CAFB98

Stu

DEPARTMENT OF THE AIR FORCE

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

ENTERED

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

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 is the latest quarterly groundwater monitoring report for Well R at Landfill 25 (SWMU 97), which was sampled in September of 1997. The nickel content exceeded the maximum contaminant levels. We will continue to monitor to see if this situation continues.

If you have any questions, please contact Mr. Sanford Hutsell of my environmental staff at (505) 784-6378.

Sincerely

James A. Thomas

JAMES A. THOMAS III, Colonel, USAF

Attachment:
Groundwater Monitoring Report

cc:
NMED w/o atch (C .Will)
NMED Groundwater Bureau (J. Jacobs)
EPA Region VII (D. Neleigh)

LIBRARY COPY

FEC

FINAL REPORT

SECOND QUARTERLY MONITORING, WELL R SEPTEMBER 1997 SAMPLING EVENT

LONG-TERM MONITORING LANDFILL NO. 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

January 1998

ACEC

FINAL REPORT

SECOND QUARTERLY MONITORING, WELL R
SEPTEMBER 1997 SAMPLING EVENT

LONG-TERM MONITORING
LANDFILL NO. 25 (SWMU 97)

CANNON AIR FORCE BASE
Clovis, New Mexico

January 1998

EXECUTIVE SUMMARY

This report summarizes data obtained during the September 1997 sampling event performed at monitoring well R (Landfill 25) at the Cannon Air Force Base near Clovis, New Mexico (Figure 1). Monitoring well R is located downgradient of its respective landfill (Figure 2). The scope of the 1997-1998 long-term monitoring program at Well R includes quarterly sampling at Well R.

During the September 1997 quarterly sampling event, one groundwater sample was collected from monitoring well R. The September 1997 sampling event represents the second round of quarterly sampling at monitoring well R. Additionally, one field duplicate sample was collected for quality control (QA/QC) purposes. Groundwater samples collected from monitoring well R were analyzed for the parameters listed below. The corresponding analytical method used for analysis is also specified.

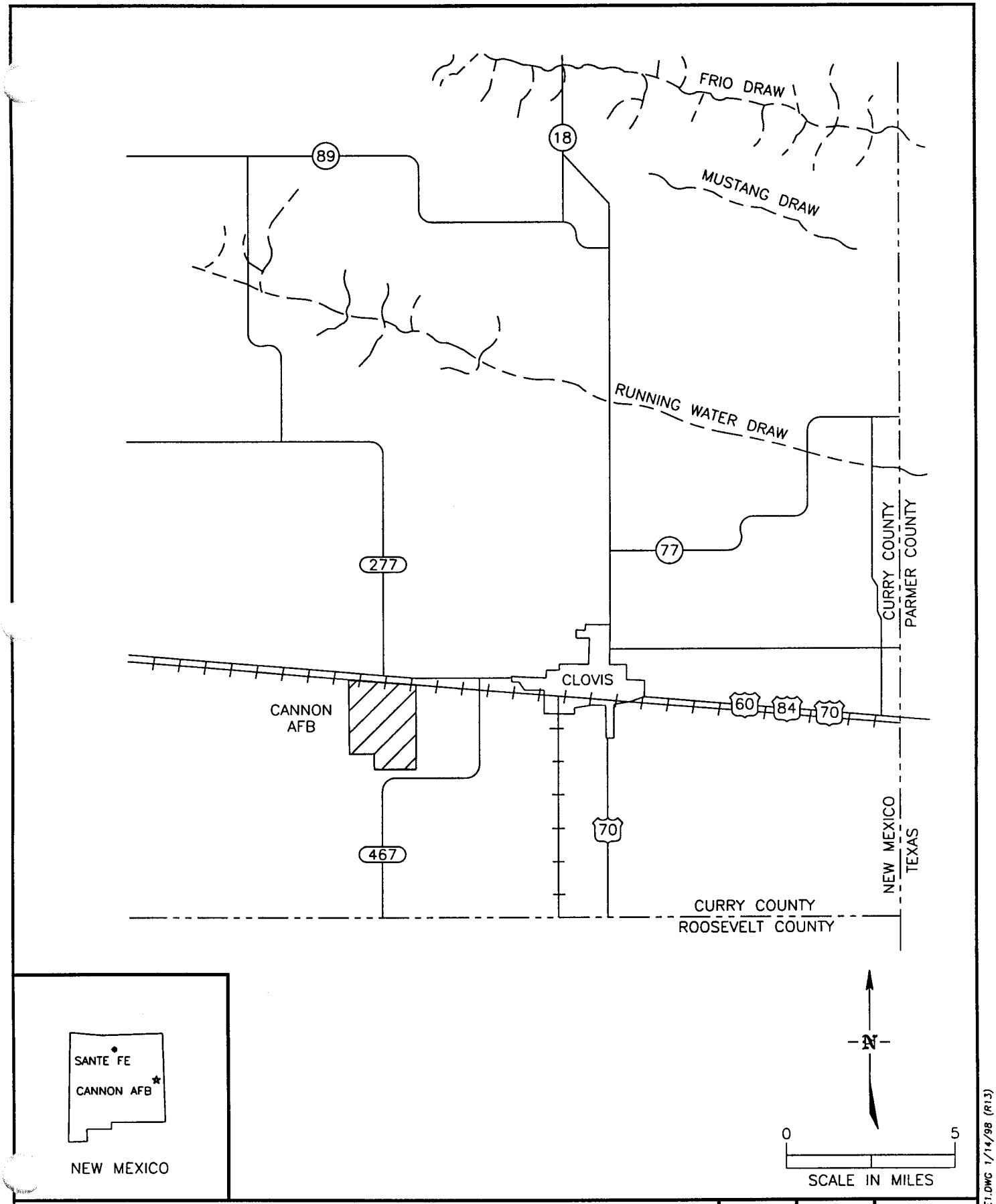
- Appendix IX VOCs, SW-846 Method 8260A
- Appendix IX SVOCs, SW-846 Method 8270B
- Dioxin - 2, 3, 7, 8-TCDD, SW-846 Method 8280,
- Appendix IX Pesticides/PCBs, SW-846 Method 8080A/8081
- Appendix IX Herbicides, SW-846 Method 8150,
- Appendix IX Metals, SW-846 Method 6010 and 7000,
- Cyanide, SW-846 Method 9012,
- Sulfide, EPA 376.2,
- Total Organic Carbon, SW-846 Method 9060,
- Total Organic Halides, SW-846 Method 9020.

Concentrations of detected analytes are summarized in Table 1. A New Mexico Environmental Department (NMED) Assessment Monitoring Quarterly Report, completed for Well R, is presented at the end of this document.

Field forms completed for the September 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 for samples CAFB-MWR-0997-1 and CAFB-MWR-0997-2, containing a discussion of QC criteria that were evaluated, is included as Appendix III.

As part of the QA/QC program for this sampling event, FEC collected a field duplicate to measure field and analytical precision and accuracy. For analytes detected above reporting limits, adequate precision was observed in the sample-duplicate pair (CAFB-MWR-0997-1/CAFB-MWR-0997-2) collected during the September 1997 sampling event (see Table 1).

Various metal analytes were detected at trace levels in samples collected from monitoring well R (see Table 1). Nickel was detected at a concentration of 0.22 mg/L, which is above the U.S. EPA Maximum Contaminant Level (MCL) of 0.1 mg/L and the NMED standard of 0.20 mg/L for this analyte. For comparison purposes, Table 1 lists the state of New Mexico groundwater standards and the U. S. EPA MCLs. Results for all other analyses were reported as "not detected" (ND), indicating that Appendix IX compounds were not present above laboratory reporting limits in groundwater samples collected from monitoring well R.

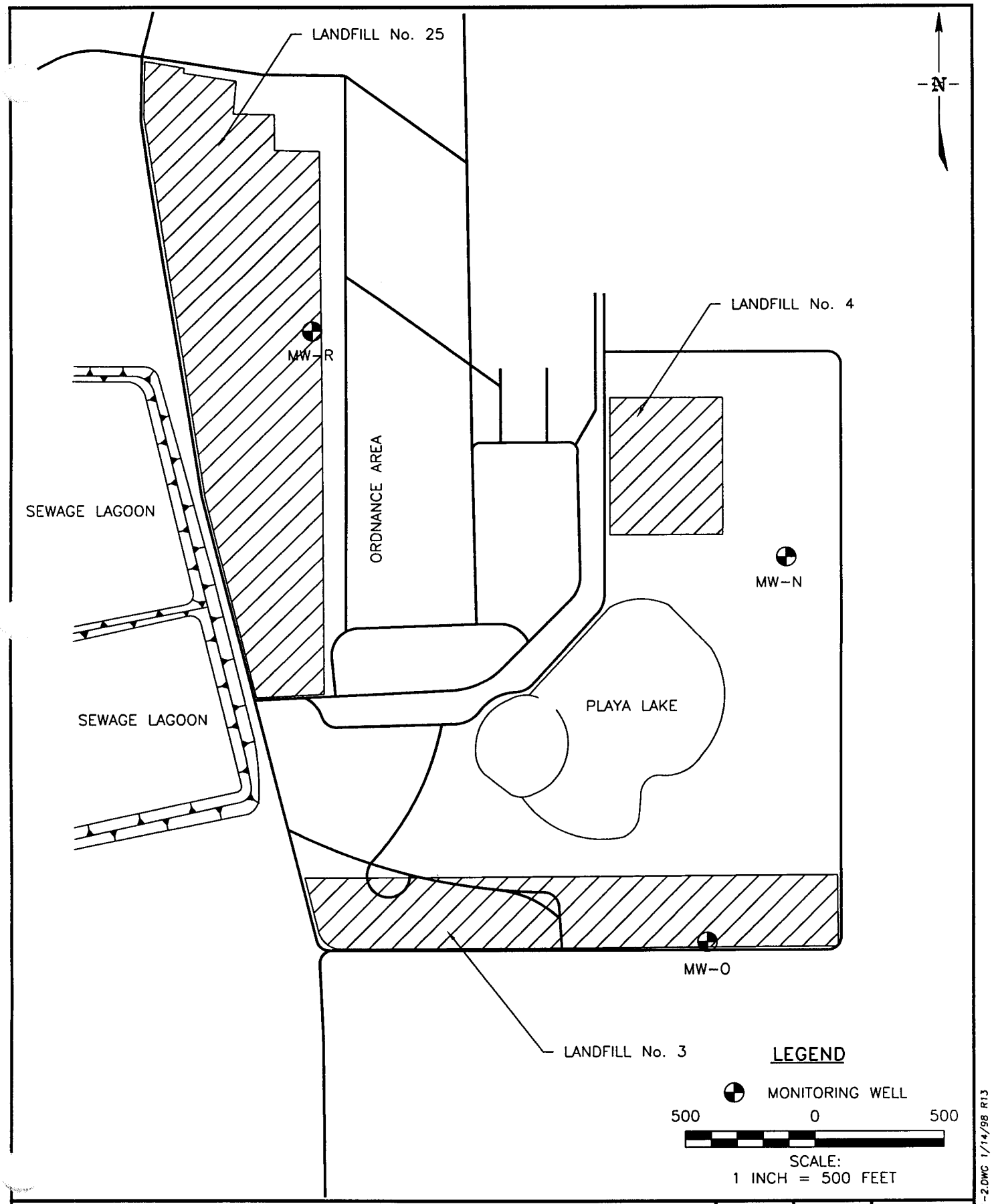


FEC
FOOTHILL ENGINEERING CONSULTANTS, INC.

FIGURE 1
SITE LOCATION MAP
CANNON AIR FORCE BASE

DATE:	SCALE:	DRAWN BY:
1/98	SHOWN	SHN

96-333\FIGURE1.DWG 1/14/98 (R13)



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FOOTHILL ENGINEERING CONSULTANTS, INC.

