CAFB 98

DEPARTMENT OF THE AIR FORCE

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

20 MAY 1998

Colonel James A. Thomas III
Commander, 27th Support Group
110 E Sextant Avenue Suite 1098
Cannon AFB NM 88103-5323

ENTERED

Mr. Benito J. Garcia, Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo Street
P O Box 26110
Santa Fe NM 87502

Dear Mr. Garcia

Attached for your review and approval are the latest Groundwater Monitoring Results for Landfill 3 (SWMU 105), Landfill 4 (SWMU 104), and Landfill 25 (SWMU 97). Concentrations of Nickel in the groundwater at Landfill 25 exceeded the Maximum Contaminant Level (MCL) according to these latest sampling results. Cannon Air Force Base (AFB) will continue to monitor the well at this location for any indications of increasing contaminant levels.

If you have any questions, please call Mr. Sanford Hutsell of my Environmental Flight, at (505) 784-6378.

Sincerely

James A. Thomas III

JAMES A. THOMAS III, Colonel, USAF

Attachment:
Groundwater Monitoring Report

cc:
NMED w/o Atch (C. Will)
NMED GW Bureau (J. Jacobs)
EPA Region VI (D. Neleigh)
HQ ACC CES/CEVR w/o Atch (M. Patterson)

BRARY COPY

FINAL

THIRD QUARTERLY MONITORING WELL R FINAL SEMIANNUAL MONITORING WELLS N AND O DECEMBER 1997 SAMPLING EVENT

LONG-TERM MONITORING LANDFILL NOs. 3 (SWMU 105), 4 (SWMU 104), AND 25 (SWMU 97)

CANNON AIR FORCE BASE
Clovis, New Mexico

Contract Number DACW45-94-D-0031
Project Number 96-333

Prepared for
U.S. Army Corps of Engineers
Omaha District

Prepared by
Foothill Engineering Consultants, Inc.
350 Indiana Street, Suite 415
Golden, Colorado 80401
(303) 278-0622

March 1998

FINAL

THIRD QUARTERLY MONITORING - WELL R
FINAL SEMIANNUAL MONITORING - WELLS N AND O
DECEMBER 1997 SAMPLING EVENT

LONG-TERM MONITORING

LANDFILL NOs. 3 (SWMU 105), 4 (SWMU 104), AND 25 (SWMU 97)

CANNON AIR FORCE BASE
Clovis, New Mexico

March 1998

EXECUTIVE SUMMARY

This report summarizes analytical data obtained from sampling of monitoring wells located at Cannon Air Force Base near Clovis, New Mexico (Figure 1). During the December 9, 1997 sampling event, monitoring wells N, O, and R were sampled using dedicated pumps that had previously been installed in each well. Well R is sampled on a quarterly basis and is located downgradient of Landfill 25. Monitoring wells N and O are sampled semiannually and are located downgradient of Landfill 4 and Landfill 3, respectively (Figure 2). The sampling schedule is set up so the quarterly and semiannual sampling events coincide.

The December 1997 sampling event represented the second of two semiannual sampling events of wells N and O and the third quarterly sampling event of well R. Included with this report are the Annual Summary Reports for Assessment Monitoring of wells N and O and an Assessment Monitoring Quarterly Report for well R.

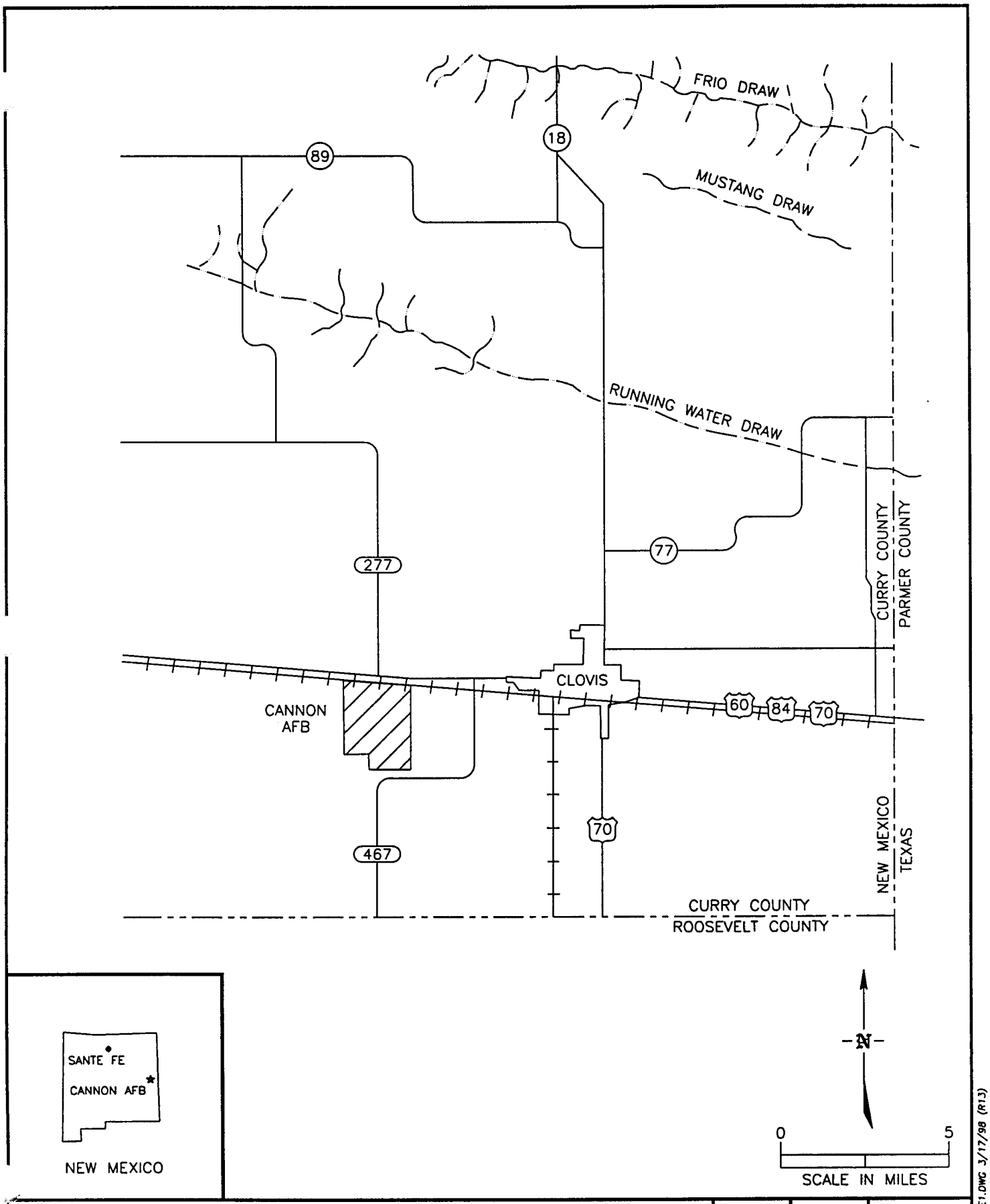
During the December 1997 sampling event, a field duplicate sample and a field split sample were collected for quality assurance and quality control (QA/QC) purposes. The duplicate and split samples were collected from well O. Groundwater samples collected from each of the three wells were analyzed for the parameters listed below. The corresponding analytical method used for analysis is also specified. Concentrations of detected analytes are summarized in Tables 1 and 2.

- Appendix IX VOCs, SW-846 Method 8260A
- Appendix IX SVOCs, SW-846 Method 8270B
- Dioxin - 2, 3, 7, 8-TCDD, SW-846 Method 8280
- Appendix IX Pesticides/PCBs, SW-846 Method 8081
- Appendix IX Herbicides, SW-846 Method 8150
- Appendix IX Metals, SW-846 Method 6010/7000s
- Cyanide, SW-846 Method 9012
- Sulfide, SW-846 Method 9030
- Total Organic Carbon, SW-846 Method 9060
- Nitrate, EPA 300.0
- Total Organic Halides, SW-846 Method 9020

Field forms completed for the December 1997 sampling event are contained in Appendix I. Analytical results and associated QC data, as reported and submitted by Quanterra

Environmental Services, are presented in Appendix II. A data assessment summary is included as Appendix III. The summary contains a discussion of QC criteria that were used to evaluate groundwater samples CAFB-1297-MWN-1, CAFB-1297-MWO-1, CAFB-1297-MWO-2 (field duplicate), and CAFB-1297-MWR-1.

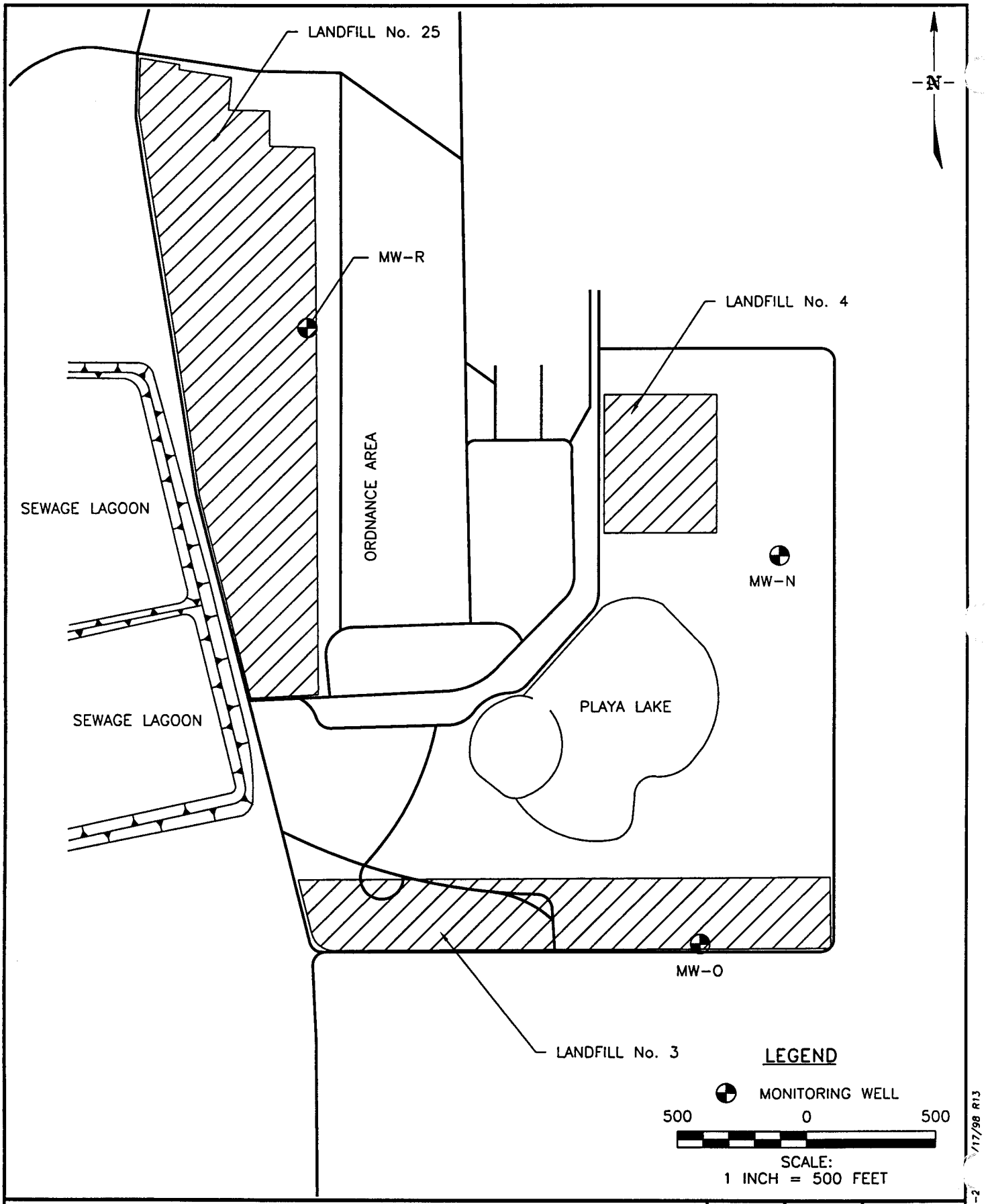
Analytical results obtained for the December 1997 sampling event are consistent with results obtained during previous sampling events. Several VOCs were detected at concentrations below reporting limits in samples collected from wells O and R. Also, various metal analytes were detected at trace levels in samples collected from monitoring wells N, O, and R (see Tables 1 and 2). Nickel was detected in well R at concentrations of 0.47 mg/L which exceeds New Mexico water quality standards of 0.20 mg/L.



FEC
FOOTHILL ENGINEERING CONSULTANTS, INC.

FIGURE 1 SITE LOCATION MAP CANNON AIR FORCE BASE	DATE:	SCALE:	DRAWN BY:
	3/98	SHOWN	SHN

96-333\FIGURE1.DWG 3/17/98 (R13)



FEC FOOTHILL ENGINEERING CONSULTANTS, INC.	FIGURE 2 MONITORING WELL LOCATIONS MAP CANNON AIR FORCE BASE	DATE: 3/98	SCALE: 1"=500'	DRAWN BY: SHN

96-333\FIGA-1-2 /17/98 R13

Table 1. Groundwater Sample Results Summary - December 1997
Quarterly Groundwater Sampling - Monitoring Wells N, O, and R
Cannon Air Force Base, Clovis, New Mexico

Sample ID/Analyte	CAFB-1297-MWN-1	CAFB-1297-MWO-1	CAFB-1297-MWO-2*	CAFB-1297-MWR-1	EPA MCLs	New Mexico State Standards
Reporting Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Arsenic SW-846 7060	0.0043 J	0.0028J	ND	ND	0.05	0.1
Barium-SW-846 6010	0.062	0.054	0.053	0.060	2.0	1.0
Beryllium SW-846 6010	ND	0.0013J	ND	ND	0.004	-----
Chromium SW-846 6010	ND	ND	ND	0.049	0.10	0.05
Cobalt SW-846 6010	0.0054 J	ND	ND	0.0048J	-----	0.05
Copper SW-846 6010	ND	0.0046J	0.0034 J	0.0053J	1.3	1.0
Nickel-SW-846 6010	ND	ND	ND	0.47	-----	0.2
Selenium SW-846 7740	0.0063	0.0030J	ND	0.0050	0.05	0.05
Vanadium-SW-846 6010	0.022	0.019	0.015	0.012	-----	-----
Cyanide-SW-846 9012	ND	ND	ND	ND	0.2	0.2
Nitrate EPA 300.0	2.6	8.3	8.4	4.9	10.0	10.0
Sulfide SW-846 9030	2.1	2.4	1.9	2.4	-----	
TOC-SW-846 9060	0.92 J	1.5	1.6	1.1	-----	-----

Note: All samples collected on December 9, 1997; see Appendix II for reporting limits and method detection limits for all analytes.
* = sample is a field duplicate sample of sample CAFB-1297-MWO-1
----- = no MCL established for this analyte
J = result is below the reporting limit; value is an estimated quantity
MCL = maximum contaminant level
ND = analytes not detected above reporting limits

Table 2. Groundwater Sample Results Summary - December 1997
Quarterly Groundwater Sampling - Monitoring Wells N, O, and R
Cannon Air Force Base, Clovis, New Mexico

Sample ID/Analyte	CAFB-1297-MWN-1	CAFB-1297-MWO-1	CAFB-1297-MWO-2*	CAFB-1297-MWR-1	EPA MCLs	New Mexico State Standards
Reporting Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Carbon tetrachloride	ND	0.51J	ND	ND	5.0	0.01
Chloroform	ND	0.39J	0.36J	0.19J	100	0.01
Isobutyl alcohol	ND	ND	4.6J	ND	-----	-----
Methylene chloride	ND	ND	0.15 UB	0.19 UB	5.0	0.01
Trichloroethene	ND	0.10J	ND	0.11J	5.0	0.01
AP IX SVOCs - SW-846 8270B	ND	ND	ND	ND	NA	-----
AP IX Herbicides- SW-846 8150	ND	ND	ND	ND	NA	-----
AP IX Organochlorine Pesticides/PCBs- SW-846 8081	ND	ND	ND	ND	NA	-----
TOX-SW-846 9020	13.8 J	16.7 J	21.9 J	26.4J	-----	-----
Dioxin-2, 3, 7, 8-TCDD-SW-846 8280	ND	ND	ND	ND	3.0×10^{-11}	-----

Note: All samples collected on December 9, 1997; see Appendix II for reporting limits and method detection limits for all analytes.
* = sample is a field duplicate sample of sample CAFB-1297-MWO-1
----- = no MCL listed for this analyte
J = result is below the reporting limit; value is an estimated quantity
MCL = maximum contaminant level
ND = analytes not detected above reporting limits
NA = not applicable
UB = result qualified as non-detected due to the presence of methylene chloride in an associated blank

INTERIM STATUS DETECTION MONITORING SEMIANNUAL INDICATOR PARAMETER REPORT

This set of data sheets should be completed by facilities in semiannual detection monitoring, HWMR-6, Part VI, Section 265.92(d) (2) and (e) and Section 265.94(a). These data sheets should be completed semiannually and submitted annually. The raw lab data sheets should be submitted in addition to the Semiannual 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 **NM 7572124454**

WELL NUMBER **MW-N**

SECOND SAMPLING EVENT SEMIANNUAL REPORT

LABORATORY NAME **Quanterra Inc.** DATE SAMPLED **12/09/97**

SAMPLED BY **Foothill Engineering Consultants, Inc.** LABORATORY SAMPLE I.D. # **058372**

TIME SAMPLED **1200** DATE RECEIVED BY LAB **12/09/97**

PARAMETERS	STORET CODE	UNITS	VALUE	DATE ANALYZED
Elevation of G. Water	71993	ft.	3992.3	12/09/97
Well Depth	-----	ft.	297.5	12/09/97
Well Casing Volume	-----	gal.	12.3	12/09/97
Pump Rate	-----	gal/min	0.8	12/09/97
Pump Period	72004	min.	50	12/09/97
Volume Evacuated	73675	gal.	39	12/09/97

Sampler Material: **TEFLN** Well Sampling Method: **PSPMP**

SECOND SAMPLING EVENT
SEMIANNUAL REPORT
(continued)

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.72 (f)	N/A	12/09/97	Field Probe
	00400	S.U.	7.73 (f)	N/A	12/09/97	
	00400	S.U.	7.74 (f)	N/A	12/09/97	
	00400	S.U.	7.73 (f)	N/A	12/09/97	
Specific Conductivity	00095	umhos/cm	0.741 (f)	N/A	12/09/97	Field Probe
	00095	umhos/cm	0.748 (f)	N/A	12/09/97	
	00095	umhos/cm	0.740 (f)	N/A	12/09/97	
	00095	umhos/cm	0.741 (f)	N/A	12/09/97	
T.O.X.	70354	µg/l	13.8J	30.0 µg/L	1/1/98	SW846-9020
	70354	µg/l	N/A	N/A	N/A	
	70354	µg/l	N/A	N/A	N/A	
	70354	µg/l	N/A	N/A	N/A	
T.O.C.	00680	mg/l	1.5	1.0	12/17/97	SW846-9060
	00680	mg/l	N/A	N/A	N/A	
	00680	mg/l	N/A	N/A	N/A	
	00680	mg/l	N/A	N/A	N/A	

Signature: _____

SEMIANNUAL GROUNDWATER QUALITY PARAMETERS REPORT

Please indicate the date of the semiannual sampling event during which samples were taken to evaluate the groundwater parameters.

Date Sampled: **12/09/97**

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
Chloride	00940	mg/l	N/A	N/A	N/A	N/A
Iron	01045	µg/l	N/A	N/A	N/A	N/A
Manganese	71883	µg/l	N/A	N/A	N/A	N/A
Phenols	32730	µg/l	ND	0.94	12/19/97	SW846-8270B
Sodium	00929	mg/l	N/A	N/A	N/A	N/A
Sulfate	00945	mg/l	N/A	N/A	N/A	N/A
Turbidity		NTU	-10 (f)	N/A	12/09/97	Horiba-U10

Signature: _____

Name (Printed): _____

Assessment Monitoring Semiannual Report (continued)

Well Number: MW-N Facility Name Cannon Air Force Base

MONITORING WELL APPENDIX IX DATA FOR FACILITIES IN ASSESSMENT

Under assessment monitoring, per 20 NMAC 4.1 Subpart VI Section 265.93 (d) (4), (5), and (7) and per 42 Federal Register, 25942 (July 9, 1987), please list values for the Appendix IX parameters which were found in your Appendix IX scan.

PARAMETER	STORET CODE	VALUE	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	METHOD USED
Arsenic		0.0043J	mg/L	0.010	12/18/97	12/19/97	SW846-7060A
Barium		0.062	mg/L	0.010	12/19/97	12/29/97	SW846-6010
Cobalt		0.0054J	mg/L	0.010	12/19/97	12/29/97	SW846-6010
Selenium		0.0063q	mg/L	0.005	12/18/97	12/19/97	SW846-6010
Vanadium		0.022	mg/L	0.010	12/19/97	12/29/97	SW846-6010
TOC	00680	0.92J	mg/L	1.0	N/A	12/17/97	SW846-9060
TOX	70354	ND	mg/L	0.030	N/A	01/01/97	SW846-9020

ANNUAL SUMMARY OF DETECTION MONITORING

This data sheet must be submitted by March 1 of each year by facilities in detection monitoring and operating under interim status to:

NEW MEXICO ENVIRONMENT DEPARTMENT
HAZARDOUS AND RADIOACTIVE MATERIALS BUREAU
525 CAMINO DE LOS MARQUEZ, SUITE 4
SANTA FE, NEW MEXICO 87502

FACILITY NAME CANNON AIR FORCE BASE

EPA I.D. NUMBER NM 7572124454

WELL NUMBER N

PARAMETERS	UNITS	VALUE	VALUE
SAMPLE DATES:		5 June 1997	9 December 1997
elevation of gw	feet	3993.2	3992.3
pH (Avg)	S. U.	7.46	7.73
Spec Cond (Avg)	umhos/cm	0.812	6.75
T.O.X. (Avg)	µg/l	ND	ND
T.O.C. (Avg)	mg/l	ND	0.92J
SAMPLE DATE:		9 December 1997	
Chloride	mg/l	NA	
Iron	µg/l	NA	
Manganese	µg/l	NA	
Phenols	µg/l	ND	
Sodium	mg/l	NA	
Sulfate	mg/l	NA	

NAME (PRINTED) Ian C. Broussard

SIGNATURE _____

DATE OF REPORT 10 February 1998

INTERIM STATUS DETECTION MONITORING SEMI-ANNUAL INDICATOR PARAMETER REPORT

This set of data sheets should be completed by facilities in semi-nnual detection monitoring, HWMR-6, Part VI, Section 265.92(d) (2) and (e) and Section 265.94(a). These data sheets should be completed semiannually and submitted annually. The raw lab data sheets should be submitted in addition to the SemiAnnual 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 **NM 7572124454**

WELL NUMBER **MW-O**

SECOND SAMPLING EVENT SEMIANNUAL REPORT

LABORATORY NAME **Quanterra Inc.** DATE SAMPLED **12/09/97**

SAMPLED BY **Foothill Engineering Consultants, Inc.** LABORATORY SAMPLE I.D. # **058372**

TIME SAMPLED **1100** DATE RECEIVED BY LAB **12/11/97**

PARAMETERS	STORET CODE	UNITS	VALUE	DATE ANALYZED
Elevation of G. Water	71993	ft.	3987.96	12/09/97
Well Depth	-----	ft.	303.9	12/09/97
Well Casing Volume	-----	gal.	12.3	12/09/97
Pump Rate	-----	gal/min	0.6	12/09/97
Pump Period	72004	min.	60	12/09/97
Volume Evacuated	73675	gal.	36	12/09/97

Sampler Material: **TEFLN** Well Sampling Method: **PSPMP**

SECOND SAMPLING EVENT
SEMIANNUAL REPORT
(continued)

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	6.88 (f)	N/A	12/09/97	Field Probe
	00400	S.U.	6.94 (f)	N/A	12/09/97	
	00400	S.U.	6.92 (f)	N/A	12/09/97	
	00400	S.U.	6.92 (f)	N/A	12/09/97	
Specific Conductivity	00095	umhos/cm	2.05 (f)	N/A	12/09/97	Field Probe
	00095	umhos/cm	2.07 (f)	N/A	12/09/97	
	00095	umhos/cm	2.07 (f)	N/A	12/09/97	
	00095	umhos/cm	2.04 (f)	N/A	12/09/97	
T.O.X.	70354	µg/l	16.7J	30.0	1/01/98	SW846-9020
	70354	µg/l	N/A	N/A	N/A	
	70354	µg/l	N/A	N/A	N/A	
	70354	µg/l	N/A	N/A	N/A	
T.O.C.	00680	mg/l	ND	1.0	12/19/97	SW846-9060
	00680	mg/l	N/A	N/A	N/A	
	00680	mg/l	N/A	N/A	N/A	
	00680	mg/l	N/A	N/A	N/A	

Signature: _____

SEMIANNUAL GROUNDWATER QUALITY PARAMETERS REPORT

Please indicate the date of the semiannual sampling event during which samples were taken to evaluate the groundwater parameters.

