13C-1,2,3,4,6,7,8-HpCDD	65.0
13C-OCDD	57.9

ND = Not detected
NA = Not applicable

Reported By: TVERGARA Approved By: EUEBELHOER

Quanterra
Environmental Services

MATRIX SPECIFIC QC
ASSIGNMENT REPORT

QC SAMPLE TYPE	TEST	LABORATORY SAMPLE NUMBER	QC LOT
MATRIX SPIKE DUPLICATE	ISODXNFUR-A	040758-0003-SD	02 MAR 95-A
MATRIX SPIKE	ISODXNFUR-A	040758-0003-MS	02 MAR 95-A

Quanterra Environmental Services

MATRIX SPIKE / MATRIX SPIKE DUPLICATE REPORT

Analyte	Sample	Concentration Matrix Spike	Concentration Matrix Spike Dup	Spiked MS	Spiked MSD	%Recovery MS	%Recovery MSD	% RPD
Test: ISODXNFUR-A								
Matrix AQUEOUS								
Sample: 040758-0003								
Units: ng/L								
TCDFs (total)	ND	10	9.2	10	10	100	92	8
PeCDFs (total)	ND	8.5	8.5	10	10	85	85	1
HxCDFs (total)	ND	10	10	10	10	104	101	3
HpCDFs (total)	ND	9.8	9.6	10	10	98	96	1
OCDF	ND	49	50	50	50	98	100	2
TCDDs (total)	ND	8.9	8.8	10	10	89	88	1
PeCDDs (total)	ND	8.9	9.0	10	10	89	90	2
HxCDDs (total)	ND	9.0	9.1	10	10	90	91	1
HpCDDs (total)	ND	9.2	9.1	10	10	92	91	1
OCDD	ND	43	44	50	50	87	89	3

ND = Not detected
NC = Not calculated, calculation not applicable

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

U.S. GEOLOGICAL SURVEY, WATER R[illegible] URCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQU[illegible]T/CHAIN OF CUSTODY

Project Name & Number Cannon Air Force Base, Ground Water Sampling (463536004)	PACKING AND SHIPPING DETAILS Packed and Sealed for Shipping by: H. E. Roybal Seal Number: 5
Sampling Location Landfill 5	Delivered to Shipper by: H. E. Roybal Airbill Number:
Team Leader Ralph Wilcox	Sampling Status: [X] Done [ ] Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
2/23/95	1315	CAFB-L-0295-1	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080,SW8150,SW9010,SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss.SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni,Ag,Na,Sn,V,Zn),SW7060, SW7421,SW7470,SW7740, SW7841	Environmental Sample -01

Additional Comments: VOC's are in cooler with AirBill #3436570966 seal #1 cooler #5/5

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt [ ] Yes [ ] No
H. E. Roybal		2/23/95	1400	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents
	Ralph Wilcox	2/24/95	0900		Contents Temperature
					Laboratory Project Number: 407~~56~~58

U.S. GEOLOGICAL SURVEY, WATER R[illegible]URCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQU[illegible]T/CHAIN OF CUSTODY

Project Name & Number Cannon Air Force Base, Ground Water Sampling (463536004)	PACKING AND SHIPPING DETAILS Packed and Sealed for Shipping by: F. E. Roybal Seal Number: 1
Sampling Location Landfill 5	Delivered to Shipper by: F. E. Roybal Airbill Number: 3436570966
Team Leader Ralph Wilcox	Sampling Status: [X] Done [ ] Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
2/23/95	0930	CAFB-M-0295-1	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080,SW8150,SW9010,SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss.SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni,Ag,Na,Sn,V,Zn),SW7060, SW7421,SW7470,SW7740, SW7841	Environmental Sample -02
2/23/95	0800	CAFB-M-0295-2	ASTM-TYPE-II WATER	3	APX-IX-VOC, SW8240	TRIP BLANK

Additional Comments: All VOC's are in this cooler - Total of 5 coolers - This is 1/5

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt [ ] Yes [ ] No
F. E. Roybal		2/23/95	1400	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents
	Anthony Turner	2/24/95	0900		Contents Temperature
					Laboratory Project Number: 40758

U.S. GEOLOGICAL SURVEY, WATER R[illegible]URCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQ[illegible]T/CHAIN OF CUSTODY