FIGURE 2 MONITORING WELL LOCATION MAP CANNON AIR FORCE BASE	DATE:	SCALE:	DRAWN BY:
	1/98	1"=500'	SHN

96-333\FIGA-1-2.DWG 1/14/98 R13

Table 1: Groundwater Sample Results Summary - September 1997

Quarterly Groundwater Sampling - Monitoring Well R
Cannon Air Force Base, Clovis, New Mexico

Sample ID/ Analyte / Method of Analysis	CAFB-MWR-0997-1	CAFB-MWR-0997-2*	EPA MCLs	New Mexico State Standards
Reporting Units	mg/L	mg/L	mg/L	mg/L
Arsenic SW-846 7060	0.0033	0.0028	0.05	0.1
Barium-SW-846 6010	0.058	0.056	2.0	1.0
Chromium SW-846 6010	0.021	0.017	0.10	0.05
Mercury SW-846 7470	0.000071	ND	0.002	0.002
Nickel-SW-846 6010	0.22	0.25	0.10	0.2
Selenium SW-846 7740	0.0062	0.0054	0.05	0.05
Thallium SW-846 6020	0.000064	0.000055	0.002	----
Vanadium-SW-846 6010	0.012	0.010	----	----
Zinc SW-846 6010	0.0028	ND	----	10.0
TOC-SW-846 9060	0.76	0.88	----	----
TOX-SW-846 9020	24.1 µg/L	14.7 µg/L	----	----
Nitrate EPA 300.0	4.7	4.7	10.0	10.0
VOCs-SW-846 8260A	ND	ND	----	----
SVOCs-SW-846 8270B	ND	ND	----	----
bis (2-ethylhexyl) phthalate	0.023	ND	0.006	----
Sulfide-EPA 376.2	ND	ND	----	----
Herbicides- SW-846 8150	ND	ND	----	----
Dioxin-2, 3, 7, 8-TCDD-SW-846 8280	ND	ND	3.0×10^{-08}	----
Cyanide-SW-846 9012	ND	ND	----	0.2
Organochlorine Pesticides/PCBs- SW-846 8080A/8081	ND	ND	----	----

Note: samples collected on September 3, 1997; see Appendix II for method detection limits and reporting limits for all analytes
* = sample is a field duplicate of CAFB-MWR-0997-1
MCL = Maximum Contaminant Level
ND = analytes not detected above reporting limits
---- = no MCL listed for this analyte

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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 **09/03/97**

TIME SAMPLED **1200** DATE RECEIVED BY LAB **09/04/97**

PARAMETERS	STORET CODE	UNITS	VALUE	DATE ANALYZED
Elevation of G. Water	71993	ft.	3997.82	09/03/97
Well Depth	N/A	ft.	307.5	09/03/97
Well Casing Volume	N/A	gal.	36	09/03/97
Pump Rate	N/A	gal/min	1	09/03/97
Pump Period	72004	min.	103	09/03/97
Volume Evacuated	73675	gal.	109	09/03/97
Sampler Material	N/A	N/A	TEFLN	
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.	7.50 (f)	N/A	09/03/97	
	00400	S.U.	7.58 (f)	N/A	09/03/97	Field Probe
	00400	S.U.	7.60 (f)	N/A	09/03/97	
	00400	S.U.	7.59 (f)	N/A	09/03/97	
Specific Conductivity	00095	umhos/cm	0.93 (f)	N/A	09/03/97	
	00095	umhos/cm	0.93 (f)	N/A	09/03/97	Field Probe
	00095	umhos/cm	0.93 (f)	N/A	09/03/97	
	00095	umhos/cm	0.93 (f)	N/A	09/03/97	
TOX	70354	µg/L	24.1	30.0	09/09/97	
	70354	mg/L	N/A	N/A	N/A	SW846-9020
	70354	mg/L	N/A	N/A	N/A	
	70354	mg/L	N/A	N/A	N/A	
TOC	00680	mg/L	0.76	1.0	09/19/97	
	00680	mg/L	N/A	N/A	N/A	SW846-9060
	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	N/A	N/A	N/A	N/A
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	3	N/A	09/03/97	Horiba-U10

Date Of This Report: _____

Signature: _____

Name (Printed): Foothill Engineering Consultants

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
bis (2 ethylhexyl) phthalate		23	mg/L	0.0095	09/07/97	09/12/97	SW846-8270B
Arsenic		0.0033	mg/L	0.010	09/13/97	09/15/97	SW846-7060
Barium		0.058	mg/L	0.010	09/08/97	09/11/97	SW846-6010
Chromium		0.021	mg/L	0.010	09/08/97	09/11/97	SW846-6010
Mercury		0.00007	mg/L	0.00020	09/18/97	09/19/97	SW846-7470
Nickel		0.22	mg/L	0.040	09/08/97	09/11/97	SW846-6010
Selenium		0.0062	mg/L	0.0050	09/13/97	09/15/97	SW846-7740
Thallium		0.00006	mg/L	0.0010	09/16/97	09/18/97	SW846-6020
Vanadium		0.012	mg/L	0.010	09/08/97	09/11/97	SW846-6010
ZINC		0.0028	mg/L	0.020	09/08/97	09/11/97	SW846-6010
NITRATE		4.7	mg/L	0.50	N/A	09/04/97	EPA 300.0
TOC		0.76	mg/L	1.0	N/A	09/19/97	SW846-9060
TOX		24.1	µg/L	30	N/A	09/09/97	SW846-9020

APPENDIX I

Field Forms

DAILY QUALITY CONTROL REPORT

PROJECT: Cannon AFB

LOCATION: Landfill 25

Date: 9/2/97

Weather: N/A

Temp:

Wind

Humidity

PERSONNEL

Name	Position	Hours Worked
Ian Broussard	Geologist	12

FIELD INSTALLATIONS

ID No(s).

Drilled:

from

to

Footage

Casing Set:

Screen

Riser

EQUIPMENT

	Calibrated
OVA	Yes/No
O_2/LEL	Yes/No
pH/Conductivity/Temp.	Yes/No
Other	Yes/No

Hours Drilling

Hours Installing

Hours Decon

Hours Development

Hours Sampling

Hours Shut Down

# of Samples: Type

SAMPLING SUMMARY:

Boring/Well No.	Sample No.	Media Sampled	Depth	QC	Analytes

Description of work performed: Flew to Amarillo and drove to Cannon AFB. Picked up coolers w/sample bottles from Environ management. Picked up nitrogen cylinder and water testing equipment. Inventoried and labeled sample bottles for Well MW8. Six coolers were used for the sampling of Well 8

Health and Safety Levels D

Summary of Monitoring Activities: N/A

Problems encountered/Corrective Actions: No problems

Any changes from work plan? None

Signature: Ian Broussard

C:\CECILIA\FORMS\DQCR.FRM

DAILY QUALITY CONTROL REPORT

PROJECT: Cannon AFB

LOCATION: landfill #25 (MWR)

Date: 9/3/97

Weather:
Temp: 72°F
Wind light SW 5-15
Humidity high

PERSONNEL

Name	Position	Hours Worked
Ian Broussard		

FIELD INSTALLATIONS

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

EQUIPMENT

	Calibrated
OVA	Yes/No
O_2/LEL	Yes/No
pH/Conductivity/Temp.	Yes/No
Other Horiba U10 water quality testor	Yes/No

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

SAMPLING SUMMARY:

Boring/Well No.	Sample No.	Media Sampled	Depth	QC	Analytes
MWR	CAFB	Water	207.5		AP IV VOC, SVOC, PCB/PEST, Herb & Metals Dioxin-TCDD, cyanide, sulfide, TOC, TOX

Description of work performed: Gauged and purged monitoring well MWR - found water stained from geologic materials (Reddish) but cleared up after first well volume. No problems were seen with the pump or condition of the well

Health and Safety Levels D

Summary of Monitoring Activities: No atmospheric testing was performed - used Nitrile gloves while sampling. Purge water stored in Poly tank on site.

Problems encountered/Corrective Actions: None

Any changes from work plan? No

Signature: Ian Broussard

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Well Purge Data Sheet for June 3, 1997 - Clovis, New Mexico

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

Groundwater Quality Parameters - MW N, 3 June 1997 TD=297.5 (-) DTW= _____ = WC = _____						
Bore Volumes	pH	Conductivity	Turbidity	Dissolved Oxygen	Temperature	Salinity
½ = _____						
1 = _____						
1½ = _____						
2 = _____						
2½ = _____						
3 = _____						

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

Groundwater Quality Parameters - MW O, 3 June 1997 TD= 303.9 (-) DTW= _____ = WC = _____						
Bore Volumes	pH	Conductivity	Turbidity	Dissolved Oxygen	Temperature	Salinity
½ = _____						
1 = _____						
1½ = _____						
2 = _____						
2½ = _____						
3 = _____						

Water Column = (24.62) feet X 1.469 = Bore Volume = 36 gallons

Groundwater Quality Parameters - MW R, 3 June 1997 TD= 307.5 (-) DTW= 282.88 = WC = 24.62							
Bore Volumes	pH	Conductivity	Turbidity	Dissolved Oxygen	Temperature	Salinity	
½ = 18	6.60	.98	21	9.67	18.5	0.4	1111, 093
1 = 36	7.38	.92	3	10.05	18.4	0,04	1111 095
1½ = 54	7.50	.93	-10 Flashing	10.14	18.2	0.04	1111, 1015
2 = 72	7.53	.93	-10 Flashing	10.16	18.4	0.04	1111, 103
2½ = 90	7.60	.93	-10 Flashing	10.14	18.4	0.04	1111, 105
3 = 109	7.59	.93	2	10.15	18.2	0.04	1111, 1115

APPENDIX II

Analytical Results/Quality Control Data

Quanterra
Environmental Services

ANALYTICAL RESULTS
FOR
FOOTHILL ENGINEERING CONSULTANTS
CANNON AFB

QUANTERRA ENVIRONMENTAL SERVICES
DENVER NO. 056818
OCTOBER 14, 1997

Reviewed by: _____
for **Susan H. McCool**

Quanterra
Environmental Services

Table Of Contents

Standard Deliverables With Supporting Documentation

Report Contents	Section	Number Of Pages
Standard Deliverables		
Introduction	**A**	40
• 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**	148
Semivolatile GC/MS	**C**	249
Volatile GC	**D**	
Semivolatile GC	**E**	900
LC/MS or HPLC	**F**	
Metals	**G**	203
General Chemistry	**H**	99
Subcontracted Data	**I**	168

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

Sample Receipt

The samples were received with cooler temperatures of 3.6, 1.5, and 1.7 degrees Celsius. All sample containers were received in good condition.

Method Detection Limits (MDL's) were reported on the data sheets as well as the reporting limits, as requested by John Wong

GCMS Volatiles.

There were no reportable anomalies observed during the extraction and analysis of the enclosed samples for volatile organic analysis by Method 8260A.

GCMS Semivolatiles

There were no reportable anomalies observed for analysis of semivolatile organics by Method 8270B.

GC Volatiles

Method 8080 was requested on the chain of custody for the aqueous samples received on September 4, 1997. On September 29, 1997, John Wong requested Method 8081. The sample extracts were reanalyzed under Method 8081 for the pesticide analytes. Please see Confirmation of Communication included in report.

The relative percent difference for lindane, dieldrin, endrin, and 4,4-DDT exceeded control limits in DCS lot 08 SEP 97-02 for volatile organics by Method 8080. The average percent recoveries were within control limits. Samples were re-extracted and reanalyzed outside holding times to confirm original data

results. The reanalysis data was comparable to the original data. Both sets of data were included in the report.

The recovery for cadmium and lead were outside control limits in the MSQC for metals analysis by ICP-trace. The associated LCS was within control limits. Data was accepted.

Metals

The percent recovery for silver and zinc were outside control limits in the batch QC lot 08 SEP 97-M2 for metals analysis. The relative percent difference for silver exceeded control limits. The associated Laboratory Control Sample (LCS) was within control limits. Matrix interference is suspect. Data was accepted.

The percent recovery for selenium in the matrix spike and spike duplicate lot 13 SEP 97-SC were outside control limits. The associated LCS was within control limits. Matrix is suspect. Data was accepted.

General Inorganics

There was no batch QC (MS/SD) analyzed for Total Organic Halogens. Duplicate Control Samples were reported.

Quanterra
Environmental Services

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

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's Denver laboratory is assigned a unique six digit number. Samples within the project are numbered sequentially. The laboratory identification number is a combination of the six digit project code and the sample sequence number.

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

Analytical Test Requests

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

Quanterra
Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
Foothill Engineering Consultants Inc.