Date Sampled: **12/09/97**

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
Chloride	00940	mg/l	N/A	N/A	N/A	N/A
Iron	01045	µg/l	N/A	N/A	N/A	N/A
Manganese	71883	µg/l	N/A	N/A	N/A	N/A
Phenols	32730	µg/l	ND	0.94	12/19/97	SW846-8270B
Sodium	00929	mg/l	N/A	N/A	N/A	N/A
Sulfate	00945	mg/l	N/A	N/A	N/A	N/A
Turbidity		NTU	-10(f)	N/A	12/09/97	Horiba-U10

Signature: _____

Name (Printed): _____

Assessment Monitoring Semiannual Report (continued)

Well Number: MW-O Facility Name Cannon Air Force Base

MONITORING WELL APPENDIX IX DATA FOR FACILITIES IN ASSESSMENT

Under assessment monitoring, per 20 NMAC 4.1 Subpart VI Section 265.93 (d) (4), (5), and (7) and per 42 Federal Register, 25942 (July 9, 1987), please list values for the Appendix IX parameters which were found in your Appendix IX scan.

PARAMETER	STORET CODE	VALUE	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	METHOD USED
Barium		0.064	mg/L	0.010	12/19/97	12/19/97	SW846-6010
Vanadium		0.016	mg/L	0.010	12/19/97	12/19/97	SW846-6010
TOC	00680	1.5	mg/L	1.0	N/A	12/17/97	SW846-9060
TOX	70354	16.7J	mg/L	0.030	N/A	1/01/98	SW846-9020

ANNUAL SUMMARY OF DETECTION MONITORING

This data sheet must be submitted by March 1 of each year by facilities in detection monitoring and operating under interim status to:

NEW MEXICO ENVIRONMENT DEPARTMENT
HAZARDOUS AND RADIOACTIVE MATERIALS BUREAU
525 CAMINO DE LOS MARQUEZ, SUITE 4
SANTA FE, NEW MEXICO 87502

FACILITY NAME CANNON AIR FORCE BASE

EPA I.D. NUMBER NM 7572124454

WELL NUMBER O

PARAMETERS	UNITS	VALUE	VALUE
SAMPLE DATES:		5 June 1997	9 December 1997
elevation of gw	feet	3988.42	3987.96
pH (Avg)	S. U.	6.90	6.75
Spec Cond (Avg)	umhos/cm	2.05	1.83
T.O.X. (Avg)	µg/l	ND	ND
T.O.C. (Avg)	mg/l	1.2 mg/L	1.5 mg/L
SAMPLE DATE:		9 December 1997	
Chloride	mg/l	NA	
Iron	µg/l	NA	
Manganese	µg/l	NA	
Phenols	µg/l	ND	
Sodium	mg/l	NA	
Sulfate	mg/l	NA	

NAME (PRINTED) Ian Broussard

SIGNATURE

DATE OF REPORT 10 February 1998

ASSESSMENT MONITORING QUARTERLY REPORT

NEW MEXICO ENVIRONMENT DEPARTMENT
HAZARDOUS & RADIOACTIVE MATERIALS BUREAU
525 CAMINO DE LOS MARQUEZ, SUITE 4
SANTA FE, NM 87502

This set of data sheets is for use by all facilities in assessment monitoring (20 NMAC 4.1, Subpart VI, Section 265.93(D) (4), (5) and (7) (e) and (f), and Section 265.94 (b).

FACILITY NAME **Cannon Air Force Base** EPA I.D.# **NM 7572124454**

WELL NUMBER **MW-R** SAMPLE COLLECTION BY **Foothill Engineering Consultants, Inc.**

LABORATORY NAME **Quanterra Inc.** DATE SAMPLED **12/09/97**

TIME SAMPLED **1400** DATE RECEIVED BY LAB **12/11/97**

PARAMETERS	STORET CODE	UNITS	VALUE	DATE ANALYZED
Elevation of G. Water	71993	ft.	3994.13	12/09/97
Well Depth	N/A	ft.	304.0	12/09/97
Well Casing Volume	N/A	gal.	36.5	12/09/97
Pump Rate	N/A	gal/min	1.1	12/09/97
Pump Period	72004	min.	95	12/09/97
Volume Evacuated	73675	gal.	108	12/09/97
Sampler Material	N/A	N/A	TEFLN	12/09/97
Well Sampling Method:	PSPMP			

Assessment Monitoring Quarterly Report (continued)

Well Number: MW-R Facility Name Cannon Air Force Base

INDICATOR PARAMETERS

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.88 (f)	N/A	12/09/97	Field Probe
	00400	S.U.	7.38 (f)	N/A	12/09/97	
	00400	S.U.	7.33 (f)	N/A	12/09/97	
	00400	S.U.	7.33 (f)	N/A	12/09/97	
Specific Conductivity	00095	umhos/cm	0.804 (f)	N/A	12/09/97	Field Probe
	00095	umhos/cm	0.814 (f)	N/A	12/09/97	
	00095	umhos/cm	0.824 (f)	N/A	12/09/97	
	00095	umhos/cm	0.830 (f)	N/A	12/09/97	
TOX	70354	µg/L	26.4J	30.0	1/01/97	SW846-9020
	70354	µg/L	N/A	N/A	N/A	
	70354	µg/L	N/A	N/A	N/A	
	70354	µg/L	N/A	N/A	N/A	
TOC	00680	mg/L	1.1	1.0	12/17/97	SW846-9060
	00680	mg/L	N/A	N/A	N/A	
	00680	mg/L	N/A	N/A	N/A	
	00680	mg/L	N/A	N/A	N/A	

Assessment Monitoring Quarterly Report (continued)

Well Number: MW-R Facility Name Cannon Air Force Base

INDICATOR PARAMETERS

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
Chloride	00940	mg/L	N/A	N/A	N/A	N/A
Iron	01045	mg/L	N/A	N/A	N/A	N/A
Manganese	71883	mg/L	N/A	N/A	N/A	N/A
Phenols	32730	mg/L	ND	0.94	12/19/97	SW846-8270B
Sodium	00929	mg/L	N/A	N/A	N/A	N/A
Sulfate	00945	mg/L	N/A	N/A	N/A	N/A
Turbidity		TU	-10 (f)	N/A	12/09/97	Horiba-U10

Date Of This Report: 02/03/98

Signature: _____

Name (Printed): _____

Assessment Monitoring Quarterly Report (continued)

Well Number: MW-R Facility Name Cannon Air Force Base

MONITORING WELL APPENDIX IX DATA FOR FACILITIES IN ASSESSMENT

Under assessment monitoring, per 20 NMAC 4.1 Subpart VI Section 265.93 (d) (4), (5), and (7) and per 42 Federal Register, 25942 (July 9, 1987), please list values for the Appendix IX parameters which were found in your Appendix IX scan.

PARAMETER	STORET CODE	VALUE	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	METHOD USED
Barium		0.060	mg/L	0.010	12/19/97	12/29/97	SW846-6010
Chromium		0.049	mg/L	0.010	12/19/97	12/29/97	SW846-6010
Cobalt		0.0048J	mg/L	0.010	12/19/97	12/29/97	SW846-6010
Copper		0.0053J	mg/L	0.020	12/19/97	12/29/97	SW846-6010
Nickel		0.047	mg/L	0.040	12/19/97	12/29/97	SW846-6010
Selenium		0.0050q	mg/L	0.0050	12/18/97	12/19/97	SW846-7740
Vanadium		0.010	mg/L	0.010	12/19/97	12/29/97	SW846-6010
TOC	00680	2.6	mg/L	1.0	N/A	12/17/97	SW846-9060
TOX	70354	ND	mg/L	0.030	N/A	01/01/98	SW846-9020

APPENDIX I

Field Forms

DAILY QUALITY CONTROL REPORT

PROJECT: Cannon AFB 3/4 sampling

LOCATION: Landfills 3, 4 & 25

Date: 12/9/97

Weather:

Temp: 40 °F

Wind: W 25-35

Humidity: low

PERSONNEL

Name	Position	Hours Worked
Jan Broussard	Geologist	10
John Wong	Tech	10

FIELD INSTALLATIONS

ID No(s).
Drilled:
from
to
Footage
Casing Set
Screen
Riser

EQUIPMENT

	Serial #	Calibrated to
OVA		
O_2/LEL		
pH/Conductivity/Temp.		
Other		

Solinst 300' water level gauge
Horiba U10 water quality tester

Hours Drilling
Hours Installing
Hours Decon
Hours Development
Hours Sampling
Hours Shut Down
# of Samples Type

SAMPLING SUMMARY:

Sample ID	Media	QC
CAFB-1297-MWO-1	water	
CAFB-1297-MWO-2	" "	
CAFB-1297-MWO-3	" "	
CAFB-1297-MWN-1	" "	
CAFB-1297-MWR-1		

Analytes

VOC, SVOC, PCB/Pest, METALS, HERBICIDES, CN, SULFIDE, TCDD-Dioxin, TOC, TOX, NO3

Description of work performed: 1) Measure water level in the three wells (MWR-MWN, MWO) and calculate purge volumes. 2) Purge 3 well volumes and measure groundwater quality parameters for each 1/2 well volume. 3) Collects three seperate set of samples from CAFB-MWO: 1 for the field sample 2ND for the duplicate, 3rd for MRL analysis. 4) Collect 1 field sample from each other well (MWN & MWR).

Health and Safety Levels: D

Summary of Monitoring Activities: No monitoring was performed - nitrile gloves were used to protect against chemical exposure and to protect sample integrity.

Problems encountered/Corrective Actions: None

Any changes from work plan? none

Signature: Jan Broussard

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Well Purge Data Sheet for December 9, 1997 - Clovis, New Mexico

Water Column = (20.10) feet X 0 .655 = Bore Volume = 13.17

START 1105 STOP 1155

Groundwater Quality Parameters - MW N, 9 Dec. 1997 TD=297.5 (-) DTW= 277.40 = WC = 20.10						
Bore Volumes	pH	Conductivity	Turbidity	Dissolved Oxygen	Temperature	Salinity
½ = 6.5	7.76	7.09	-0	8.94	17.1	0.03
1 = 13	7.72	.741	-10	8.85	17.3	0.03
1½ = 19.5	7.72	.748	-10	8.75	17.3	0.03
2 = 26.0	7.73	.742	-10	8.49	17.3	0.03
2½ = 32.5	7.72	.740	-10	8.40	17.2	0.03
3 = 39	7.74	.741	-10	8.42	17.2	0.03

Water Column = (18.76) feet X 0 .655 = Bore Volume = 12.29

start 0945 STOP 1045

Groundwater Quality Parameters - MW O, 9 Dec. 1997 TD= 303.9 (-) DTW= 285.14 = WC = 18.76						
Bore Volumes	pH	Conductivity ms/cm	Turbidity	Dissolved Oxygen mg/L	Temperature °C	Salinity %
½ = 6	6.51	1.82	-10	8.91	14.8	0.08
1 = 12	6.75	1.85	-10	8.77	15.5	0.08
1½ = 18	6.80	1.84	irratic 298-390	9.14	15.7	0.08
2 = 24	6.89	1.81	-10	9.73	16.1	0.08
2½ = 30	6.95	1.83	-10	10.37	15.9	0.08
3 = 36	6.94	1.80	-10	9.88	16.1	0.08

Water Column = (24.84) feet X 1.469 = Bore Volume = 36.49

Start 1210 STOP 1345

Groundwater Quality Parameters - MW R, 9 Dec. 1997 TD= 307.5 (-) DTW= 282.66 = WC = 24.84						
Bore Volumes	pH	Conductivity	Turbidity	Dissolved Oxygen	Temperature	Salinity
½ = 18	7.76	.847	-7	8.91	16.7	0.03
1 = 36	7.68	.862	-10	8.92	17.3	0.03
1½ = 54	7.72	.859	-10	9.18	17.4	0.03
2 = 72	7.74	.861	-10	8.98	17.3	0.03
2½ = 90	7.74	.866	-10	9.24	17.3	0.03
3 = 108	7.77	.864	-10	9.18	17.4	0.03

Note: MWR began to turn yellow/orangish after ~ 3 gallons purging. Water clearing ~15 gallons

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APPENDIX II

Analytical Results/Quality Control Data

Quanterra
Environmental Services

Table Of Contents

Standard Deliverables With Supporting Documentation

Report Contents	Section	Number Of Pages
Standard Deliverables		
Introduction	A	103
• Table of Contents		
• Narrative		
• LIMs Report Key		
• Sample Description		
• Test Requests		
• Analytical Results		
• QC Summary		
• Chain-of-Custody		
• Miscellaneous		
Supporting Documentation		
[Please Note: A one-page "Description of Supporting Documentation" is provided in the Supporting Documentation section(s).]		
Volatile GC/MS	B	177
Semivolatile GC/MS	C	295
Volatile GC	D	
Semivolatile GC	E	434
LC/MS or HPLC	F	
Metals	G	193
General Chemistry	H	80
Subcontracted Data	I	261

Quanterra
Environmental Services

Introduction

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:

- Sample Description Information
- Analytical Test Requests
- Analytical Results

All analyses at Quanterra's Denver laboratory are performed so that the maximum concentration of sample consistent with the method is analyzed. Dilution's are at times required to avoid saturation of the detector, to achieve linearity for a specific target compound, or to reduce matrix interference's. In this event, reporting limits are adjusted proportionately. Surrogate compounds may not be measurable in samples which have been diluted. If the dilution factor is greater than 5X (i.e., >20% dilution), the matrix spike and surrogate recoveries are reported as NC (not calculated). At these dilution levels surrogates and matrix spikes are normally below detection limits.

Case Narrative

Sample Receipt

The TOX bottle for 058372-0004 was received broken. Analysis was performed via the TOC bottle.

General Inorganics/Metals

Batch MS/MSD recoveries for mercury, arsenic, selenium and lead are outside control limits, matrix is suspected. The LCS is within limits.

Samples 058372-0003 and -0004 were diluted for lead due to matrix interference, detection limits were raised.

Prep blank contamination was observed for thallium via ICP-MS.

DCS results are reported for batch precision and accuracy data and are within control limits for TOX.

Samples 058372-0001 and -0003 through -0005 were received with insufficient time to schedule nitrate analysis within holding time. The samples were analyzed per client discussion 3-5 hours past holding time.

GC Analysis

DBC surrogate recovery is slightly low and outside control limits for 058372-0005 for Method 8081. The other two surrogates are within control limits and the sample is non-detect.

DCS results are reported for batch precision and accuracy data and are within control limits for Method 8081 and 8150.

GC/MS Analysis

DCS results are reported for batch precision and accuracy data and are within control limits for Method 8270.

BFB surrogate recovery is low and toluene-d8 surrogate recovery is elevated for Method 8260 for 058372-0001. BFB surrogate recovery is also low for 058372-0002. No sample remained for reanalysis. Since both the SCS and LCS are within control limits, sample surrogate recoveries suggest a matrix effect.

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LIMs Report Key

Section	Description
Cover Letter	Signature page, report narrative as applicable.
Sample Description Information	Tabulated cross-reference between the Lab ID and Client ID, including matrix, date and time sampled, and the date received for all samples in the project.
Sample Analysis Results Sheets	Lists sample results, test components, reporting limits, dates prepared and analyzed, and any data qualifiers. Pages are organized by test.
QC LOT Assignment Report	Cross-reference between lab IDs and applicable QC batches (DCS, LCS, Blank, MS/SD, DU)
Duplicate Control Sample Report	Percent recovery and RPD results, with acceptance limits, for the laboratory duplicate control samples for each test are tabulated in this report. These are measures of accuracy and precision for each test. Acceptance limits are based upon laboratory historical data.
Laboratory Control Sample Report	Percent recovery results for a single Laboratory Control Sample (if applicable) are tabulated in this report, with the applicable acceptance limits for each test.
Matrix Spike/Matrix Spike Duplicate Report	Percent recovery and RPD results for matrix-specific QC samples and acceptance limits, where applicable. This report can be used to assess matrix effects on an analysis.
Single Control Sample Report	A tabulation of the surrogate recoveries for the blank for organic analyses.
Method Blank Report	A summary of the results of the analysis of the method blank for each test.

List of Abbreviations and Terms

Abbreviation	Term	Abbreviation	Term
DCS	Duplicate Control Sample	MSD	Matrix Spike Duplicate
DU	Sample Duplicate	QC Run	Preparation Batch
EB	Equipment Blank	QC Category	LIMs QC Category
FB	Field Blank	QC Lot	DCS Batch
FD	Field Duplicate	ND	Not Detected at or above the reporting limit expressed
IDL	Instrument Detection Limit (Metals)	QC Matrix	Matrix of the laboratory control sample(s)
LCS	Laboratory Control Sample	RL	Reporting Limit
MB	Method Blank	QC	Quality Control
MDL	Method Detection Limit	SA	Sample
MS	Matrix Spike	SD	Spike Duplicate
RPD	Relative Percent Difference	TB	Trip Blank
ppm (part-per-million)	mg/L or mg/kg (usually)	ppb (part-per-billion)	ug/L or ug/kg (usually)
QUAL	Qualifier flag	DIL	Dilution Factor

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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 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.

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SAMPLE DESCRIPTION INFORMATION
for
Foothill Engineering Consultants Inc.

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
058372-0001-SA	CAFB-1297-MWO-1	AQUEOUS	09 DEC 97	10:00	11 DEC 97
058372-0001-MB	CAFB-1297-MWO-1	AQUEOUS	09 DEC 97	10:00	11 DEC 97
058372-0002-TB	TRIP BLANK	AQUEOUS	09 DEC 97	00:00	11 DEC 97
058372-0003-SA	CAFB-1297-MWN-1	AQUEOUS	09 DEC 97	11:10	11 DEC 97
058372-0004-SA	CAFB-1297-MWR-1	AQUEOUS	09 DEC 97	12:10	11 DEC 97
058372-0005-SA	CAFB-1297-MWO-2	AQUEOUS	09 DEC 97	10:10	11 DEC 97
058372-0006-MB	Method Blank	AQUEOUS	11 DEC 97		11 DEC 97

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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.

A 8

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ANALYTICAL TEST REQUESTS
for
Foothill Engineering Consultants Inc.

Lab ID: 058372	Group Code	Analysis Description	Custom Test?
0001 , 0003, 0004 - 0005	A	Semivolatile Organics	Y
		Appendix IX List	
		Prep - Semivolatile Organics by GC/MS	N
		2,3,7,8-TCDD - by Low Resolution MS	N
		Prep - Low Res. Method 613 L-L Extraction for Dioxins/Furans	N
		Appendix IX Metals (Total) done by ICP	Y
		Prep - Total Metals, ICP	N
		ICP Metals (Total) by Trace ICP	Y
		Mercury, Cold Vapor AA (Total)	Y
		Prep - Mercury, Cold Vapor AA (Total)	N
		Cyanide, Total	Y
		Prep - Cyanide, Total	N
		Total Organic Carbon (TOC)	Y
		Total Organic Halogen (TOX)	Y
		ICP/MS Metals - (Total)	Y
		ICP/MS Metals Prep (Total)	N
		Volatile Organics	Y
		Appendix IX List	Y
		Screen - Volatile Organics for 25mL Purge	N
		Nitrate, Ion Chromatography	Y
		Appendix IX Herbicides	Y
		Prep - Herbicides by GC	N
		Selenium, Furnace AA (Total)	Y
		Chlorinated Pesticides and PCB's	Y
		Appendix IX List	
		Prep - Organochlorine Pesticides/PCBs by GC (Appendix IX)	N
		Arsenic, Furnace AA (Total)	Y
		Prep - Arsenic, Selenium - Total, Furnace AA	N
		Lead, Furnace AA (Total)	Y
		Prep - Total Metals, Furnace AA	N
		Method 9030 - Sulfides	Y
		Sulfide, Acid Soluble	N
0002	B	Volatile Organics	Y
		Appendix IX List	Y
		Screen - Volatile Organics for 25mL Purge	N

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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.

Data sheets contain a listing of the parameters measured in each test, the analytical results and the Quanterra reporting limit. Reporting limits are adjusted to reflect dilution of the sample, when appropriate.