Project Name & Number Cannon Air Force Base, Ground Water Sampling (463536004)	PACKING AND SHIPPING DETAILS Packed and Sealed for Shipping by: R. E. Reybal Seal Number: 2
Sampling Location Landfill 5	Delivered to Shipper by: R. E. Reybal Airbill Number:
Team Leader Ralph Wilcox	Sampling Status: [X] Done [ ] Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
2/23/93	1115	CAFB-1-0295-1	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080,SW8150,SW9010,SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss.SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni,Ag,Na,Sn,V,Zn),SW7060, SW7421,SW7470,SW7740, SW784[illegible]	Environmental Sample -03

Additional Comments: VOC's are in Air Bill # 3436570966 Seal # 1 cooler # 2/5

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt [ ] Yes [ ] No
R. E. Reybal		2/23/93	1400	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents
	[illegible]	2/24/93	0900		Contents Temperature
					Laboratory Project Number: 40758

U.S. GEOLOGICAL SURVEY, WATER F URCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQUEST/CHAIN OF CUSTODY

Project Name & Number: Cannon Air Force Base, Ground Water Sampling (463536004)	PACKING AND SHIPPING DETAILS
	Packed and Sealed for Shipping by: R. E. Pugsley
	Seal Number: ~~Ea~~ 3
Sampling Location: Landfill 5	Delivered to Shipper by: R. E. Pugsley
	Airbill Number:
Team Leader: Ralph Wilcox	Sampling Status: [X] Done [ ] Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
2/23/95	1115	CAFB-I-0295- 2	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080,SW8150,SW9010,SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss.SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni,Ag,Na,Sn,V,Zn),SW7060, SW7421,SW7470,SW7740, SW7841	~~Environmental Sample~~ Matrix Spike -03ms
		~~CAFB- -0295~~	~~ASTM-II-WATER~~			

Additional Comments: VOC's are in Air Bill # 3436570966 seal #1 cooler # 3/5

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt: [ ] Yes [ ] No
R. E. Pugsley		2/23/95	1400	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents
	[signature]	2/24/95	0900		Contents Temperature
					Laboratory Project Number: 40758

U.S. GEOLOGICAL SURVEY, WATER R' 'URCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQ. .T/CHAIN OF CUSTODY

Project Name & Number	PACKING AND SHIPPING DETAILS	
Cannon Air Force Base, Ground Water Sampling (463536004)	Packed and Sealed for Shipping by: [illegible]	Seal Number: 4
Sampling Location: Landfill 5	Delivered to Shipper by: [illegible]	Airbill Number:
Team Leader: Ralph Wilcox	Sampling Status: ☒ Done ☐ Continuing	

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
2/23/95	1115	CAFB-I-0295-3	Ground water	18	SW8240, E415.1, SW9065, SW9020, SW8270, Apx-IX-Dioins, SW8080,SW8150,SW9010,SW9030, E300(Cl,So4), Apx-IX- ICP Metals-Total & Diss.SW6010 (Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Mn, Ni,Ag,Na,Sn,V,Zn),SW7060, SW7421,SW7470,SW7740, SW7841	~~Environmental Sample~~ Matrix Spike Dup -0350

Additional Comments: VOCs are in Air Bill # 3436570966 Seal # 1 Cooler # 4/5

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt ☐ Yes ☐ No
[illegible]		2/23/95	1400	Quanterra Environmental Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Lindsay Breyer or Grant Wilton	Condition of Contents
	[illegible]	2/24/95	0900		Contents Temperature
					Laboratory Project Number: 40758

INTERLAB(;ORY
CHAIN OF CUSTODY

ENSECO
A Corning Company

OF

SHIP TO: Quantera - Sacramento

ATTENTION: Robert Hrubah

SEND RESULTS TO: Quantera - Denver

ATTENTION: Grant Wilton

ANALYTICAL REQUESTS: ISDONHW

EXPORT ID	SAMPLE CONDITION UPON RECEIPT	COMMENTS
40758 - 01		
-02		
-03		
-03MS		
-03SD		

TEST PRICE	
SUBTOTAL	
DISCOUNT / SURCHARGE	
TOTAL	

*SPECIAL INSTRUCTIONS

WRITTEN RESULTS REQUIRED BY (DATE) | VERBAL/FAC RESULTS REQUIRED BY (DATE) | P.O. No.