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
056818-0001-SA	CAFB-MWR-0997-1	AQUEOUS	03 SEP 97	12:00	04 SEP 97
056818-0001-MB	METHOD BLANK	AQUEOUS	03 SEP 97	12:00	04 SEP 97
056818-0001-RE	CAFB-MWR-0997-1	AQUEOUS	03 SEP 97	12:00	04 SEP 97
056818-0002-TB	TRIP BLANK	AQUEOUS	03 SEP 97		04 SEP 97
056818-0003-SA	CAFB-MWR-0997-2	AQUEOUS	03 SEP 97	12:00	04 SEP 97
056818-0003-RE	CAFB-MWR-0997-2	AQUEOUS	03 SEP 97	12:00	04 SEP 97

Quanterra
Environmental Services

ANALYTICAL TEST REQUESTS
for
Foothill Engineering Consultants Inc.

Lab ID: 056818	Group Code	Analysis Description	Custom Test?
0001 , 0003	A	Semivolatile Organics	Y
		Appendix IX List	
		Prep - Semivolatile Organics by GC/MS	N
		Chlorinated Pesticides and PCB's	Y
		Appendix IX List	
		Prep - Organochlorine Pesticides/PCBs by GC	N
		(Appendix IX)	
		2,3,7,8-TCDD - by Low Resolution MS	N
		Prep - Low Res. Method 613 L-L Extraction for	N
		Dioxins/Furans	
		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
		Sulfide, Total	Y
		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
		Arsenic, Furnace AA (Total)	Y
		Prep - Arsenic, Selenium - Total, Furnace AA	N
		Lead, Furnace AA (Total)	Y
		Prep - Total Metals, Furnace AA	N
		Selenium, Furnace AA (Total)	Y
		Prep - Organochlorine Pesticides/PCBs by GC	N
		Chlorinated Pesticides and PCB's	Y
		Appendix IX List	
		Prep - Organochlorine Pesticides/PCBs by GC	N
		(Appendix IX)	
0002	B	Volatile Organics	Y
		Appendix IX List	Y
		Screen - Volatile Organics for 25mL Purge	N

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 date 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. Solid and waste samples are reported on an "as received" basis, i.e. no correction is made for moisture content.

The results from the Standard Quanterra QA/QC Program, which generates data which are independent of matrix effects, are provided subsequently.

Quanterra
Environmental Services

ANALYTICAL RESULT SUMMARY

Quanterra
Environmental Services

Volatile Organics
Appendix IX List
Method 8260A

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-1
LAB ID: 056818-0001-SA
Matrix: AQUEOUS — Sampled: 03 SEP 97 — Received: 04 SEP 97
Authorized: 04 SEP 97 — Prepared: 05 SEP 97 — Analyzed: 12 SEP 97
Instrument: GCMS-H — Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Acetone	ND		10	3.8	ug/L
Acetonitrile	ND		20		ug/L
Acrolein	ND		20	4.4	ug/L
Acrylonitrile	ND		20	7.2	ug/L
Allyl chloride	ND		2.0		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		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		ug/L
Dibromochloromethane	ND		1.0	0.37	ug/L
1,2-Dibromo-3-chloro-propane (DBCP)	ND		2.0		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		ug/L
Methacrylonitrile	ND		1.0		ug/L
Methylene chloride	ND		1.0	0.10	ug/L
Methyl methacrylate	ND		1.0		ug/L
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L

ND = Not Detected

Reported By: Mike Hoffman — Approved By: Deborah Street

Quanterra Environmental Services

(cont.)

Volatile Organics
Appendix IX List
Method 8260A

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-1
LAB ID: 056818-0001-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 05 SEP 97 Analyzed: 12 SEP 97
Instrument: GCMS-H Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Propionitrile	ND		4.0		ug/L
Styrene	ND		1.0	0.21	ug/L
1,1,1,2-Tetrachloroethane	ND		1.0		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	98	%	78 - 113
4-Bromofluorobenzene	101	%	88 - 113
Toluene-d8	106	%	90 - 108

ND = Not Detected

Reported By: Mike Hoffman Approved By: Deborah Street

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-1
LAB ID: 056818-0001-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 07 SEP 97 Analyzed: 12 SEP 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		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		ug/L
2-sec-Butyl-4,6-dinitro-phenol	ND		19	0.95	ug/L
4-Chloroaniline	ND		9.5	1.8	ug/L
Chlorobenzilate	ND		9.5		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
Diallate	ND		19		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

ND = Not Detected

Reported By: Deneen Spence Approved By: Audrey Cornell

Quanterra Environmental Services

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

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-1
LAB ID: 056818-0001-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 07 SEP 97 Analyzed: 12 SEP 97
Instrument: GCMS-D Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units
7,12-Dimethylbenz(a)-anthracene	ND		19	0.97	ug/L
3,3'-Dimethylbenzidine	ND		48	3.4	ug/L
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	23	B	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
Isodrin	ND		9.5		ug/L
Isophorone	ND		9.5	1.0	ug/L
Isosafrole	ND		19	1.9	ug/L
Kepone	ND		95		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

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

Reported By: Deneen Spence Approved By: Audrey Cornell

Quanterra Environmental Services

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

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-1
LAB ID: 056818-0001-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 07 SEP 97 Analyzed: 12 SEP 97
Instrument: GCMS-D Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units
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
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
athion	ND		48	0.95	ug/L
entachlorobenzene	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

ND = Not Detected

ported By: Deneen Spence Approved By: Audrey Cornell

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

(Cont.)

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-1
LAB ID: 056818-0001-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 07 SEP 97 Analyzed: 12 SEP 97
Instrument: GCMS-D Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units
1,3,5-Trinitrobenzene	ND		48	0.95	ug/L

Surrogate	Recovery		Acceptable Range
Nitrobenzene-d5	72	%	51 - 104
2-Fluorobiphenyl	77	%	43 - 116
Terphenyl-d14	72	%	33 - 141
2-Fluorophenol	74	%	36 - 108
Phenol-d5	79	%	47 - 106
2,4,6-Tribromophenol	91	%	49 - 106

ND = Not Detected

Reported By: Deneen Spence Approved By: Audrey Cornell

Quanterra
Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8080A

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-1
LAB ID: 056818-0001-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 08 SEP 97 Analyzed: 11 SEP 97
Instrument: GC/ECD Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units
Aroclor 1016	ND		0.95	0.10	ug/L
Aroclor 1221	ND		0.95	0.43	ug/L
Aroclor 1232	ND		0.95	0.62	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

Surrogate	Recovery		Acceptable Range
Tetrachloro-m-xylene	89	%	51 - 103
Dibutyl chlorendate	101	%	71 - 109
Decachlorobiphenyl	94	%	50 - 138

ND = Not Detected

ported By: Andy Burcham Approved By: Lynn S. Calvin

Quanterra Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8080A

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-1
LAB ID: 056818-0001-RE
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 16 SEP 97 Analyzed: 26 SEP 97
Instrument: GC/ECD Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units
Aroclor 1016	ND		0.95	0.10	ug/L
Aroclor 1221	ND		0.95	0.43	ug/L
Aroclor 1232	ND		0.95	0.62	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		ug/L
Aroclor 1260	ND		0.95	0.11	ug/L

Surrogate	Recovery		Acceptable Range
Tetrachloro-m-xylene	92	%	51 - 103
Dibutyl chlorendate	91	%	71 - 109
Decachlorobiphenyl	95	%	50 - 138

ND = Not Detected

Reported By: Andy Burcham Approved By: Lynn S. Calvin

Quanterra
Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8081

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-1
LAB ID: 056818-0001-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 01 OCT 97 Analyzed: 01 OCT 97
Instrument: GC/ECD Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units
Aldrin	ND		0.047	0.022	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
'rin aldehyde	ND		0.095	0.021	ug/L
tachlor	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	87	%	51 - 103
Dibutyl chlorendate	81	%	71 - 109
Decachlorobiphenyl	84	%	50 - 138

ND = Not Detected

orted By: Andy Burcham Approved By: Audrey Cornell

Quanterra
Environmental Services

Appendix IX Herbicides
Method 8150

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-1
LAB ID: 056818-0001-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 08 SEP 97 Analyzed: 10 SEP 97
Instrument: GC/ECD Dilution: 0.95

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	80	%	27 - 121

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-MWR-0997-1
LAB ID: 056818-0001-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: See Below 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	08 SEP 97	25 SEP 97
Arsenic	0.0033J		1.0	0.0027	0.010	mg/L	SW7060	13 SEP 97	15 SEP 97
Barium	0.058		1.0	0.0018	0.010	mg/L	SW6010	08 SEP 97	11 SEP 97
Beryllium	ND		1.0	0.00092	0.0020	mg/L	SW6010	08 SEP 97	11 SEP 97
Cadmium	ND		1.0	0.00058	0.0050	mg/L	SW6010	08 SEP 97	25 SEP 97
Chromium	0.021		1.0	0.0041	0.010	mg/L	SW6010	08 SEP 97	11 SEP 97
Cobalt	ND		1.0	0.0035	0.010	mg/L	SW6010	08 SEP 97	11 SEP 97
Copper	ND		1.0	0.0021	0.020	mg/L	SW6010	08 SEP 97	11 SEP 97
Lead	ND		1.0	0.00074	0.0030	mg/L	SW7421	13 SEP 97	15 SEP 97
Mercury	0.000071J		1.0	0.00011	0.00020	mg/L	SW7470	18 SEP 97	19 SEP 97
Nickel	0.22		1.0	0.0097	0.040	mg/L	SW6010	08 SEP 97	11 SEP 97
Selenium	0.0062		1.0	0.0027	0.0050	mg/L	SW7740	13 SEP 97	15 SEP 97
Silver	ND		1.0	0.0025	0.010	mg/L	SW6010	08 SEP 97	11 SEP 97
Tin	ND		1.0	0.010	0.10	mg/L	SW6010	08 SEP 97	11 SEP 97
Vanadium	0.012		1.0	0.0031	0.010	mg/L	SW6010	08 SEP 97	11 SEP 97
Zinc	0.0028J		1.0	0.014	0.020	mg/L	SW6010	08 SEP 97	11 SEP 97

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

Reported By: Michelle Walker Approved By: Richard Persichitte

Quanterra
Environmental Services

ICP/MS Metals
Total Metals

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-1
LAB ID: 056818-0001-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	Dil	MDL	Rep Lim	Units	Method	Prepared Date	Analyzed Date
Thallium	0.000064	J	1.0	0.024	0.0010	mg/L	6020	16 SEP 97	18 SEP 97

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

Reported By: Michelle Walker Approved By: Richard Persichitte

Quanterra
Environmental Services

General Inorganics

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-1
LAB ID: 056818-0001-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 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	NA	12 SEP 97
Nitrate as N	4.7		1.0	0.050	0.50	mg/L	E300.0	NA	04 SEP 97
Sulfide, Total	ND		1.0	0.017	0.050	mg/L	376.2	NA	09 SEP 97
Total Organic Carbon	0.76	J	1.0	0.18	1.0	mg/L	9060	NA	19 SEP 97
Total Organic Halogen as Cl	24.1	J	1.0	7.5	30.0	ug/L	9020	NA	09 SEP 97

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

Reported By: Judy Lange Approved By: Roxanne Sullivan

Quanterra Environmental Services

2,3,7,8 TCDD
LOW RESOLUTION

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-1
LAB ID: 056818-0001-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 15 SEP 97 Analyzed: 16 SEP 97
Instrument: GC/MS Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
2,3,7,8-TCDD	ND		0.53		ng/L

Surrogate	Recovery		Acceptable Range
13C-2,3,7,8-TCDD	82	%	-

ND = Not Detected

Reported By: RHRABAK Approved By: EREDMAN

Quanterra
Environmental Services

Volatile Organics
Appendix IX List
Method 8260A

Client Name: Foothill Engineering Consultants Inc.
Client ID: TRIP BLANK
LAB ID: 056818-0002-TB
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 05 SEP 97 Analyzed: 12 SEP 97
Instrument: GCMS-H Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Acetone	ND		10	3.8	ug/L
Acetonitrile	ND		20		ug/L
Acrolein	ND		20	4.4	ug/L
Acrylonitrile	ND		20	7.2	ug/L
Allyl chloride	ND		2.0		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		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		ug/L
romochloromethane	ND		1.0	0.37	ug/L
1,2-Dibromo-3-chloro-propane (DBCP)	ND		2.0		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
cis-1,2-Dichloroethene	ND		0.50		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		ug/L
Methacrylonitrile	ND		1.0		ug/L
Methylene chloride	0.30	J	1.0	0.10	ug/L

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

Reported By: Mike Hoffman Approved By: Deborah Street

Quanterra Environmental Services

(cont.)