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ANALYTICAL RESULT SUMMARY

Quanterra
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Volatile Organics
Appendix IX List
Method 8260A

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-1
LAB ID: 058372-0001-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 22 DEC 97
Instrument: GCMS-Z Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Acetone	ND		10	3.8	ug/L
Acetonitrile	ND		20	7.5	ug/L
Acrolein	ND		20	4.4	ug/L
Acrylonitrile	ND		20	7.2	ug/L
Allyl chloride	ND		2.0	0.20	ug/L
Benzene	ND		1.0	0.12	ug/L
Bromodichloromethane	ND		1.0	0.20	ug/L
Bromoform	ND		1.0	0.55	ug/L
Bromomethane	ND		2.0	0.11	ug/L
2-Butanone (MEK)	ND		5.0	0.70	ug/L
Carbon disulfide	ND		1.0	0.17	ug/L
Carbon tetrachloride	0.51	J	1.0	0.12	ug/L
Chlorobenzene	ND		1.0	0.18	ug/L
Chloroethane	ND		2.0	0.10	ug/L
Chloroform	0.39	J	1.0	0.10	ug/L
Chloromethane	ND		2.0	0.10	ug/L
Chloroprene	ND		1.0	0.10	ug/L
Dibromochloromethane	ND		1.0	0.37	ug/L
1,2-Dibromo-3-chloro-propane (DBCP)	ND		2.0	1.0	ug/L
1,2-Dibromoethane (EDB)	ND		1.0	0.29	ug/L
Dibromomethane	ND		1.0	0.16	ug/L
trans-1,4-Dichloro-2-butene	ND		1.0	0.47	ug/L
Dichlorodifluoromethane	ND		2.0	0.11	ug/L
1,1-Dichloroethane	ND		1.0	0.11	ug/L
1,2-Dichloroethane	ND		1.0	0.10	ug/L
1,1-Dichloroethene	ND		1.0	0.14	ug/L
trans-1,2-Dichloroethene	ND		0.50	0.15	ug/L
1,2-Dichloroethene (total)	ND		1.0	0.23	ug/L
1,2-Dichloropropane	ND		1.0	0.20	ug/L
cis-1,3-Dichloropropene	ND		1.0	0.18	ug/L
trans-1,3-Dichloropropene	ND		1.0	0.25	ug/L
1,4-Dioxane	ND		200	27	ug/L
Ethylbenzene	ND		1.0	0.10	ug/L
Ethyl methacrylate	ND		1.0	0.33	ug/L
2-Hexanone	ND		5.0	0.63	ug/L
Iodomethane	ND		1.0	0.12	ug/L
Isobutyl alcohol	ND		50	5.6	ug/L
Methacrylonitrile	ND		1.0	0.41	ug/L
Methylene chloride	ND		1.0	0.10	ug/L
Methyl methacrylate	ND		1.0	0.22	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Steven Francis Approved By: Maria E. Mattingly

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8260A

(cont.)

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-1
LAB ID: 058372-0001-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 22 DEC 97
Instrument: GCMS-Z Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.52	ug/L
Propionitrile	ND		4.0	1.7	ug/L
Styrene	ND		1.0	0.21	ug/L
1,1,1,2-Tetrachloroethane	ND		1.0	0.12	ug/L
1,1,2,2-Tetrachloroethane	ND		1.0	0.72	ug/L
Tetrachloroethene	ND		1.0	0.11	ug/L
Toluene	ND		1.0	0.11	ug/L
1,1,1-Trichloroethane	ND		1.0	0.13	ug/L
1,1,2-Trichloroethane	ND		1.0	0.37	ug/L
Trichloroethene	0.10	J	1.0	0.10	ug/L
Trichlorofluoromethane	ND		2.0	0.19	ug/L
1,2,3-Trichloropropane	ND		1.0	0.58	ug/L
Vinyl acetate	ND		2.0	0.68	ug/L
Vinyl chloride	ND		2.0	0.14	ug/L
Xylenes (total)	ND		1.0	0.47	ug/L

Surrogate	Recovery		Acceptable Range
1,2-Dichloroethane-d4	94	%	78 - 113
4-Bromofluorobenzene	87	%	88 - 113
Toluene-d8	109	%	90 - 108

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Steven Francis Approved By: Maria E. Mattingly

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-1
LAB ID: 058372-0001-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 19 DEC 97
Instrument: GCMS-D Dilution: 0.97

Parameter	Result	Qualifier	RL	MDL	Units
Acenaphthene	ND		9.7	0.97	ug/L
Acenaphthylene	ND		9.7	1.2	ug/L
Acetophenone	ND		9.7	0.97	ug/L
2-Acetylaminofluorene	ND		97	0.97	ug/L
4-Aminobiphenyl	ND		49	0.97	ug/L
Aniline	ND		9.7	5.0	ug/L
Anthracene	ND		9.7	1.1	ug/L
Aramite	ND		19	0.97	ug/L
Benzo(a)anthracene	ND		9.7	0.97	ug/L
Benzo(b)fluoranthene	ND		9.7	1.2	ug/L
Benzo(k)fluoranthene	ND		9.7	1.2	ug/L
Benzo(g,h,i)perylene	ND		9.7	1.6	ug/L
Benzo(a)pyrene	ND		9.7	1.4	ug/L
Benzyl alcohol	ND		9.7	1.2	ug/L
4-Bromophenyl phenyl ether	ND		9.7	0.97	ug/L
Butyl benzyl phthalate	ND		9.7	1.7	ug/L
2-sec-Butyl-4,6-dinitro-phenol	ND		19	0.97	ug/L
4-Chloroaniline	ND		9.7	1.8	ug/L
bis(2-Chloroethoxy)methane	ND		9.7	1.1	ug/L
bis(2-Chloroethyl) ether	ND		9.7	1.1	ug/L
2,2'-oxybis(1-chloropropane)	ND		9.7	1.1	ug/L
4-Chloro-3-methylphenol	ND		9.7	1.4	ug/L
2-Chloronaphthalene	ND		9.7	1.2	ug/L
2-Chlorophenol	ND		9.7	1.1	ug/L
4-Chlorophenyl phenyl ether	ND		9.7	1.6	ug/L
Chrysene	ND		9.7	1.2	ug/L
Dibenz(a,h)anthracene	ND		9.7	1.6	ug/L
Dibenzofuran	ND		9.7	1.2	ug/L
Di-n-butyl phthalate	ND		9.7	0.97	ug/L
1,2-Dichlorobenzene	ND		9.7	1.3	ug/L
1,3-Dichlorobenzene	ND		9.7	1.3	ug/L
1,4-Dichlorobenzene	ND		9.7	1.5	ug/L
3,3'-Dichlorobenzidine	ND		49	1.6	ug/L
2,4-Dichlorophenol	ND		9.7	1.4	ug/L
2,6-Dichlorophenol	ND		9.7	0.97	ug/L
Diethyl phthalate	ND		9.7	0.97	ug/L
Dimethoate	ND		19	0.97	ug/L
p-Dimethylaminoazobenzene	ND		19	1.0	ug/L
7,12-Dimethylbenz(a)-anthracene	ND		19	0.99	ug/L
3,3'-Dimethylbenzidine	ND		49	3.4	ug/L

ND = Not Detected

Reported By: Deneen Spence Approved By: Maria E. Mattingly

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

(cont.)

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-1
LAB ID: 058372-0001-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 19 DEC 97
Instrument: GCMS-D Dilution: 0.97

Parameter	Result	Qualifier	RL	MDL	Units
a,a-Dimethylphenethyl-amine	ND		49	18	ug/L
2,4-Dimethylphenol	ND		9.7	1.6	ug/L
Dimethyl phthalate	ND		9.7	0.97	ug/L
1,3-Dinitrobenzene	ND		9.7	0.97	ug/L
4,6-Dinitro-2-methylphenol	ND		49	0.97	ug/L
2,4-Dinitrophenol	ND		49	1.3	ug/L
2,4-Dinitrotoluene	ND		9.7	0.97	ug/L
2,6-Dinitrotoluene	ND		9.7	0.97	ug/L
Di-n-octyl phthalate	ND		9.7	1.4	ug/L
Diphenylamine	ND		9.7	1.2	ug/L
Disulfoton	ND		49	1.3	ug/L
bis(2-Ethylhexyl)phthalate	ND		9.7	1.3	ug/L
Ethyl methanesulfonate	ND		9.7	0.97	ug/L
Famphur	ND		97		ug/L
Fluoranthene	ND		9.7	1.1	ug/L
Fluorene	ND		9.7	1.6	ug/L
Hexachlorobenzene	ND		9.7	0.97	ug/L
Hexachlorobutadiene	ND		9.7	1.6	ug/L
Hexachlorocyclopentadiene	ND		49	2.2	ug/L
Hexachloroethane	ND		9.7	1.5	ug/L
Hexachlorophene	ND		--		ug/L
Hexachloropropene	ND		97	0.97	ug/L
Indeno(1,2,3-cd)pyrene	ND		9.7	1.5	ug/L
Isophorone	ND		9.7	1.1	ug/L
Isosafrole	ND		19	1.9	ug/L
Methapyrilene	ND		49	11	ug/L
3-Methylcholanthrene	ND		19	2.6	ug/L
Methyl methanesulfonate	ND		9.7	0.97	ug/L
2-Methylnaphthalene	ND		9.7	1.3	ug/L
Methyl parathion	ND		49	0.97	ug/L
2-Methylphenol	ND		9.7	1.3	ug/L
3/4-Methylphenol	ND		9.7	1.2	ug/L
Naphthalene	ND		9.7	1.1	ug/L
1,4-Naphthoquinone	ND		49	1.3	ug/L
1-Naphthylamine	ND		9.7	2.0	ug/L
2-Naphthylamine	ND		9.7	1.1	ug/L
2-Nitroaniline	ND		49	1.2	ug/L
3-Nitroaniline	ND		49	1.1	ug/L
4-Nitroaniline	ND		49	1.6	ug/L
Nitrobenzene	ND		9.7	1.4	ug/L
2-Nitrophenol	ND		9.7	1.2	ug/L
4-Nitrophenol	ND		49	1.5	ug/L

ND = Not Detected

Reported By: Deneen Spence Approved By: Maria E. Mattingly

Quanterra
Environmental Services

(cont.)

Semivolatile Organics
Appendix IX List
Method 8270B

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-1
LAB ID: 058372-0001-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 19 DEC 97
Instrument: GCMS-D Dilution: 0.97

Parameter	Result	Qualifier	RL	MDL	Units
4-Nitroquinoline-1-oxide	ND		97	9.7	ug/L
N-Nitroso-di-n-butylamine	ND		9.7	0.97	ug/L
N-Nitrosodiethylamine	ND		9.7	0.97	ug/L
N-Nitrosodimethylamine	ND		9.7	1.2	ug/L
N-Nitrosodiphenylamine	ND		9.7	1.2	ug/L
N-Nitroso-di-n-propylamine	ND		9.7	0.97	ug/L
N-Nitrosomethylethylamine	ND		9.7	0.97	ug/L
N-Nitrosomorpholine	ND		9.7	0.97	ug/L
N-Nitrosopiperidine	ND		9.7	0.97	ug/L
N-Nitrosopyrrolidine	ND		9.7	0.99	ug/L
5-Nitro-o-toluidine	ND		19	1.2	ug/L
Parathion	ND		49	0.97	ug/L
Pentachlorobenzene	ND		9.7	0.97	ug/L
Pentachloroethane	ND		49	0.97	ug/L
Pentachloronitrobenzene	ND		49	0.97	ug/L
Pentachlorophenol	ND		49	0.97	ug/L
Phenacetin	ND		19	0.97	ug/L
Phenanthrene	ND		9.7	0.97	ug/L
Phenol	ND		9.7	0.97	ug/L
p-Phenylenediamine	ND		97	9.7	ug/L
Phorate	ND		49	0.97	ug/L
2-Picoline	ND		19	0.97	ug/L
Pronamide	ND		19	0.97	ug/L
Pyrene	ND		9.7	0.97	ug/L
Pyridine	ND		19	0.97	ug/L
Safrole	ND		19	0.97	ug/L
Sulfotepp	ND		49	0.97	ug/L
1,2,4,5-Tetrachloro-benzene	ND		9.7	0.97	ug/L
2,3,4,6-Tetrachlorophenol	ND		49	1.2	ug/L
Thionazin	ND		49	1.1	ug/L
o-Toluidine	ND		9.7	0.97	ug/L
1,2,4-Trichlorobenzene	ND		9.7	1.4	ug/L
2,4,5-Trichlorophenol	ND		9.7	1.4	ug/L
2,4,6-Trichlorophenol	ND		9.7	1.2	ug/L
0,0,0-Triethylphosphoro-thioate	ND		49	0.97	ug/L
1,3,5-Trinitrobenzene	ND		49	0.97	ug/L

ND = Not Detected

Reported By: Deneen Spence Approved By: Maria E. Mattingly

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

(cont.)

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MW0-1
LAB ID: 058372-0001-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 19 DEC 97
Instrument: GCMS-D Dilution: 0.97

Parameter	Result	Qualifier	RL	MDL	Units

Surrogate	Recovery		Acceptable Range
Nitrobenzene-d5	85	%	51 - 104
2-Fluorobiphenyl	74	%	43 - 116
Terphenyl-d14	92	%	33 - 141
2-Fluorophenol	81	%	36 - 108
Phenol-d5	98	%	47 - 106
2,4,6-Tribromophenol	98	%	49 - 106

Reported By: Deneen Spence Approved By: Maria E. Mattingly

Quanterra Environmental Services

Appendix IX Herbicides
Method 8150

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MW0-1
LAB ID: 058372-0001-SA
Matrix: AQUEOUS
Authorized: 11 DEC 97
Instrument: GC/ECD

Sampled: 09 DEC 97
Prepared: 12 DEC 97
Dilution: 0.97

Received: 11 DEC 97
Analyzed: 16 DEC 97

Parameter	Result	Qualifier	RL	MDL	Units
2,4-D	ND		1.2	0.51	ug/L
2,4,5-TP (Silvex)	ND		0.16	0.14	ug/L
2,4,5-T	ND		0.19	0.14	ug/L
Dinoseb	ND		0.97	0.35	ug/L

Surrogate	Recovery		Acceptable Range
DCAA	90	%	27 - 121

ND = Not Detected

Reported By: Bret Collins

Approved By: Audrey Cornell

Quanterra Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8081

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-1
LAB ID: 058372-0001-SA
Matrix: AQUEOUS
Authorized: 11 DEC 97
Instrument: GC/ECD

Sampled: 09 DEC 97
Prepared: 12 DEC 97
Dilution: 0.94

Received: 11 DEC 97
Analyzed: 18 DEC 97

Parameter	Result	Qualifier	RL	MDL	Units
Aldrin	ND		0.047	0.022	ug/L
Aroclor 1016	ND		0.94	0.10	ug/L
Aroclor 1221	ND		0.94	0.32	ug/L
Aroclor 1232	ND		0.94	0.11	ug/L
Aroclor 1242	ND		0.94	0.17	ug/L
Aroclor 1248	ND		0.94	0.21	ug/L
Aroclor 1254	ND		0.94	0.12	ug/L
Aroclor 1260	ND		0.94	0.11	ug/L
alpha-BHC	ND		0.047	0.021	ug/L
beta-BHC	ND		0.047	0.025	ug/L
delta-BHC	ND		0.047	0.021	ug/L
gamma-BHC (Lindane)	ND		0.047	0.021	ug/L
alpha-Chlordane	ND		0.047	0.024	ug/L
gamma-Chlordane	ND		0.047	0.024	ug/L
Chlorobenzilate	ND		0.94	0.46	ug/L
4,4'-DDD	ND		0.094	0.011	ug/L
4,4'-DDE	ND		0.094	0.020	ug/L
4,4'-DDT	ND		0.094	0.031	ug/L
Diallate	ND		0.94	0.40	ug/L
Dieldrin	ND		0.094	0.021	ug/L
Endosulfan I	ND		0.047	0.024	ug/L
Endosulfan II	ND		0.094	0.021	ug/L
Endosulfan sulfate	ND		0.094	0.025	ug/L
Endrin	ND		0.094	0.025	ug/L
Endrin aldehyde	ND		0.094	0.021	ug/L
Heptachlor	ND		0.047	0.022	ug/L
Heptachlor epoxide	ND		0.047	0.023	ug/L
Isodrin	ND		0.094	0.034	ug/L
Kepone	ND		2.4	1.0	ug/L
Methoxychlor	ND		0.47	0.025	ug/L
Toxaphene	ND		4.7	0.17	ug/L

Surrogate	Recovery		Acceptable Range
Tetrachloro-m-xylene	87	%	51 - 103
Dibutyl chlorendate	79	%	71 - 109
Decachlorobiphenyl	90	%	50 - 138

ND = Not Detected

Reported By: Andy Burcham

Approved By: Audrey Cornell

Quanterra
Environmental Services

Metals
Total Metals

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-1
LAB ID: 058372-0001-SA
Matrix: AQUEOUS
Authorized: 11 DEC 97

Sampled: 09 DEC 97
Prepared: See Below

Received: 11 DEC 97
Analyzed: See Below

Parameter	Result	Qual	Dil	MDL	Rep Lim	Units	Method	Prepared Date	Analyzed Date
Antimony	ND		1.0	0.0026	0.010	mg/L	SW6010	19 DEC 97	27 DEC 97
Arsenic	0.0028	J	1.0	0.0014	0.0050	mg/L	7060A	18 DEC 97	19 DEC 97
Barium	0.054		1.0	0.0018	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Beryllium	0.0013	J	1.0	0.00092	0.0020	mg/L	SW6010	19 DEC 97	29 DEC 97
Cadmium	ND		1.0	0.00058	0.0050	mg/L	SW6010	19 DEC 97	27 DEC 97
Chromium	ND		1.0	0.0041	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Cobalt	ND		1.0	0.0035	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Copper	0.0046	J	1.0	0.0021	0.020	mg/L	SW6010	19 DEC 97	29 DEC 97
Lead	ND	q	1.0	0.0012	0.0050	mg/L	SW7421	19 DEC 97	22 DEC 97
Mercury	ND		1.0	0.00011	0.00020	mg/L	SW7470	16 DEC 97	16 DEC 97
Nickel	ND		1.0	0.0097	0.040	mg/L	SW6010	19 DEC 97	29 DEC 97
Selenium	0.0030	J	1.0	0.0027	0.0050	mg/L	SW7740	18 DEC 97	19 DEC 97
Silver	ND		1.0	0.0025	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Tin	ND		1.0	0.010	0.10	mg/L	SW6010	19 DEC 97	29 DEC 97
Vanadium	0.019		1.0	0.0031	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Zinc	ND		1.0	0.014	0.020	mg/L	SW6010	19 DEC 97	29 DEC 97

J = Result is detected below the reporting limit or is an estimated concentration.
q = Post-digestion spike recovery fell between 40% and 85% due to matrix interference.
ND = Not Detected

Reported By: Doug Gomer

Approved By: Jan Ecos

Quanterra Environmental Services

ICP/MS Metals
Total Metals

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-1
Lab ID: 058372-0001-SA
Matrix: AQUEOUS
Authorized: 11 DEC 97

Sampled: 09 DEC 97
Prepared: See Below

Received: 11 DEC 97
Analyzed: See Below

Parameter	Result	Qual	Dil	RL	Units	Test Method	Prepared Date	Analyzed Date
Thallium	ND	B	1.0	0.0010	mg/L	6020	22 DEC 97	06 JAN 98

B = Compound is also detected in the blank.
ND = Not Detected

Reported By: Dave Roberts

Approved By: Jan Ecos

Quanterra Environmental Services

General Inorganics

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-1
LAB ID: 058372-0001-SA
Matrix: AQUEOUS — Sampled: 09 DEC 97 — Received: 11 DEC 97
Authorized: 11 DEC 97 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	Dil	MDL	Rep Lim	Units	Method	Prepared Date	Analyzed Date
Cyanide	ND		1.0	0.0010	0.010	mg/L	9012	19 DEC 97	19 DEC 97
Nitrate as N	8.3		1.0	0.050	0.50	mg/L	E300.0	NA	11 DEC 97
Sulfide, Total	2.4		1.0	0.37	1.0	mg/L	9030	15 DEC 97	15 DEC 97
Total Organic Carbon	1.5		1.0	0.18	1.0	mg/L	9060	NA	17 DEC 97
Total Organic Halogen as Cl	16.7	J	1.0	7.5	30.0	ug/L	9020	NA	01 JAN 98

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Judy Lange — Approved By: Roxanne Sullivan

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
Method EPA-IFB

ient Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-1
Lab ID: 058372-0001-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Prepared: 22 DEC 97
Authorized: 11 DEC 97 Received: 11 DEC 97 Analyzed: 31 DEC 97

Sample Amt: 1.0

Parameter	Result	Units	Reporting Limit
2,3,7,8-TCDD	ND	ng/L	0.78
Surrogate	Recovery		Limits
13C-2,3,7,8-TCDD	82.1	%	40-120

RESUBMITTED
Date 1/29/98

Dilution factor is 1.0. All results and limits are corrected for dilution.

ᐧ = Not Detected

Reported By: MBAQUERFO Approved By: RHRABAK

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8260A

Client Name: Foothill Engineering Consultants Inc.
Client ID: TRIP BLANK
LAB ID: 058372-0002-TB
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 22 DEC 97
Instrument: GCMS-Z Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Acetone	ND		10	3.8	ug/L
Acetonitrile	ND		20	7.5	ug/L
Acrolein	ND		20	4.4	ug/L
Acrylonitrile	ND		20	7.2	ug/L
Allyl chloride	ND		2.0	0.20	ug/L
Benzene	ND		1.0	0.12	ug/L
Bromodichloromethane	ND		1.0	0.20	ug/L
Bromoform	ND		1.0	0.55	ug/L
Bromomethane	ND		2.0	0.11	ug/L
2-Butanone (MEK)	ND		5.0	0.70	ug/L
Carbon disulfide	ND		1.0	0.17	ug/L
Carbon tetrachloride	ND		1.0	0.12	ug/L
Chlorobenzene	ND		1.0	0.18	ug/L
Chloroethane	ND		2.0	0.10	ug/L
Chloroform	ND		1.0	0.10	ug/L
Chloromethane	ND		2.0	0.10	ug/L
Chloroprene	ND		1.0	0.10	ug/L
Dibromochloromethane	ND		1.0	0.37	ug/L
1,2-Dibromo-3-chloro-propane (DBCP)	ND		2.0	1.0	ug/L
1,2-Dibromoethane (EDB)	ND		1.0	0.29	ug/L
Dibromomethane	ND		1.0	0.16	ug/L
trans-1,4-Dichloro-2-butene	ND		1.0	0.47	ug/L
Dichlorodifluoromethane	ND		2.0	0.11	ug/L
1,1-Dichloroethane	ND		1.0	0.11	ug/L
1,2-Dichloroethane	ND		1.0	0.10	ug/L
1,1-Dichloroethene	ND		1.0	0.14	ug/L
trans-1,2-Dichloroethene	ND		0.50	0.15	ug/L
1,2-Dichloroethene (total)	ND		1.0	0.23	ug/L
1,2-Dichloropropane	ND		1.0	0.20	ug/L
cis-1,3-Dichloropropene	ND		1.0	0.18	ug/L
trans-1,3-Dichloropropene	ND		1.0	0.25	ug/L
1,4-Dioxane	ND		200	27	ug/L
Ethylbenzene	ND		1.0	0.10	ug/L
Ethyl methacrylate	ND		1.0	0.33	ug/L
2-Hexanone	ND		5.0	0.63	ug/L
Iodomethane	ND		1.0	0.12	ug/L
Isobutyl alcohol	ND		50	5.6	ug/L
Methacrylonitrile	ND		1.0	0.41	ug/L
Methylene chloride	0.36	J	1.0	0.10	ug/L
Methyl methacrylate	ND		1.0	0.22	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Steven Francis Approved By: Maria E. Mattingly

Quanterra
Environmental Services

Volatile Organics
Appendix IX List
Method 8260A

(cont.)