Q.C. ☒ STANDARD ENSECO ☐ CLP PROTOCOL ☐ PROJECT SPECIFIC

SAMPLE DISPOSAL ☒ ENSECO ☐ RETURN TO CLIENT ☐ PHONE

DETECTION LIMITS ☐ COMMON PRODUCTS ☒ OTHER*

HOLDING TIMES ☒ ENSECO ☐ EPA-CLP ☐ TIER ☐ OTHER*

RAW DATA COPIES NEEDED ☒ YES ☐ NO

CUSTODY SEALS INTACT ☒ YES ☐ NO | ☐ WET WEIGHT ☐ DRY WEIGHT

RELINQUISHED: [signature] DATE / TIME: 2/27/95

RECEIVED: RJ Bonaly DATE / TIME: 030195 12:00

Receipt condition: good, t = 7°C

ENS—1109

IMPORT COPY

RJB 030195

CANNON AFB RECORD

7530-00-222-3525
FEDERAL SUPPLY SERVICE
(GPO)

Parameters	Bottle Size and Type	Preservatives
Appendix-IX, Volatile Organic Compounds SW8240	Three 40 ml glass vials	200 ul 50 % Hydrochloric Acid
Appendix-IX, Semivolatile Compounds SW8270	Two 32 oz. amber glass	None
Appendix-IX, Pesticides SW8080	Two 32 oz. glass	None
Appendix-IX, Herbicides SW8150	32 oz. glass	None
Dioxines / Furans SW8280	Two 32 oz. amber glass	None
Total Organic Halogen SW9020	32 oz. amber glass	4 ml 50% Sulfuric Acid
Total Organic Carbon E415.1	16 oz. glass	2 ml 50% Sulfuric Acid
Appendix-IX, Metals, total and dissolved SW6010, SW7060, SW7421, SW7470, SW7740, SW7841	16 oz. poly	10 ml 20% Nitric Acid
Phenols SW9065	16 oz. glass	2 ml 50% Sulfuric Acid
Cyanide SW9012	8 oz. poly	2 ml 50% Sodium Hydroxide
Chloride, and Sulfate E300.0	32 oz. poly	None
Sulfide E376.2	8 oz. poly	1 ml in Zinc Acetate, plus 1 ml 50% Sodium Hydroxide

02-22-95

Field crew: Ralph Wilcox - purge measurements and note taking
Miko Roybal - sample bottle prep.
Fred Gebhardt - well purging

0900 Arrived @ well A Landfill 5 after checking in with John Constantine. Constantine requested that the survey check with Bennett Pumps to see if there is some periodic maintanance to prolong the life of their pumps.

0905 Measured 0.0 ppm w/ Tip inside well casing.
0918 Measured w.l. with Solinst (W-457118) from top of PVC disk w/ Bennett Pump fittings @ 271.73 ft.; T.D. is ~~365~~ 343 ft
0945 Calibrated meters: Conductivity (Hach, W-493925) @ 774 µS/cm, after initial reading of 790 µS/cm; pH (Orion 250A, W 493926) auto calibration @ 7.00 and 10.00, post cal. readings 7.12 and 10.05, slope 100.8; checked turbidity standards (Hach, W-584527), all within 5% of ~~actual~~ standard value.
~~94~~ 72 ft of water standing in well, 0.66 gal/ft → 4 in i.d. casing, 1 well volume = ~~34~~ 48 gal, 3 well vol. = ~~94~~ 150 gal
0950 Began purging well A

02-22-95 (continued)

time	vol.	temp.	turb.	pH	cond.
0950	1 gal	17°C	38.5 NTU	7.13	640 µS/cm
0953	10	18	1.21	7.38	657
0959	21	18	1.00	7.61	659
1005	31	18	0.46	7.74	657
1011	41	18	0.37	7.79	658
1018	51	18	0.36	7.80	658
1025	61	18	0.39	7.82	658
1030	71	18	0.39	7.84	658
1037	81	18	0.75	7.83	659
1048	91	18	0.70	7.85	658 ← Discharge less, well w.l. drawndown to pump level.
1059	101	18	0.55	7.86	658

Stopped purging well @ 1103 after emptying N_2 tank; 110 gal purged.

1130 Resumed purging well A.

1137	117	18.5	0.65	7.86	657	← Discharge less, well w.l. drawndown to pump level.

1150 Collected env. sample CAFB-A-0295-2

1200 Collected duplicate env. sample CAFB-A-0295-3. Trip blank CAFB-A-0295-1 @ 0945. Env. samples analyzed for Appendix IX constituents this round.

Fred Gebhardt notified John Constantines that the procedure for disposing of bailed water @ wells w/ no surface tanks was to pour it on the ground, as directed by his predecessor.