Volatile Organics
Appendix IX List
Method 8260A

Client Name: Foothill Engineering Consultants Inc.
Client ID: TRIP BLANK
LAB ID: 056818-0002-TB
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 05 SEP 97 Analyzed: 12 SEP 97
Instrument: GCMS-H Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Methyl methacrylate	ND		1.0		ug/L
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L
Propionitrile	ND		4.0		ug/L
Styrene	ND		1.0	0.21	ug/L
1,1,1,2-Tetrachloroethane	ND		1.0		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
m- & p-Xylenes	ND		0.50		ug/L
o-Xylene	ND		0.50		ug/L
Xylenes (total)	ND		1.0	0.47	ug/L

Surrogate	Recovery		Acceptable Range
1,2-Dichloroethane-d4	99	%	78 - 113
4-Bromofluorobenzene	100	%	88 - 113
Toluene-d8	105	%	90 - 108

ND = Not Detected

Reported By: Mike Hoffman Approved By: Deborah Street

Quanterra
Environmental Services

Volatile Organics
Appendix IX List
Method 8260A

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-2
LAB ID: 056818-0003-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 05 SEP 97 Analyzed: 12 SEP 97
Instrument: GCMS-H Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Acetone	ND		10	3.8	ug/L
Acetonitrile	ND		20		ug/L
Acrolein	ND		20	4.4	ug/L
Acrylonitrile	ND		20	7.2	ug/L
Allyl chloride	ND		2.0		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		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		ug/L
Dibromochloromethane	ND		1.0	0.37	ug/L
1,2-Dibromo-3-chloro-propane (DBCP)	ND		2.0		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		ug/L
Methacrylonitrile	ND		1.0		ug/L
Methylene chloride	ND		1.0	0.10	ug/L
Methyl methacrylate	ND		1.0		ug/L
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L

ND = Not Detected

Reported By: Mike Hoffman Approved By: Deborah Street

Quanterra Environmental Services

Volatile Organics
Appendix IX List
Method 8260A

(Cont.)

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-2
LAB ID: 056818-0003-SA
Matrix: AQUEOUS — Sampled: 03 SEP 97 — Received: 04 SEP 97
Authorized: 04 SEP 97 — Prepared: 05 SEP 97 — Analyzed: 12 SEP 97
Instrument: GCMS-H — Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Propionitrile	ND		4.0		ug/L
Styrene	ND		1.0	0.21	ug/L
1,1,1,2-Tetrachloroethane	ND		1.0		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	98	%	78 - 113
4-Bromofluorobenzene	101	%	88 - 113
Toluene-d8	105	%	90 - 108

ND = Not Detected

Reported By: Mike Hoffman — Approved By: Deborah Street

Quanterra
Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-2
LAB ID: 056818-0003-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 07 SEP 97 Analyzed: 12 SEP 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		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		ug/L
2-sec-Butyl-4,6-dinitro-phenol	ND		19	0.95	ug/L
Chloroaniline	ND		9.5	1.8	ug/L
Chlorobenzilate	ND		9.5		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
Diallate	ND		19		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

ND = Not Detected

orted By: Deneen Spence Approved By: Audrey Cornell

Quanterra Environmental Services

Semivolatile Organics
Appendix IX List
Method 8270B

(cont.)

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-2
LAB ID: 056818-0003-SA
Matrix: AQUEOUS — Sampled: 03 SEP 97 — Received: 04 SEP 97
Authorized: 04 SEP 97 — Prepared: 07 SEP 97 — Analyzed: 12 SEP 97
Instrument: GCMS-D — Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units
7,12-Dimethylbenz(a)-anthracene	ND		19	0.97	ug/L
3,3'-Dimethylbenzidine	ND		48	3.4	ug/L
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
Isodrin	ND		9.5		ug/L
Isophorone	ND		9.5	1.0	ug/L
Isosafrole	ND		19	1.9	ug/L
Kepone	ND		95		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

ND = Not Detected

Reported By: Deneen Spence — Approved By: Audrey Cornell

Quanterra Environmental Services

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

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-2
LAB ID: 056818-0003-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 07 SEP 97 Analyzed: 12 SEP 97
Instrument: GCMS-D Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units
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
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: Audrey Cornell

Quanterra Environmental Services

(cont.)

Semivolatile Organics
Appendix IX List
Method 8270B

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-2
LAB ID: 056818-0003-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 07 SEP 97 Analyzed: 12 SEP 97
Instrument: GCMS-D Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units

Surrogate	Recovery		Acceptable Range
Nitrobenzene-d5	71	%	51 - 104
2-Fluorobiphenyl	76	%	43 - 116
Terphenyl-d14	76	%	33 - 141
2-Fluorophenol	74	%	36 - 108
Phenol-d5	78	%	47 - 106
2,4,6-Tribromophenol	90	%	49 - 106

Reported By: Deneen Spence Approved By: Audrey Cornell

Quanterra
Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8080A

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-2
LAB ID: 056818-0003-SA
Matrix: AQUEOUS — Sampled: 03 SEP 97 — Received: 04 SEP 97
Authorized: 04 SEP 97 — Prepared: 08 SEP 97 — Analyzed: 11 SEP 97
Instrument: GC/ECD — Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units
Aroclor 1016	ND		0.95	0.10	ug/L
Aroclor 1221	ND		0.95	0.43	ug/L
Aroclor 1232	ND		0.95	0.62	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

Surrogate	Recovery		Acceptable Range
Tetrachloro-m-xylene	91	%	51 - 103
Dibutyl chlorendate	107	%	71 - 109
Decachlorobiphenyl	94	%	50 - 138

ND = Not Detected

Reported By: Andy Burcham — Approved By: Lynn S. Calvin

Quanterra Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8080A

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-2
LAB ID: 056818-0003-RE
Matrix: AQUEOUS — Sampled: 03 SEP 97 — Received: 04 SEP 97
Authorized: 04 SEP 97 — Prepared: 16 SEP 97 — Analyzed: 26 SEP 97
Instrument: GC/ECD — Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units
Aroclor 1016	ND		0.95	0.10	ug/L
Aroclor 1221	ND		0.95	0.43	ug/L
Aroclor 1232	ND		0.95	0.62	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		ug/L
Aroclor 1260	ND		0.95	0.11	ug/L

Surrogate	Recovery		Acceptable Range
Tetrachloro-m-xylene	92	%	51 - 103
Dibutyl chlorendate	93	%	71 - 109
Decachlorobiphenyl	97	%	50 - 138

ND = Not Detected

Reported By: Andy Burcham

Approved By: Lynn S. Calvin

Quanterra
Environmental Services

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8081

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-2
LAB ID: 056818-0003-SA
Matrix: AQUEOUS — Sampled: 03 SEP 97 — Received: 04 SEP 97
Authorized: 04 SEP 97 — Prepared: 01 OCT 97 — Analyzed: 02 OCT 97
Instrument: GC/ECD — Dilution: 0.95

Parameter	Result	Qualifier	RL	MDL	Units
Aldrin	ND		0.048	0.022	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		0.95	0.47	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		0.048	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		0.048	0.022	ug/L
Heptachlor epoxide	ND		0.048	0.023	ug/L
Isodrin	ND		0.095	0.034	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	89	%	51 - 103
Dibutyl chlorendate	88	%	71 - 109
Decachlorobiphenyl	80	%	50 - 138

ND = Not Detected

Reported By: Andy Burcham — Approved By: Audrey Cornell

Quanterra Environmental Services

Appendix IX Herbicides
Method 8150

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-2
LAB ID: 056818-0003-SA
Matrix: AQUEOUS — Sampled: 03 SEP 97 — Received: 04 SEP 97
Authorized: 04 SEP 97 — Prepared: 08 SEP 97 — Analyzed: 10 SEP 97
Instrument: GC/ECD — Dilution: 0.96

Parameter	Result	Qualifier	RL	MDL	Units
2,4-D	ND		1.1	0.51	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		0.96	0.34	ug/L

Surrogate	Recovery		Acceptable Range
DCAA	82	%	27 - 121

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-MWR-0997-2
LAB ID: 056818-0003-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: See Below 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	08 SEP 97	25 SEP 97
Arsenic	0.0028	J	1.0	0.0027	0.010	mg/L	SW7060	13 SEP 97	15 SEP 97
Barium	0.056		1.0	0.0018	0.010	mg/L	SW6010	08 SEP 97	11 SEP 97
Beryllium	ND		1.0	0.00092	0.0020	mg/L	SW6010	08 SEP 97	11 SEP 97
Cadmium	ND		1.0	0.00058	0.0050	mg/L	SW6010	08 SEP 97	25 SEP 97
Chromium	0.017		1.0	0.0041	0.010	mg/L	SW6010	08 SEP 97	11 SEP 97
Cobalt	ND		1.0	0.0035	0.010	mg/L	SW6010	08 SEP 97	11 SEP 97
Copper	ND		1.0	0.0021	0.020	mg/L	SW6010	08 SEP 97	11 SEP 97
Lead	ND		1.0	0.00074	0.0030	mg/L	SW7421	13 SEP 97	15 SEP 97
Mercury	ND		1.0	0.00011	0.00020	mg/L	SW7470	18 SEP 97	19 SEP 97
Nickel	0.25		1.0	0.0097	0.040	mg/L	SW6010	08 SEP 97	11 SEP 97
Selenium	0.0054		1.0	0.0027	0.0050	mg/L	SW7740	13 SEP 97	15 SEP 97
Silver	ND		1.0	0.0025	0.010	mg/L	SW6010	08 SEP 97	11 SEP 97
Tin	ND		1.0	0.010	0.10	mg/L	SW6010	08 SEP 97	11 SEP 97
Vanadium	0.010		1.0	0.0031	0.010	mg/L	SW6010	08 SEP 97	11 SEP 97
Zinc	ND		1.0	0.014	0.020	mg/L	SW6010	08 SEP 97	11 SEP 97

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

Reported By: Michelle Walker Approved By: Richard Persichitte

Quanterra
Environmental Services

ICP/MS Metals
Total Metals

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-2
LAB ID: 056818-0003-SA
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	Dil	MDL	Rep Lim	Units	Method	Prepared Date	Analyzed Date
Thallium	0.000055	J	1.0	0.024	0.0010	mg/L	6020	16 SEP 97	18 SEP 97

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

Reported By: Michelle Walker Approved By: Richard Persichitte

Quanterra
Environmental Services

General Inorganics

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-2
LAB ID: 056818-0003-SA
Matrix: AQUEOUS — Sampled: 03 SEP 97 — Received: 04 SEP 97
Authorized: 04 SEP 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	09 SEP 97	12 SEP 97
Nitrate as N	4.7		1.0	0.050	0.50	mg/L	E300.0	NA	04 SEP 97
Sulfide, Total	ND		1.0	0.017	0.050	mg/L	376.2	NA	09 SEP 97
Total Organic Carbon	0.88	J	1.0	0.18	1.0	mg/L	9060	NA	19 SEP 97
Total Organic Halogen as Cl	14.7	J	1.0	7.5	30.0	ug/L	9020	NA	09 SEP 97

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

Reported By: Judy Lange — Approved By: Roxanne Sullivan

Quanterra
Environmental Services

2,3,7,8 TCDD
LOW RESOLUTION

Client Name: Foothill Engineering Consultants Inc.
Client ID: CAFB-MWR-0997-2
LAB ID: 056818-0003-SA
Matrix: AQUEOUS — Sampled: 03 SEP 97 — Received: 04 SEP 97
Authorized: 04 SEP 97 — Prepared: 15 SEP 97 — Analyzed: 16 SEP 97
Instrument: GC/MS — Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
2,3,7,8-TCDD	ND		0.40		ng/L