Client Name: Foothill Engineering Consultants Inc.
Client ID: TRIP BLANK
LAB ID: 058372-0002-TB
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 22 DEC 97
Instrument: GCMS-Z Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.52	ug/L
Propionitrile	ND		4.0	1.7	ug/L
Styrene	ND		1.0	0.21	ug/L
1,1,1,2-Tetrachloroethane	ND		1.0	0.12	ug/L
1,1,2,2-Tetrachloroethane	ND		1.0	0.72	ug/L
Tetrachloroethene	ND		1.0	0.11	ug/L
Toluene	0.24	J	1.0	0.11	ug/L
1,1,1-Trichloroethane	ND		1.0	0.13	ug/L
1,1,2-Trichloroethane	ND		1.0	0.37	ug/L
Trichloroethene	ND		1.0	0.10	ug/L
Trichlorofluoromethane	ND		2.0	0.19	ug/L
1,2,3-Trichloropropane	ND		1.0	0.58	ug/L
Vinyl acetate	ND		2.0	0.68	ug/L
Vinyl chloride	ND		2.0	0.14	ug/L
Xylenes (total)	ND		1.0	0.47	ug/L

Surrogate	Recovery		Acceptable Range
1,2-Dichloroethane-d4	86	%	78 - 113
4-Bromofluorobenzene	86	%	88 - 113
Toluene-d8	101	%	90 - 108

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Steven Francis Approved By: Maria E. Mattingly

Quanterra
Environmental Services

Volatile Organics
Appendix IX List
Method 8260A

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWN-1
LAB ID: 058372-0003-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 22 DEC 97
Instrument: GCMS-Z Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Acetone	ND		10	3.8	ug/L
Acetonitrile	ND		20	7.5	ug/L
Acrolein	ND		20	4.4	ug/L
Acrylonitrile	ND		20	7.2	ug/L
Allyl chloride	ND		2.0	0.20	ug/L
Benzene	ND		1.0	0.12	ug/L
Bromodichloromethane	ND		1.0	0.20	ug/L
Bromoform	ND		1.0	0.55	ug/L
Bromomethane	ND		2.0	0.11	ug/L
2-Butanone (MEK)	ND		5.0	0.70	ug/L
Carbon disulfide	ND		1.0	0.17	ug/L
Carbon tetrachloride	ND		1.0	0.12	ug/L
Chlorobenzene	ND		1.0	0.18	ug/L
Chloroethane	ND		2.0	0.10	ug/L
Chloroform	ND		1.0	0.10	ug/L
Chloromethane	ND		2.0	0.10	ug/L
Chloroprene	ND		1.0	0.10	ug/L
Dibromochloromethane	ND		1.0	0.37	ug/L
1,2-Dibromo-3-chloro-propane (DBCP)	ND		2.0	1.0	ug/L
1,2-Dibromoethane (EDB)	ND		1.0	0.29	ug/L
Dibromomethane	ND		1.0	0.16	ug/L
trans-1,4-Dichloro-2-butene	ND		1.0	0.47	ug/L
Dichlorodifluoromethane	ND		2.0	0.11	ug/L
1,1-Dichloroethane	ND		1.0	0.11	ug/L
1,2-Dichloroethane	ND		1.0	0.10	ug/L
1,1-Dichloroethene	ND		1.0	0.14	ug/L
trans-1,2-Dichloroethene	ND		0.50	0.15	ug/L
1,2-Dichloroethene (total)	ND		1.0	0.23	ug/L
1,2-Dichloropropane	ND		1.0	0.20	ug/L
cis-1,3-Dichloropropene	ND		1.0	0.18	ug/L
trans-1,3-Dichloropropene	ND		1.0	0.25	ug/L
1,4-Dioxane	ND		200	27	ug/L
Ethylbenzene	ND		1.0	0.10	ug/L
Ethyl methacrylate	ND		1.0	0.33	ug/L
2-Hexanone	ND		5.0	0.63	ug/L
Iodomethane	ND		1.0	0.12	ug/L
Isobutyl alcohol	ND		50	5.6	ug/L
Methacrylonitrile	ND		1.0	0.41	ug/L
Methylene chloride	ND		1.0	0.10	ug/L
Methyl methacrylate	ND		1.0	0.22	ug/L
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.52	ug/L

ND = Not Detected

Reported By: Steven Francis Approved By: Maria E. Mattingly

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8260A

(cont.)

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWN-1
LAB ID: 058372-0003-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 22 DEC 97
Instrument: GCMS-Z Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Propionitrile	ND		4.0	1.7	ug/L
Styrene	ND		1.0	0.21	ug/L
1,1,1,2-Tetrachloroethane	ND		1.0	0.12	ug/L
1,1,2,2-Tetrachloroethane	ND		1.0	0.72	ug/L
Tetrachloroethene	ND		1.0	0.11	ug/L
Toluene	ND		1.0	0.11	ug/L
1,1,1-Trichloroethane	ND		1.0	0.13	ug/L
1,1,2-Trichloroethane	ND		1.0	0.37	ug/L
Trichloroethene	ND		1.0	0.10	ug/L
Trichlorofluoromethane	ND		2.0	0.19	ug/L
1,2,3-Trichloropropane	ND		1.0	0.58	ug/L
Vinyl acetate	ND		2.0	0.68	ug/L
Vinyl chloride	ND		2.0	0.14	ug/L
Xylenes (total)	ND		1.0	0.47	ug/L

Surrogate	Recovery		Acceptable Range
1,2-Dichloroethane-d4	107	%	78 - 113
4-Bromofluorobenzene	90	%	88 - 113
Toluene-d8	99	%	90 - 108

ND = Not Detected

Reported By: Steven Francis Approved By: Maria E. Mattingly

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWN-1
LAB ID: 058372-0003-SA
Matrix: AQUEOUS — Sampled: 09 DEC 97 — Received: 11 DEC 97
Authorized: 11 DEC 97 — Prepared: 15 DEC 97 — Analyzed: 19 DEC 97
Instrument: GCMS-D — Dilution: 0.94

Parameter	Result	Qualifier	RL	MDL	Units
Acenaphthene	ND		9.4	0.94	ug/L
Acenaphthylene	ND		9.4	1.1	ug/L
Acetophenone	ND		9.4	0.94	ug/L
2-Acetylaminofluorene	ND		94	0.94	ug/L
4-Aminobiphenyl	ND		47	0.94	ug/L
Aniline	ND		9.4	4.8	ug/L
Anthracene	ND		9.4	1.0	ug/L
Aramite	ND		19	0.94	ug/L
Benzo(a)anthracene	ND		9.4	0.94	ug/L
Benzo(b)fluoranthene	ND		9.4	1.1	ug/L
Benzo(k)fluoranthene	ND		9.4	1.1	ug/L
Benzo(g,h,i)perylene	ND		9.4	1.5	ug/L
Benzo(a)pyrene	ND		9.4	1.3	ug/L
Benzyl alcohol	ND		9.4	1.1	ug/L
4-Bromophenyl phenyl ether	ND		9.4	0.94	ug/L
Butyl benzyl phthalate	ND		9.4	1.7	ug/L
2-sec-Butyl-4,6-dinitro-phenol	ND		19	0.94	ug/L
4-Chloroaniline	ND		9.4	1.8	ug/L
bis(2-Chloroethoxy)methane	ND		9.4	1.0	ug/L
bis(2-Chloroethyl) ether	ND		9.4	1.0	ug/L
2,2'-oxybis(1-chloropropane)	ND		9.4	1.0	ug/L
4-Chloro-3-methylphenol	ND		9.4	1.3	ug/L
2-Chloronaphthalene	ND		9.4	1.1	ug/L
2-Chlorophenol	ND		9.4	1.0	ug/L
4-Chlorophenyl phenyl ether	ND		9.4	1.5	ug/L
Chrysene	ND		9.4	1.1	ug/L
Dibenz(a,h)anthracene	ND		9.4	1.5	ug/L
Dibenzofuran	ND		9.4	1.1	ug/L
Di-n-butyl phthalate	ND		9.4	0.94	ug/L
1,2-Dichlorobenzene	ND		9.4	1.2	ug/L
1,3-Dichlorobenzene	ND		9.4	1.2	ug/L
1,4-Dichlorobenzene	ND		9.4	1.4	ug/L
3,3'-Dichlorobenzidine	ND		47	1.5	ug/L
2,4-Dichlorophenol	ND		9.4	1.3	ug/L
2,6-Dichlorophenol	ND		9.4	0.94	ug/L
Diethyl phthalate	ND		9.4	0.94	ug/L
Dimethoate	ND		19	0.94	ug/L
p-Dimethylaminoazobenzene	ND		19	1.0	ug/L
7,12-Dimethylbenz(a)-anthracene	ND		19	0.96	ug/L
3,3'-Dimethylbenzidine	ND		47	3.3	ug/L

ND = Not Detected

Reported By: Deneen Spence — Approved By: Maria E. Mattingly

Quanterra Environmental Services

Semivolatile Organics (cont.)
Appendix IX List
Method 8270B

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWN-1
LAB ID: 058372-0003-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 19 DEC 97
Instrument: GCMS-D Dilution: 0.94

Parameter	Result	Qualifier	RL	MDL	Units
a,a-Dimethylphenethyl-amine	ND		47	18	ug/L
2,4-Dimethylphenol	ND		9.4	1.5	ug/L
Dimethyl phthalate	ND		9.4	0.94	ug/L
1,3-Dinitrobenzene	ND		9.4	0.94	ug/L
4,6-Dinitro-2-methylphenol	ND		47	0.94	ug/L
2,4-Dinitrophenol	ND		47	1.2	ug/L
2,4-Dinitrotoluene	ND		9.4	0.94	ug/L
2,6-Dinitrotoluene	ND		9.4	0.94	ug/L
Di-n-octyl phthalate	ND		9.4	1.3	ug/L
Diphenylamine	ND		9.4	1.1	ug/L
Disulfoton	ND		47	1.3	ug/L
bis(2-Ethylhexyl)phthalate	ND		9.4	1.2	ug/L
Ethyl methanesulfonate	ND		9.4	0.94	ug/L
Famphur	ND		94		ug/L
Fluoranthene	ND		9.4	1.0	ug/L
Fluorene	ND		9.4	1.5	ug/L
Hexachlorobenzene	ND		9.4	0.94	ug/L
Hexachlorobutadiene	ND		9.4	1.5	ug/L
Hexachlorocyclopentadiene	ND		47	2.2	ug/L
Hexachloroethane	ND		9.4	1.4	ug/L
Hexachlorophene	ND		--		ug/L
Hexachloropropene	ND		94	0.94	ug/L
Indeno(1,2,3-cd)pyrene	ND		9.4	1.4	ug/L
Isophorone	ND		9.4	1.0	ug/L
Isosafrole	ND		19	1.9	ug/L
Methapyrilene	ND		47	10	ug/L
3-Methylcholanthrene	ND		19	2.5	ug/L
Methyl methanesulfonate	ND		9.4	0.94	ug/L
2-Methylnaphthalene	ND		9.4	1.2	ug/L
Methyl parathion	ND		47	0.94	ug/L
2-Methylphenol	ND		9.4	1.2	ug/L
3/4-Methylphenol	ND		9.4	1.1	ug/L
Naphthalene	ND		9.4	1.0	ug/L
1,4-Naphthoquinone	ND		47	1.2	ug/L
1-Naphthylamine	ND		9.4	1.9	ug/L
2-Naphthylamine	ND		9.4	1.1	ug/L
2-Nitroaniline	ND		47	1.1	ug/L
3-Nitroaniline	ND		47	1.0	ug/L
4-Nitroaniline	ND		47	1.5	ug/L
Nitrobenzene	ND		9.4	1.3	ug/L
2-Nitrophenol	ND		9.4	1.1	ug/L
4-Nitrophenol	ND		47	1.4	ug/L

ND = Not Detected

Reported By: Deneen Spence Approved By: Maria E. Mattingly

Quanterra
Environmental Services

(cont.)

Semivolatile Organics
Appendix IX List
Method 8270B

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWN-1
LAB ID: 058372-0003-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 19 DEC 97
Instrument: GCMS-D Dilution: 0.94

Parameter	Result	Qualifier	RL	MDL	Units
4-Nitroquinoline-1-oxide	ND		94	9.4	ug/L
N-Nitroso-di-n-butylamine	ND		9.4	0.94	ug/L
N-Nitrosodiethylamine	ND		9.4	0.94	ug/L
N-Nitrosodimethylamine	ND		9.4	1.2	ug/L
N-Nitrosodiphenylamine	ND		9.4	1.1	ug/L
N-Nitroso-di-n-propylamine	ND		9.4	0.94	ug/L
N-Nitrosomethylethylamine	ND		9.4	0.94	ug/L
N-Nitrosomorpholine	ND		9.4	0.94	ug/L
N-Nitrosopiperidine	ND		9.4	0.94	ug/L
N-Nitrosopyrrolidine	ND		9.4	0.96	ug/L
5-Nitro-o-toluidine	ND		19	1.2	ug/L
Parathion	ND		47	0.94	ug/L
Pentachlorobenzene	ND		9.4	0.94	ug/L
Pentachloroethane	ND		47	0.94	ug/L
Pentachloronitrobenzene	ND		47	0.94	ug/L
Pentachlorophenol	ND		47	0.94	ug/L
Phenacetin	ND		19	0.94	ug/L
Phenanthrene	ND		9.4	0.94	ug/L
Phenol	ND		9.4	0.94	ug/L
p-Phenylenediamine	ND		94	9.4	ug/L
Phorate	ND		47	0.94	ug/L
2-Picoline	ND		19	0.94	ug/L
Pronamide	ND		19	0.94	ug/L
Pyrene	ND		9.4	0.94	ug/L
Pyridine	ND		19	0.94	ug/L
Safrole	ND		19	0.94	ug/L
Sulfotepp	ND		47	0.94	ug/L
1,2,4,5-Tetrachloro-benzene	ND		9.4	0.94	ug/L
2,3,4,6-Tetrachlorophenol	ND		47	1.2	ug/L
Thionazin	ND		47	1.1	ug/L
o-Toluidine	ND		9.4	0.94	ug/L
1,2,4-Trichlorobenzene	ND		9.4	1.3	ug/L
2,4,5-Trichlorophenol	ND		9.4	1.3	ug/L
2,4,6-Trichlorophenol	ND		9.4	1.1	ug/L
0,0,0-Triethylphosphoro-thioate	ND		47	0.94	ug/L
1,3,5-Trinitrobenzene	ND		47	0.94	ug/L

ND = Not Detected

Reported By: Deneen Spence Approved By: Maria E. Mattingly

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

(cont.)

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWN-1
LAB ID: 058372-0003-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 19 DEC 97
Instrument: GCMS-D Dilution: 0.94

Parameter	Result	Qualifier	RL	MDL	Units

Surrogate	Recovery		Acceptable Range
Nitrobenzene-d5	89	%	51 - 104
2-Fluorobiphenyl	78	%	43 - 116
Terphenyl-d14	91	%	33 - 141
2-Fluorophenol	84	%	36 - 108
Phenol-d5	97	%	47 - 106
2,4,6-Tribromophenol	96	%	49 - 106

Reported By: Deneen Spence Approved By: Maria E. Mattingly

Quanterra
Environmental Services

Appendix IX Herbicides
Method 8150

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWN-1
LAB ID: 058372-0003-SA
Matrix: AQUEOUS — Sampled: 09 DEC 97 — Received: 11 DEC 97
Authorized: 11 DEC 97 — Prepared: 12 DEC 97 — Analyzed: 16 DEC 97
Instrument: GC/ECD — Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
2,4-D	ND		1.2	0.53	ug/L
2,4,5-TP (Silvex)	ND		0.17	0.14	ug/L
2,4,5-T	ND		0.20	0.14	ug/L
Dinoseb	ND		1.0	0.36	ug/L

Surrogate	Recovery		Acceptable Range
DCAA	98	%	27 - 121

ND = Not Detected

Reported By: Bret Collins

Approved By: Audrey Cornell

Quanterra
Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8081

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWN-1
LAB ID: 058372-0003-SA
Matrix: AQUEOUS — Sampled: 09 DEC 97 — Received: 11 DEC 97
Authorized: 11 DEC 97 — Prepared: 12 DEC 97 — Analyzed: 18 DEC 97
Instrument: GC/ECD — Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units
Aldrin	ND		0.047	0.022	ug/L
Aroclor 1016	ND		0.95	0.10	ug/L
Aroclor 1221	ND		0.95	0.32	ug/L
Aroclor 1232	ND		0.95	0.11	ug/L
Aroclor 1242	ND		0.95	0.17	ug/L
Aroclor 1248	ND		0.95	0.21	ug/L
Aroclor 1254	ND		0.95	0.12	ug/L
Aroclor 1260	ND		0.95	0.11	ug/L
alpha-BHC	ND		0.047	0.021	ug/L
beta-BHC	ND		0.047	0.025	ug/L
delta-BHC	ND		0.047	0.021	ug/L
gamma-BHC (Lindane)	ND		0.047	0.021	ug/L
alpha-Chlordane	ND		0.047	0.024	ug/L
gamma-Chlordane	ND		0.047	0.024	ug/L
Chlorobenzilate	ND		0.95	0.46	ug/L
4,4'-DDD	ND		0.095	0.011	ug/L
4,4'-DDE	ND		0.095	0.020	ug/L
4,4'-DDT	ND		0.095	0.031	ug/L
Diallate	ND		0.95	0.40	ug/L
Dieldrin	ND		0.095	0.021	ug/L
Endosulfan I	ND		0.047	0.024	ug/L
Endosulfan II	ND		0.095	0.021	ug/L
Endosulfan sulfate	ND		0.095	0.026	ug/L
Endrin	ND		0.095	0.026	ug/L
Endrin aldehyde	ND		0.095	0.021	ug/L
Heptachlor	ND		0.047	0.022	ug/L
Heptachlor epoxide	ND		0.047	0.023	ug/L
Isodrin	ND		0.095	0.034	ug/L
Kepone	ND		2.4	1.1	ug/L
Methoxychlor	ND		0.47	0.025	ug/L
Toxaphene	ND		4.7	0.17	ug/L

Surrogate	Recovery		Acceptable Range
Tetrachloro-m-xylene	90	%	51 - 103
Dibutyl chlorendate	76	%	71 - 109
Decachlorobiphenyl	89	%	50 - 138

ND = Not Detected

Reported By: Andy Burcham — Approved By: Audrey Cornell

Quanterra
Environmental Services

Metals
Total Metals

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWN-1
LAB ID: 058372-0003-SA
Matrix: AQUEOUS
Authorized: 11 DEC 97

Sampled: 09 DEC 97
Prepared: See Below

Received: 11 DEC 97
Analyzed: See Below

Parameter	Result	Qual	Dil	MDL	Rep Lim	Units	Method	Prepared Date	Analyzed Date
Antimony	ND		1.0	0.0026	0.010	mg/L	SW6010	19 DEC 97	27 DEC 97
Arsenic	0.0043	J	1.0	0.0014	0.0050	mg/L	7060A	18 DEC 97	19 DEC 97
Barium	0.062		1.0	0.0018	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Beryllium	ND		1.0	0.00092	0.0020	mg/L	SW6010	19 DEC 97	29 DEC 97
Cadmium	ND		1.0	0.00058	0.0050	mg/L	SW6010	19 DEC 97	27 DEC 97
Chromium	ND		1.0	0.0041	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Cobalt	0.0054	J	1.0	0.0035	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Copper	ND		1.0	0.0021	0.020	mg/L	SW6010	19 DEC 97	29 DEC 97
Lead	ND	p	5.0	0.0062	0.025	mg/L	SW7421	19 DEC 97	22 DEC 97
Mercury	ND		1.0	0.00011	0.00020	mg/L	SW7470	16 DEC 97	16 DEC 97
Nickel	ND		1.0	0.0097	0.040	mg/L	SW6010	19 DEC 97	29 DEC 97
Selenium	0.0063	q	1.0	0.0027	0.0050	mg/L	SW7740	18 DEC 97	19 DEC 97
Silver	ND		1.0	0.0025	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Tin	ND		1.0	0.010	0.10	mg/L	SW6010	19 DEC 97	29 DEC 97
Vanadium	0.022		1.0	0.0031	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Zinc	ND		1.0	0.014	0.020	mg/L	SW6010	19 DEC 97	29 DEC 97

J = Result is detected below the reporting limit or is an estimated concentration.
p = Reporting limit raised due to a dilution necessitated by initial post-digestion spike recovery of less than 40% due to matrix interference.
q = Post-digestion spike recovery fell between 40% and 85% due to matrix interference.
ND = Not Detected

Reported By: Doug Gomer

Approved By: Jan Ecos

Quanterra
Environmental Services

ICP/MS Metals
Total Metals

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWN-1
Lab ID: 058372-0003-SA
Matrix: AQUEOUS
Authorized: 11 DEC 97

Sampled: 09 DEC 97
Prepared: See Below

Received: 11 DEC 97
Analyzed: See Below

Parameter	Result	Qual	Dil	RL	Units	Test Method	Prepared Date	Analyzed Date
Thallium	ND	B	1.0	0.0010	mg/L	6020	22 DEC 97	06 JAN 98

B = Compound is also detected in the blank.
ND = Not Detected

Reported By: Dave Roberts

Approved By: Jan Ecos

Quanterra
Environmental Services

General Inorganics

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWN-1
LAB ID: 058372-0003-SA
Matrix: AQUEOUS
Authorized: 11 DEC 97

Sampled: 09 DEC 97
Prepared: See Below

Received: 11 DEC 97
Analyzed: See Below

Parameter	Result	Qual	Dil	MDL	Rep Lim	Units	Method	Prepared Date	Analyzed Date
Cyanide	ND		1.0	0.0010	0.010	mg/L	9012	19 DEC 97	19 DEC 97
Nitrate as N	2.6		1.0	0.050	0.50	mg/L	E300.0	NA	11 DEC 97
Sulfide, Total	2.1		1.0	0.37	1.0	mg/L	9030	15 DEC 97	15 DEC 97
Total Organic Carbon	0.92	J	1.0	0.18	1.0	mg/L	9060	NA	17 DEC 97
Total Organic Halogen as Cl	13.8	J	1.0	7.5	30.0	ug/L	9020	NA	01 JAN 98

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Judy Lange

Approved By: Roxanne Sullivan

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
Method EPA-IFB

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWN-1
Lab ID: 058372-0003-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Prepared: 22 DEC 97
Authorized: 11 DEC 97 Received: 11 DEC 97 Analyzed: 31 DEC 97

Sample Amt: 1.0

Parameter	Result	Units	Reporting Limit
2,3,7,8-TCDD	ND	ng/L	0.54
Surrogate	Recovery		Limits
13C-2,3,7,8-TCDD	82.5	%	40-120

RESUBMITTED
Date 1/29/98

Dilution factor is 1.0. All results and limits are corrected for dilution.