02-22-95 (continued)

1225 Arrive @ well B. Measured 0.0 ppm inside casing w/ Tip. No well cap over top of casing.

1238 Measured w.l. from top of casing w/ Solinst (W-457118) 276.26 ft. T.D. is 362.3 ft. Tagged base of well w/ Solinst 364.5 ft. ~88 feet of water standing in well, 0.66 gal/lin ft of 4 in i.d. casing, 1 well volume = ~60 gal, 3 well volumes = ~ 180 gal

1330 Flushed 33 gal. of New Mexico District deionized water through trailer mounted Bennett pump (Larson's). Followed District d.i. w/ 5 gal of ultra pure blank water. Collected equipment blank CAFB-A-0295-2 after 33 gal discharge from sampling end of Bennett; followed ultrapure w/ more district d.i. Lowered Bennett to approximately 310 ft in well. Counter on Bennett not accurate, w.l. indicator on pump sounded @ 266 ft.

1400 Began purging well A. First 11 gal. are district d.i.

time	vol.	temp.	turb.	pH	cond.
1414	1 gal	20°C	11.1 NTU	7.71	775 µS/cm
1423	11	19.5	14.5	7.75	780
1430	21	19.5	16.8	7.77	777
1438	31	19.5	15.7	7.79	773
1445	41	19	12.7	7.80	773
1453	51	19	9.71	7.80	773
1500	61	19	6.94	7.79	772
1509	71	19	5.79	7.80	772
1516	81	19	4.79	7.79	772

02-22-95 (continued)

purging well B continued

time	vol.	temp.	turb.	pH	cond.
1524	91	19	3.81	7.80	773
1534	101	19	3.26	7.78	772
1543	111	19	3.01	7.80	774
1552	121	19	2.35	7.80	772

1555 Rechecked conductivity standard (774 µS/cm); reading 739 µS/cm. Rechecked pH standards 7.00 reading 7.08; 10.00 reading 10.05.

1600 Collected env. sample, CAFB-B-0295-~~X~~1

02-23-95

Field Crew: same as 02-22-95

0750 Arrive @ well M Landfill 5.
0757 Measured inside well casing w/ Tip 0.0 ppm.
0800 Trip blank CAFB-M-0295-2.
0801 Measured w.l. w/ Solinst (W-457118) 276.55 ft below top of PVC disk w/ Bennett pump fittings.

Calibrated meters: ~~Conductivity~~ (Hach, W493925) @ 774 ~~after initially reading 779~~; pH (Orion 250A, W-493926) auto. calibration at 7.00 and 10.00, slope 103.3; post cal. readings 7.06 and 10.03; checked turbidity standards (Hach, W-584527), all within 5% of standard value; Conductivity meter (Hach, W493925) could only adjust meter down to ~~0829~~ 779 µS/cm w/ a standard of 774 µS/cm.

0829 Began purging well M.

time	vol.	temp.	turb.	pH	cond.
0830	1 gal	16.0°C	7.93 NTU	6.53	770 µS/cm
0836	11	17.0	47.2	6.77	853
0839	16	17.0	20.8	6.93	863

0842 Stopped purging after emptying N_2 tank.
0852 Restarted purging.

0857	25	17	11.5	7.18	846	← [stopped purging, well dried up.

0914 Began purging again.

0916	26	17	6.18	7.11	829	← [stopped purging, well dried up.

0930 Began collecting env. sample CAFB-M-0295-1.

02-23-95 (continued)

1000 Arrive @ well I. Measured inside casing w/ Tip 0.0 ppm. 277.06 w.l. measured w/ Solinst (W-457118) below top of PVC disk w/ Bennett pump fittin T.D. 293.3 ft. ~16 ft of water standing in well, 1.5 gal/lin.ft (6in i.d. casing), 1 well volume = 24 gal, 3 well volumes = 72 gal.

1015 Began purging well I.

time	vol.	temp.	turb.	pH	cond.
1015	1 gal.	17°C	0.70 NTU	7.47	787 µS/cm
1021	11	17.5	1.39	7.51	828
1028	21	17.5	2.37	7.59	831
1034	31	17.5	1.76	7.61	824
1041	41	18	1.44	7.62	820
1048	51	17.5	1.23	7.62	818
1055	61	18	1.17	7.62	818
1103	71	18	1.05	7.62	818

1115 Collected env. sample CAFB-I-0295-1, Matrix Spike sample CAFB-I-0295-2, and Matrix Spike Duplicate sample CAFB-I-0295-3.