Surrogate	Recovery		Acceptable Range
13C-2,3,7,8-TCDD	83	%	-

ND = Not Detected

Reported By: RHRABAK

Approved By: EREDMAN

QUALITY CONTROL SUMMARY

Quanterra
Environmental Services

LOT ASSIGNMENT REPORT
Volatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
056818-0001-SA	AQUEOUS	Q8260-A	12 SEP 97-H	12 SEP 97-H
056818-0002-TB	AQUEOUS	Q8260-A	12 SEP 97-H	12 SEP 97-H
056818-0003-SA	AQUEOUS	Q8260-A	12 SEP 97-H	12 SEP 97-H

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Environmental Services

LABORATORY CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Category: Q8260-A
Matrix: AQUEOUS
QC Lot: 12 SEP 97-H QC Run: 12 SEP 97-H
Concentration Units: ug/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
1,1-Dichloroethene	10.0	10.1	101	69-126
Trichloroethene	10.0	10.1	101	85-111
Benzene	10.0	10.5	105	85-115
Toluene	10.0	10.6	106	89-112
Chlorobenzene	10.0	10.5	105	91-112
1,2-Dichloroethane-d4	10.0	9.92	99	78-113
4-Bromofluorobenzene	10.0	9.94	99	88-113
Toluene-d8	10.0	10.1	101	90-108

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

Quanterra
Environmental Services

LOT ASSIGNMENT REPORT
Semivolatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
056818-0001-SA	AQUEOUS	Q8270-A	07 SEP 97-01	07 SEP 97-01
056818-0003-SA	AQUEOUS	Q8270-A	07 SEP 97-01	07 SEP 97-01

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LABORATORY CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS

Category: Q8270-A
Matrix: AQUEOUS
QC Lot: 07 SEP 97-01 QC Run: 07 SEP 97-01
Concentration Units: ug/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Phenol	150	106	71	45-105
2-Chlorophenol	150	129	86	52-107
1,4-Dichlorobenzene	100	82.2	82	20-124
N-Nitroso-di-n-propylamine	100	83.6	84	52-108
1,2,4-Trichlorobenzene	100	80.3	80	44-142
4-Chloro-3-methylphenol	150	113	75	22-147
Acenaphthene	100	92.5	92	47-145
4-Nitrophenol	150	136	91	42-115
2,4-Dinitrotoluene	100	94.5	94	55-116
Pentachlorophenol	150	129	86	14-176
Pyrene	100	79.4	79	56-120
Nitrobenzene-d5	100	70.5	70	51-104
2-Fluorobiphenyl	100	72.4	72	43-116
Terphenyl-d14	100	75.5	76	33-141
2-Fluorophenol	150	109	73	36-108
Phenol-d5	150	117	78	47-106
2,4,6-Tribromophenol	150	147	98	49-106

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

Quanterra
Environmental Services

LOT ASSIGNMENT REPORT
Semivolatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
056818-0001-SA	AQUEOUS	8080-A	08 SEP 97-02	08 SEP 97-02
056818-0001-SA	AQUEOUS	8150-A	08 SEP 97-01	08 SEP 97-01
056818-0001-SA	AQUEOUS	8081-A	08 SEP 97-02	08 SEP 97-02
056818-0001-RE	AQUEOUS	8080-A	16 SEP 97-01	16 SEP 97-01
056818-0003-SA	AQUEOUS	8080-A	08 SEP 97-02	08 SEP 97-02
056818-0003-SA	AQUEOUS	8150-A	08 SEP 97-01	08 SEP 97-01
056818-0003-SA	AQUEOUS	8081-A	08 SEP 97-02	08 SEP 97-02
056818-0003-RE	AQUEOUS	8080-A	16 SEP 97-01	16 SEP 97-01

Quanterra
Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC
Project: 056818

Category: 8080-A Organochlorine Pesticides
Matrix: AQUEOUS
QC Lot: 08 SEP 97-02 Date Analyzed: 11 SEP 97
Concentration Units: ug/L

Analyte	Concentration Spiked	Measured DCS1	Qual	DCS2	Qual	AVG	Accuracy Average(%) DCS	Limits	Precision (RPD) DCS	Limit
gamma-BHC (Lindane)	0.200	0.214		0.183		0.198	99	76-122	16	# 15
Heptachlor	0.200	0.212		0.191		0.202	101	69-125	10	15
Aldrin	0.200	0.184		0.166		0.175	88	64-116	10	17
Dieldrin	0.500	0.505		0.425		0.465	93	74-107	17	# 15
Endrin	0.500	0.572		0.482		0.527	105	72-118	17	# 15
4,4'-DDT	0.500	0.577		0.486		0.532	106	74-117	17	# 15

Category: 8080-A Organochlorine Pesticides
Matrix: AQUEOUS
QC Lot: 16 SEP 97-01 Date Analyzed: 26 SEP 97
Concentration Units: ug/L

Analyte	Concentration Spiked	Measured DCS1	Qual	DCS2	Qual	AVG	Accuracy Average(%) DCS	Limits	Precision (RPD) DCS	Limit
gamma-BHC (Lindane)	0.200	0.214		0.227		0.220	110	76-122	5.9	15
Heptachlor	0.200	0.214		0.225		0.220	110	69-125	5.0	15
Aldrin	0.200	0.192		0.203		0.198	99	64-116	5.6	17
Dieldrin	0.500	0.477		0.519		0.498	100	74-107	8.4	15
Endrin	0.500	0.541		0.584		0.562	113	72-118	7.6	15
4,4'-DDT	0.500	0.518		0.576		0.547	109	74-117	11	15

Category: 8150-A Herbicides
Matrix: AQUEOUS
QC Lot: 08 SEP 97-01 Date Analyzed: 10 SEP 97
Concentration Units: ug/L

Analyte	Concentration Spiked	Measured DCS1	Qual	DCS2	Qual	AVG	Accuracy Average(%) DCS	Limits	Precision (RPD) DCS	Limit
2,4-D	5.00	3.24		3.59		3.42	68	23-114	10	27
2,4,5-TP (Silvex)	1.00	0.736		0.812		0.774	77	26-124	9.8	31
2,4,5-T	1.00	0.750		0.806		0.778	78	26-127	7.2	29

= Value outside control limits

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

Quanterra
Environmental Services

ICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC
Project: 056818

Category: 8081-A Organochlorine Pesticides for Method 8081
Matrix: AQUEOUS
QC Lot: 08 SEP 97-02 Date Analyzed: 01 OCT 97
Concentration Units: ug/L

Analyte	Concentration Spiked	Measured DCS1	Qual	DCS2	Qual	AVG	Accuracy Average(%) DCS	Limits	Precision (RPD) DCS	Limit
gamma-BHC (Lindane)	0.200	0.220		0.192		0.206	103	76-122	14	15
Heptachlor	0.200	0.205		0.188		0.196	98	69-125	8.7	15
Aldrin	0.200	0.190		0.176		0.183	92	64-116	7.7	17
Dieldrin	0.500	0.491		0.431		0.461	92	74-107	13	15
Endrin	0.500	0.525		0.461		0.493	99	72-118	13	15
4,4'-DDT	0.500	0.511		0.447		0.479	96	74-117	13	15

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

Quanterra
Environmental Services

LOT ASSIGNMENT REPORT
Metals Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
056818-0001-SA	AQUEOUS	ICP-AT	08 SEP 97-M2	08 SEP 97-M2
056818-0001-SA	AQUEOUS	ICP-TRA-AT	08 SEP 97-M2	08 SEP 97-M2
056818-0001-SA	AQUEOUS	HG-CVAA-AT	18 SEP 97-H1	18 SEP 97-H1
056818-0001-SA	AQUEOUS	6020-AT	16 SEP 97-L1	16 SEP 97-L1
056818-0001-SA	AQUEOUS	AS-FAA-AT	13 SEP 97-SA	13 SEP 97-SA
056818-0001-SA	AQUEOUS	PB-FAA-AT	13 SEP 97-SC	13 SEP 97-SC
056818-0001-SA	AQUEOUS	SE-FAA-AT	13 SEP 97-SA	13 SEP 97-SA
056818-0003-SA	AQUEOUS	ICP-AT	08 SEP 97-M2	08 SEP 97-M2
056818-0003-SA	AQUEOUS	ICP-TRA-AT	08 SEP 97-M2	08 SEP 97-M2
056818-0003-SA	AQUEOUS	HG-CVAA-AT	18 SEP 97-H1	18 SEP 97-H1
056818-0003-SA	AQUEOUS	6020-AT	16 SEP 97-L1	16 SEP 97-L1
056818-0003-SA	AQUEOUS	AS-FAA-AT	13 SEP 97-SA	13 SEP 97-SA
056818-0003-SA	AQUEOUS	PB-FAA-AT	13 SEP 97-SC	13 SEP 97-SC
056818-0003-SA	AQUEOUS	SE-FAA-AT	13 SEP 97-SA	13 SEP 97-SA

Quanterra
Environmental Services

LABORATORY CONTROL SAMPLE REPORT
Metals Analysis and Preparation

Category: ICP-AT
Matrix: AQUEOUS
QC Lot: 08 SEP 97-M2 QC Run: 08 SEP 97-M2
Concentration Units: mg/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Aluminum	2.00	2.10	105	86-117
Antimony	0.500	0.470	94	81-119
Arsenic	2.00	1.92	96	81-110
Barium	2.00	2.08	104	86-114
Beryllium	0.0500	0.0494	99	83-117
Boron	1.00	1.17	117	82-122
Cadmium	0.0500	0.0453	91	80-120
Calcium	50.0	49.7	99	88-112
Chromium	0.200	0.196	98	83-112
Cobalt	0.500	0.510	102	80-120
Copper	0.250	0.255	102	84-115
Iron	1.00	0.999	100	87-117
Lead	0.500	0.511	102	83-114
Lithium	1.00	0.984	98	80-120
Magnesium	50.0	52.7	105	84-114
Manganese	0.500	0.501	100	84-113
Molybdenum	1.00	0.980	98	80-120
Nickel	0.500	0.518	104	85-112
Potassium	50.0	49.7	99	82-111
Selenium	2.00	1.95	98	86-111
Silica as SiO2	21.4	23.7	111	80-120
Silver	0.0500	0.0487	97	83-115
Sodium	50.0	49.9	100	86-115
Tin	2.00	1.88	94	86-114
Titanium	1.00	0.960	96	87-112
Vanadium	0.500	0.510	102	85-114
Zinc	0.500	0.485	97	82-113

Category: ICP-TRA-AT
Matrix: AQUEOUS
QC Lot: 08 SEP 97-M2 QC Run: 08 SEP 97-M2
Concentration Units: mg/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Antimony	0.500	0.504	101	89-115
Arsenic	2.00	2.03	101	86-113
Cadmium	0.0500	0.0528	106	95-121
Lead	0.500	0.502	100	91-117
Selenium	2.00	1.95	97	81-114
Thallium	2.00	2.06	103	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.)

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Category: HG-CVAA-AT				
Matrix: AQUEOUS				
QC Lot: 18 SEP 97-H1	QC Run: 18 SEP 97-H1			
Concentration Units: mg/L				
Mercury	0.00500	0.00449	90	77-117

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Category: 6020-AT				
Matrix: AQUEOUS				
QC Lot: 16 SEP 97-L1	QC Run: 16 SEP 97-L1			
Concentration Units: mg/L				
Aluminum	0.100	NA	NC	70-130
Antimony	0.100	0.106	106	70-130
Arsenic	0.100	0.107	107	70-130
Barium	0.100	0.106	106	70-130
Beryllium	0.100	0.109	109	70-130
Cadmium	0.100	0.105	105	70-130
Chromium	0.100	0.109	109	70-130
Cobalt	0.100	0.108	108	70-130
Copper	0.100	0.111	111	70-130
Iron	0.100	NA	NC	70-130
Lead	0.100	0.106	106	70-130
Manganese	0.100	0.108	108	70-130
Nickel	0.100	0.110	110	70-130
Selenium	0.100	0.106	106	70-130
Silver	0.100	0.105	105	70-130
Thallium	0.100	0.104	104	70-130
Uranium	0.100	NA	NC	70-130
Vanadium	0.100	0.109	109	70-130
Zinc	0.100	0.108	108	70-130

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Category: AS-FAA-AT				
Matrix: AQUEOUS				
QC Lot: 13 SEP 97-SA	QC Run: 13 SEP 97-SA			
Concentration Units: mg/L				
Arsenic	0.0400	0.0432	108	85-114

NA = Not Applicable
= Not Calculated, calculation not applicable.
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.)