D = Not Detected

Reported By: MBAQUERFO Approved By: RHRABAK

Quanterra
Environmental Services

Volatile Organics
Appendix IX List
Method 8260A

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWR-1
LAB ID: 058372-0004-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 22 DEC 97
Instrument: GCMS-Z Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Acetone	ND		10	3.8	ug/L
Acetonitrile	ND		20	7.5	ug/L
Acrolein	ND		20	4.4	ug/L
Acrylonitrile	ND		20	7.2	ug/L
Allyl chloride	ND		2.0	0.20	ug/L
Benzene	ND		1.0	0.12	ug/L
Bromodichloromethane	ND		1.0	0.20	ug/L
Bromoform	ND		1.0	0.55	ug/L
Bromomethane	ND		2.0	0.11	ug/L
2-Butanone (MEK)	ND		5.0	0.70	ug/L
Carbon disulfide	ND		1.0	0.17	ug/L
Carbon tetrachloride	ND		1.0	0.12	ug/L
Chlorobenzene	ND		1.0	0.18	ug/L
Chloroethane	ND		2.0	0.10	ug/L
Chloroform	0.19	J	1.0	0.10	ug/L
Chloromethane	ND		2.0	0.10	ug/L
Chloroprene	ND		1.0	0.10	ug/L
Dibromochloromethane	ND		1.0	0.37	ug/L
1,2-Dibromo-3-chloro-propane (DBCP)	ND		2.0	1.0	ug/L
1,2-Dibromoethane (EDB)	ND		1.0	0.29	ug/L
Dibromomethane	ND		1.0	0.16	ug/L
trans-1,4-Dichloro-2-butene	ND		1.0	0.47	ug/L
Dichlorodifluoromethane	ND		2.0	0.11	ug/L
1,1-Dichloroethane	ND		1.0	0.11	ug/L
1,2-Dichloroethane	ND		1.0	0.10	ug/L
1,1-Dichloroethene	ND		1.0	0.14	ug/L
trans-1,2-Dichloroethene	ND		0.50	0.15	ug/L
1,2-Dichloroethene (total)	ND		1.0	0.23	ug/L
1,2-Dichloropropane	ND		1.0	0.20	ug/L
cis-1,3-Dichloropropene	ND		1.0	0.18	ug/L
trans-1,3-Dichloropropene	ND		1.0	0.25	ug/L
1,4-Dioxane	ND		200	27	ug/L
Ethylbenzene	ND		1.0	0.10	ug/L
Ethyl methacrylate	ND		1.0	0.33	ug/L
2-Hexanone	ND		5.0	0.63	ug/L
Iodomethane	ND		1.0	0.12	ug/L
Isobutyl alcohol	ND		50	5.6	ug/L
Methacrylonitrile	ND		1.0	0.41	ug/L
Methylene chloride	0.19	J	1.0	0.10	ug/L
Methyl methacrylate	ND		1.0	0.22	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Steven Francis Approved By: Maria E. Mattingly

Quanterra Environmental Services

(cont.)

Volatile Organics
Appendix IX List
Method 8260A

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWR-1
LAB ID: 058372-0004-SA
Matrix: AQUEOUS — Sampled: 09 DEC 97 — Received: 11 DEC 97
Authorized: 11 DEC 97 — Prepared: 15 DEC 97 — Analyzed: 22 DEC 97
Instrument: GCMS-Z — Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.52	ug/L
Propionitrile	ND		4.0	1.7	ug/L
Styrene	ND		1.0	0.21	ug/L
1,1,1,2-Tetrachloroethane	ND		1.0	0.12	ug/L
1,1,2,2-Tetrachloroethane	ND		1.0	0.72	ug/L
Tetrachloroethene	ND		1.0	0.11	ug/L
Toluene	ND		1.0	0.11	ug/L
1,1,1-Trichloroethane	ND		1.0	0.13	ug/L
1,1,2-Trichloroethane	ND		1.0	0.37	ug/L
Trichloroethene	0.11	J	1.0	0.10	ug/L
Trichlorofluoromethane	ND		2.0	0.19	ug/L
1,2,3-Trichloropropane	ND		1.0	0.58	ug/L
Vinyl acetate	ND		2.0	0.68	ug/L
Vinyl chloride	ND		2.0	0.14	ug/L
Xylenes (total)	ND		1.0	0.47	ug/L

Surrogate	Recovery		Acceptable Range
1,2-Dichloroethane-d4	108	%	78 - 113
4-Bromofluorobenzene	93	%	88 - 113
Toluene-d8	97	%	90 - 108

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Steven Francis — Approved By: Maria E. Mattingly

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWR-1
LAB ID: 058372-0004-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 19 DEC 97
Instrument: GCMS-D Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units
Acenaphthene	ND		9.5	0.95	ug/L
Acenaphthylene	ND		9.5	1.1	ug/L
Acetophenone	ND		9.5	0.95	ug/L
2-Acetylaminofluorene	ND		95	0.95	ug/L
4-Aminobiphenyl	ND		48	0.95	ug/L
Aniline	ND		9.5	4.9	ug/L
Anthracene	ND		9.5	1.0	ug/L
Aramite	ND		19	0.95	ug/L
Benzo(a)anthracene	ND		9.5	0.95	ug/L
Benzo(b)fluoranthene	ND		9.5	1.1	ug/L
Benzo(k)fluoranthene	ND		9.5	1.1	ug/L
Benzo(g,h,i)perylene	ND		9.5	1.5	ug/L
Benzo(a)pyrene	ND		9.5	1.3	ug/L
Benzyl alcohol	ND		9.5	1.1	ug/L
4-Bromophenyl phenyl ether	ND		9.5	0.95	ug/L
Butyl benzyl phthalate	ND		9.5	1.7	ug/L
2-sec-Butyl-4,6-dinitro-phenol	ND		19	0.95	ug/L
4-Chloroaniline	ND		9.5	1.8	ug/L
bis(2-Chloroethoxy)methane	ND		9.5	1.0	ug/L
bis(2-Chloroethyl) ether	ND		9.5	1.0	ug/L
2,2'-oxybis(1-chloropropane)	ND		9.5	1.0	ug/L
4-Chloro-3-methylphenol	ND		9.5	1.3	ug/L
2-Chloronaphthalene	ND		9.5	1.1	ug/L
2-Chlorophenol	ND		9.5	1.0	ug/L
4-Chlorophenyl phenyl ether	ND		9.5	1.5	ug/L
Chrysene	ND		9.5	1.1	ug/L
Dibenz(a,h)anthracene	ND		9.5	1.5	ug/L
Dibenzofuran	ND		9.5	1.1	ug/L
Di-n-butyl phthalate	ND		9.5	0.95	ug/L
1,2-Dichlorobenzene	ND		9.5	1.2	ug/L
1,3-Dichlorobenzene	ND		9.5	1.2	ug/L
1,4-Dichlorobenzene	ND		9.5	1.4	ug/L
3,3'-Dichlorobenzidine	ND		48	1.5	ug/L
2,4-Dichlorophenol	ND		9.5	1.3	ug/L
2,6-Dichlorophenol	ND		9.5	0.95	ug/L
Diethyl phthalate	ND		9.5	0.95	ug/L
Dimethoate	ND		19	0.95	ug/L
p-Dimethylaminoazobenzene	ND		19	1.0	ug/L
7,12-Dimethylbenz(a)-anthracene	ND		19	0.97	ug/L
3,3'-Dimethylbenzidine	ND		48	3.4	ug/L

ND = Not Detected

Reported By: Deneen Spence Approved By: Maria E. Mattingly

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

(cont.)

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWR-1
LAB ID: 058372-0004-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 19 DEC 97
Instrument: GCMS-D Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units
a,a-Dimethylphenethyl-amine	ND		48	18	ug/L
2,4-Dimethylphenol	ND		9.5	1.5	ug/L
Dimethyl phthalate	ND		9.5	0.95	ug/L
1,3-Dinitrobenzene	ND		9.5	0.95	ug/L
4,6-Dinitro-2-methylphenol	ND		48	0.95	ug/L
2,4-Dinitrophenol	ND		48	1.2	ug/L
2,4-Dinitrotoluene	ND		9.5	0.95	ug/L
2,6-Dinitrotoluene	ND		9.5	0.95	ug/L
Di-n-octyl phthalate	ND		9.5	1.3	ug/L
Diphenylamine	ND		9.5	1.1	ug/L
Disulfoton	ND		48	1.3	ug/L
bis(2-Ethylhexyl)phthalate	ND		9.5	1.2	ug/L
Ethyl methanesulfonate	ND		9.5	0.95	ug/L
Famphur	ND		95		ug/L
Fluoranthene	ND		9.5	1.0	ug/L
Fluorene	ND		9.5	1.5	ug/L
Hexachlorobenzene	ND		9.5	0.95	ug/L
Hexachlorobutadiene	ND		9.5	1.5	ug/L
Hexachlorocyclopentadiene	ND		48	2.2	ug/L
Hexachloroethane	ND		9.5	1.4	ug/L
Hexachlorophene	ND		--		ug/L
Hexachloropropene	ND		95	0.95	ug/L
Indeno(1,2,3-cd)pyrene	ND		9.5	1.4	ug/L
Isophorone	ND		9.5	1.0	ug/L
Isosafrole	ND		19	1.9	ug/L
Methapyrilene	ND		48	11	ug/L
3-Methylcholanthrene	ND		19	2.5	ug/L
Methyl methanesulfonate	ND		9.5	0.95	ug/L
2-Methylnaphthalene	ND		9.5	1.2	ug/L
Methyl parathion	ND		48	0.95	ug/L
2-Methylphenol	ND		9.5	1.2	ug/L
3/4-Methylphenol	ND		9.5	1.1	ug/L
Naphthalene	ND		9.5	1.0	ug/L
1,4-Naphthoquinone	ND		48	1.2	ug/L
1-Naphthylamine	ND		9.5	1.9	ug/L
2-Naphthylamine	ND		9.5	1.1	ug/L
2-Nitroaniline	ND		48	1.1	ug/L
3-Nitroaniline	ND		48	1.0	ug/L
4-Nitroaniline	ND		48	1.5	ug/L
Nitrobenzene	ND		9.5	1.3	ug/L
2-Nitrophenol	ND		9.5	1.1	ug/L
4-Nitrophenol	ND		48	1.4	ug/L

ND = Not Detected

Reported By: Deneen Spence Approved By: Maria E. Mattingly

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

(cont.)

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWR-1
LAB ID: 058372-0004-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 19 DEC 97
Instrument: GCMS-D Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units
4-Nitroquinoline-1-oxide	ND		95	9.5	ug/L
N-Nitroso-di-n-butylamine	ND		9.5	0.95	ug/L
N-Nitrosodiethylamine	ND		9.5	0.95	ug/L
N-Nitrosodimethylamine	ND		9.5	1.2	ug/L
N-Nitrosodiphenylamine	ND		9.5	1.1	ug/L
N-Nitroso-di-n-propylamine	ND		9.5	0.95	ug/L
N-Nitrosomethylethylamine	ND		9.5	0.95	ug/L
N-Nitrosomorpholine	ND		9.5	0.95	ug/L
N-Nitrosopiperidine	ND		9.5	0.95	ug/L
N-Nitrosopyrrolidine	ND		9.5	0.97	ug/L
5-Nitro-o-toluidine	ND		19	1.2	ug/L
Parathion	ND		48	0.95	ug/L
Pentachlorobenzene	ND		9.5	0.95	ug/L
Pentachloroethane	ND		48	0.95	ug/L
Pentachloronitrobenzene	ND		48	0.95	ug/L
Pentachlorophenol	ND		48	0.95	ug/L
Phenacetin	ND		19	0.95	ug/L
Phenanthrene	ND		9.5	0.95	ug/L
Phenol	ND		9.5	0.95	ug/L
p-Phenylenediamine	ND		95	9.5	ug/L
Phorate	ND		48	0.95	ug/L
2-Picoline	ND		19	0.95	ug/L
Pronamide	ND		19	0.95	ug/L
Pyrene	ND		9.5	0.95	ug/L
Pyridine	ND		19	0.95	ug/L
Safrole	ND		19	0.95	ug/L
Sulfotepp	ND		48	0.95	ug/L
1,2,4,5-Tetrachloro-benzene	ND		9.5	0.95	ug/L
2,3,4,6-Tetrachlorophenol	ND		48	1.2	ug/L
Thionazin	ND		48	1.1	ug/L
o-Toluidine	ND		9.5	0.95	ug/L
1,2,4-Trichlorobenzene	ND		9.5	1.3	ug/L
2,4,5-Trichlorophenol	ND		9.5	1.3	ug/L
2,4,6-Trichlorophenol	ND		9.5	1.1	ug/L
0,0,0-Triethylphosphoro-thioate	ND		48	0.95	ug/L
1,3,5-Trinitrobenzene	ND		48	0.95	ug/L

ND = Not Detected

Reported By: Deneen Spence Approved By: Maria E. Mattingly

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

(cont.)

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWR-1
LAB ID: 058372-0004-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 19 DEC 97
Instrument: GCMS-D Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units

Surrogate	Recovery		Acceptable Range
Nitrobenzene-d5	89	%	51 - 104
2-Fluorobiphenyl	78	%	43 - 116
Terphenyl-d14	88	%	33 - 141
2-Fluorophenol	85	%	36 - 108
Phenol-d5	99	%	47 - 106
2,4,6-Tribromophenol	96	%	49 - 106

Reported By: Deneen Spence Approved By: Maria E. Mattingly

Quanterra
Environmental Services

Appendix IX Herbicides
Method 8150

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWR-1
LAB ID: 058372-0004-SA
Matrix: AQUEOUS
Authorized: 11 DEC 97
Instrument: GC/ECD

Sampled: 09 DEC 97
Prepared: 12 DEC 97
Dilution: 0.95

Received: 11 DEC 97
Analyzed: 16 DEC 97

Parameter	Result	Qualifier	RL	MDL	Units
2,4-D	ND		1.1	0.50	ug/L
2,4,5-TP (Silvex)	ND		0.16	0.13	ug/L
2,4,5-T	ND		0.19	0.13	ug/L
Dinoseb	ND		0.95	0.34	ug/L

Surrogate	Recovery		Acceptable Range
DCAA	103	%	27 - 121

ND = Not Detected

Reported By: Bret Collins

Approved By: Audrey Cornell

Quanterra Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8081

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWR-1
LAB ID: 058372-0004-SA
Matrix: AQUEOUS — Sampled: 09 DEC 97 — Received: 11 DEC 97
Authorized: 11 DEC 97 — Prepared: 12 DEC 97 — Analyzed: 18 DEC 97
Instrument: GC/ECD — Dilution: 0.97

Parameter	Result	Qualifier	RL	MDL	Units
Aldrin	ND		0.048	0.022	ug/L
Aroclor 1016	ND		0.97	0.11	ug/L
Aroclor 1221	ND		0.97	0.33	ug/L
Aroclor 1232	ND		0.97	0.12	ug/L
Aroclor 1242	ND		0.97	0.17	ug/L
Aroclor 1248	ND		0.97	0.21	ug/L
Aroclor 1254	ND		0.97	0.13	ug/L
Aroclor 1260	ND		0.97	0.12	ug/L
alpha-BHC	ND		0.048	0.021	ug/L
beta-BHC	ND		0.048	0.025	ug/L
delta-BHC	ND		0.048	0.021	ug/L
gamma-BHC (Lindane)	ND		0.048	0.021	ug/L
alpha-Chlordane	ND		0.048	0.024	ug/L
gamma-Chlordane	ND		0.048	0.024	ug/L
Chlorobenzilate	ND		0.97	0.47	ug/L
4,4'-DDD	ND		0.097	0.012	ug/L
4,4'-DDE	ND		0.097	0.020	ug/L
4,4'-DDT	ND		0.097	0.032	ug/L
Diallate	ND		0.97	0.41	ug/L
Dieldrin	ND		0.097	0.021	ug/L
Endosulfan I	ND		0.048	0.024	ug/L
Endosulfan II	ND		0.097	0.021	ug/L
Endosulfan sulfate	ND		0.097	0.026	ug/L
Endrin	ND		0.097	0.026	ug/L
Endrin aldehyde	ND		0.097	0.021	ug/L
Heptachlor	ND		0.048	0.022	ug/L
Heptachlor epoxide	ND		0.048	0.023	ug/L
Isodrin	ND		0.097	0.035	ug/L
Kepone	ND		2.4	1.1	ug/L
Methoxychlor	ND		0.48	0.025	ug/L
Toxaphene	ND		4.8	0.17	ug/L

Surrogate	Recovery		Acceptable Range
Tetrachloro-m-xylene	88	%	51 - 103
Dibutyl chlorendate	76	%	71 - 109
Decachlorobiphenyl	82	%	50 - 138

ND = Not Detected

Reported By: Andy Burcham — Approved By: Audrey Cornell

Quanterra
Environmental Services

Metals
Total Metals

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWR-1
LAB ID: 058372-0004-SA
Matrix: AQUEOUS
Authorized: 11 DEC 97

Sampled: 09 DEC 97
Prepared: See Below

Received: 11 DEC 97
Analyzed: See Below

Parameter	Result	Qual	Dil	MDL	Rep Lim	Units	Method	Prepared Date	Analyzed Date
Antimony	ND		1.0	0.0026	0.010	mg/L	SW6010	19 DEC 97	27 DEC 97
Arsenic	ND		1.0	0.0014	0.0050	mg/L	7060A	18 DEC 97	19 DEC 97
Barium	0.060		1.0	0.0018	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Beryllium	ND		1.0	0.00092	0.0020	mg/L	SW6010	19 DEC 97	29 DEC 97
Cadmium	ND		1.0	0.00058	0.0050	mg/L	SW6010	19 DEC 97	27 DEC 97
Chromium	0.049		1.0	0.0041	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Cobalt	0.0048J		1.0	0.0035	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Copper	0.0053J		1.0	0.0021	0.020	mg/L	SW6010	19 DEC 97	29 DEC 97
Lead	ND	p	5.0	0.0062	0.025	mg/L	SW7421	19 DEC 97	22 DEC 97
Mercury	ND		1.0	0.00011	0.00020	mg/L	SW7470	16 DEC 97	16 DEC 97
Nickel	0.47		1.0	0.0097	0.040	mg/L	SW6010	19 DEC 97	29 DEC 97
Selenium	0.0050q		1.0	0.0027	0.0050	mg/L	SW7740	18 DEC 97	19 DEC 97
Silver	ND		1.0	0.0025	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Tin	ND		1.0	0.010	0.10	mg/L	SW6010	19 DEC 97	29 DEC 97
Vanadium	0.012		1.0	0.0031	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Zinc	ND		1.0	0.014	0.020	mg/L	SW6010	19 DEC 97	29 DEC 97

J = Result is detected below the reporting limit or is an estimated concentration.
p = Reporting limit raised due to a dilution necessitated by initial post-digestion spike recovery of less than 40% due to matrix interference.
q = Post-digestion spike recovery fell between 40% and 85% due to matrix interference.
ND = Not Detected

Reported By: Doug Gomer

Approved By: Jan Ecos

Quanterra
Environmental Services

ICP/MS Metals
Total Metals

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWR-1
Lab ID: 058372-0004-SA
Matrix: AQUEOUS
Authorized: 11 DEC 97

Sampled: 09 DEC 97
Prepared: See Below

Received: 11 DEC 97
Analyzed: See Below

Parameter	Result	Qual	Dil	RL	Units	Test Method	Prepared Date	Analyzed Date
Thallium	ND	B	1.0	0.0010	mg/L	6020	22 DEC 97	06 JAN 98

B = Compound is also detected in the blank.
ND = Not Detected

Reported By: Dave Roberts

Approved By: Jan Ecos

Quanterra
Environmental Services

General Inorganics

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWR-1
LAB ID: 058372-0004-SA
Matrix: AQUEOUS
Authorized: 11 DEC 97

Sampled: 09 DEC 97
Prepared: See Below

Received: 11 DEC 97
Analyzed: See Below

Parameter	Result	Qual	Dil	MDL	Rep Lim	Units	Method	Prepared Date	Analyzed Date
Cyanide	ND		1.0	0.0010	0.010	mg/L	9012	19 DEC 97	19 DEC 97
Nitrate as N	4.9		1.0	0.050	0.50	mg/L	E300.0	NA	11 DEC 97
Sulfide, Total	2.4		1.0	0.37	1.0	mg/L	9030	15 DEC 97	15 DEC 97
Total Organic Carbon	1.1		1.0	0.18	1.0	mg/L	9060	NA	17 DEC 97
Total Organic Halogen as Cl	26.4	J	1.0	7.5	30.0	ug/L	9020	NA	01 JAN 98

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Judy Lange

Approved By: Roxanne Sullivan

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
Method EPA-IFB

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWR-1
Lab ID: 058372-0004-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Prepared: 22 DEC 97
Authorized: 11 DEC 97 Received: 11 DEC 97 Analyzed: 31 DEC 97

Sample Amt: 1.0

Parameter	Result	Units	Reporting Limit
2,3,7,8-TCDD	ND	ng/L	0.67
Surrogate	Recovery		Limits
13C-2,3,7,8-TCDD	85.6	%	40-120

RESUBMITTED
Date 1/29/98

Dilution factor is 1.0. All results and limits are corrected for dilution.

ND = Not Detected

Reported By: MBAQUERFO Approved By: RHRABAK

Quanterra
Environmental Services

Volatile Organics
Appendix IX List
Method 8260A

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MW0-2
LAB ID: 058372-0005-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 22 DEC 97
Instrument: GCMS-Z Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Acetone	ND		10	3.8	ug/L
Acetonitrile	ND		20	7.5	ug/L
Acrolein	ND		20	4.4	ug/L
Acrylonitrile	ND		20	7.2	ug/L
Allyl chloride	ND		2.0	0.20	ug/L
Benzene	ND		1.0	0.12	ug/L
Bromodichloromethane	ND		1.0	0.20	ug/L
Bromoform	ND		1.0	0.55	ug/L
Bromomethane	ND		2.0	0.11	ug/L
2-Butanone (MEK)	ND		5.0	0.70	ug/L
Carbon disulfide	ND		1.0	0.17	ug/L
Carbon tetrachloride	ND		1.0	0.12	ug/L
Chlorobenzene	ND		1.0	0.18	ug/L
Chloroethane	ND		2.0	0.10	ug/L
Chloroform	0.36	J	1.0	0.10	ug/L
Chloromethane	ND		2.0	0.10	ug/L
Chloroprene	ND		1.0	0.10	ug/L
Dibromochloromethane	ND		1.0	0.37	ug/L
1,2-Dibromo-3-chloro-propane (DBCP)	ND		2.0	1.0	ug/L
1,2-Dibromoethane (EDB)	ND		1.0	0.29	ug/L
Dibromomethane	ND		1.0	0.16	ug/L
trans-1,4-Dichloro-2-butene	ND		1.0	0.47	ug/L
Dichlorodifluoromethane	ND		2.0	0.11	ug/L
1,1-Dichloroethane	ND		1.0	0.11	ug/L
1,2-Dichloroethane	ND		1.0	0.10	ug/L
1,1-Dichloroethene	ND		1.0	0.14	ug/L
trans-1,2-Dichloroethene	ND		0.50	0.15	ug/L
1,2-Dichloroethene (total)	ND		1.0	0.23	ug/L
1,2-Dichloropropane	ND		1.0	0.20	ug/L
cis-1,3-Dichloropropene	ND		1.0	0.18	ug/L
trans-1,3-Dichloropropene	ND		1.0	0.25	ug/L
1,4-Dioxane	ND		200	27	ug/L
Ethylbenzene	ND		1.0	0.10	ug/L
Ethyl methacrylate	ND		1.0	0.33	ug/L
2-Hexanone	ND		5.0	0.63	ug/L
Iodomethane	ND		1.0	0.12	ug/L
Isobutyl alcohol	4.6	J	50	5.6	ug/L
Methacrylonitrile	ND		1.0	0.41	ug/L
Methylene chloride	0.15	J	1.0	0.10	ug/L
Methyl methacrylate	ND		1.0	0.22	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Steven Francis Approved By: Maria E. Mattingly

Quanterra Environmental Services

(cont.)