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Category: PB-FAA-AT				
Matrix: AQUEOUS				
QC Lot: 13 SEP 97-SC	QC Run: 13 SEP 97-SC			
Concentration Units: mg/L				
Lead	0.0400	0.0454	114	84-124

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Category: SE-FAA-AT				
Matrix: AQUEOUS				
QC Lot: 13 SEP 97-SA	QC Run: 13 SEP 97-SA			
Concentration Units: mg/L				
Selenium	0.0400	0.0402	100	80-118

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

Quanterra
Environmental Services

LOT ASSIGNMENT REPORT
Wet Chemistry Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
056818-0001-SA	AQUEOUS	CN-A	09 SEP 97-D3	09 SEP 97-D3
056818-0001-SA	AQUEOUS	S-A	09 SEP 97-D1	09 SEP 97-D1
056818-0001-SA	AQUEOUS	TOC-9060-A	18 SEP 97-S1	18 SEP 97-S1
056818-0001-SA	AQUEOUS	TOX-A	09 SEP 97-N1	09 SEP 97-N1
056818-0001-SA	AQUEOUS	NO3-IC-A	04 SEP 97-N1	04 SEP 97-N1
056818-0003-SA	AQUEOUS	CN-A	09 SEP 97-D3	09 SEP 97-D3
056818-0003-SA	AQUEOUS	S-A	09 SEP 97-D1	09 SEP 97-D1
056818-0003-SA	AQUEOUS	TOC-9060-A	18 SEP 97-S1	18 SEP 97-S1
056818-0003-SA	AQUEOUS	TOX-A	09 SEP 97-N1	09 SEP 97-N1
056818-0003-SA	AQUEOUS	NO3-IC-A	04 SEP 97-N1	04 SEP 97-N1

Quanterra 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: 09 SEP 97-D3	QC Run: 09 SEP 97-D3			
Concentration Units: mg/L				
Cyanide	0.158	0.161	102	72-118

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Category: S-A				
Matrix: AQUEOUS				
QC Lot: 09 SEP 97-D1	QC Run: 09 SEP 97-D1			
Concentration Units: mg/L				
Sulfide, Total	0.440	0.518	118	79-131

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Category: TOC-9060-A				
Matrix: AQUEOUS				
QC Lot: 18 SEP 97-S1	QC Run: 18 SEP 97-S1			
Concentration Units: mg/L				
Total Organic Carbon	25.0	31.4	125#	90-110

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Category: TOX-A				
Matrix: AQUEOUS				
QC Lot: 09 SEP 97-N1	QC Run: 09 SEP 97-N1			
Concentration Units: ug/L				
Total Organic Halogen as Cl	100	97.6	98	84-110

= Recovery outside QC Limits
Calculations are performed before rounding to avoid round-off errors in calculated results.

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Environmental Services

LABORATORY CONTROL SAMPLE REPORT
t Chemistry Analysis and Preparation (cont.)

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Category: NO3-IC-A				
Matrix: AQUEOUS				
QC Lot: 04 SEP 97-N1	QC Run: 04 SEP 97-N1			
Concentration Units: mg/L				
Nitrate as N	10.0	9.98	100	90-110

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

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DUPLICATE CONTROL SAMPLE REPORT
Wet Chemistry Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limits
Category: CN-A Matrix: AQUEOUS QC Lot: 09 SEP 97-D3 Concentration Units: mg/L								
Cyanide	0.1580	0.161	0.160	0.160	102	72-118	1.0	18
Category: S-A Matrix: AQUEOUS QC Lot: 09 SEP 97-D1 Concentration Units: mg/L								
Sulfide, Total	0.4400	0.518	0.499	0.509	116	79-131	3.8	10
Category: TOC-9060-A Matrix: AQUEOUS QC Lot: 18 SEP 97-S1 Concentration Units: mg/L								
Total Organic Carbon	30.0	31.4	31.9	31.6	105	90-110	1.8	10
Category: TOX-A Matrix: AQUEOUS QC Lot: 09 SEP 97-N1 Concentration Units: ug/L								
Total Organic Halogen as Cl	100	97.6	97.8	97.7	98	84-110	0.15	13
Category: NO3-IC-A Matrix: AQUEOUS QC Lot: 04 SEP 97-N1 Concentration Units: mg/L								
Nitrate as N	10.0	9.98	9.85	9.91	99	90-110	1.2	10

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

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Environmental Services

LOT ASSIGNMENT REPORT
Subcontracted to Quanterra Lab

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
056818-0001-SA	AQUEOUS	TCDD-A	15 SEP 97-C	16 SEP 97-A
056818-0001-MB	AQUEOUS	TCDD-A	15 SEP 97-C	16 SEP 97-A
056818-0003-SA	AQUEOUS	TCDD-A	15 SEP 97-C	16 SEP 97-A

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Environmental Services

LABORATORY CONTROL SAMPLE REPORT
Subcontracted to Quanterra Lab

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Category: TCDD-A				
Matrix: AQUEOUS				
QC Lot: 15 SEP 97-C	QC Run: 16 SEP 97-A			
Concentration Units: ng/L				
2,3,7,8-TCDD	25.0	26.2	105	76-142
13C-2,3,7,8-TCDD	25	17	67	40-120

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

SCS SUMMARY

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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: 12 SEP 97-H QC Run: 12 SEP 97-H				
Concentration Units: ug/L				
1,2-Dichloroethane-d4	10.0	10.0	100	78-113
4-Bromofluorobenzene	10.0	10.1	101	88-113
Toluene-d8	10.0	10.4	104	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: 07 SEP 97-01 QC Run: 07 SEP 97-01
Concentration Units: ug/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Nitrobenzene-d5	100	75.4	75	51-104
2-Fluorobiphenyl	100	77.8	78	43-116
Terphenyl-d14	100	78.2	78	33-141
2-Fluorophenol	150	118	78	36-108
Phenol-d5	150	120	80	47-106
2,4,6-Tribromophenol	150	139	93	49-106

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

Quanterra Environmental Services

SINGLE CONTROL SAMPLE REPORT
nivolatile Organics by GC

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8080-A				
Matrix: AQUEOUS				
QC Lot: 08 SEP 97-02 QC Run: 08 SEP 97-02				
Concentration Units: ug/L				
Tetrachloro-m-xylene	1.00	0.937	94	51-103
Dibutyl chlorendate	1.00	1.03	103	71-109
Decachlorobiphenyl	0.200	0.222	111	50-138
Category: 8150-A				
Matrix: AQUEOUS				
QC Lot: 08 SEP 97-01 QC Run: 08 SEP 97-01				
Concentration Units: ug/L				
DCAA	5.00	3.96	79	27-121
Category: 8081-A				
Matrix: AQUEOUS				
QC Lot: 08 SEP 97-02 QC Run: 08 SEP 97-02				
ncentration Units: ug/L				
Tetrachloro-m-xylene	1.00	0.952	95	51-103
Dibutyl chlorendate	1.00	0.816	82	71-109
Decachlorobiphenyl	0.200	0.199	100	50-138
Category: 8080-A				
Matrix: AQUEOUS				
QC Lot: 16 SEP 97-01 QC Run: 16 SEP 97-01				
Concentration Units: ug/L				
Tetrachloro-m-xylene	1.00	0.927	93	51-103
Dibutyl chlorendate	1.00	0.938	94	71-109
Decachlorobiphenyl	0.200	0.209	104	50-138

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

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Environmental Services

METHOD BLANK SUMMARY

Quanterra Environmental Services

METHOD BLANK REPORT
atile Organics by GC/MS

Test: Q8260-AP9-AP
Matrix: AQUEOUS
QC Lot: 12 SEP 97-H QC Run: 12 SEP 97-H

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
romochloromethane	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: 12 SEP 97-H QC Run: 12 SEP 97-H			
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: 12 SEP 97-H QC Run: 12 SEP 97-H			
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

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

Test: Q8260-AP9-AP
Matrix: AQUEOUS
QC Lot: 12 SEP 97-H QC Run: 12 SEP 97-H

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
hyl methacrylate	ND	ug/L	1.0
-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

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METHOD BLANK REPORT
Semivolatile Organics by GC/MS

Test: Q8270-AP9-3520-A
Matrix: AQUEOUS
QC Lot: 07 SEP 97-01 QC Run: 07 SEP 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.)

Analyte	Result	Units	Reporting Limit	
Test: Q8270-AP9-3520-A				
Matrix: AQUEOUS				
QC Lot: 07 SEP 97-01 QC Run: 07 SEP 97-01				
p-Dimethylaminoazobenzene	ND	ug/L	20	
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	20	
3,3'-Dimethylbenzidine	ND	ug/L	50	
a,a-Dimethylphenethylamine	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	1.3	ug/L	10	J
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	

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

Quanterra Environmental Services

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

Test: Q8270-AP9-3520-A
Matrix: AQUEOUS
QC Lot: 07 SEP 97-01 QC Run: 07 SEP 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

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Environmental Services

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

Analyte	Result	Units	Reporting Limit
Test: Q8270-AP9-3520-A			
Matrix: AQUEOUS			
QC Lot: 07 SEP 97-01 QC Run: 07 SEP 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
O,O,O-Triethylphosphorothioate	ND	ug/L	50
1,3,5-Trinitrobenzene	ND	ug/L	50

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METHOD BLANK REPORT
Semivolatile Organics by GC

Analyte	Result	Units	Reporting Limit
Test: 8080-AP9-A			
Matrix: AQUEOUS			
QC Lot: 08 SEP 97-02 QC Run: 08 SEP 97-02			
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
Test: 8150-AP9-A			
Matrix: AQUEOUS			
QC Lot: 08 SEP 97-01 QC Run: 08 SEP 97-01			
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: 08 SEP 97-02 QC Run: 08 SEP 97-02			
Aldrin	ND	ug/L	0.050
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

Quanterra Environmental Services

METHOD BLANK REPORT
mivolatile Organics by GC (cont.)

Analyte	Result	Units	Reporting Limit
Test: 8081-AP9-A			
Matrix: AQUEOUS			
QC Lot: 08 SEP 97-02 QC Run: 08 SEP 97-02			
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
Test: 8080-AP9-A			
Matrix: AQUEOUS			
QC Lot: 16 SEP 97-01 QC Run: 16 SEP 97-01			
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
oclor 1254	ND	ug/L	0.13
Aroclor 1260	ND	ug/L	1.0

Quanterra
Environmental Services

METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICP-AP9-AT			
Matrix: AQUEOUS			
QC Lot: 08 SEP 97-M2 QC Run: 08 SEP 97-M2			
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: 08 SEP 97-M2 QC Run: 08 SEP 97-M2			
Antimony	ND	mg/L	0.010
Cadmium	ND	mg/L	0.0050
Test: HG-CVAA-7470-AT			
Matrix: AQUEOUS			
QC Lot: 18 SEP 97-H1 QC Run: 18 SEP 97-H1			
Mercury	ND	mg/L	0.00020
Test: ICPMS-6020-AT			
Matrix: AQUEOUS			
QC Lot: 16 SEP 97-L1 QC Run: 16 SEP 97-L1			
Thallium	ND	mg/L	0.0010
Test: AS-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 13 SEP 97-SA QC Run: 13 SEP 97-SA			
Arsenic	ND	mg/L	0.0050

Quanterra Environmental Services

METHOD BLANK REPORT
tals Analysis and Preparation (cont.)