Volatile Organics
Appendix IX List
Method 8260A

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MW0-2
LAB ID: 058372-0005-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 22 DEC 97
Instrument: GCMS-Z Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.52	ug/L
Propionitrile	ND		4.0	1.7	ug/L
Styrene	ND		1.0	0.21	ug/L
1,1,1,2-Tetrachloroethane	ND		1.0	0.12	ug/L
1,1,2,2-Tetrachloroethane	ND		1.0	0.72	ug/L
Tetrachloroethene	ND		1.0	0.11	ug/L
Toluene	ND		1.0	0.11	ug/L
1,1,1-Trichloroethane	ND		1.0	0.13	ug/L
1,1,2-Trichloroethane	ND		1.0	0.37	ug/L
Trichloroethene	ND		1.0	0.10	ug/L
Trichlorofluoromethane	ND		2.0	0.19	ug/L
1,2,3-Trichloropropane	ND		1.0	0.58	ug/L
Vinyl acetate	ND		2.0	0.68	ug/L
Vinyl chloride	ND		2.0	0.14	ug/L
Xylenes (total)	ND		1.0	0.47	ug/L

Surrogate	Recovery		Acceptable Range
1,2-Dichloroethane-d4	108	%	78 - 113
4-Bromofluorobenzene	94	%	88 - 113
Toluene-d8	97	%	90 - 108

ND = Not Detected

Reported By: Steven Francis Approved By: Maria E. Mattingly

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MW0-2
LAB ID: 058372-0005-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 19 DEC 97
Instrument: GCMS-D Dilution: 0.97

Parameter	Result	Qualifier	RL	MDL	Units
Acenaphthene	ND		9.7	0.97	ug/L
Acenaphthylene	ND		9.7	1.2	ug/L
Acetophenone	ND		9.7	0.97	ug/L
2-Acetylaminofluorene	ND		97	0.97	ug/L
4-Aminobiphenyl	ND		49	0.97	ug/L
Aniline	ND		9.7	5.0	ug/L
Anthracene	ND		9.7	1.1	ug/L
Aramite	ND		19	0.97	ug/L
Benzo(a)anthracene	ND		9.7	0.97	ug/L
Benzo(b)fluoranthene	ND		9.7	1.2	ug/L
Benzo(k)fluoranthene	ND		9.7	1.2	ug/L
Benzo(g,h,i)perylene	ND		9.7	1.6	ug/L
Benzo(a)pyrene	ND		9.7	1.4	ug/L
Benzyl alcohol	ND		9.7	1.2	ug/L
4-Bromophenyl phenyl ether	ND		9.7	0.97	ug/L
Butyl benzyl phthalate	ND		9.7	1.7	ug/L
2-sec-Butyl-4,6-dinitro-phenol	ND		19	0.97	ug/L
4-Chloroaniline	ND		9.7	1.8	ug/L
bis(2-Chloroethoxy)methane	ND		9.7	1.1	ug/L
bis(2-Chloroethyl) ether	ND		9.7	1.1	ug/L
2,2'-oxybis(1-chloropropane)	ND		9.7	1.1	ug/L
4-Chloro-3-methylphenol	ND		9.7	1.4	ug/L
2-Chloronaphthalene	ND		9.7	1.2	ug/L
2-Chlorophenol	ND		9.7	1.1	ug/L
4-Chlorophenyl phenyl ether	ND		9.7	1.6	ug/L
Chrysene	ND		9.7	1.2	ug/L
Dibenz(a,h)anthracene	ND		9.7	1.6	ug/L
Dibenzofuran	ND		9.7	1.2	ug/L
Di-n-butyl phthalate	ND		9.7	0.97	ug/L
1,2-Dichlorobenzene	ND		9.7	1.3	ug/L
1,3-Dichlorobenzene	ND		9.7	1.3	ug/L
1,4-Dichlorobenzene	ND		9.7	1.5	ug/L
3,3'-Dichlorobenzidine	ND		49	1.6	ug/L
2,4-Dichlorophenol	ND		9.7	1.4	ug/L
2,6-Dichlorophenol	ND		9.7	0.97	ug/L
Diethyl phthalate	ND		9.7	0.97	ug/L
Dimethoate	ND		19	0.97	ug/L
p-Dimethylaminoazobenzene	ND		19	1.0	ug/L
7,12-Dimethylbenz(a)-anthracene	ND		19	0.99	ug/L
3,3'-Dimethylbenzidine	ND		49	3.4	ug/L

ND = Not Detected

Reported By: Deneen Spence Approved By: Maria E. Mattingly

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

(cont.)

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-2
LAB ID: 058372-0005-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 19 DEC 97
Instrument: GCMS-D Dilution: 0.97

Parameter	Result	Qualifier	RL	MDL	Units
a,a-Dimethylphenethyl-amine	ND		49	18	ug/L
2,4-Dimethylphenol	ND		9.7	1.6	ug/L
Dimethyl phthalate	ND		9.7	0.97	ug/L
1,3-Dinitrobenzene	ND		9.7	0.97	ug/L
4,6-Dinitro-2-methylphenol	ND		49	0.97	ug/L
2,4-Dinitrophenol	ND		49	1.3	ug/L
2,4-Dinitrotoluene	ND		9.7	0.97	ug/L
2,6-Dinitrotoluene	ND		9.7	0.97	ug/L
Di-n-octyl phthalate	ND		9.7	1.4	ug/L
Diphenylamine	ND		9.7	1.2	ug/L
Disulfoton	ND		49	1.3	ug/L
bis(2-Ethylhexyl)phthalate	ND		9.7	1.3	ug/L
Ethyl methanesulfonate	ND		9.7	0.97	ug/L
Famphur	ND		97		ug/L
Fluoranthene	ND		9.7	1.1	ug/L
Fluorene	ND		9.7	1.6	ug/L
Hexachlorobenzene	ND		9.7	0.97	ug/L
Hexachlorobutadiene	ND		9.7	1.6	ug/L
Hexachlorocyclopentadiene	ND		49	2.2	ug/L
Hexachloroethane	ND		9.7	1.5	ug/L
Hexachlorophene	ND		--		ug/L
Hexachloropropene	ND		97	0.97	ug/L
Indeno(1,2,3-cd)pyrene	ND		9.7	1.5	ug/L
Isophorone	ND		9.7	1.1	ug/L
Isosafrole	ND		19	1.9	ug/L
Methapyrilene	ND		49	11	ug/L
3-Methylcholanthrene	ND		19	2.6	ug/L
Methyl methanesulfonate	ND		9.7	0.97	ug/L
2-Methylnaphthalene	ND		9.7	1.3	ug/L
Methyl parathion	ND		49	0.97	ug/L
2-Methylphenol	ND		9.7	1.3	ug/L
3/4-Methylphenol	ND		9.7	1.2	ug/L
Naphthalene	ND		9.7	1.1	ug/L
1,4-Naphthoquinone	ND		49	1.3	ug/L
1-Naphthylamine	ND		9.7	2.0	ug/L
2-Naphthylamine	ND		9.7	1.1	ug/L
2-Nitroaniline	ND		49	1.2	ug/L
3-Nitroaniline	ND		49	1.1	ug/L
4-Nitroaniline	ND		49	1.6	ug/L
Nitrobenzene	ND		9.7	1.4	ug/L
2-Nitrophenol	ND		9.7	1.2	ug/L
4-Nitrophenol	ND		49	1.5	ug/L

ND = Not Detected

Reported By: Deneen Spence Approved By: Maria E. Mattingly

Quanterra Environmental Services

(cont.)

Semivolatile Organics
Appendix IX List
Method 8270B

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-2
LAB ID: 058372-0005-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 19 DEC 97
Instrument: GCMS-D Dilution: 0.97

Parameter	Result	Qualifier	RL	MDL	Units
4-Nitroquinoline-1-oxide	ND		97	9.7	ug/L
N-Nitroso-di-n-butylamine	ND		9.7	0.97	ug/L
N-Nitrosodiethylamine	ND		9.7	0.97	ug/L
N-Nitrosodimethylamine	ND		9.7	1.2	ug/L
N-Nitrosodiphenylamine	ND		9.7	1.2	ug/L
N-Nitroso-di-n-propylamine	ND		9.7	0.97	ug/L
N-Nitrosomethylethylamine	ND		9.7	0.97	ug/L
N-Nitrosomorpholine	ND		9.7	0.97	ug/L
N-Nitrosopiperidine	ND		9.7	0.97	ug/L
N-Nitrosopyrrolidine	ND		9.7	0.99	ug/L
5-Nitro-o-toluidine	ND		19	1.2	ug/L
Parathion	ND		49	0.97	ug/L
Pentachlorobenzene	ND		9.7	0.97	ug/L
Pentachloroethane	ND		49	0.97	ug/L
Pentachloronitrobenzene	ND		49	0.97	ug/L
Pentachlorophenol	ND		49	0.97	ug/L
Phenacetin	ND		19	0.97	ug/L
Phenanthrene	ND		9.7	0.97	ug/L
Phenol	ND		9.7	0.97	ug/L
p-Phenylenediamine	ND		97	9.7	ug/L
Phorate	ND		49	0.97	ug/L
2-Picoline	ND		19	0.97	ug/L
Pronamide	ND		19	0.97	ug/L
Pyrene	ND		9.7	0.97	ug/L
Pyridine	ND		19	0.97	ug/L
Safrole	ND		19	0.97	ug/L
Sulfotepp	ND		49	0.97	ug/L
1,2,4,5-Tetrachloro-benzene	ND		9.7	0.97	ug/L
2,3,4,6-Tetrachlorophenol	ND		49	1.2	ug/L
Thionazin	ND		49	1.1	ug/L
o-Toluidine	ND		9.7	0.97	ug/L
1,2,4-Trichlorobenzene	ND		9.7	1.4	ug/L
2,4,5-Trichlorophenol	ND		9.7	1.4	ug/L
2,4,6-Trichlorophenol	ND		9.7	1.2	ug/L
0,0,0-Triethylphosphoro-thioate	ND		49	0.97	ug/L
1,3,5-Trinitrobenzene	ND		49	0.97	ug/L

ND = Not Detected

Reported By: Deneen Spence Approved By: Maria E. Mattingly

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

(cont.)

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-2
LAB ID: 058372-0005-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Received: 11 DEC 97
Authorized: 11 DEC 97 Prepared: 15 DEC 97 Analyzed: 19 DEC 97
Instrument: GCMS-D Dilution: 0.97

Parameter	Result	Qualifier	RL	MDL	Units

Surrogate	Recovery		Acceptable Range
Nitrobenzene-d5	84	%	51 - 104
2-Fluorobiphenyl	74	%	43 - 116
Terphenyl-d14	93	%	33 - 141
2-Fluorophenol	77	%	36 - 108
Phenol-d5	92	%	47 - 106
2,4,6-Tribromophenol	93	%	49 - 106

Reported By: Deneen Spence

Approved By: Maria E. Mattingly

Quanterra Environmental Services

Appendix IX Herbicides
Method 8150

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-2
LAB ID: 058372-0005-SA
Matrix: AQUEOUS
Authorized: 11 DEC 97
Instrument: GC/ECD

Sampled: 09 DEC 97
Prepared: 12 DEC 97
Dilution: 0.95

Received: 11 DEC 97
Analyzed: 16 DEC 97

Parameter	Result	Qualifier	RL	MDL	Units
2,4-D	ND		1.1	0.50	ug/L
2,4,5-TP (Silvex)	ND		0.16	0.13	ug/L
2,4,5-T	ND		0.19	0.13	ug/L
Dinoseb	ND		0.95	0.34	ug/L

Surrogate	Recovery		Acceptable Range
DCAA	105	%	27 - 121

ND = Not Detected

Reported By: Bret Collins

Approved By: Audrey Cornell

Quanterra
Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8081

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-2
LAB ID: 058372-0005-SA
Matrix: AQUEOUS — Sampled: 09 DEC 97 — Received: 11 DEC 97
Authorized: 11 DEC 97 — Prepared: 12 DEC 97 — Analyzed: 18 DEC 97
Instrument: GC/ECD — Dilution: 0.94

Parameter	Result	Qualifier	RL	MDL	Units
Aldrin	ND		0.047	0.022	ug/L
Aroclor 1016	ND		0.94	0.10	ug/L
Aroclor 1221	ND		0.94	0.32	ug/L
Aroclor 1232	ND		0.94	0.11	ug/L
Aroclor 1242	ND		0.94	0.17	ug/L
Aroclor 1248	ND		0.94	0.21	ug/L
Aroclor 1254	ND		0.94	0.12	ug/L
Aroclor 1260	ND		0.94	0.11	ug/L
alpha-BHC	ND		0.047	0.021	ug/L
beta-BHC	ND		0.047	0.025	ug/L
delta-BHC	ND		0.047	0.021	ug/L
gamma-BHC (Lindane)	ND		0.047	0.021	ug/L
alpha-Chlordane	ND		0.047	0.024	ug/L
gamma-Chlordane	ND		0.047	0.024	ug/L
Chlorobenzilate	ND		0.94	0.46	ug/L
4,4'-DDD	ND		0.094	0.011	ug/L
4,4'-DDE	ND		0.094	0.020	ug/L
4,4'-DDT	ND		0.094	0.031	ug/L
Diallate	ND		0.94	0.40	ug/L
Dieldrin	ND		0.094	0.021	ug/L
Endosulfan I	ND		0.047	0.024	ug/L
Endosulfan II	ND		0.094	0.021	ug/L
Endosulfan sulfate	ND		0.094	0.025	ug/L
Endrin	ND		0.094	0.025	ug/L
Endrin aldehyde	ND		0.094	0.021	ug/L
Heptachlor	ND		0.047	0.022	ug/L
Heptachlor epoxide	ND		0.047	0.023	ug/L
Isodrin	ND		0.094	0.034	ug/L
Kepone	ND		2.4	1.0	ug/L
Methoxychlor	ND		0.47	0.025	ug/L
Toxaphene	ND		4.7	0.17	ug/L

Surrogate	Recovery		Acceptable Range
Tetrachloro-m-xylene	79	%	51 - 103
Dibutyl chlorendate	68	%	71 - 109
Decachlorobiphenyl	78	%	50 - 138

ND = Not Detected

Reported By: Andy Burcham — Approved By: Audrey Cornell

Quanterra
Environmental Services

Metals
Total Metals

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MW0-2
LAB ID: 058372-0005-SA
Matrix: AQUEOUS
Authorized: 11 DEC 97

Sampled: 09 DEC 97
Prepared: See Below

Received: 11 DEC 97
Analyzed: See Below

Parameter	Result	Qual	Dil	MDL	Rep Lim	Units	Method	Prepared Date	Analyzed Date
Antimony	ND		1.0	0.0026	0.010	mg/L	SW6010	19 DEC 97	27 DEC 97
Arsenic	ND		1.0	0.0014	0.0050	mg/L	7060A	18 DEC 97	19 DEC 97
Barium	0.053		1.0	0.0018	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Beryllium	ND		1.0	0.00092	0.0020	mg/L	SW6010	19 DEC 97	29 DEC 97
Cadmium	ND		1.0	0.00058	0.0050	mg/L	SW6010	19 DEC 97	27 DEC 97
Chromium	ND		1.0	0.0041	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Cobalt	ND		1.0	0.0035	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Copper	0.0034	J	1.0	0.0021	0.020	mg/L	SW6010	19 DEC 97	29 DEC 97
Lead	ND	q	1.0	0.0012	0.0050	mg/L	SW7421	19 DEC 97	22 DEC 97
Mercury	ND		1.0	0.00011	0.00020	mg/L	SW7470	16 DEC 97	16 DEC 97
Nickel	ND		1.0	0.0097	0.040	mg/L	SW6010	19 DEC 97	29 DEC 97
Selenium	ND		1.0	0.0027	0.0050	mg/L	SW7740	18 DEC 97	19 DEC 97
Silver	ND		1.0	0.0025	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Tin	ND		1.0	0.010	0.10	mg/L	SW6010	19 DEC 97	29 DEC 97
Vanadium	0.015		1.0	0.0031	0.010	mg/L	SW6010	19 DEC 97	29 DEC 97
Zinc	ND		1.0	0.014	0.020	mg/L	SW6010	19 DEC 97	29 DEC 97

J = Result is detected below the reporting limit or is an estimated concentration.
q = Post-digestion spike recovery fell between 40% and 85% due to matrix interference.
ND = Not Detected

Reported By: Doug Gomer

Approved By: Jan Ecos

Quanterra
Environmental Services

ICP/MS Metals
Total Metals

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MW0-2
Lab ID: 058372-0005-SA
Matrix: AQUEOUS
Authorized: 11 DEC 97

Sampled: 09 DEC 97
Prepared: See Below

Received: 11 DEC 97
Analyzed: See Below

Parameter	Result	Qual	Dil	RL	Units	Test Method	Prepared Date	Analyzed Date
Thallium	ND		1.0	0.0010	mg/L	6020	22 DEC 97	06 JAN 98

ND = Not Detected

Reported By: Dave Roberts

Approved By: Jan Ecos

Quanterra
Environmental Services

General Inorganics

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-2
LAB ID: 058372-0005-SA
Matrix: AQUEOUS
Authorized: 11 DEC 97

Sampled: 09 DEC 97
Prepared: See Below

Received: 11 DEC 97
Analyzed: See Below

Parameter	Result	Qual	Dil	MDL	Rep Lim	Units	Method	Prepared Date	Analyzed Date
Cyanide	ND		1.0	0.0010	0.010	mg/L	9012	19 DEC 97	19 DEC 97
Nitrate as N	8.4		1.0	0.050	0.50	mg/L	E300.0	NA	11 DEC 97
Sulfide, Total	1.9		1.0	0.37	1.0	mg/L	9030	15 DEC 97	15 DEC 97
Total Organic Carbon	1.6		1.0	0.18	1.0	mg/L	9060	NA	17 DEC 97
Total Organic Halogen as Cl	21.9	J	1.0	7.5	30.0	ug/L	9020	NA	01 JAN 98

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Judy Lange

Approved By: Roxanne Sullivan

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
Method EPA-IFB

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-2
Lab ID: 058372-0005-SA
Matrix: AQUEOUS Sampled: 09 DEC 97 Prepared: 22 DEC 97
Authorized: 11 DEC 97 Received: 11 DEC 97 Analyzed: 31 DEC 97

Sample Amt: 1.1

Parameter	Result	Units	Reporting Limit
2,3,7,8-TCDD	ND	ng/L	0.57
Surrogate	Recovery		Limits
13C-2,3,7,8-TCDD	83.0	%	40-120

RESUBMITTED
Date 1/29/98

Dilution factor is 1.0. All results and limits are corrected for dilution.

ND = Not Detected

Reported By: MBAQUERFO Approved By: RHRABAK

Quanterra
Environmental Services

QUALITY CONTROL SUMMARY

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)
058372-0001-SA	AQUEOUS	Q8260-A	22 DEC 97-Z	22 DEC 97-Z
058372-0002-TB	AQUEOUS	Q8260-A	22 DEC 97-Z	22 DEC 97-Z
058372-0003-SA	AQUEOUS	Q8260-A	22 DEC 97-Z	22 DEC 97-Z
058372-0004-SA	AQUEOUS	Q8260-A	22 DEC 97-Z	22 DEC 97-Z
058372-0005-SA	AQUEOUS	Q8260-A	22 DEC 97-Z	22 DEC 97-Z

Quanterra
Environmental Services

LABORATORY CONTROL SAMPLE REPORT
Volatile Organics by GC/MS
Project: 058372

Category: Q8260-A Volatile Organics
Matrix: AQUEOUS
QC Run: 22 DEC 97-Z
Concentration Units: ug/L

Date Analyzed: 22 DEC 97

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
1,1-Dichloroethene	10.0	9.48	95	69-126
Trichloroethene	10.0	9.85	99	85-111
Benzene	10.0	9.95	100	85-115
Toluene	10.0	10.5	105	89-112
Chlorobenzene	10.0	10.5	105	91-112

Surrogates	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
1,2-Dichloroethane-d4	10.0	10.6	106	78-113
4-Bromofluorobenzene	10.0	9.49	95	88-113
Toluene-d8	10.0	9.55	96	90-108

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

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
Semivolatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
058372-0001-SA	AQUEOUS	Q8270-A	15 DEC 97-01	15 DEC 97-01
058372-0003-SA	AQUEOUS	Q8270-A	15 DEC 97-01	15 DEC 97-01
058372-0004-SA	AQUEOUS	Q8270-A	15 DEC 97-01	15 DEC 97-01
058372-0005-SA	AQUEOUS	Q8270-A	15 DEC 97-01	15 DEC 97-01

Quanterra
Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS
Project: 058372

Category: Q8270-A Acid, Base and Neutrals by GC/MS.
Matrix: AQUEOUS
QC Lot: 15 DEC 97-01
Concentration Units: ug/L

Date Analyzed: 19 DEC 97

Analyte	Concentration Spiked	Measured DCS1	Qual	DCS2	Qual	AVG	Accuracy Average(%) DCS	Limits	Precision (RPD) DCS	Limit
Phenol	150	136		136		136	91	45-105	0.55	20
2-Chlorophenol	150	133		135		134	89	52-107	1.2	22
1,4-Dichlorobenzene	100	87.3		96.3		91.8	92	20-124	9.8	27
N-Nitroso-di-n-propylamine	100	105		107		106	106	52-108	1.8	20
1,2,4-Trichlorobenzene	100	85.0		93.8		89.4	89	44-142	9.8	27
4-Chloro-3-methylphenol	150	137		138		138	92	22-147	0.91	20
Acenaphthene	100	93.4		97.9		95.6	96	47-145	4.6	20
4-Nitrophenol	150	151		151		151	101	42-115	0.50	32
2,4-Dinitrotoluene	100	105		109		107	107	55-116	3.0	21
Pentachlorophenol	150	150		149		150	100	14-176	0.58	30
Pyrene	100	92.3		93.7		93.0	93	56-120	1.5	20

Surrogate	Concentration Spiked	Measured DCS1	Qual	DCS2	Qual	Accuracy Average(%) DCS	Limits
Nitrobenzene-d5	100	88.5		89.5		89	51-104
2-Fluorobiphenyl	100	76.7		74.2		75	43-116
Terphenyl-d14	100	83.6		84.7		84	33-141
2-Fluorophenol	150	127		124		84	36-108
Phenol-d5	150	151		153		101	47-106
2,4,6-Tribromophenol	150	150		154		101	49-106

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

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
Semivolatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
058372-0001-SA	AQUEOUS	8150-A	12 DEC 97-01	12 DEC 97-01
058372-0001-SA	AQUEOUS	8081-A	12 DEC 97-01	12 DEC 97-01
058372-0003-SA	AQUEOUS	8150-A	12 DEC 97-01	12 DEC 97-01
058372-0003-SA	AQUEOUS	8081-A	12 DEC 97-01	12 DEC 97-01
058372-0004-SA	AQUEOUS	8150-A	12 DEC 97-01	12 DEC 97-01
058372-0004-SA	AQUEOUS	8081-A	12 DEC 97-01	12 DEC 97-01
058372-0005-SA	AQUEOUS	8150-A	12 DEC 97-01	12 DEC 97-01
058372-0005-SA	AQUEOUS	8081-A	12 DEC 97-01	12 DEC 97-01