Analyte	Result	Units	Reporting Limit
Test: PB-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 13 SEP 97-SC QC Run: 13 SEP 97-SC			
Lead	ND	mg/L	0.0050
Test: SE-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 13 SEP 97-SA QC Run: 13 SEP 97-SA			
Selenium	ND	mg/L	0.0050

Quanterra
Environmental Services

METHOD BLANK REPORT
Wet Chemistry Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: CNTOT-TEC-A Matrix: AQUEOUS QC Lot: 09 SEP 97-D3 QC Run: 09 SEP 97-D3			
Cyanide	ND	mg/L	0.010
Test: S-SPEC-AT Matrix: AQUEOUS QC Lot: 09 SEP 97-D1 QC Run: 09 SEP 97-D1			
Sulfide, Total	ND	mg/L	0.050
Test: TOC-TOC-A Matrix: AQUEOUS QC Lot: 18 SEP 97-S1 QC Run: 18 SEP 97-S1			
Total Organic Carbon	ND	mg/L	1.0
Test: TOX-TOX-A Matrix: AQUEOUS QC Lot: 09 SEP 97-N1 QC Run: 09 SEP 97-N1			
Total Organic Halogen as Cl	ND	ug/L	30.0
Test: NO3-IC-A Matrix: AQUEOUS QC Lot: 04 SEP 97-N1 QC Run: 04 SEP 97-N1			
Nitrate as N	ND	mg/L	0.50

Quanterra Environmental Services

2,3,7,8 TCDD
LOW RESOLUTION

Client Name: Foothill Engineering Consultants Inc.
Client ID: METHOD BLANK
LAB ID: 056818-0001-MB
Matrix: AQUEOUS Sampled: 03 SEP 97 Received: 04 SEP 97
Authorized: 04 SEP 97 Prepared: 15 SEP 97 Analyzed: 16 SEP 97
Instrument: GC/MS Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
2,3,7,8-TCDD	ND		0.51		ng/L

Surrogate	Recovery		Acceptable Range
13C-2,3,7,8-TCDD	81	%	-

ND = Not Detected

Reported By: RHRABAK Approved By: EREDMAN

Quanterra
Environmental Services

MATRIX SPIKE & MATRIX SPIKE DUPLICATE SUMMARY

Quanterra
Environmental Services

M X SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Volatile Organics by GC/MS
Project: 056818

Category: Q8260-A Volatile Organics
Matrix: AQUEOUS
Sample: 056886-0008
MS Run: 12 SEP 97-H
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	10.5	10.0	10.0	105	105	69-126	0.0	20
Trichloroethene	ND	10.2	10.0	10.0	10.0	102	100	85-111	2.2	20
Benzene	ND	10.5	10.4	10.0	10.0	105	104	85-115	1.2	20
Toluene	ND	10.9	10.8	10.0	10.0	109	108	89-112	1.0	20
Chlorobenzene	ND	10.5	10.6	10.0	10.0	105	106	91-112	0.1	20

Surrogates		%Recovery		Rec. Accept. Limits
1,2-Dichloroethane-d4	98.9	99.4	102	78-113
4-Bromofluorobenzene	98.2	98.2	101	88-113
Toluene-d8	108	103	105	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
Semivolatile Organics by GC/MS
Project: 056818

Category: Q8270-A Acid, Base and Neutrals by GC/MS.
Matrix: AQUEOUS
Sample: 056792-0008
MS Run: 07 SEP 97-01
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
Phenol	ND	100	91.9	147	147	68	63	45-105	8.7	20
2-Chlorophenol	ND	132	120	147	147	90	82	52-107	9.3	22
1,4-Dichlorobenzene	ND	85.2	77.0	98.0	98.0	87	79	20-124	10	27
N-Nitroso-di-n-propylamine	ND	80.3	74.9	98.0	98.0	82	76	52-108	6.9	20
1,2,4-Trichlorobenzene	ND	87.5	77.3	98.0	98.0	89	79	44-142	12	27
4-Chloro-3-methylphenol	ND	113	102	147	147	77	69	22-147	9.7	20
Acenaphthene	ND	93.5	85.9	98.0	98.0	95	88	47-145	8.4	20
4-Nitrophenol	ND	110	101	147	147	75	69	42-115	8.0	32
2,4-Dinitrotoluene	ND	82.3	80.1	98.0	98.0	84	82	55-116	2.7	21
Pentachlorophenol	ND	129	114	147	147	88	78	14-176	12	30
Pyrene	ND	71.0	63.6	98.0	98.0	72	65	56-120	11	20

Surrogates		%Recovery		Rec. Accept. Limits
Nitrobenzene-d5	69.2	68.6	64.3	51-104
2-Fluorobiphenyl	79.8	75.0	66.1	43-116
Terphenyl-d14	71.3	59.7	55.8	33-141
2-Fluorophenol	74.4	71.5	67.1	36-108
Phenol-d5	77.3	77.5	72.8	47-106
2,4,6-Tribromophenol	82.7	84.0	76.9	49-106

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: 056818

Category: ICP-AT ICP Metals / Total
Matrix: AQUEOUS
Sample: 056764-0001
MS Run: 08 SEP 97-M2
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
Aluminum	6.8	18.0	17.8	2.00	558	550	0.7	86-117	10
Antimony	0.091	0.556	0.552	0.500	93	92	0.6	81-119	10
Barium	0.095	1.93	1.88	2.00	92	89	2.9	86-114	10
Beryllium	ND	0.0467	0.0457	0.0500	93	91	2.2	83-117	10
Cadmium	0.00009	0.0407	0.0337	0.0500	81	67	19	80-120	17
Calcium	408	459	448	50.0	NC	NC	NC	88-112	10
Chromium	ND	0.194	0.198	0.200	97	99	2.1	83-112	10
Cobalt	ND	0.495	0.486	0.500	99	97	1.8	80-120	10
Copper	ND	0.248	0.248	0.250	99	99	0.0	84-115	10
Iron	16.2	19.6	19.3	1.00	NC	NC	NC	87-117	10
Magnesium	784	833	807	50.0	NC	NC	NC	84-114	10
Manganese	1.8	2.25	2.19	0.500	93	82	2.5	84-113	10
Nickel	ND	0.516	0.483	0.500	103	97	6.5	85-112	10
Potassium	141	186	180	50.0	90	77	3.4	82-111	10
Silica as SiO2	86.1	137	141	21.4	NC	NC	NC	80-120	20
Silver	ND	0.0368	0.0434	0.0500	74	87	16	83-115	10
Sodium	4280	4310	4160	50.0	NC	NC	NC	86-115	10
Tin	ND	2.20	1.84	2.00	110	92	18	86-114	10
Vanadium	ND	0.525	0.516	0.500	105	103	1.7	85-114	10
Zinc	ND	0.607	0.586	0.500	121	117	3.5	82-113	10

Category: ICP-TRA-AT ICP Metals / Total by Trace ICP
Matrix: AQUEOUS
Sample: 056764-0001
MS Run: 08 SEP 97-M2
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
Antimony	ND	0.516	0.525	0.500	103	105	1.6	89-115	10
Arsenic	NA	2.09	2.12	2.00	104	106	1.4	86-113	10
Cadmium	ND	0.0467	0.0473	0.0500	93	95	1.4	95-121	10
Lead	0.036	0.479	0.484	0.500	89	90	1.0	91-117	10

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

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

Quanterra
Environmental Services

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Metals Analysis and Preparation
Project: 056818 (cont.)

Category: ICP-TRA-AT ICP Metals / Total by Trace ICP (cont.)
Matrix: AQUEOUS
Sample: 056764-0001
MS Run: 08 SEP 97-M2 (cont.)
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								
Selenium	ND	1.94	1.96	2.00	97	98	1.1	81-114	10
Thallium	ND	1.87	1.90	2.00	94	95	1.1	90-119	10

Category: HG-CVAA-AT Mercury by CVAA / Total Mercury
Matrix: AQUEOUS
Sample: 056820-0010
MS Run: 18 SEP 97-H1
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								
Mercury	ND	0.00512	0.00491	0.00500	102	98	4.2	77-117	10

Category: 6020-AT ICPMS Metals - Total
Matrix: AQUEOUS
Sample: 056653-0003
MS Run: 16 SEP 97-L1
Units:

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	0.083	0.091	0.10	83	91	8.3	70-130	20
Antimony	ND	0.095	0.098	0.10	95	98	2.6	70-130	20
Arsenic	0.0262	0.13	0.13	0.10	100	104	4.4	70-130	20
Beryllium	ND	0.072	0.075	0.10	72	75	2.9	70-130	20
Cadmium	ND	0.087	0.089	0.10	87	89	2.0	70-130	20
Chromium	0.00171	0.076	0.078	0.10	75	77	2.6	70-130	20
Cobalt	0.00088	0.074	0.076	0.10	73	75	2.5	70-130	20
Copper	0.00780	0.071	0.073	0.10	63	65	3.0	70-130	20
Lead	ND	0.097	0.10	0.10	97	100	3.3	70-130	20
Manganese	0.0209	0.092	0.094	0.10	71	73	2.3	70-130	20

ND = Not Detected

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

Quanterra
Environmental Services

IX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
als Analysis and Preparation
Project: 056818 (cont.)

Category: 6020-AT ICPMS Metals - Total (cont.)
Matrix: AQUEOUS
Sample: 056653-0003
MS Run: 16 SEP 97-L1 (cont.)
Units:

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
	Concentration								
Nickel	0.00690	0.077	0.079	0.10	70	72	3.6	70-130	20
Selenium	0.0141	0.12	0.12	0.10	103	105	2.0	70-130	20
Silver	ND	0.083	0.084	0.10	83	84	1.5	70-130	20
Thallium	ND	0.097	0.10	0.10	97	100	2.5	70-130	20
Vanadium	0.0414	0.12	0.12	0.10	77	81	6.0	70-130	20
Zinc	ND	0.095	0.098	0.10	95	98	3.7	70-130	20

Category: AS-FAA-AT Arsenic, Furnace AA / Total Metals
Matrix: AQUEOUS
Sample: 056818-0001
MS Run: 13 SEP 97-SA
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								
Arsenic	0.0033 J	0.0410	0.0410	0.0400	94	94	0.0	85-114	10

Category: PB-FAA-AT Lead, Furnace AA / Total Metals
Matrix: AQUEOUS
Sample: 056913-0003
MS Run: 13 SEP 97-SC
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								
Lead	ND	0.0458	0.0459	0.0400	114	115	0.2	84-124	10

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

Ca ,ations 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: 056818 (cont.)

Category: SE-FAA-AT Selenium, Furnace AA / Total Metals
Matrix: AQUEOUS
Sample: 056818-0001
MS Run: 13 SEP 97-SA
Units: mg/L

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Selenium	0.0062	0.0325	0.0358	0.0400	66	74	9.7	80-118	10

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: 056818

Category: CN-A Cyanide
Matrix: AQUEOUS
Sample: 056812-0001
MS Run: 09 SEP 97-D3
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Cyanide	ND	0.102	0.100	0.0998	0.0998	102	101	72-118	1.3	18

Category: S-A Sulfide
Matrix: AQUEOUS
Sample: 056812-0001
MS Run: 09 SEP 97-D1
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Sulfide, Total	ND	0.400	0.410	0.369	0.369	108	111	79-131	2.5	10

Category: TOC-9060-A Total Organic Carbon
Matrix: AQUEOUS
Sample: 056820-0005
MS Run: 18 SEP 97-S1
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Total Organic Carbon	1.8	26.6	26.6	25.0	25.0	99	99	90-110	0.0	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
Wet Chemistry Analysis and Preparation
Project: 056818 (cont.)

Category: NO3-IC-A Nitrate as N by Ion Chromatography
Matrix: AQUEOUS
Sample: 056812-0001
MS Run: 04 SEP 97-N1
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS	Amount Spiked MSD	% Recovery MS	% Recovery MSD	Recov. Accep. Limits	RPD MS-MSD	RPD Accept Limits
Nitrate as N	ND	9.98	9.85	10.0	10.0	100	99	90-110	1.2	10

ND = Not Detected

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

Chain of Custody Record

Quanterra Environmental Services

A-85

QUA-4124

Client: Foothill Engineering Consultants	Project Manager: Ian Broussard	Date: 9/3/97	Chain Of Custody Number: 26021
Address: 350 Indiana St. STE 415	Telephone Number (Area Code)/Fax Number: (303) 278-0622 Fax = 0624	Lab Number:	Page 1 of 1
City: Boulder; State: CO; Zip Code: 80401	Site Contact: Sanford Hatsell		
Project Name: Cannon 2/4 Sampling	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 96-333-330			

56818

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	APIX VOC 8260	APIX SVOC 8270	Dioxin-TCDD 8280	APIX Pest/PCB 8080	APIX Herb 8150	APIX Metals 6010/6020	Cyanide 9012	Sulfide 9030	TOC 9060 & NO3 300.0	TOX 9020
01 CAFB-MWR-0997-1	9/3/97	1200	water		VOA	3	HCl		X									
					LA	2	Ice			X								
					LA	2	Ice				X							
					LA	2	Ice					X						
					LA	2	Ice						X					
					~~LA~~ ½LP	1	HNO_3							X				
					~~LP~~ ½LP	1	NaOH								X			
					½LP	1	ZnAc + NaOH									X		
					½LA	1	H_2SO_4										X	
					¼LP	1	H_2SO_4											X
02 Trip blank																		
03 CAFB-MWR-0997-2					VOA	3	HCl		X									

Special Instructions: 3.5°C

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):

1. Relinquished By: Ian Broussard	Date: 9/3/97	Time: 1530	1. Received By:	Date: 9-4-97	Time: 0900
2. Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments: LA = Liter Amber LP = liter Poly VOA = 40 ml

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

Chain of Custody Record

Quanterra

A-86

QUA-4124

Client: Foothill Engineering Consultants	Project Manager: Ian Broussard	Date: 9/3/97	Chain Of Custody Number: 24464
Address: 350 Indiana St. STE 415	Telephone Number (Area Code)/Fax Number: (303) 278-8632 Fax 0624	Lab Number:	Page 1 of 1
City: Golden; State: CO; Zip Code: 80401	Site Contact: Sanford Hutsell		
Project Name: Cannon AFB 2/4 Sampling	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 96-333-330			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: Pest/PCB 8080	Analysis: HERB 8150
03 CAFB-MWR-0997-2	9/3/97	1200	Water		LA	2	Ice		X	
↓	↓	↓	↓		LA	2	Ice			X

Special Instructions: 1.7°C

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	9/3/97	1200	1. Received By: [signature]	9-4-97	0900
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 Environmental Services

A-87

QUA-4124

Client: Foothill Engineering Consultants	Project Manager: Ian Broussard	Date: 9/3/97	Chain Of Custody Number: 26019
Address: 350 Indiana St. STE 415	Telephone Number (Area Code)/Fax Number: (303) 278-0622 FAX=0624	Lab Number:	Page 1 of 1
City: Golden; State: CO; Zip Code: 80401	Site Contact: Sanford Hatsell		
Project Name: Cannon AFB 2/4 Sampling	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 96-333-330			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	APIX 8260 VOC	APIX SVOC 8270	Dioxin-TCDD 8280	APIX Pest/PCB 8080	APIX Herb 8150	APIX Metals 6010 6020	Cyanide 9012	Sulfide 9030	TOC 9060 NO_3 300.0	TOX 9020
03 CAFB-MWR-0997-2	9/3/97	1200	Water		~~VOA~~	~~3~~	~~HCl~~		X									
					LA	2	Ice			X								
					LA	2	Ice				X							
					~~LA~~	~~2~~	~~Ice~~					X						
					~~LA~~	~~2~~	~~Ice~~						X					
					~~LA~~ 1/2 LP	1	HNO_3							X				
					1/4 LP	1	NaOH								X			
					1/4 LP	1	ZnAc+NaOH									X		
					1/2 LA	1	H_2SO_4										X	
					1/4 LA	1	H_2SO_4											X
~~Trip blank~~																		

Special Instructions

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

Sample Disposal: ☐ Return To Client ☑ Disposal By Lab ☐ Archive For ____ Months 15°C

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1. Relinquished By: Ian Broussard	9/3/97	1600	1. Received By: [signature]	9-4-97	0900
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments: LA=Liter Amber LP=Liter Poly VOA=40 ml

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

Sample Checklist

Quanterra

Project #: 56818 Date/Time Received: 9-4-97 0900

Company Name & Sampling Site: FOOTHILLS ENGINEERING

*Cooler #(s): 1 2 3

Temperatures: 3.6 1.5 1.7

Unpacking & Labeling Check Points:

N/A	Yes	No		Initials
	☑	☐	1. Radiation checked, record if reading > 0.5 mR/hr. (_____mR/hr)	ES
	☑	☐	2. Cooler seals intact.	
	☑	☐	3. Chain of custody present.	
	☐	☑	4. Bottles broken and/or are leaking, comment if yes.	
			PHOTOGRAPH BROKEN BOTTLES	
	☑	☐	5. Containers labeled, comment if no.	
	☑	☐	6. pH of all samples checked and meet requirements, note exceptions.	
	☑	☐	7. Chain of custody includes "received by" and "relinquished" by signatures, dates, and times.	
	☐	☑	8. Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.	
	☑	☐	9. Chain of custody agrees with bottle count, comment if no.	
	☑	☐	10. Chain of custody agrees with labels, comment if no.	
☐	☑	☐	11. VOA samples filled completely, comment if no.	
☐	☑	☐	12. VOA bottles preserved, check for labels.	
	☐	☑	13. Did samples require preservation with sodium thiosulfate?	
☑	☐	☐	14. If yes to #12, did the samples contain residual chlorine?	
☑	☐	☐	15. Sediment present in "D," dissolved, bottles.	
	☑	☐	16. Are analyses with short holding times requested?	
☑	☐	☐	17. Is extra sample volume provided for MS, MSD or matrix duplicates?	
	☐	☑	18. Multiphase samples present? If yes, comment below.	
	☐	☑	19. Any subsampling for volatiles? If yes, list samples.	
			PHOTOGRAPH MULTIPHASE SAMPLES	
	☑	☐	20. Clear picture taken, labeled, and stapled to project folder.	
☐	☑	☐	21. Subout COC signed and sent with samples to bottle prep?	
	☑	☐	22. Was sample labeling double checked?	

Comments: Include action taken to resolve discrepancies/problems. Include a hard copy of e-mail or use extra paper if ore space is needed. _____

Initials: _____

Sample Checklist

Project #: 56818 Duped from Project #: _____

Set-up by: ES Duped Group Codes: _____

Logged by: ES Date: 9-4-97

Sample Control Review

N/A	Yes	No		Initials
	☑	☐	1. Chain of custody fill out correctly	ES
☑	☐	☐	2. Short holding time worksheet correct.	
	☑	☐	3. Sample bottle type correct.	
☑	☐	☐	4. Overflow sample storage in special instructions.	
	☑	☐	5. All login paperwork (sample list, group code report) is included and correct.	
☐	☑	☐	6. Trip blanks, equipment blanks, and field blanks have correct aliquot designation.	
	☑	☐	7. Sample description, request list, and acceptance letter in folder.	✓

Comments: Include action taken to resolve discrepancies/problems. Include a hard copy of e-mail or use extra paper if more space is needed. _____

Initials: _____

PA or PM Review

N/A	Yes	No		Initials	Date
	☑	☐	1. Report input sheet.	SHM	9-5-97
	☑	☐	2. Invoice Information.		
☐ N/A		☐	3. All discrepancies resolved.		
	☑	☐	4. Sample and test matrices correct.		
☑	☐	☐	5. Subcontract paperwork and attached tracking label present?		
	☑	☐	6. Special instructions in LIMS.		
	☑	☐	7. Modified component lists checked.		
	☑	☐	8. Project due, turnaround, received and collected date(s) OK.		
	☑	☐	9. Log released.	✓	✓

Comments: _____

Initials: _____

Client Contact for Discrepancies

Person Calling: _____ Date of contact: _____

Person Contacted: _____

Client Decision: _____

Quanterra Environmental Services

FAX TRANSMITTAL

To Jan Broussard
Co. FEC
Fax # 278-0624

Pages 1
From Susan McCool
Quanterra
Phone: 421-1025 X19 Fax: 431-7171

CONFIRMATION OF COMMUNICATION

Pursuant to our conversation today, the following is Quanterra's understanding of your instructions. We believe this ☐ is ☐ is not a contract change. An estimate of the schedule and cost impact (if any) will follow, so that change order negotiations may begin, if necessary. Meanwhile, Quanterra ☐ will ☐ will not perform according to the revised instructions, unless you instruct otherwise.

Client Name Foothill Engineering
Quanterra Project Number 056818
Date of Request 10-8-97
Date Change Order Submitted to Client 10-8-97

Program Name/ LIMS Number Cannon AFB
Contact at Laboratory Sue McCool/Deb Fazio
Authorized Client Representative Jan Broussard

TYPE OF CHANGE:		DESCRIPTION OF MODIFICATION/CHANGE/DISCREPANCY/NOTIFICATION:
✓	Method	For the aqueous samples received
	Sample Delivery Schedule	on ~~to~~ 9-4-97, method 8080 was
	SDA Criteria	requested, but on 9-29-97, John Wong
	Matrix	called to request method 8081.
	QC Change	The sample extracts were reanalyzed under
	Bottles Received	method 8081. The reanalysis will be charged
✓	Deliverable	at the unit pricing for pesticides. Also,
	C of C Discrepancies	on 9-29-97, John Wong requested that the
		MDL's be reported w/ the reporting limits
✓	PROGRAM CHANGE	on the datasheets. Quanterra had to
	PROJECT CHANGE ONLY	manually enter the MDLs and re-review
		the data down to the MDLs. The
		charge for this is 10% of the
		analytical cost. This will be
		added to the invoice for this
		project.

Date change is to be implemented 10-8-97

APPROVED BY:
CLIENT REP X Jan Broussard
QUANTERRA REP Susan M. McCool

Follow-up required:	
☐ N/A	Yes, Describe: X Please sign and fax back to me.

$143

3/95 Rev. 1.1

** TOTAL PAGE.001 **

APPENDIX III

Data Assessment

DATA ASSESSMENT
CANNON AIR FORCE BASE
QUARTERLY AND SEMIANNUAL MONITORING

Data for the September 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 well R only. The following paragraphs discuss specific findings of the data review process for groundwater sample CAFB-MWR-0997-1 and field duplicate CAFB-MWR-0997-2.

VOCs. Both 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. Surrogate percent recoveries for p-bromoflurobenzene, dibromofluromethane, and toluene were within QC limits for both samples. Percent recoveries and relative percent differences obtained in the laboratory control sample, duplicate control sample, and MS/MSD for VOC analyses were within QC limits, demonstrating adequate analytical precision and accuracy. One trip blank was submitted for VOC analysis; VOCs were not detected above reporting limits in the trip blank. VOC results, reported as non-detected for Appendix IX compounds, are usable without qualification.

SVOCs. Both 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. The method blank associated with the samples contained bis-2-ethylhexylphthalate at 1.3 μg/L. Results for this compound in the samples, reported as 23 μg/L and "not detected" did not require qualification. Percent recoveries in the laboratory control sample, duplicate control sample, and matrix spike sample associated with the samples were within control limits. SVOC results are usable without qualification.

Pesticides/PCBs. Groundwater samples were extracted within the required 7-day holding time for pesticides/PCBs via SW-846 Method 8080A. Pesticides/PCBs were not detected in the method blank associated with the samples. Relative percent differences for spike compounds lindane, dieldrin, endrin, and 4,4'-DDT exceeded control limits in the duplicate control sample analyzed in conjunction with the samples; however, percent recoveries in the duplicate control sample were within control limits. Surrogate percent recoveries were within control limits for both samples. Pesticide/PCB sample results, reported as non-detected, did not require qualification.

Herbicides. Both 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 both samples, as were percent recoveries in the duplicate control sample and MS/MSD analyzed with project samples. Results for herbicide compounds were reported as non-detected and are usable without qualification.

Metals. Both samples were analyzed for metal analytes within the required holding time (mercury - 28 days, all other analytes - 180 days). The associated method blank did not contain metal analytes above the respective reporting limits. Percent recoveries for cadmium, lead, silver, zinc, and selenium were outside control limits in the non-project specific (batch QC) matrix spike/matrix spike duplicate sample analyzed with project samples. Percent recoveries and RPDs 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 via SW-846 Method 8280. Surrogate percent recoveries and recoveries in the laboratory control sample were within control 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. Percent recoveries in the laboratory control sample and MS/MSD were within control 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. Percent recoveries in the laboratory control sample were within control limits. 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 for cyanide and sulfide were within control limits in the laboratory control sample and MS/MSD analyzed with project samples. Results for cyanide and sulfide are usable as reported.