Quanterra
Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC
Project: 058372

Category: 8150-A Herbicides
Matrix: AQUEOUS
QC Lot: 12 DEC 97-01
Concentration Units: ug/L

Date Analyzed: 16 DEC 97

Analyte	Concentration Spiked	Measured DCS1	Qual	DCS2	Qual	AVG	Accuracy Average(%) DCS	Limits	Precision (RPD) DCS	Limit
2,4-D	5.00	3.51		3.47		3.49	70	23-114	1.1	27
2,4,5-TP (Silvex)	1.00	0.794		0.802		0.798	80	26-124	1.0	31
2,4,5-T	1.00	0.719		0.717		0.718	72	26-127	0.28	29

Category: 8081-A Organochlorine Pesticides for Method 8081
Matrix: AQUEOUS
QC Lot: 12 DEC 97-01
Concentration Units: ug/L

Date Analyzed: 18 DEC 97

Analyte	Concentration Spiked	Measured DCS1	Qual	DCS2	Qual	AVG	Accuracy Average(%) DCS	Limits	Precision (RPD) DCS	Limit
gamma-BHC (Lindane)	0.200	0.160		0.160		0.160	80	76-122	0.0	15
Heptachlor	0.200	0.172		0.171		0.172	86	69-125	0.58	15
Aldrin	0.200	0.150		0.150		0.150	75	64-116	0.0	17
Dieldrin	0.500	0.388		0.382		0.385	77	74-107	1.6	15
Endrin	0.500	0.406		0.405		0.406	81	72-118	0.25	15
4,4'-DDT	0.500	0.488		0.484		0.486	97	74-117	0.82	15

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

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
Metals Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
058372-0001-SA	AQUEOUS	ICP-AT	19 DEC 97-L3	19 DEC 97-L3
058372-0001-SA	AQUEOUS	ICP-TRA-AT	19 DEC 97-L3	19 DEC 97-L3
058372-0001-SA	AQUEOUS	HG-CVAA-AT	16 DEC 97-W4	16 DEC 97-W4
058372-0001-SA	AQUEOUS	6020-AT	22 DEC 97-L2	22 DEC 97-L2
058372-0001-SA	AQUEOUS	SE-FAA-AT	18 DEC 97-L2	18 DEC 97-L2
058372-0001-SA	AQUEOUS	AS-FAA-AT	18 DEC 97-L2	18 DEC 97-L2
058372-0001-SA	AQUEOUS	PB-FAA-AT	19 DEC 97-S3	19 DEC 97-S3
058372-0003-SA	AQUEOUS	ICP-AT	19 DEC 97-L3	19 DEC 97-L3
058372-0003-SA	AQUEOUS	ICP-TRA-AT	19 DEC 97-L3	19 DEC 97-L3
058372-0003-SA	AQUEOUS	HG-CVAA-AT	16 DEC 97-W4	16 DEC 97-W4
058372-0003-SA	AQUEOUS	6020-AT	22 DEC 97-L2	22 DEC 97-L2
058372-0003-SA	AQUEOUS	SE-FAA-AT	18 DEC 97-L2	18 DEC 97-L2
058372-0003-SA	AQUEOUS	AS-FAA-AT	18 DEC 97-L2	18 DEC 97-L2
058372-0003-SA	AQUEOUS	PB-FAA-AT	19 DEC 97-S3	19 DEC 97-S3
058372-0004-SA	AQUEOUS	ICP-AT	19 DEC 97-L3	19 DEC 97-L3
058372-0004-SA	AQUEOUS	ICP-TRA-AT	19 DEC 97-L3	19 DEC 97-L3
058372-0004-SA	AQUEOUS	HG-CVAA-AT	16 DEC 97-W4	16 DEC 97-W4
058372-0004-SA	AQUEOUS	6020-AT	22 DEC 97-L2	22 DEC 97-L2
058372-0004-SA	AQUEOUS	SE-FAA-AT	18 DEC 97-L2	18 DEC 97-L2
058372-0004-SA	AQUEOUS	AS-FAA-AT	18 DEC 97-L2	18 DEC 97-L2
058372-0004-SA	AQUEOUS	PB-FAA-AT	19 DEC 97-S3	19 DEC 97-S3
058372-0005-SA	AQUEOUS	ICP-AT	19 DEC 97-L3	19 DEC 97-L3
058372-0005-SA	AQUEOUS	ICP-TRA-AT	19 DEC 97-L3	19 DEC 97-L3
058372-0005-SA	AQUEOUS	HG-CVAA-AT	16 DEC 97-W4	16 DEC 97-W4
058372-0005-SA	AQUEOUS	6020-AT	22 DEC 97-L2	22 DEC 97-L2
058372-0005-SA	AQUEOUS	SE-FAA-AT	18 DEC 97-L2	18 DEC 97-L2
058372-0005-SA	AQUEOUS	AS-FAA-AT	18 DEC 97-L2	18 DEC 97-L2
058372-0005-SA	AQUEOUS	PB-FAA-AT	19 DEC 97-S3	19 DEC 97-S3

Quanterra
Environmental Services

LABORATORY CONTROL SAMPLE REPORT
Metals Analysis and Preparation
Project: 058372

Category: ICP-AT ICP Metals / Total
Matrix: AQUEOUS
QC Run: 19 DEC 97-L3
Concentration Units: mg/L

Date Analyzed: 29 DEC 97

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Aluminum	2.00	2.04	102	86-117
Antimony	0.500	0.529	106	81-119
Arsenic	2.00	2.08	104	81-110
Barium	2.00	2.08	104	86-114
Beryllium	0.0500	0.0516	103	83-117
Boron	1.00	1.08	108	82-122
Cadmium	0.0500	0.0481	96	80-120
Calcium	50.0	50.9	102	88-112
Chromium	0.200	0.204	102	83-112
Cobalt	0.500	0.521	104	80-120
Copper	0.250	0.259	104	84-115
Iron	1.00	1.04	104	87-117
Lead	0.500	0.521	104	83-114
Lithium	1.00	0.953	95	80-120
Magnesium	50.0	53.0	106	84-114
Manganese	0.500	0.511	102	84-113
Molybdenum	1.00	1.01	101	80-120
Nickel	0.500	0.522	104	85-112
Potassium	50.0	49.5	99	82-111
Selenium	2.00	1.96	98	86-111
Silver	0.0500	0.0535	107	83-115
Sodium	50.0	52.3	105	86-115
Strontium	1.00	1.01	101	80-120
Thallium	2.00	2.15	108	80-120
Tin	2.00	2.05	103	86-114
Titanium	1.00	0.989	99	87-112
Vanadium	0.500	0.501	100	85-114
Zinc	0.500	0.516	103	82-113

Category: ICP-TRA-AT ICP Metals / Total by Trace ICP
Matrix: AQUEOUS
QC Run: 19 DEC 97-L3
Concentration Units: mg/L

Date Analyzed: 27 DEC 97

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Antimony	0.500	0.505	101	89-115
Arsenic	2.00	2.01	101	86-113
Cadmium	0.0500	0.0529	106	95-121
Lead	0.500	0.508	102	91-117
Selenium	2.00	2.07	104	81-114
Thallium	2.00	2.00	100	90-119

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

Quanterra Environmental Services

LABORATORY CONTROL SAMPLE REPORT
Metals Analysis and Preparation (cont.)
Project: 058372

Category: HG-CVAA-AT Mercury by CVAA / Total Mercury
Matrix: AQUEOUS Date Analyzed: 16 DEC 97
QC Run: 16 DEC 97-W4
Concentration Units: mg/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Mercury	0.00500	0.00482	96	77-117

Category: 6020-AT ICPMS Metals - Total
Matrix: AQUEOUS Date Analyzed: 06 JAN 98
QC Run: 22 DEC 97-L2
Concentration Units: mg/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Thallium	0.100	0.101	101	70-130

Category: SE-FAA-AT Selenium, Furnace AA / Total Metals
Matrix: AQUEOUS Date Analyzed: 19 DEC 97
QC Run: 18 DEC 97-L2
Concentration Units: mg/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Selenium	0.0400	0.0411	103	80-118

Category: AS-FAA-AT Arsenic, Furnace AA / Total Metals
Matrix: AQUEOUS Date Analyzed: 19 DEC 97
QC Run: 18 DEC 97-L2
Concentration Units: mg/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Arsenic	0.0400	0.0425	106	85-114

Category: PB-FAA-AT Lead, Furnace AA / Total Metals
Matrix: AQUEOUS Date Analyzed: 22 DEC 97
QC Run: 19 DEC 97-S3
Concentration Units: mg/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Lead	0.0400	0.0427	107	84-124

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

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
Wet Chemistry Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
058372-0001-SA	AQUEOUS	CN-A	19 DEC 97-N1	19 DEC 97-N1
058372-0001-SA	AQUEOUS	TOC-9060-A	17 DEC 97-N2	17 DEC 97-N2
058372-0001-SA	AQUEOUS	TOX-A	01 JAN 98-N1	01 JAN 98-N1
058372-0001-SA	AQUEOUS	NO3-IC-A	11 DEC 97-N1	11 DEC 97-N1
058372-0001-SA	AQUEOUS	S-9030-A	15 DEC 97-N1	15 DEC 97-N1
058372-0003-SA	AQUEOUS	CN-A	19 DEC 97-N1	19 DEC 97-N1
058372-0003-SA	AQUEOUS	TOC-9060-A	17 DEC 97-N2	17 DEC 97-N2
058372-0003-SA	AQUEOUS	TOX-A	01 JAN 98-N1	01 JAN 98-N1
058372-0003-SA	AQUEOUS	NO3-IC-A	11 DEC 97-N1	11 DEC 97-N1
058372-0003-SA	AQUEOUS	S-9030-A	15 DEC 97-N1	15 DEC 97-N1
058372-0004-SA	AQUEOUS	CN-A	19 DEC 97-N1	19 DEC 97-N1
058372-0004-SA	AQUEOUS	TOC-9060-A	17 DEC 97-N2	17 DEC 97-N2
058372-0004-SA	AQUEOUS	TOX-A	01 JAN 98-N1	01 JAN 98-N1
058372-0004-SA	AQUEOUS	NO3-IC-A	11 DEC 97-N1	11 DEC 97-N1
058372-0004-SA	AQUEOUS	S-9030-A	15 DEC 97-N1	15 DEC 97-N1
058372-0005-SA	AQUEOUS	CN-A	19 DEC 97-N1	19 DEC 97-N1
058372-0005-SA	AQUEOUS	TOC-9060-A	17 DEC 97-N2	17 DEC 97-N2
058372-0005-SA	AQUEOUS	TOX-A	01 JAN 98-N1	01 JAN 98-N1
058372-0005-SA	AQUEOUS	NO3-IC-A	11 DEC 97-N1	11 DEC 97-N1
058372-0005-SA	AQUEOUS	S-9030-A	15 DEC 97-N1	15 DEC 97-N1

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Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Wet Chemistry Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limits
Category: TOX-A Matrix: AQUEOUS QC Lot: 01 JAN 98-N1 Concentration Units: ug/L								
Total Organic Halogen as Cl	100	97.4	93.9	95.6	96	84-110	3.6	13
Category: S-9030-A Matrix: AQUEOUS QC Lot: 15 DEC 97-N1 Concentration Units: mg/L								
Sulfide, Total	748.	794	755	774	104	70-130	5.1	20

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

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Environmental Services

LABORATORY CONTROL SAMPLE REPORT
Wet Chemistry Analysis and Preparation

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Category: CN-A Matrix: AQUEOUS QC Lot: 19 DEC 97-N1 Concentration Units: mg/L	QC Run: 19 DEC 97-N1			
Cyanide	0.156	0.161	103	72-118

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Category: TOC-9060-A Matrix: AQUEOUS QC Lot: 17 DEC 97-N2 Concentration Units: mg/L	QC Run: 17 DEC 97-N2			
Total Organic Carbon	30.0	31.4	105	90-110

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Category: NO3-IC-A Matrix: AQUEOUS QC Lot: 11 DEC 97-N1 Concentration Units: mg/L	QC Run: 11 DEC 97-N1			
Nitrate as N	10.0	10.3	103	90-110

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

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
Subcontracted to Quanterra Lab

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
058372-0001-SA	AQUEOUS	TCDD-A	22 DEC 97-A	31 DEC 97-A
058372-0001-MB	AQUEOUS	TCDD-A	22 DEC 97-A	31 DEC 97-A
058372-0003-SA	AQUEOUS	TCDD-A	22 DEC 97-A	31 DEC 97-A
058372-0004-SA	AQUEOUS	TCDD-A	22 DEC 97-A	31 DEC 97-A
058372-0005-SA	AQUEOUS	TCDD-A	22 DEC 97-A	31 DEC 97-A

Quanterra
Environmental Services

LABORATORY CONTROL SAMPLE REPORT
Subcontracted to Quanterra Lab
Project: 058372

Category: TCDD-A 2,3,7,8-TCDD - by Low Resolution MS
Matrix: AQUEOUS
QC Run: 31 DEC 97-A
Date Analyzed: 31 DEC 97
Concentration Units: ng/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
2,3,7,8-TCDD	25.0	26.0	104	76-142
13C-2,3,7,8-TCDD	25	21	83	40-120

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

Quanterra
Environmental Services

SCS SUMMARY

Quanterra
Environmental Services

SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: Q8260-A				
Matrix: AQUEOUS				
QC Lot: 22 DEC 97-Z QC Run: 22 DEC 97-Z				
Concentration Units: ug/L				
1,2-Dichloroethane-d4	10.0	10.4	104	78-113
4-Bromofluorobenzene	10.0	9.41	94	88-113
Toluene-d8	10.0	9.52	95	90-108

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: Q8270-A
Matrix: AQUEOUS
QC Lot: 15 DEC 97-01 QC Run: 15 DEC 97-01
Concentration Units: ug/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Nitrobenzene-d5	100	86.0	86	51-104
2-Fluorobiphenyl	100	71.6	72	43-116
Terphenyl-d14	100	88.7	89	33-141
2-Fluorophenol	150	124	82	36-108
Phenol-d5	150	146	97	47-106
2,4,6-Tribromophenol	150	140	93	49-106

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: 8150-A				
Matrix: AQUEOUS				
QC Lot: 12 DEC 97-01 QC Run: 12 DEC 97-01				
Concentration Units: ug/L				
DCAA	5.00	4.43	89	27-121
Category: 8081-A				
Matrix: AQUEOUS				
QC Lot: 12 DEC 97-01 QC Run: 12 DEC 97-01				
Concentration Units: ug/L				
Tetrachloro-m-xylene	1.00	0.852	85	51-103
Dibutyl chlorendate	1.00	0.879	88	71-109
Decachlorobiphenyl	0.200	0.190	95	50-138

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

Quanterra
Environmental Services

METHOD BLANK SUMMARY

Quanterra Environmental Services

METHOD BLANK REPORT
Volatile Organics by GC/MS

Test: Q8260-AP9-AP
Matrix: AQUEOUS
QC Lot: 22 DEC 97-Z QC Run: 22 DEC 97-Z

Analyte	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	20
Acrolein	ND	ug/L	20
Acrylonitrile	ND	ug/L	20
Allyl chloride	ND	ug/L	2.0
Benzene	ND	ug/L	1.0
Bromodichloromethane	ND	ug/L	1.0
Bromoform	ND	ug/L	1.0
Bromomethane	ND	ug/L	2.0
2-Butanone (MEK)	ND	ug/L	5.0
Carbon disulfide	ND	ug/L	1.0
Carbon tetrachloride	ND	ug/L	1.0
Chlorobenzene	ND	ug/L	1.0
Chloroethane	ND	ug/L	2.0
Chloroform	ND	ug/L	1.0
Chloromethane	ND	ug/L	2.0
Chloroprene	ND	ug/L	1.0
Dibromochloromethane	ND	ug/L	1.0
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	2.0
1,2-Dibromoethane (EDB)	ND	ug/L	1.0
Dibromomethane	ND	ug/L	1.0
trans-1,4-Dichloro-2-butene	ND	ug/L	1.0
Dichlorodifluoromethane	ND	ug/L	2.0
1,1-Dichloroethane	ND	ug/L	1.0
1,2-Dichloroethane	ND	ug/L	1.0
1,1-Dichloroethene	ND	ug/L	1.0
trans-1,2-Dichloroethene	ND	ug/L	0.50
1,2-Dichloroethene (total)	ND	ug/L	1.0
1,2-Dichloropropane	ND	ug/L	1.0
cis-1,3-Dichloropropene	ND	ug/L	1.0
trans-1,3-Dichloropropene	ND	ug/L	1.0
1,4-Dioxane	ND	ug/L	200
Ethylbenzene	ND	ug/L	1.0
Ethyl methacrylate	ND	ug/L	1.0
2-Hexanone	ND	ug/L	5.0
Iodomethane	ND	ug/L	1.0
Isobutyl alcohol	ND	ug/L	50
Methacrylonitrile	ND	ug/L	1.0
Methylene chloride	ND	ug/L	1.0

Quanterra
Environmental Services

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

Analyte	Result	Units	Reporting Limit
Test: Q8260-AP9-AP			
Matrix: AQUEOUS			
QC Lot: 22 DEC 97-Z QC Run: 22 DEC 97-Z			
Methyl methacrylate	ND	ug/L	1.0
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0
Propionitrile	ND	ug/L	4.0
Styrene	ND	ug/L	1.0
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0
Tetrachloroethene	ND	ug/L	1.0
Toluene	ND	ug/L	1.0
1,1,1-Trichloroethane	ND	ug/L	1.0
1,1,2-Trichloroethane	ND	ug/L	1.0
Trichloroethene	ND	ug/L	1.0
Trichlorofluoromethane	ND	ug/L	2.0
1,2,3-Trichloropropane	ND	ug/L	1.0
Vinyl acetate	ND	ug/L	2.0
Vinyl chloride	ND	ug/L	2.0
Xylenes (total)	ND	ug/L	1.0
Test: Q8260-AP9-AP			
Matrix: AQUEOUS			
QC Lot: 22 DEC 97-Z QC Run: 22 DEC 97-Z			
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	20
Acrolein	ND	ug/L	20
Acrylonitrile	ND	ug/L	20
Allyl chloride	ND	ug/L	2.0
Benzene	ND	ug/L	1.0
Bromodichloromethane	ND	ug/L	1.0
Bromoform	ND	ug/L	1.0
Bromomethane	ND	ug/L	2.0
2-Butanone (MEK)	ND	ug/L	5.0
Carbon disulfide	ND	ug/L	1.0
Carbon tetrachloride	ND	ug/L	1.0
Chlorobenzene	ND	ug/L	1.0
Chloroethane	ND	ug/L	2.0
Chloroform	ND	ug/L	1.0
Chloromethane	ND	ug/L	2.0
Chloroprene	ND	ug/L	1.0
Dibromochloromethane	ND	ug/L	1.0

Quanterra Environmental Services

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

Test: Q8260-AP9-AP
Matrix: AQUEOUS
QC Lot: 22 DEC 97-Z QC Run: 22 DEC 97-Z

Analyte	Result	Units	Reporting Limit
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	2.0
1,2-Dibromoethane (EDB)	ND	ug/L	1.0
Dibromomethane	ND	ug/L	1.0
trans-1,4-Dichloro-2-butene	ND	ug/L	1.0
Dichlorodifluoromethane	ND	ug/L	2.0
1,1-Dichloroethane	ND	ug/L	1.0
1,2-Dichloroethane	ND	ug/L	1.0
1,1-Dichloroethene	ND	ug/L	1.0
trans-1,2-Dichloroethene	ND	ug/L	0.50
1,2-Dichloroethene (total)	ND	ug/L	1.0
1,2-Dichloropropane	ND	ug/L	1.0
cis-1,3-Dichloropropene	ND	ug/L	1.0
trans-1,3-Dichloropropene	ND	ug/L	1.0
1,4-Dioxane	ND	ug/L	200
Ethylbenzene	ND	ug/L	1.0
Ethyl methacrylate	ND	ug/L	1.0
2-Hexanone	ND	ug/L	5.0
Iodomethane	ND	ug/L	1.0
Isobutyl alcohol	ND	ug/L	50
Methacrylonitrile	ND	ug/L	1.0
Methylene chloride	ND	ug/L	1.0
Methyl methacrylate	ND	ug/L	1.0
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0
Propionitrile	ND	ug/L	4.0
Styrene	ND	ug/L	1.0
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0
Tetrachloroethene	ND	ug/L	1.0
Toluene	ND	ug/L	1.0
1,1,1-Trichloroethane	ND	ug/L	1.0
1,1,2-Trichloroethane	ND	ug/L	1.0
Trichloroethene	ND	ug/L	1.0
Trichlorofluoromethane	ND	ug/L	2.0
1,2,3-Trichloropropane	ND	ug/L	1.0
Vinyl acetate	ND	ug/L	2.0
Vinyl chloride	ND	ug/L	2.0
Xylenes (total)	ND	ug/L	1.0

Quanterra Environmental Services

METHOD BLANK REPORT
Semivolatile Organics by GC/MS

Test: Q8270-AP9-3520-A
Matrix: AQUEOUS
QC Lot: 15 DEC 97-01 QC Run: 15 DEC 97-01

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	50
Aniline	ND	ug/L	10
Anthracene	ND	ug/L	10
Aramite	ND	ug/L	20
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	20
4-Chloroaniline	ND	ug/L	10
bis(2-Chloroethoxy) methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
2,2'-oxybis(1-chloropropane)	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	50
2,4-Dichlorophenol	ND	ug/L	10
2,6-Dichlorophenol	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10
Dimethoate	ND	ug/L	20

Quanterra Environmental Services

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

Test: Q8270-AP9-3520-A
Matrix: AQUEOUS
QC Lot: 15 DEC 97-01 QC Run: 15 DEC 97-01

Analyte	Result	Units	Reporting Limit
p-Dimethylaminoazobenzene	ND	ug/L	20
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	20
3,3'-Dimethylbenzidine	ND	ug/L	50
a,a-Dimethylphenethyl-amine	ND	ug/L	50
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	100
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	50
Hexachloroethane	ND	ug/L	10
Hexachlorophene	ND	ug/L	--
Hexachloropropene	ND	ug/L	100
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
Isosafrole	ND	ug/L	20
Methapyrilene	ND	ug/L	50
3-Methylcholanthrene	ND	ug/L	20
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	50

Quanterra
Environmental Services

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

Test: Q8270-AP9-3520-A
Matrix: AQUEOUS
QC Lot: 15 DEC 97-01 QC Run: 15 DEC 97-01

Analyte	Result	Units	Reporting Limit
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	100
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	20
Parathion	ND	ug/L	50
Pentachlorobenzene	ND	ug/L	10
Pentachloroethane	ND	ug/L	50
Pentachloronitrobenzene	ND	ug/L	50
Pentachlorophenol	ND	ug/L	50
Phenacetin	ND	ug/L	20
Phenanthrene	ND	ug/L	10
Phenol	ND	ug/L	10
p-Phenylenediamine	ND	ug/L	100
Phorate	ND	ug/L	50
2-Picoline	ND	ug/L	20
Pronamide	ND	ug/L	20
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	20
Safrole	ND	ug/L	20
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
o-Toluidine	ND	ug/L	10

Quanterra
Environmental Services

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

Analyte	Result	Units	Reporting Limit
Test: Q8270-AP9-3520-A			
Matrix: AQUEOUS			
QC Lot: 15 DEC 97-01 QC Run: 15 DEC 97-01			
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	10
2,4,6-Trichlorophenol	ND	ug/L	10
0,0,0-Triethylphosphorothioate	ND	ug/L	50
1,3,5-Trinitrobenzene	ND	ug/L	50

Quanterra
Environmental Services

METHOD BLANK REPORT
Semivolatile Organics by GC

Test: 8150-AP9-A
Matrix: AQUEOUS
QC Lot: 12 DEC 97-01 QC Run: 12 DEC 97-01

Analyte	Result	Units	Reporting Limit
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
Dinoseb	ND	ug/L	1.0

Test: 8081-AP9-A
Matrix: AQUEOUS
QC Lot: 12 DEC 97-01 QC Run: 12 DEC 97-01

Analyte	Result	Units	Reporting Limit
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	1.0
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	2.5
Methoxychlor	ND	ug/L	0.50
Toxaphene	ND	ug/L	5.0

Quanterra Environmental Services

METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICP-AP9-AT			
Matrix: AQUEOUS			
QC Lot: 19 DEC 97-L3 QC Run: 19 DEC 97-L3			
Barium	ND	mg/L	0.010
Beryllium	ND	mg/L	0.0020
Chromium	ND	mg/L	0.010
Cobalt	ND	mg/L	0.010
Copper	ND	mg/L	0.020
Nickel	ND	mg/L	0.040
Silver	ND	mg/L	0.010
Tin	ND	mg/L	0.10
Vanadium	ND	mg/L	0.010
Zinc	ND	mg/L	0.020
Test: ICP-TRACE-AT			
Matrix: AQUEOUS			
QC Lot: 19 DEC 97-L3 QC Run: 19 DEC 97-L3			
Antimony	ND	mg/L	0.010
Cadmium	ND	mg/L	0.0050
Test: HG-CVAA-7470-AT			
Matrix: AQUEOUS			
QC Lot: 16 DEC 97-W4 QC Run: 16 DEC 97-W4			
Mercury	ND	mg/L	0.00020
Test: ICPMS-6020-AT			
Matrix: AQUEOUS			
QC Lot: 22 DEC 97-L2 QC Run: 22 DEC 97-L2			
Thallium	0.0053	mg/L	0.0010
Test: SE-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 18 DEC 97-L2 QC Run: 18 DEC 97-L2			
Selenium	ND	mg/L	0.0050

Quanterra
Environmental Services

METHOD BLANK REPORT
Metals Analysis and Preparation (cont.)

Analyte	Result	Units	Reporting Limit
Test: AS-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 18 DEC 97-L2 QC Run: 18 DEC 97-L2			
Arsenic	ND	mg/L	0.0050
Test: PB-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 19 DEC 97-S3 QC Run: 19 DEC 97-S3			
Lead	ND	mg/L	0.0050

Quanterra Environmental Services

METHOD BLANK REPORT
Wet Chemistry Analysis and Preparation
Project: 058372

Test: CNTOT-TEC-A Cyanide, Total
Matrix: AQUEOUS
QC Lot: 19 DEC 97-N1 QC Run: 19 DEC 97-N1 Date Analyzed: 21 DEC 97

Analyte	Result	Units	Reporting Limit
Cyanide	ND	mg/L	0.010

Test: TOC-TOC-A Total Organic Carbon (TOC)
Matrix: AQUEOUS
QC Lot: 17 DEC 97-N2 QC Run: 17 DEC 97-N2 Date Analyzed: 17 DEC 97

Analyte	Result	Units	Reporting Limit
Total Organic Carbon	ND	mg/L	1.0

Test: TOX-TOX-A Total Organic Halogen (TOX)
Matrix: AQUEOUS
QC Lot: 01 JAN 98-N1 QC Run: 01 JAN 98-N1 Date Analyzed: 01 JAN 98

Analyte	Result	Units	Reporting Limit
Total Organic Halogen as Cl	ND	ug/L	30.0

Test: NO3-IC-A Nitrate, Ion Chromatography
Matrix: AQUEOUS
QC Lot: 11 DEC 97-N1 QC Run: 11 DEC 97-N1 Date Analyzed: 11 DEC 97

Analyte	Result	Units	Reporting Limit
Nitrate as N	ND	mg/L	0.50

Test: S-9030-A Method 9030 - Sulfides
Matrix: AQUEOUS
QC Lot: 15 DEC 97-N1 QC Run: 15 DEC 97-N1 Date Analyzed: 15 DEC 97

Analyte	Result	Units	Reporting Limit
Sulfide, Total	ND	mg/L	1.0

ND = Not Detected

A 92

Quanterra
Environmental Services

2,3,7,8 TCDD
LOW RESOLUTION

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-1297-MWO-1
Lab ID: 058372-0001-MB
Matrix: AQUEOUS
Authorized: 11 DEC 97

Sampled: 09 DEC 97
Received: 11 DEC 97

Prepared: 22 DEC 97
Analyzed: 31 DEC 97

Sample Amt: 1.0

Parameter	Result	Units	Reporting Limit
2,3,7,8-TCDD	ND	ng/L	0.96
13C-2,3,7,8-TCDD	85.2	ng/L	

Dilution factor is 1.0. All results and limits are corrected for dilution.

ND = Not Detected

Reported By: MBAQUERFO

Approved By: RHRABAK

A 93

Quanterra
Environmental Services

MATRIX SPIKE & MATRIX SPIKE DUPLICATE SUMMARY

Quanterra
Environmental Services

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Volatile Organics by GC/MS
Project: 058372

Category: Q8260-A Volatile Organics
Matrix: AQUEOUS
Sample: 058400-0005
MS Run: 22 DEC 97-Z
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
1,1-Dichloroethene	ND	10.5	10.7	10.0	10.0	105	107	69-126	1.9	20
Trichloroethene	7.77	18.4	16.6	10.0	10.0	106	88	85-111	10	20
Benzene	ND	9.79	9.74	10.0	10.0	98	97	85-115	0.5	20
Toluene	ND	10.5	10.6	10.0	10.0	105	106	89-112	0.9	20
Chlorobenzene	ND	10.2	10.2	10.0	10.0	102	102	91-112	0.0	20

Surrogates		%Recovery		Rec. Accept. Limits
1,2-Dichloroethane-d4	10.5	10.6	10.7	78-113
4-Bromofluorobenzene	9.16	9.37	9.46	88-113
Toluene-d8	10.1	9.79	9.70	90-108

ND = Not Detected

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

Quanterra Environmental Services

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Metals Analysis and Preparation
Project: 058372

Category: ICP-AT ICP Metals / Total
Matrix: AQUEOUS
Sample: 058445-0018
MS Run: 19 DEC 97-L3
Units: mg/L

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
	Concentration								
Aluminum	ND	2.12	2.14	2.00	106	107	0.5	86-117	10
Barium	0.056	2.14	2.16	2.00	104	105	0.8	86-114	10
Beryllium	ND	0.0538	0.0538	0.0500	108	108	0.0	83-117	10
Cadmium	ND	0.0470	0.0460	0.0500	94	92	2.0	80-120	17
Calcium	87.8	138	139	50.0	101	103	1.5	88-112	10
Chromium	ND	0.204	0.210	0.200	102	105	3.2	83-112	10
Cobalt	ND	0.525	0.532	0.500	105	106	1.3	80-120	10
Copper	ND	0.267	0.267	0.250	107	107	0.2	84-115	10
Iron	ND	1.06	1.07	1.00	106	107	0.5	87-117	10
Magnesium	57.3	112	114	50.0	110	113	2.2	84-114	10
Manganese	0.017	0.537	0.543	0.500	104	105	1.2	84-113	10
Nickel	ND	0.521	0.525	0.500	104	105	0.6	85-112	10
Potassium	ND	55.3	56.0	50.0	111	112	1.1	82-111	10
Silver	0.0040 J	0.0541	0.0546	0.0500	100	101	1.0	83-115	10
Sodium	38.6	90.4	91.7	50.0	104	106	2.5	86-115	10
Tin	ND	2.13	2.12	2.00	106	106	0.2	86-114	10
Vanadium	ND	0.512	0.519	0.500	102	104	1.3	85-114	10
Zinc	ND	0.521	0.528	0.500	104	106	1.3	82-113	10

Category: ICP-TRA-AT ICP Metals / Total by Trace ICP
Matrix: AQUEOUS
Sample: 058445-0018
MS Run: 19 DEC 97-L3
Units: mg/L

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
	Concentration								
Antimony	ND	0.506	0.515	0.500	101	103	1.7	89-115	10
Arsenic	ND	2.03	2.06	2.00	101	103	1.7	86-113	10
Cadmium	ND	0.0524	0.0526	0.0500	105	105	0.4	95-121	10
Lead	ND	0.509	0.514	0.500	102	103	1.0	91-117	10
Selenium	ND	2.12	2.18	2.00	106	109	2.7	81-114	10
Thallium	ND	2.02	2.05	2.00	101	103	1.5	90-119	10

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

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

Quanterra
Environmental Services

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Metals Analysis and Preparation
Project: 058372 (cont.)

Category: HG-CVAA-AT Mercury by CVAA / Total Mercury
Matrix: AQUEOUS
Sample: 058359-0005
MS Run: 16 DEC 97-W4
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Mercury	0.00016 J	0.00151	0.00143	0.00500	27	25	5.4	77-117	10

Category: 6020-AT ICPMS Metals - Total
Matrix: AQUEOUS
Sample: 058372-0001
MS Run: 22 DEC 97-L2
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Thallium	0.00002 JB	0.096	0.094	0.10	96	94	2.0	70-130	20

Category: SE-FAA-AT Selenium, Furnace AA / Total Metals
Matrix: AQUEOUS
Sample: 058448-0001
MS Run: 18 DEC 97-L2
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Selenium	ND q	0.0286	0.0291	0.0400	72	73	1.7	80-118	10

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
q = Post-digestion spike recovery fell between 40% and 85% due to matrix interference.
ND = Not Detected

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

Quanterra
Environmental Services

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Metals Analysis and Preparation
Project: 058372 (cont.)

Category: AS-FAA-AT Arsenic, Furnace AA / Total Metals
Matrix: AQUEOUS
Sample: 058448-0001
MS Run: 18 DEC 97-L2
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Arsenic	0.019	0.0375	0.0380	0.0400	46	48	1.3	85-114	10

Category: PB-FAA-AT Lead, Furnace AA / Total Metals
Matrix: AQUEOUS
Sample: 058445-0013
MS Run: 19 DEC 97-S3
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Lead	ND p	0.0107	0.0108	0.0400	27	27	0.9	84-124	10

p = Reporting limit raised due to a dilution necessitated by initial post-digestion spike recovery of less than 40% due to matrix interference.
ND = Not Detected

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

Quanterra
Environmental Services

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Wet Chemistry Analysis and Preparation
Project: 058372

Category: CN-A Cyanide
Matrix: AQUEOUS
Sample: 058378-0008
MS Run: 19 DEC 97-N1
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Cyanide	ND	0.195	0.193	0.200	97	96	0.9	72-118	18

Category: TOC-9060-A Total Organic Carbon
Matrix: AQUEOUS
Sample: 058337-0005
MS Run: 17 DEC 97-N2
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Total Organic Carbon	148	396	401	250	99	101	1.4	90-110	10

Category: NO3-IC-A Nitrate as N by Ion Chromatography
Matrix: AQUEOUS
Sample: 058372-0004
MS Run: 11 DEC 97-N1
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Nitrate as N	4.9	9.70	9.72	5.00	97	97	0.1	90-110	10

ND = Not Detected

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

Quanterra
Environmental Services

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Volatile Organics by GC/MS
Project: 058372

Category: Q8260-A Volatile Organics
Matrix: AQUEOUS
Sample: 058400-0005
MS Run: 22 DEC 97-Z
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
1,1-Dichloroethene	ND	10.5	10.7	10.0	10.0	105	107	69-126	1.9	20
Trichloroethene	7.77	18.4	16.6	10.0	10.0	106	88	85-111	10	20
Benzene	ND	9.79	9.74	10.0	10.0	98	97	85-115	0.5	20
Toluene	ND	10.5	10.6	10.0	10.0	105	106	89-112	0.9	20
Chlorobenzene	ND	10.2	10.2	10.0	10.0	102	102	91-112	0.0	20

Surrogates		%Recovery		Rec. Accept. Limits
1,2-Dichloroethane-d4	10.5	10.6	10.7	78-113
4-Bromofluorobenzene	9.16	9.37	9.46	88-113
Toluene-d8	10.1	9.79	9.70	90-108

ND = Not Detected

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

Chain of Custody Record

Quanterra

QUA-4124

Client	FOOTHILL ENGIN. CONSULT.
Address	350 INDIANA ST.
City	GOLDEN
State	CO
Zip Code	80401
Project Manager	IAN BROUSSARD
Telephone Number (Area Code)/Fax Number	303/278-0622
Site Contact	Sanford Hutsell
Carrier/Waybill Number	
Project Name	CANNON AFB LTMP
Contract/Purchase Order/Quote No.	96-333-330
Date	12-09-97
Lab Number	58372
Chain Of Custody Number	25100
Page	1 of 1

	Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	VOC 8260A	SVOC 8270B	TCDD/Dioxin 8280	PEST/PCB 8080A/8082	HERB 8051	Metals 6010/7000	Cyanide 9012	Sulfide 9030	TOC 9060	Tox 9020	Nitrate 300	Trip blank
01	CAFB-1297-MWO-1	12/9/97	1000	GW						3	2	2	2	2	1	1	1	1	1	1	
02	Trip blank									3											
03	CAFB-1297-MWN-1		1110							3											
04	CAFB-1297-MWR-1		1210							3											
05	CAFB-1297-MWO-2		1010							3											

Special Instructions

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify)

	Date	Time
1. Relinquished By: Ian Broussard	12/10/97	1115
2. Relinquished By		
3. Relinquished By		

	Date	Time
1. Received By: Kristi Bixby	12/11/97	0920
2. Received By		
3. Received By		

Comments: FOR METHODS, SEE QUANTERRA PROJECT TEMPLATE # 56659

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

Chain of Custody Record

Quanterra

QUA-4124

Client	FOOTHILL ENGIN. CONSULT
Address	350 INDIANA ST.
City	GOLDEN
State	CO
Zip Code	80401
Project Manager	IAN BROUSSARD
Telephone Number (Area Code)/Fax Number	303/278-0622
Site Contact	Sanford Hutsell
Carrier/Waybill Number	
Project Name	CANNON AFB LTMP
Contract/Purchase Order/Quote No.	96-333
Date	12-09-97
Lab Number	58372
Chain Of Custody Number	27152
Page	1 of 1

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	~~VOC 8260~~	SVOC 8270	TCDD/Dioxin 8290	PEST/PCB 8080/8081	HERB 8051	Metals 6010/7000	Cyanide 9012	Sulfide 9030	TOC 9060	TOX 9020	Nitrate 300
03CAFB-1297-MWN-1	12/9/97	~~1210~~ 1110	GW							2	2	2	2	1	1	1	1	1	1

Analysis

Special Instructions

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Turn Around Time Required
☐ Normal ☐ Rush

QC Level
☐ I. ☐ II. ☐ III.

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Project Specific (Specify)

	Date	Time
1. Relinquished By: Ian Broussard	12/10/97	1120
2. Relinquished By		
3. Relinquished By		

	Date	Time
1. Received By: C Stephenson	12/11/97	0920
2. Received By		
3. Received By		

Comments
*-for methods, see Quanterra Project template #56659

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

Chain of Custody Record

Quanterra

QUA-4124

Client: FOOTHILL ENGIN. CONSULT.	Project Manager: IAN BROUSSARD	Date: 12/9/97	Chain Of Custody Number:
Address: 350 INDIANA ST.	Telephone Number (Area Code)/Fax Number: 303/278-0622	Lab Number: 58372	Page 1 of 1
City: GOLDEN State: CO Zip Code: 80401	Site Contact: Sanford Hutsell		
Project Name: CANNON AFB LTMP	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 96-333			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	SVOC 8270B	TCDD/Dioxin 8280	PEST/PCB 8080A/8081	HERB 8151	Metals 6010/7000	Cyanide 9012	Sulfide 9030	TOC 9060	TOX 9020	Nitrate 300
04 CAFB-1297-MWR-1	12/9/97	1210	GW						2	2	2	2	1	1	1	1	1	1

Analysis

Special Instructions

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1. Relinquished By: Ian Broussard	12/10/97	1125	1. Received By: P Martinelli	12-11-97	0920
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments

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

Chain of Custody Record

Quanterra

QUA 4124

Client: FOOTHILL ENGIN. CONS.
Address: 350 INDIANA ST
City: GOLDEN | State: CO | Zip Code: 80401
Project Name: CANNON AFB LTMP
Contract/Purchase Order/Quote No.: 96-333

Project Manager: IAN BROUSSARD
Telephone Number (Area Code)/Fax Number: 303/278-0622
Site Contact: Sanford Hutsell
Carrier/Waybill Number:

Date: 12/9/97
Lab Number: 58372
Chain Of Custody Number:
Page 1 of 1

	Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	SVOC 8270B	TCDD/Dioxin 8280	Pest/PCB 8080A/8081	HERB 8051	Metals 6010/7000	Cyanide 9012	Sulfide 9030	TOC 9060	TOX 9020	Nitrate 300
0.5	CAFB-1297-MW0-2	12/9/97	1010	GW						2	2	2	2	1	1	1	1	1	1

Analysis

Special Instructions

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify)

	Date	Time
1. Relinquished By: Ian Broussard	12/10/97	1000
2. Relinquished By		
3. Relinquished By		

	Date	Time
1. Received By: P Martinelli	12-11-97	0920
2. Received By		
3. Received By		

Comments
* for methods, see Quanterra Project template #56657

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

APPENDIX III

Data Assessment

DATA ASSESSMENT
CANNON AIR FORCE BASE
QUARTERLY AND SEMIANNUAL MONITORING

Analytical data for the December 1997 sampling event at Cannon Air Force Base was reviewed and evaluated as specified in the Final Work Plan (FEC, February 1996). During this sampling event, groundwater samples were collected from monitoring wells MW-N, MW-O, and MW- R. The following paragraphs discuss specific findings of the data review process for groundwater samples CAFB-1297-MWN-1, CAFB-1297-MWO-1, CAFB-1297-MWO-2 (field duplicate), and CAFB-1297-MWR-1.

VOCs. All groundwater samples were analyzed within the required 14-day holding time for volatile organic compounds. VOCs were not detected in the method blank associated with the samples. Methylene chloride (0.36 µg/l) and toluene (0.24 µg/l) were detected at concentrations below reporting limits in the trip blank associated with project samples. Results for methylene chloride in samples CAFB-1297-MWR-1 and CAFB-1297-MWO-2, reported as concentrations below the reporting limit, were qualified as non-detected due to the presence of methylene chloride in the trip blank. Toluene was not detected above reporting limits in any of the samples and qualifcation of results was not required.

With the exception of sample CAFB-1297-MWO-1, surrogate percent recoveries for p-bromoflurobenzene, dibromofluromethane, and toluene were within QC limits. The percent recovery of p-bromofluorobenzene was below QC limits (87 percent vs. 88 percent) and the percent recovery of toluene-d8 was above QC limits (109 percent vs. 108 percent). Associated results were not qualified. Percent recoveries and relative percent differences obtained in the laboratory control sample, single control sample, and MS/MSD for VOC analyses were within QC limits, demonstrating adequate analytical precision and accuracy. Appendix IX VOC results are usable as reported.

SVOCs. All groundwater samples were extracted within the required 7-day holding time for semivolatile organic compounds via SW-846 Method 8270B. Surrogate percent recoveries were within control limits for each sample. SVOCs were not detected in the method blank associated with the samples. Percent recoveries in the single control

sample and duplicate control sample were within QC limits, demonstrating adequate analytical precision and accuracy. SVOC results are usable as reported.

Pesticides/PCBs. Groundwater samples were extracted within the required 7-day holding time for pesticides/PCBs via SW-846 Method 8081. Pesticides/PCBs were not detected in the method blank associated with the samples. The percent recovery of surrogate compound dibutyl chlorendate was below QC limits (68 percent vs. 71 percent) in sample CAFB-1297-MWO-2. As specified in the SW-846 method, associated sample results did not require qualification as percent recoveries were acceptable for the other two surrogate compounds.

Percent recoveries and relative percent differences in the single control sample and duplicate control sample analyzed in conjunction with the samples were within QC limits. Pesticide/PCB sample results, reported as non-detected, are usable as reported.

Herbicides. Groundwater samples were extracted within the required 7-day holding time via SW-846 Method 8150. Chlorinated herbicide compounds were not detected above reporting limits in the associated method blank. Percent recovery of the surrogate DCAA was acceptable in all samples, as were percent recoveries in the single control sample and duplicate control sample analyzed with project samples. Results for herbicide compounds were reported as non-detected and are usable without qualification.

Metals. All groundwater samples were analyzed for metal analytes within the required holding time (mercury - 28 days, all other analytes - 180 days). Thallium was detected in the associated method blank at a concentration of 0.0053 mg/l. No other metal analytes were detected in the associated method blank.

Percent recoveries for arsenic, lead, mercury, and selenium were below QC limits in the non-project specific (batch QC) matrix spike/matrix spike duplicate sample analyzed with project samples. Percent recoveries for all metal analytes in the laboratory control sample were within control limits for all metal analytes and data were not qualified.

Dioxin (2,3,7,8-TCDD). Groundwater samples were extracted within the required holding time of 30 days for dioxin analysis. Dioxin was not detected in the associated method blank. Percent recoveries in the laboratory control sample were within QC limits. Sample results for dioxin, reported as non-detected in each sample, are useable without qualification.

Total Organic Carbon (TOC). Groundwater samples were analyzed within the required holding time (28 days) for TOC. TOC was not detected in the associated method blank. Percent recoveries and RPDs in the duplicate control sample were within QC limits. Reported results for TOC are usable without qualification.

Total Organic Halides (TOX). Groundwater samples were analyzed within the required holding time (28 days) for TOX. TOX was not detected in the associated method blank. Percent recoveries and RPDs in the duplicate control sample were within QC limits. Reported results for TOX are usable without qualification.

Cyanide, Sulfide. Groundwater samples were analyzed within the required holding times for cyanide and sulfide analyses (14 days and 7 days, respectively). Neither cyanide nor sulfide was detected in associated method blanks. Percent recoveries and RPDs for cyanide and sulfide were within QC limits in the duplicate control sample analyzed with project samples. Results for cyanide and sulfide are usable as reported.

Nitrate. Groundwater samples were analyzed 3 to 5 hours past the 48-hour holding time for nitrate analysis. Nitrate was not detected in the associated method blank. Percent recovery of nitrate in the laboratory control sample was within QC limits. Results for nitrate were not qualfied and are usable as reported.

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